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PROMOTING CONDOM USE AMONG YOUNG PEOPLE EMPLOYING
HEALTH AND SOCIAL PSYCHOLOGY

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Thesis submitted to the University of Kent for the Degree of Doctor of Philosophy

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Abstract

The best way to prevent the sexual transmission of the HIV virus, which causes AIDS and death, is by using condoms. However, these are still so unpopular and said to reduce sexual sensation and break the sexual mood to the extent that research has even suggested that a rectal microbicide should be found as a potential alternative for preventing the spread of HIV among gay men. A microbicide may indeed be an alternative against the fatality of HIV, but there must be also ways of making condoms become trending and part of sexual pleasure. Thus, this thesis looks at ways of persuading people to use condoms.

Of paramount importance, it was found in this thesis that aiming at altering the variables based on the TPB in order to change people's condom use is likely to be only partially successful. That is, the present evidence shows that changes from time 1 to time 2, on attitudes, perceived behavioural control and behavioural expectations, but not subjective norms (see Chapter 8), affected condom use with a high risk partner at time 3. A key conclusion is that messages encouraging condom use would gain by targeting people according to their sensation seeking personalities. Sensation seeking influences sexual behaviour such as that HSS (high sensation seekers) are more prone to risky sexual practices (see Chapter 5). Besides, it overwhelms the influence of prior sexual behaviour, and the effects of gender on to expectations and intentions can be accounted for by differences in sensations seeking, too (Chapter 6).

A further reason to include sensation seeking in the forecast of sexual behaviour is that it acts as a moderator in the prediction of intentions and condom use (see Chapter 6), as follows. For LSS (low sensation seekers) anticipated regret is more strongly associated with intentions to use condoms, whilst for HSS behavioural principles are more strongly associated with intentions to use condoms. Intentions to use condoms in risky sexual encounters are more strongly predictive of condom use with affairs among LSS than HSS individuals. Moreover, sensation seeking moderates the impact of persuasive messages encouraging condom use (Chapter 8), such as HSS appear to be mainly persuaded to use condoms by the peripheral route and LSS by the central route of message processing.

In summary, the mere change from time 1 to time 2 and the associations among some variables based on the TPB may be largely irrelevant to overall condom use. Yet, the role

sensation seeking plays in sexuality and message processing is crucial in condom use. Therefore, it is advisable to consider personality differences in sensation seeking in the promotion of condom use.

Acknowledgments

I would like to thank especially Professor Abrams for his great support and important contributions. I am grateful to the Department of Psychology of Kent at Canterbury for all they have allowed me to learn. I also am indebted to my colleagues, friends and all those who have helped in making this dream come true.

Ethics

All research complied with ethical guidelines of the British Psychology Society. In addition, participants received a copy of a brief summary of key findings.

Title: Promoting condom use among young people employing health and social psychology.

PREFACE TO THE THESIS

The objective of this thesis is to reduce the spread of the HIV virus and AIDS by findings ways to persuade people to use condoms. In search of these, the role of variables based on the theory of planned behaviour, anticipated regret, social projection biases and personality differences in sensation seeking is examined. The first two chapters are theoretical and review some of the literature. There follow four empirical chapters which look at how people perceive to be the support of their beliefs regarding condom use and AIDS, for comparison with previous findings. Then, a further theoretical chapter examines the persuasion theories and the literature in sensation seeking. The final chapter tests the role of posters in the promotion of condom use and collates the main findings of the thesis.

Theoretical background

Condom use is the most effective defence against the sexual transmission of AIDS, a fatal disease caused by the human immunodeficiency virus (the HIV virus). AIDS stands for Acquired Immune Deficiency Syndrome and it is a global problem which continues to spread worldwide. It was first diagnosed in 1981 and the HIV virus that causes it was identified in 1984 (CVEDT, 1997). Almost all HIV infections have been through heterosexual sexual contact, such as in Sub-Saharan Africa, Central America and Brazil (UNAIDS, 2001 a). In a minority of places, such as in the former Soviet Union, the main cause of infections among young men has been the exchange of syringes for intravenous drug usage (UNAIDS, 2001 b). As the virus will keep killing millions of people, it has an important social and economic impact in the world.

The HIV virus is always mutating, which increases the difficulties in finding a vaccine or cure for it. Although it is not highly contagious, the virus attacks the immune system leaving people open to a wide number of opportunistic fatal diseases, such as pneumonia, skin cancer, dementia and others. It is transmitted via semen, vaginal fluids, blood, and from mother to babies during pregnancy, delivery and breast feeding. The groups most at risk of becoming infected are those who are sexually active, those who inject drugs, haemophilia sufferers, pregnant women and babies. People infected can look and feel well.

The only treatment available consists of relieving the symptoms of those infected whilst trying to artificially boost their immune system. This involves a combination of various drugs that can reduce the incidence in the blood of the virus that causes AIDS, as well as protecting mothers-to-be from giving the virus to their babies. However, there are drawbacks. Resistance

to these drugs is likely to develop, especially when people skip doses of the strict treatment regime; these drugs do not work on everyone; they are out of reach for the vast majority because they are extremely expensive; and they can have powerful side effects such as anaemia.

Precise figures of the HIV incidence are unknown and it has been argued that the registered HIV cases make up only 20% of the actual incidence (Amaral, *et al.*, 2000). UNAIDS estimated in 2001 (a and b) that, more than 36 million people had been infected worldwide, and that AIDS had not only killed 22 million people, but it had also left 13 million children orphaned. The tragedies abstracted in such figures defy description. In some parts of the world the situation is worst, such as in the Sub-Saharan Africa, where AIDS has changed the average life expectancy from 67 years old to 47 years old, and 30% of pregnant women are believed to be infected (UNAIDS, 2001 b and d, 2002). Since there is no vaccine or cure, AIDS will continue taking millions of lives every year.

Therefore, prevention remains the best way of saving people's lives against the HIV virus. Prevention is especially important in relation to adolescents. A third of all people with HIV/AIDS are between the ages of 15 and 24 years old (UNAIDS, 2001 b and c). Adolescents do not know how to protect themselves against HIV/AIDS (UNAIDS, 2001 c), have misconceptions about correct condom use (Crosby and Yarber, 2001), and find it even harder to protect themselves when these are unsupported females, compared to females living in supportive families (Crosby, DiClemente, Wingood, and Harrington, 2002). African-American adolescent females living in non supportive families use condoms over 2 times less frequently, report 4 times more emotional abuse by sex partners, have 2 times more fear of condom negotiation, 2 times lower self-efficacy for this negotiation and 2 times higher barriers to obtain safe sex (Crosby *et al.*, 2002). Supportive communication about sexual activity with parents, and especially with mothers, protects adolescent females (Crosby, DiClemente, Wingood, Cobb, Harrington, *et al.*, 2001). Likewise, young people who speak and ask questions openly about sex and HIV/AIDS are more likely to delay sex and to use condoms than those who are not informed (UNAIDS, 2001 c). However, the myth persists that sexual education promotes promiscuity among young people, despite the numerous evidence that the opposite is true (UNAIDS, 2001 c).

One way of persuading young people to use condoms is through advertisements. As these often fail to reach their target audience and do not bring changes in behaviour (Capalaces and Starr, 1973; Delaney, 1978, 1981; Field, Deitrick, Hersey, Probst and Theologus, 1983; Hanneman, 1973; Hanneman and McEwen, 1973; Harris and Associates, 1974; Hu and Hitchell, 1981; Morrison, Kline and Miller, 1976; Plant, Pirie and Kreitman, 1979; Rappaport, Labow and Williams, 1975), new ways of persuading people to use condoms must be found.

One promising way might be targeting personality differences in sensation seeking. Those who are high sensation seekers (HSS) are at higher risk of HIV infection. They expose themselves to a great number of sexual partners in their lifetime and to other increased risky sexual practices (Donohew, Zimmerman, Cupp, Novak, Colon, and Abell, 2000). As a rule, they are impulsive physical risk-takers (Goma-i-Freixanet, 2001, Zuckerman, and Kuhlman, 2000), prefer risky sports (O'Sullivan, Zuckerman, and Kraft, 1998) and tend to choose professions that meet such need, as journalism (Hirschowitz and Nell, 1983). HSS have higher needs of nicotine (Carton, Jouvent and Widlocher, 1994; Zuckerman, Ball, and Black, 1990), cannabis (Bachman and Jones, 1979; Satinder and Black, 1984), alcohol, cocaine (Donohew, Palmgreen and Lorch, 1994) and "hard" drugs (Hobfoll and Segal, 1983). Thus, drug users who are HSS are less likely to use condoms with a new sexual partner (Schafer, Blanchard, and Fals-Stewart, 1994), just like are those who are more venturesome (Clift, Wilkins, and Davidson, 1993).

Advertisements also need to be able to overcome cultural differences, and print ones seem ideal for this purpose. The presentation order of a print message does not affect persuasion whereas the same cannot be said of an audio message (Unnava, Burnkrant, and Erevelles, 1994). Note that the effectiveness of visual messages varies across cultures, such that visual information is more influential in China and auditory information in USA (Turnage and McGinnies, 1973). Also, pictures and photographs of intense, unpleasant (Rawlings, 2003), sexual and violent content (Smith, Davidson, Perlstein, and Gonzalez, 1990) are more likely to appeal to HSS. As HSS need novelty and intensity much more than low sensation seekers (LSS) (Zuckerman, 1990 a), they prefer high sensation value messages, the opposite of LSS (Donohew, Lorch and Palmgreen, 1991). Therefore, it might be possible to persuade HSS to use condoms using posters sensational images.

Sensational images are not necessary those which elicit fear, though. Fear can also increase condom use (Boyd and Wandersman, 1991; Glor, 1988), but too much can be counter-productive. Early campaigns preventing the spread of the HIV virus used fear-arousing messages such as 'Don't Die of Ignorance' (UK) and 'Don't Die of Aids' (Portugal). These activated people's ego defence mechanisms against intolerable anxiety, without encouraging any effective modification of behaviour (Santiago-Fauvin, 1990). They violated three basic learning principles: a) the stimulus should not be too great, b) behaviour shaping should be offered, and c) there should be immediate reinforcement for the new response (Plympton and Hibbard, 1992). Messages must be able to encourage people's self-efficacy by convincing them that they are personally capable of undertaking the recommended actions (Perloff and Ray, 1991), although this might not be enough. This is because a change on self-efficacy expectations, as well as attitudes and beliefs, is not sufficient to implement condom use over time (Miller, 1995). Ultimately, there is no certainty over what is most effective in persuading

people to use condoms and the existing theoretical models can not ensure condom use.

Most of the research on predictors of condom use has employed expectancy value models: the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980), the theory of planned behaviour (TPB) (Ajzen, 1985) and the health belief model (HBM) (Rosenstock, 1966). Such studies assume that behaviour results from beliefs, attitudes, perceived behavioural control and related constructs. Other studies have associated a social projection bias, which has been called the false consensus effect of opinion similarity, with unsafe sexual orientations; showing that people assume that their sexually risky behaviour is normative (Abrams, Abraham, Sheeran, and Spears, 1992; Van-der-Eijnden, Buunk, and Bakker, 1993). It has been suggested that changes in condom use would last longer if people carefully considered the arguments of a given message (Petty, Cacioppo, Strathman, and Priester, 1994). The sensation seeking personality has been identified (Zuckerman, Kolin, Price, and Zoob, 1964) and linked to sexuality, such that HSS engage in higher risk sexual practices (Fisher and Misovich, 1990). HSS are known to prefer messages high in sensation value (Donohew *et al.*, 1991). Yet, a great deal remains to be explored about the role of sensation seeking in the prediction of condom use.

All these findings have provided the motivational basis for the research of this thesis. The aim is to provide useful guidance for those who design messages to reduce the spread of HIV and AIDS by promoting condom use. First, the thesis explores how people regard the normativeness (perceived support) of their beliefs regarding condom use and AIDS, for comparison with previous findings. Afterwards, it investigates differences in sensation seeking on perceived control over condom use, subjective norms, attitudes, intentions and condom use. Then, the thesis examines the moderating role of sensation seeking in the prediction of expectations and intentions, as well as of condom use. An experiment is designed to help understand whether HSS are best persuaded to use condoms by posters with pictures that are high in sensationality and LSS by posters with pictures that are low in sensationality. The influence of engaging in reasoning over the poster messages is also investigated.

Chapter 1: Models for predicting condom use.

This chapter describes the most frequently applied models on the prediction of condom use and presents previous findings. It concludes suggesting variables to be examined in the empirical Chapters 3, 4, 5 and 6.

INTRODUCTION

There are basically three models which have been used to predict condom use. The theory of reasoned action (TRA), the theory of planned behaviour (TPB) and the health belief model (HBM). The one applied most often has been the TRA (Terry, Gallois, and McCamish, 1993), perhaps followed by the TPB. The HBM has predicted AIDS related behaviours in different samples and places (in Chicago: Emmons, Joseph, Kessler, Wortman, Montgomery, and Ostrow 1986; Joseph, Montgomery, Emmons, Kessler, Ostrow, Wortman, O'Brein, Eller, and Eshleman 1988; Montgomery, Joseph, Becker, Ostrow, Kessler, and Kirscht, 1989; in Pittsburgh: Valdessori, 1989; in Montreal: Allard, 1989; in Massachusetts: Hingson, Strunin, Berlin, and Heeren, 1989; Strunin, Hingson, Berlin, and Heeren, 1990). However, the degrees of variance using the HBM's four beliefs to predict healthy behaviour are often modest and as such the model might not be very useful to HIV/AIDS (Montgomery *et al.*, 1989).

The theory of reasoned action (TRA)

The TRA (Fishbein and Ajzen, 1975) has its origins in learning theory (Dulany, 1968). It has been employed to change people's beliefs (Fishbein, Ajzen, and McArdle, 1980) and to encourage health behaviour (Fishbein, Middlestadt, and Hitchcock, 1994; Maddux, 1993; Sheppard, Hartwick, and Warshaw, 1988; Weinstein, 1993) such as safe sex (Fishbein *et al.*, 1992).

This model does not describe the cognitive processes that underlie the influence of beliefs and evaluations on attitudes (Fishbein and Middlestadt, 1995). Instead, it assumes that beliefs and evaluations are learnt automatic associations between a specific behaviour and its outcomes, which may pose no cognitive or motivational demands (Ajzen and Fishbein, 2001). It suggests that people assess the likelihood that positive and negative consequences will result from condom use (behavioural beliefs such as that "condoms interrupt sex") and estimate the desirability of these consequences (behavioural evaluations such as that "I don't like to interrupt sex"). Unlike the widely accepted view that the most important part of attitudes are people's evaluations, the TRA considers that beliefs and evaluations are equally important and multiplies them to measure attitudes (see Ajzen and Fishbein, 1980). Note that, a while after the introduction of the TRA, it was found that outcome beliefs are formed prior to outcome evaluations (Albarracin, 2002; Gilbert, 1991).

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According to the TRA, attitudes and subjective norms influence people's intentions to use condoms and their subsequent condom use. Subjective norms are the perception that important others support people's condom use (normative beliefs) together with the motivation to comply with these expectations. They represent the social pressure to use condoms and are assessed as the product of the normative beliefs by the motivation to comply (Ajzen and Fishbein, 1980). It is possible to find out who are those who have an influence on people's behaviour through the following questions: 1. "Is there anyone close to you who would approve of you using condoms?" 2. "Is there anyone close to you who would disapprove of you using condoms?" 3. "Does anybody else come to your mind when you think about using condoms?" The motivation to comply is assessed by enquiring about how much one wants to do what each important other expects.

Together subjective norms and attitudes best predict intentions when they are both in agreement. However, sometimes behaviour is influenced more by subjective norms, other times more by attitudes. Subjective norms are supposed to be more important for cooperative behaviour and attitudes more important for competitive behaviour (Ajzen and Fishbein, 1980; Trafimow and Fishbein, 1994). This means that, if condom use were more a cooperative than a competitive behaviour, then the normative component should be more relevant. Also, subjective norms and attitudes are not always in agreement. For instance, people may believe that their partners expect condom use but have negative attitudes towards condoms.

Ultimately, intentions are the immediate influences on behaviour and are seen as expressions that behaviour is under volitional control. They are plans of action which show how hard people are willing to try and how much effort they are planning to expend. They are best assessed by specific, rather than general, measures of context and time (Ajzen and Fishbein, 1977; Fishbein, Middlestadt, and Hitchcock, 1994). Specific measures enquire, for example, about the degree to which people intend to use a condom next time they have sex with a new partner. The correlation between intentions and behaviour is usually above .4 (Six and Schmidt, 1992). They have a high degree of accuracy in prediction (Ajzen, 1985), especially when there is a short gap between the time the intention is measured and the performance of the behaviour (Davidson and Jaccard, 1979).

For the TRA, intentions are not directly influenced by any factor other than subjective norms and attitudes. As such, the influence of past behaviour on condom use is seen as mediated by subjective norms and attitudes. Nonetheless, that past behaviour produces attitudes that are consistent with it (Cohen, 1960) and has a strong direct impact on both intentions (Bentler and Speckart, 1979) and on future behaviour (see reinforcement apprenticeship from the behaviour theorists, such as Mischel, 1968).

The theory of planned behaviour (TPB)

The TPB (Ajzen, 1985) differs from the TRA only by also assessing people's perceived behaviour control over behaviour. This new variable reflects the extent to which some behaviours are easy or difficult (Ajzen, 1985; Ajzen and Madden, 1986; Ajzen, 1988). It expresses people's ability to obtain an outcome in the presence of barriers (Sutton, 1997 a). Perceived behaviour control is higher the more resources and opportunities people think they have and the less obstacles they anticipate (Ajzen, 1988). As a measure, people can be asked to rate how easy or difficult condom use is perceived to be, in questions such as the following: 1. How much control do I have over whether I do or not use condoms in sexual intercourse (complete/very little)? 2. For me to use condoms during sexual intercourse is (easy/difficult). 3. If I wanted to, I could easily use condoms in sexual intercourse (extremely likely/extremely unlikely).

Perceived behaviour control is similar to Bandura's (1977, 1982) concept of self-efficacy (for eg., I can do the behaviour) and some researchers (Kok *et al.*, 1991; Tedesco *et al.*, 1993) have incorporated self-efficacy into the TRA rather than test the TPB. Both perceived behaviour control and self-efficacy measure someone's ability to execute a specific action under a specific situation, such as buying condoms or putting them on, when barriers to condom use are presented. They are particularly important because past and intended condom use depends on people's perceived ability to use condoms (Richard, van-der-Pligt, and de-Vries, 1995; Sacco, Rickman, Thompson, Levine, *et al.*, 1993).

Perceived behaviour control can influence both intentions and behaviour directly. Thus, the more favourable the subjective approval of important others over condom use, the more positive the personal beliefs and evaluations about the consequences of using condoms, the stronger the perceived resources and their availability, the stronger the intentions to use condoms should be. Indeed, attitudes, subjective norms and perceived behaviour control are usually highly correlated ($r = .7$) with intentions (Sheppard, Hartwick and Warshaw, 1988), despite the criticism that subjective norms and perceived behavioural control sometimes mainly influence attitudes (Miniard and Cohen, 1981). Furthermore, since intentions in action tend to be the same as those prior to action, the measurement of the prior intention is sufficient. Boldero, Moore and Rosenthal (1992) applied the TPB to predict condom use and concluded that prior intention and intention in action both predict condom use similarly.

Regret and anticipated regret

People's decisions are influenced by emotions, such as the amount of regret and pleasure they experience (Bell, 1982; Loomes and Sugden, 1982) when comparing what is and what might have been had they chosen differently (Bell, 1982; Sage and White, 1983). In these

comparisons people feel more regret from an action taken than from an action which they forgot to take (Gilovich and Medvec, 1995 a). This is because people feel responsible for the outcome of actions taken, but they can often attribute nonactions to situational factors (Zeelenberg, 1996). An example of this is the story of Paul and George given by Kahneman and Tversky (1982). Paul thought about selling his shares in company A and buying shares in company B, but did not do it. By not acting, he lost 1,200. George sold shares in company B and bought shares in company A. By doing this he lost 1,200. George's regret is higher than Paul's as it would have been easier for George not to have lost the money.

Thus, regret is an emotion that only exists because of people's ability to think and to establish comparisons. It is a negative and painful cognitively determined emotion of wishing to undo decisions. Yet, regret can happen either after or before an action when people mentally imagine the consequences of a specific action. According to Zeelenberg (1996), there are three types of regret: 1. anticipating regret when evaluating choices and outcomes from possible actions; 2. feeling regret, after choosing an unsatisfying situation; and 3. fighting regret by preventing repetition of the same behaviour in the future, or by preventing anticipated, imagined painful situations from occurring.

The anticipation of regret is a well known experience. It is the second most mentioned emotion in the everyday speech; the first one is love (Shimanoff, 1984). It is particularly important both because it influences choice under uncertainty (Ritov, 1996) and because it makes people more cautious before undertaking an action (Janis and Mann, 1977). As such, the anticipation of regret makes people less likely to have sex without condoms (Richard, van-der-Pligt, and de-Vries, 1995; Richard et al., 1996 a; Richard, de-Vries, and van-der-Pligt, 1998) and predicts condom use over and above the TPB (Richard, van-der-Pligt, and de-Vries, 1995). Thus, the anticipation of regret induces people to make more rational decisions (Janis and Mann, 1977).

The health belief model (HBM)

The HBM is the eldest of the three models. It was developed by Rosenstock in 1966 to predict health related behaviours. He proposed four beliefs and cues to action, but did not operationalize ways of measuring them. The model states that health-protective behaviour is the result of danger perception and cost-benefit evaluation of actions needed to maintain or achieve health. According to Janz and Becker (1984), and Rosenstock (1974 a and b), the four beliefs which predict behaviour are: perceived susceptibility (one's own belief about personal vulnerability of getting HIV/AIDS); perceived severity (one's belief about the seriousness and consequences of contracting HIV/AIDS); perceived benefits (one's beliefs regarding the rewards and effectiveness of using condoms to reduce the HIV/AIDS threat); and perceived barriers (one's beliefs about the costs of using condoms). The order of importance and

frequency of the four beliefs are the following, in descending order (Janz and Becker, 1984): Barriers (89%), susceptibility (81%), benefits (78%) and severity (65%). So, those who use condoms probably have less negative feelings towards condoms, feel vulnerable to catching HIV/AIDS, believe condoms can prevent HIV/AIDS and regard the consequences of having HIV/AIDS as severe.

Both susceptibility and severity provide the motivation to act (Rosenstock, 1974 a and b; Janz and Becker, 1984). Both perceptions of benefits and of barriers provide the path of action (Rosenstock, 1974 a and b; Janz and Becker, 1984). Susceptibility and severity have been multiplied to give a threat score, which by itself is a poor predictor of behaviour, but together with intentions it can help in the prediction of behaviour (Conner and Norman, 1994). The cues to action are what activate the decision-making process, and they can be either internal, such as symptoms and needs, or external, such as media communications and reminder letters and folders. Studies rarely assess the contribution of cues in predicting health action (Oliver and Berger, 1979).

Previous studies on HIV/AIDS and condom use

Most of the studies on HIV/AIDS have been carried out on students as they are a very accessible young population and engage in HIV risky behaviour (Hightow *et al.*, 2005). Those who are 15-24 years old comprise half of all new HIV infections worldwide, and over six thousand people in this age group contract the HIV virus daily (Joint United Nations Programme on HIV/AIDS, 2004). Therefore, the younger population faces the highest HIV/AIDS risk (Nader, Wexler, Patterson, McKusick, *et al.*, 1989; Abraham, Sheeran, Abrams, Spears, and Marks, 1991). Most of them have swapped sexual partners (Durbin, DiClement, Siegel, Krasnovsky *et al.*, 1993), are not consistent condom users (Oswald and Pforr, 1992) and are at risk of sexual promiscuity, even when they seem unlikely to. For instance, young Catholics do not seem at risk (Mikawa, Morones, Gomez, Case, 1992), but they are more likely to be sexually active than non-Catholics (Sheeran, Abrams, Abraham, and Spears, 1993). Such tendency to sexual experimentation and infrequent condom use, amongst the younger, are factors which increase their risk of becoming infected with the HIV virus. Yet, the younger do not feel vulnerable to catching it (Abraham *et al.*, 1991, 1992, and Abrams *et al.* 1992 b), believe that they are protecting themselves by selecting partners who look uninfected (Maticka-Tyndale, 1992) and see no need to use condoms (Crosby, Yarber, and Meyerson, 1999), other than to avoid pregnancy (de-Visser and Smith, 1999).

It is known that a large number of people are overly optimistic about their invulnerability to HIV (Eversley, Newstetter, Avins, Beirnes, *et al.*, 1993) and, as a consequence, see no reason to changing their high-risk sexual practices (Zimet *et al.*, 1992). If young people felt vulnerable

to, or concerned about (Boldero *et al.*, 1992) the HIV infection they would be more likely to reduce their high-risk sexual practices (Boyd and Wandersman., 1991; Catania, Coates, Golden, Dolcini, *et al.*, 1994; Zimet, Bunch, Anglin, Lazebnik, *et al.*, 1992). Note that, self reports of invulnerability should be analysed with caution. People can feel invulnerable because they already use condoms. On the other hand, people may feel invulnerable and not use condoms because they believe that they are less likely to get HIV/AIDS than others (Abraham *et al.*, 1992). Such belief that others are more vulnerable to negative health events (Perloff and Fetzer, 1986) is known as the unrealistic optimism about illness susceptibility (Hoorens and Buunk, 1993; Moore and Ohtsuka, 1997; Weinstein, 1980; 1982; 1984) and ways to reduce it have been suggested by Van-der-Pligt (1991). Thus, making young people aware that everybody is vulnerable to HIV/AIDS should increase their condom use.

As well as the young, prevention should be targeted at other high risk groups. Some of the identified ones are those who are unthreatened, panicked, gamblers and deniers (Snyder and Rouse, 1992). Men and the poor are also at high risk of infection. There are more HIV positive men and they seek health care less as they feel less vulnerable to illnesses, despite their lower life expectancy than women (UNAIDS, 2001 a) and apparently higher sexual promiscuity. Men are 4 times more likely to report having had 3 or more sexual partners (Durbin *et al.*, 1993) and extramarital partners than women (UNAIDS, 2001 a). Moreover, although poorer men are more likely to become infected with the HIV virus than wealthier (Krueger, Wood, Diehr, Maxwell, 1990), they are less likely to use condoms with prostitutes (Pickering, Quigley, Hayes, Todd *et al.*, 1993) and are more likely to have basic misunderstandings about HIV prevention (Crosby, Yarber, and Meyerson, 2000).

In brief, men need to be encouraged to use condoms and free supplies must be available to the poor ones. This is because the availability of free condoms leads to increased condom use (Cohen *et al.*, 1999). Also, as condoms for men are 3 times cheaper than condoms for women, it is easier to distribute them freely. Condoms for women have been considered the number one item for women's protection against AIDS (Gollub and Stein, 1993), but these are accessible only in wealthier countries and are difficult to keep in position. So, the prevention of the sexual transmission of the HIV virus is likely to continue focusing on men's condom use.

Controlled laboratory condom-present and condom-absent conditions, have shown that condoms do not affect the penile response or the men's subjective sexual self-reported arousal (Gaither, Rosenkranz, Amato, Plaud, *et al.*, 1996). Yet, only around 43% of people use condoms with a new partner (Feimuth, Hammond, Edgar, McDonald, *et al.*, 1992). Condoms are not very popular and even virgin teenagers report embarrassment about them (Pleck, Sonenstein, and Ku, 1990). People think condoms reduce feeling and enjoyment (Choi,

Rickman, and Catania, 1994; Oswald and Pforr, 1992), are indicative of promiscuity (Finkel and Finkel, 1975; Wilson *et al.*, 1991), are off-putting, reduce sexual pleasure, interfere with sex (Ekstrand, Coates, and Stone, 1989; Felman and Santora, 1981; Hingson *et al.*, 1989; Valdeserri, 1989; Wilson, Manual and Lavelle, 1991), are embarrassing to discuss with a partner, inappropriate with steady partners (Wilson *et al.*, 1991) and are unacceptable to partners (Arnold, 1972). These perceived barriers lead to lack of communication about sexually transmitted diseases and pregnancy prevention (Boldero *et al.*, 1992; Catania, Coates, Kegeles, Fullilove, *et al.*, 1992; Crosby, DiClemente, Wingood, Cobb, *et al.*, 2002; Kashima *et al.*, 1993; Liska, 1984). They are also linked to failure to get condoms, carry them (Boldero *et al.*, 1992; Byrne and Kelley, 1986; Kashima *et al.*, 1993; Siegel and Gibson, 1988; Valdeserri, 1989), negotiate their use (Fiumara, 1972; Valdeserri, 1989) and use them (Boldero *et al.*, 1992; Abraham *et al.*, 1992).

What's more, although condom use is especially necessary with new sexual partners, it occurs more with regular partners (Gold, Skinner, Grant, and Plummer, 1991; Jaccard, Helbig, Wan, Gutman, Kritz-Silver-Stein, 1990; Rosenthal, Moore, and Brumen, 1990). Condom use is more likely when it is portrayed as caring and responsible male behaviour (Choi, Rickman, and Catania, 1994), when it is associated with sexual enjoyment (Catania *et al.*, 1992), perceived peer norms supporting its use (Atwood, 1992; Winslow, Franzini, and Hwang, 1992) and to commitment to its use (Catania, Coates, Golden, Dolcini, *et al.*, 1994). It is also more likely in the presence of positive self-efficacy (Belgrave, Randolph, and Carter, 1993) and positive intentions to use condoms (Belgrave, Randolph, and Carter, 1993; Boldero *et al.*, 1992; Kashima *et al.* 1993).

Sometimes intentions do not influence condom use because of contextual factors, such as high sexual arousal (Boldero *et al.*, 1992; Emmons *et al.*, 1986; Goggin, 1989; Jaccard *et al.*, 1990) and immediately after the ingestion of alcohol or drugs (Stall, McKusick, Wiley, Coates, and Ostrow, 1986). The sexual encounter itself may become then more relevant than any behaviour planned ahead (Norman, 1975). However, as stated by both the TRA and the TPB, intentions to use condoms tend to have a direct impact on behaviour. They are influenced by self-efficacy expectations (Schaalma *et al.*, 1993), direct communication with a partner (Boldero *et al.*, 1992), less negative (Barling and Moore, 1990) or favourable attitudes towards condoms, and subjective norms supporting its use (Boyd and Wandersman, 1991; Chan and Fishbein, 1993; Jemmot and Jemmot, 1991; Schaalma, Kok and Peters, 1993). Note that, the key behavioural beliefs related to attitudes are sexual enjoyment (Jemmot and Jemmot, 1991; Pleck *et al.*, 1990) and cost-benefits in gaining partner's appreciation (Pleck *et al.*, 1990). The key normative influences are sexual partners (Jemmot and Jemmot, 1991; Pleck *et al.*, 1990), mothers (Boyd and Wandersman., 1991; Jemmot and Jemmot, 1991), close friends, parents and physicians

(Boyd and Wandersman., 1991).

Moreover, prior behaviour also has a very powerful influence on future behaviour. It influences condom use (Abrams, Sheeran, Abraham, and Spears, 1991; Baldwin and Baldwin, 1988; Rene' and Van der Pligt, 1991; Ronis, Yates, and Kirscht, 1989) and attitudes (Bem, 1972). Besides, as its effects may far exceed those of subjective norms and attitudes (Rise, 1992), some HIV prevention strategies to increase condom use have induced actual experience with the behaviour. They have given people free condoms and encouraged them to practice condom use or role-play negotiating condom use with their partners. Such strategies work for a number of reasons. First, they influence future behaviour by inducing habits (Ouellette and Wood, 1998) and perceptions that people have control over the behaviour (Ajzen, 1991). Second, people who engage in a specific behaviour may later infer that they have an attitude that is consistent with it (Bem, 1965). Third, it is more difficult for people to forget their prior behaviour over time than the information contained in a message, in part because behaviour feedback might continue. So, behavioural interventions might induce condom use over time (Albarracin and McNatt, 2001), but they are not always possible when a large number of people need to be targeted.

A further influence on condom use is gender. Men are affected mainly by perceived barriers to action (Catania, Coates, Kegeles, Fullilove, *et al.*, 1992; Wilson and Lavelle, 1992) and by facilitating cues (Wilson and Lavelle, 1992). Women are affected mainly by increased self-efficacy (Jemmott and Jemmott, 1992), perceived sexual enjoyment of condoms (Catania, Coates, Greenblatt, Dolcini, *et al.*, 1989; Jemmott and Jemmott, 1992) and perceived social support for its use (Wilson and Lavelle, 1992), including partner's support. They have more favourable attitudes towards condoms (Sacco, Rickman, Thompson, Levine, *et al.*, 1993), but also regard condoms as more offensive than males (Sheeran, Abram, Abraham, and Spears, 1990; Abrams, Abraham, Sheeran, and Spears, 1992 a) and have greater inhibition about buying and possessing condoms (Sacco *et al.*, 1993).

Sexism is likely to have an impact on the influence of gender on condom use, though. Hostile sexism (Spence and Helmreich, 1972; Swim, Aikin, Hall, and Hunter, 1995) is expressed by hostile attitudes towards women who do not conform to traditional roles, such as towards those who are independent women. Benevolent sexism (Glick and Fiske, 1996; Glick, Fiske, Mlandinic, Saiz, Abrams, Masser, *et al.*, 2000; Viki, Abrams, and Hutchison, 2003) is expressed by "positive", but restrictive, attitudes towards women. It regards women as weak and needing men for protection and survival. In places such as Latin America, men are taught to be responsible fathers and to respect women. At the same time, their "macho" values emphasize disrespect for women, sexual irresponsibility, dominance, promiscuity and abuse.

Such sexist ideologies should be present in the expression of sexual behaviour too.

Although sexist ideologies may restrain mainly women's confidence and sexual freedom, they seem unlikely to stop women's interest in items related to the HIV/AIDS prevention. They pay more attention to HIV information sources (Abraham *et al.*, 1991), talk more about HIV/AIDS (Abrams *et al.*, 1991; Brown, 1991) and are more knowledgeable about AIDS (St. Laurence, 1993). Women's beliefs and attitudes towards AIDS risk show that they are more caring across cultures (Abraham *et al.*, 1991; Brown, 1991; Nader *et al.*, 1989; St. Laurence, 1993), endorse safe sex practices more (Nader *et al.*, 1989; St. Laurence, 1993) and perceive themselves to have greater control (St. Laurence, 1993). However, women need to be empowered to take charge of their sexuality, particularly in the countries where girls and women are the main victims of AIDS. They also need to improve their sexual negotiation and refusal skills (Wingood, Hunter-Gamble, and DiClement, 1993).

Despite the fact that, women discuss HIV/AIDS more than males (Abrams *et al.*, 1991, Brown, 1991), neither men nor women engage in much sexual communication with partners. Usually, even when fifty percent of people claim that they practice safe sex, less than one-third discuss AIDS with partners (Loos and Bowd, 1989). This difficulty in discussing one's sexuality and, by extension AIDS, may reflect the persistence of a relatively restricted sexual culture. Traditional values and attitudes make the expression of peoples' sexual needs and desires difficult, and hinder attempts to promote safer sexual practices (Mittag, 1991).

Thus, there are several factors which are likely to influence condom use. Here there have been outlined some of them. In addition, it is important to emphasize that, information about the HIV virus and AIDS is not enough to increase condom use. That is, high knowledge of HIV does not necessarily mean low AIDS risk or high preventive behaviour (DiClemente, Brown, Beausoleil, and Lodic, 1993; Chervin and Martinez, 1987; Jemmot and Jemmot, 1992; McDermott *et al.*, 1987; Oswald and Pforr, 1992; Freimuth, 1987; Turtle, Ford, Habgood, Grant, Bekiaris, Constaninou, Macek, and Polyzoidis, 1989), except among young highly educated people, who are then more likely to increase and maintain condom use over one year (Catania, Coates, Peterson, Dolcini, *et al.*, 1993). Information should describe HIV, its modes of transmission, pathological mechanisms, how to prevent it (Albarracin, 2000), but also associate condom use with social support and with positive personal consequences (Catania, Coates, Stall, Larry *et al.*, 1991). Ideally, this would require services that provide telephone information, free and easily obtained condom supplies and counselling (McKusick, Conant and Coates, 1985) offered to those who are HIV positive as well as to those uninfected.

Comparison between the TRA, TPB and the HBM models

There are some similarities and differences between these three models. In common, both the TRA and TPB were developed in non-health environments and have been widely used to predict health behaviours. They both use intentions to assess people's rational choices, but the HBM does not. Yet, a comparison between the TPB and the HBM concluded that intentions can be predicted by some of the HBM's measures. They were predicted by benefits, barriers, health value, behavioural beliefs and attitudes (Conner and Norman, 1994).

Moreover, all three models assess the consequences of the behaviour performance, but only the HBM does so in terms of perceived benefits and barriers. On the other hand, only the TRA and TPB assess the perceived influence of important others' approval or disapproval, through subjective norms. These norms might be particularly important if condom use is perceived mainly as a result of a cooperative behaviour, reinforced by important others.

In addition, none of the three models consider past behaviour, even though behaviour is often an automatic and reflexive (Hunt, Matarazzo, Weiss, and Gentry, 1979) habit which results from reinforcement more than from cognition (Allen and Taylor, 1984). One of the difficulties in accounting for past behaviour is that, in order to measure it, studies should ideally be longitudinal.

There are differences between the models. For instance, the TRA and the TPB do not explicitly encompass fear-arousal elements, such as the perceived vulnerability to and the severity of illness considered by the HBM (Mullen, Hersey, and Iverson, 1987). Yet, vulnerability can predict behaviour directly and also increase the predictive power of the TRA (Boyd and Wandersman, 1991). Other differences between the models are outlined below.

Problems of the TRA, the TPB and the HBM models

First of all, the HBM suggests that vulnerability can be important on the prediction of condom use, but this is not always true. People who already use condoms can report high invulnerability to HIV/AIDS. So, measures of perceived vulnerability should be carefully analyzed. In addition, the HBM does not operationalize how to measure its beliefs. Yet, the correspondence between beliefs and behaviour is likely to increase when questions are conditionalized on a set pattern of behaviour (Weinstein and Nicolich, 1993; Ronis, 1992). For instance, by asking people about their risk of dying of AIDS in the next five years if they do not use condoms every time. Questions like this can facilitate the application of the HBM model.

Unlike the HBM, both the TRA and the TPB operationalize how to assess their measures. For instance, they both declare that, intentions influence behaviour directly; that their assessment

must be conditionalized to a specific situation and that the measurement between them and the behaviour must occur in a short time. They add that, intentions best predict behaviour when it does not require skills, resources, opportunities, or the cooperation of others (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). Unfortunately, this is not always the case with condom use, and those who believe that they and their partner share positive condom use outcome expectancies, use more condoms (Sanderson and Maibach, 1996). So, intentions do not necessarily play their expected role in the prediction of behaviour.

Likewise, for the TPB, perceived behavioural control directly affects the formation of intentions and behaviour (Ajzen, 1985). However, sometimes it does not influence the prediction of intentions (Chan and Fishbein, 1993; Morrison *et al.*, 1995; Reinecke *et al.*, 1996); at other times, it contributes only with a small percentage of variance (Nucifora *et al.*, 1993; Wilson *et al.*, 1992). In one third of the studies it does not have a significant independent effect on behaviour (Conner and Armitage, 1997; Sutton, McVey, and Glanz, 1997).

Just like perceived behavioural control sometimes fails to predict intentions and behaviour, so do attitudes and subjective norms. Although both the TRA and the TPB emphasize the importance of attitudes and subjective norms in the prediction of behaviour, such relationship is unclear. Sometimes either subjective norms strongly predict intentions (Rise, 1992), or they do not predict them at all (Boldero *et al.*, 1992). At other times, attitudes strongly predict intentions (Jemmot and Jemmot, 1991), but are not an indication of future safe behaviour. For instance, although positive attitudes to condoms are typical of consistent condom users (Boyd and Wandersman., 1991; Herold and Mewhinney, 1993; Oswald and Pforr, 1992), not all those with favourable attitudes towards condoms use them in their casual sex (Oswald, and Pforr, 1992). Therefore, all the TPB predictors of behaviour (intentions, perceived behavioural control, attitudes and subjective norms) may not be sufficient to predict condom use.

A further problem with the TRA and the TPB is that there have been critics of the multiplicative composites of these models (Evans, 1991; Schmidt, 1973; Smith, 1996) for being correlated with other variables. This might provide underestimates, or even overestimates, of the actual effect (Evans, 1991). Changing the scoring of measures will result in different correlations, and that is why it has been suggested that both the effects of the two components of the TRA as well as their cross products should be examined (Evans, 1991). This can be done by entering each belief on its own in several stages of hierarchical regressions, to check whether the interaction adds unique variance. But, this procedure violates both the TRA and the TPB principles, just like all efforts to deal with the problems of the multiplicative composites do. In this thesis, the multiplicative procedure will be applied only to the subjective norms. This will be done mainly to check for the influence of subjective norms on condom use,

in the presence of general measures of attitudes and beliefs.

In addition, the TRA, the TPB and the HBM do not consider sensation seeking as a possible moderator on to intentions and on to condom use (for differentiation between moderators and mediators see Baron and Kenny, 1986). The HBM allows either mediators or moderators to be examined, whilst the TRA and the TPB are mediation models in which intentions are the mediators between beliefs and behaviour. Yet, personality differences in sensation seeking prompt people to think and to behave differently. Those who are high sensation seekers (HSS) are impulsive physical risk-takers (Goma-i-Freixanet, 2001, Zuckerman, and Kuhlman, 2000), and expose themselves to a great number of sexual partners in their lifetime and to other increased risky sexual practices (Donohew, Zimmerman, Cupp, Novak, Colon, and Abell, 2000). They search for intense, novel, complex and arousing stimuli. As such, HSS might focus mainly on the excitement of sex and be less influenced by their attitudes, subjective norms and intentions to use condoms than those who are low sensation seekers (LSS). Thus, this thesis will examine this. Furthermore, HSS may also attend to, and be persuaded by, different types of messages than those who are LSS (Donohew *et al.*, 1997; Zimmerman *et al.*, 1997). This will be investigated at the end of the thesis.

Furthermore, none of the three models account for the direct influence of past behaviour on future behaviour. Yet, prior behaviour tends to be the strongest predictor of future behaviour (Boyd and Wandersman, 1991; Gallois *et al.*, 1994; Norman and Smith, 1995) and of intentions (Otten and van-der-Pligt, 1992; Rise, 1992; Ross and McLaws, 1992). As it is associated with actual behavioural control, as well as with perceived behavioural control (Beale and Manstead, 1991), people tend to repeat their past behaviour (Bentler and Speckart, 1981; Budd, North, and Spencer, 1984; Mittal, 1988; Ouellette and Wood, 1998). That is, the relationship between intentions and behaviour is likely to be constrained by habitual patterns of past behaviour (Sutton and Hallet, 1989). The more habitual a past behaviour is, the more it is a predictor of subsequent action. In other words, if condom use is habit forming, those who are used to condoms should be more likely to use them in any type of sexual encounter. In this case, the prevention of HIV/AIDS among the young should emphasize condom use in all types of sexual relationships.

Conclusion

This chapter has introduced the HBM's health-related beliefs and suggested that they might be related to intentions to use condoms. It has showed that, the TRA and the TPB both consider the relationship between self and others, and why this is important for condom use. Between the two models, the TPB provides a better basis for predicting condom use as it considers people's perceived behavioural control over condom use. Also, the chapter concluded that, the

process of anticipated regret about using condoms must be relevant in the decision to use condoms, particularly if included into the TPB. It has hypothesised that personality differences in sensation seeking must also influence condom use, and ways of putting messages across to encourage condom use, particularly among high sensation seekers, need to be examined.

In summary, from the literature of this chapter, it is assumed that the key variables in predicting condom use should be based on TPB, the process of anticipated regret about not having used condoms and personality differences in sensation seeking. Furthermore, perceived vulnerability to, as well as seriousness and severity of, HIV in relation to condom use should also be examined. So, the empirical chapters of the thesis are set out to clarify the relationship between these variables.

Chapter 2: Cognition and motivational biases affecting condom use.

This chapter describes the *false consensus effect* and the role of personality differences in sensation seeking. It concludes that both, the *false consensus effect* as well as personality differences in sensation seeking, may be key variables affecting condom use.

The social projection phenomenon

The *social projection*¹ phenomenon of imagining that one's own attitudes and beliefs are shared by others (Allport, 1924) has been found to influence adolescent alcohol use (Marks, Graham and Hansen, 1992), needle sharing among drug users (Schilling, El-Bassel and Gilbert, 1992), smoking (Sherman, Presson, Chassin, and Olshavsky, 1983) and condom use. In other words, one's perceptions of how others regard condom use are strongly related to one's plans for using condoms in the future (Boyd and Wandersman, 1991).

Social projection occurs by implicit comparisons, that is, by judgements of others without actual information about them. So, it can not be explained either by the *social comparison processes theory*, *causal attribution processes theory*, or the *theory of opinion dynamics*, as they all consider explicit comparisons. The *social comparison processes* from Festinger (1954) proposes that when a person do not have proof or any concrete information to support his/her opinion, he/she will allude to the opinion of others in attempting to achieve opinion stability. Referring to others opinions increases one's confidence when he/she finds that others believe and act similarly. Goethals and Darley's (1977) reformulated the social comparison theory using Kelley (1967; 1971; 1972) *causal attribution approach*. The principles of the *causal attribution concept* state that one's ambiguity is reduced when agreement between a dissimilar and a similar occurs. This agreement validates one's opinion and increases one's certainty. However, when disagreement with a similar occurs, the opinion is invalidated, the confidence (Goethals, 1976; Goethals and Nelson, 1973; Orive, 1988), the readiness to act on the opinion is decreased, and a negatively toned emotional response is produced (Orive, 1988). The *theory of opinion dynamics* measures both implicit and explicit comparisons. Its main points are: initially one anticipates others are similar by projecting his/her opinion into the other one (implicit comparison). If the other agrees the projection is confirmed (explicit comparison). If the other regarded as similar disagrees, projection is disconfirmed and uncertainty takes place. Uncertainty can be either tolerable or intolerable: when tolerable one keeps his/her initial position and does not change it; when intolerable becomes more intolerable as decision-action-time nears and the person has to decide between either considering the initial opinion not important enough to look for further decision, or important enough. If important, one searches for others opinions until his/her confidence is restored.

¹ Projection as psychoanalysis defines it concerns mainly aggressive, sexual and emotional aspects of the personality, while for social psychology it concerns mainly cognitive ones.

The relationship of social projection and health/unhealthy practices is recent in social psychology, but the evidence of projection dates from long ago. Allport (1924), for example, described the projection process and differentiated between three processes: attribution, reciprocity and enhancivity. When an opinion is attributed to others, it appears to be emanating from the others (reciprocity), enhancing (reinforcing) one's opinion as one assumes that others are like him/her. People project onto others their own characteristics (Holmes, 1968; Fenigstein, Scheier, and Buss, 1975; Freud, 1986 a; 1986 b; Janis and Field, 1959), especially if these others are large abstract populations (Hayes, 1936; Ryan, Plant, and Kuczkowski, 1991; Thomsen, 1941; Travers, 1941; Wallen, 1941; 1943).

When there is scarce information and uncertainty about others' actual opinions or behaviour, people have to use their own views as the only available ones. Thus, information and certainty influence how much one's self dominates the perception. The greater information about the target someone has, the more the following occurs: stereotyping decreases (Locksley, Borgida, Brekke and Hepburn, 1980), accuracy in interpersonal judgments increases, and both biases and self-fulfilling prophecies decrease (Jussim, 1993). The greater one's uncertainty, the more one's self is constrained (Ryan, Plant, and Kuczkowski, 1991) and the more likely to occur social projection. Although it can increase under time pressure (Epley, Keysar and vanBoven, 2004), social projection is not disrupted when judgments become difficult. That is, social projection is as strong when people are under high cognitive load as when they are not (Krueger and Stanke, 2001).

The most important type of social projection might be the *false consensus effect* (FCE), which refers to people's estimation of others that would agree or disagree with them. Those who agree are expected to make higher estimates that others would agree as well, than those who disagree (Dawes, 1989; Hoch, 1987; Krueger and Zeiger, 1993; Mullen *et al.*, 1992), as a form of feeling that their behaviour is socially supported and justified. Risky behaviours have been found to be related to the FCE (Suls *et al.*, 1988) and so have unsafe sexual practices (Abrams, Abraham, Sheeran, and Spears, 1992; Van-den-Eijnden, Buunk, and Bakker, 1993). The FCE is especially relevant to unhealthy practices, as people may resist public campaigns and other interventions because they believe their behaviour is common, thus, socially supported and justified.

People might be more likely to change if they believe that others disagree with their position. According to Cialdini, Kallgren and Reno (1989; 1990) people use two types of norms to guide their behaviour: descriptive (what people do) and injunctive (what others approve of) norms. False beliefs about descriptive norms (for instance, that most people do not use condoms) may sustain unsafe behaviour and be sustained by inappropriate injunctive norms (for instance, that most people approve non-condom use). In other words, people engaging in risky behaviour regard it as normative in the injunctive sense that others approve it (Abrams, Abraham, Sheeran,

and Spears, 1992). That is, drawing people's attention to descriptive norms has a beneficial impact on the behaviour of those who already behave in the desirable way, whilst focusing on the injunctive norms should be more effective for those who do not.

General influences on social projection

The extent to which one's feelings of self worth are threatened may influence social projection. It is known that people are motivated to maintain and enhance their self-esteem (Greenwald, 1980; James, 1890; Rogers, 1959; Tesser, 1988), and to keep a positive ego¹. This need is exacerbated when the judgments of others are evaluative --such as good or bad-- as other's become an extension of one's self, causing one to distort reality (John and Robins, 1993; Thorne, 1989) and project into it, possibly to protect one's self-value.

The need to protect one's self is extended to one's group. As established by the social identity theory, individuals tend to perceive valued ingroups as positively distinct from others (Tajfel, 1978 b). This phenomenon is known as ingroup favouritism, which happens between groups, even without necessarily explicit conflict of interests or competition between groups (Tajfel, 1981; Turner and Giles, 1981). Intergroup categorizations are fundamental in this process.

The strength of the categorizations² influences how much ingroup favouritism occurs. There are weak and strong categorizations. Studies of social projection have included males and females, arts majors and science majors (used by Spears and Manstead, 1990) as well as race and religion (Mullen, Dovidio, Johnson, and Cooper, 1992). Strong categorizations may produce greater identification, thus producing greater differences between in/outgroup social projections and greater ingroup favouritism.

Types of social projection

There are mainly two forms of social projection: overestimation and underestimation of the proportion of others who agree with one's own attitude relative to the estimates offered by those holding an opposing view. This phenomenon is known as the FCE and the *false uniqueness effect* (FUE) of opinion similarity. The FUE happens when people believe that their beliefs are less common than they really are. Both FCE and FUE refer to people's own approves of a behaviour and their estimates of approved frequency of others. They do not mean the overestimation and underestimation of the number of others who share one's practices, though.

People tend to put a falsely high figure on existing support for their own-attitudes (Katz and Allport, 1931; Hayes, 1936; Mullen, Atkins, Champion, Edwards, Hardy, Story, and Vanderlok,

¹ See Greenwald (1980) for details about the concept of *positive ego*.

² See the self-categorization theory from Turner, Hogg, Oakes, Reicher and Wethrell, 1987.

1985; Ross, Greene, and House, 1977; Thomsen, 1941; Travers, 1941; Wallen, 1941), overestimating consensus of opinion similarity.

Overestimation is the usual pattern associated with the FCE, but FCE does not necessarily imply overestimation. For example, a smoker may see smoking as more common than does a non-smoker (FCE), but his/her estimate can be an overestimation or underestimation of the actual number of smokers (Mullen and Hu, 1988). That is, overestimation of consensus and FCE are not the same thing. FCE refers to one's estimation of others that would agree or disagree with one's position. Those who agree are expected to make higher estimates that others would agree as well, than those who disagree (Dawes, 1989; Hoch, 1987; Krueger and Zeiger, 1993; Mullen *et al.*, 1992). FCE is typical among minorities, although it can be held by either minorities or majorities (Mullen and Hu, 1988). For example, Stone and Kamiya (1957) found that, a minority position with which only 10% of the group agree is considered to be shared by more than 50% of the group among those who hold the position. Overestimation of consensus does not refer to the extent one agrees or disagrees with an issue and is typically held by subjects in the minority (Mullen and Hu, 1988; Mullen and Smith, 1990; Sanders and Mullen, 1983). Both overestimation and FCE seem to hold for persons having undesirable attributes (Marks, 1984; Campbell, 1986), who believe these qualities are shared by many others and justified.

FCE was introduced by Ross, *et al.* (1977), after being first studied as *attribute projection* by Murstein and Preyer (1959) and as *defensive projection* by Endlow and Kiesler (1966). It states those who agree to a statement (eg., have a risky behaviour) believe more others agree to it (eg., that more others have a risky behaviour as well) than those who disagree. The FCE has been defined as an egoistic bias (Dawes, 1989) and an egocentric bias resulting from less analytical cognitive processes (Krueger and Clement, 1994). It is demonstrated by a positive correlation across subjects (within items) between their own approval of a behaviour or attitude statement and their estimates of the frequency of approval in a specified group of which they are a member (Dawes, 1989).

Thus, FCE for one's ingroup is the subjects' belief that their views are appropriate and shared by their own sex, or any other group they belong to while alternative responses are uncommon, deviant, and inappropriate (Marks and Miller, 1987; Mullen *et al.*, 1985; Ross *et al.* 1977; Sherman, Presson and Chassin, 1984; Suls, Wan, Barlow and Heimberg, 1990). Examples of this social projection are: 1. Students who admitted they had cheated on an exam, expect more others to cheat too (Katz and Allport, 1931); 2. Someone who agrees that little can be done to stop the AIDS spread is likely to believe the majority of others agree as well, more than someone who disagrees. 3. People with undesirable healthy practices, such as smoking, believe smoking is a relatively common behaviour --and so, do not perceive the legitimacy of a

persuasive message about health risks of smoking (Suls, Wan and Sanders, 1988).

FCE is larger when estimates are generated before individuals make their own choice (Mullen, Driskell and Smith, 1989). Thus, sequence of measurement and wording of the estimation questions may influence the estimates of consensus (Mullen *et al.*, 1989). FCE is also larger among people who attribute their own behaviour to situational rather than dispositional causes (Gilovich, Jennings, and Jennings, 1983).

Marks and Miller (1987) examined four theoretical accounts for the FCE. The *selective exposure and cognitive availability* view states that, because people associate with others who are similar to themselves, they readily recall instances of people who hold their own views. The *salience and focus of attention* holds that, because one's own position (and group) is more salient than others', one overestimates ingroup consensus. The *logical information processing* approach explains that, because people infer that the same situational factor that causes their own perception affects other peoples' perception too, they overestimate the consensus. Finally, the *motivational* argument states that, because people desire to maintain positive self-esteem they seek social approval for their beliefs.

It is difficult to know which one of these four explanations for the FCE is more relevant. In their meta-analysis Mullen and Hu (1988) prioritized the *salience and focus of attention*. The salience view explains the FCE for the ingroup. It also illustrates why minorities see themselves larger than they are, and why the smaller they get the more this tendency increases by both minorities and majorities. Minorities' greater salience and memorability (Mullen, 1983; Mullen and Hu, 1988; Tversky and Kahneman, 1973) lead people to overestimate their frequency (Hintzman, 1969; Johnson and Tversky, 1983; Lichtenstein, Slovic, Fischhoff, Layman and Combs, 1978). Marks and Miller (1987) added to the *salience and focus of attention* the need for social support (*motivational* process).

Finally, Mullen *et al.* (1992) found, by moderate correlations (.40, .36, .31), that FCE tends to happen for the ingroup. They also showed the existence of a FUE, by low correlations (-.09, -.18, .10), for the outgroup. The criterion for establishing the evidence of the FUE is a negative correlation across subjects (within items) between their own approves of a behaviour, or attitude statement, and their estimates of the "approve frequency" in a specified group of which they are a member.

The FUE holds mainly for majorities (Mullen and Hu, 1988; Sanders and Mullen, 1983), which believe their positive --desirable-- characteristics are more unusual than they really are (Campbell, 1986; Goethals, 1986; Snyder, 1978; Suls and Wan, 1987; Suls, Wan and Sanders, 1988; Mullen and Smith, 1990; Tabachink, Crocker and Alloy, 1983; Sanders and Mullen,

1983). This happens when "people believe that they are happier (Andrews and Withey, 1976), more intelligent (Wylie, 1979), more ethical (Baumhart, 1968), less prejudiced (Lenihan, 1965) than the average person, and that their leadership skills (College Board, 1976-1977), driving skills (Slovic, Fischhoff and Lichtenstein, 1977), coping skills (Taylor, Wood and Lichtman, 1983) and personalities (Alicke, 1985; Tabachnik *et al.*, 1983), are superior to those of the average person", p. 476, McFarland and Miller (1990).

This need to be positively unique (Snyder and Fromkin, 1980) is mediated by cognitive factors (Miller and McFarland, 1987; McFarland and Miller, 1990) and self-enhancement biases (Goethals, 1986; Lockard and Paulhus, 1988). It is characterized by one's underestimation of the number of others who behave like oneself (Perloff and Brickman, 1982).

Underestimation can also be mistaken for a FUE. The difference between FUE and *pluralistic ignorance* may elucidate why FUE and underestimation of consensus are not the same thing. False uniqueness refers to an uncommon attribute or belief which is taken as being even more uncommon than it really is (underestimation of the uncommon) (Suls *et al.*, 1990). *Pluralistic ignorance* (Allport, 1924), however, refers to a common attribute or belief which is taken to be uncommon, for example, when all members of a group reject group norms but believe that all others accept them (Miller and McFarland, 1987). Thus, FUE refers to an underestimation, but only of the infrequent. In common, FUE and pluralistic ignorance both help one to mistakenly believe that they are different from others and sustain perceived self-value and competence.

As mentioned earlier, FUE applies mainly to those holding desirable and majority attributes. However, it is also possible among people holding undesirable and minority views when they are emotionally disturbed (Sullivan, 1953), such as when they have panic disorders and social phobias (Suls *et al.*, 1990). Persons with severe emotional problems or clinical impairment tend to erroneously believe that their problems are unique and rarer than they really are (Sullivan, 1953; Suls *et al.*, 1990).

There are two types of false uniqueness: absolute and relative. Absolute uniqueness (Goethals, 1986) refers to persons with stigmatizing conditions who regarded themselves as rarer than is actually the case; and relative uniqueness (Coates and Winston, 1983; Suls and Wan, 1987; Tabacknik, *et al.*, 1983) refers to when they regard themselves as rarer than persons *without* the condition. Therefore, for the absolute uniqueness, one is compared to others being in his/hers stigmatized condition, while for the relative uniqueness, one is compared to the general population.

Finally FCE and FUE may occur simultaneously within a single context (McFarland and Miller, 1990) helping individuals to keep for themselves and their groups what is desirable, and

project to others what is undesirable, keeping the 'ego' strong and positive. This is so because subjects may overestimate the number of people who would avoid the same situation they would avoid (FCE); and also predict their own emotional reactions to be stronger than those of others (FUE). It is possible that individuals simultaneously experience feelings of uniqueness on internal states, and hold an exaggerated estimate of their commonness (McFarland and Miller, 1990).

Concluding, it is clear that through projection, one who has an undesirable practice tends to anticipate agreement from a majority of others (FCE). The more similar the others are judged to be (ingroup), the higher is this expectation. To disconfirm such a belief one needs to discover that in fact, the majority does not share his/her belief, thus disconfirming the original projection. This disconfirmation by the majority induces opinion uncertainty, a negative affective state and stress arousal (Hoffman, 1957; Lawson and Stagner, 1957; Smith, 1936; Ash, 1956). These negative states motivate one to accommodate to the opinion that contradicts his/her belief. Occasionally FCE might occur to the outgroup and FUE might arise for the ingroup. Further research may be needed to help understand this possibility.

Thus, social projection is an important process mediating the relationship between how one views oneself and the behaviour or opinions of others. In turn one's views of others opinions justify one's own positions and it may also predict one's future behaviour. In this manner, the normative beliefs of both the theory of reasoned action and the theory of planned behaviour might be self-generated, reflecting one's attitudes rather than the actual beliefs held by significant others.

The sensation seeking approach

The need for high sensation is a personality trait with a biological origin (Zuckerman, Eysenck and Eysenck, 1978; Zuckerman, 1983; 1988). There are differences in the brains (Hegerl, Gallinat, and Mrowinski, 1995), in the blood plasma levels of dopamine beta hydroxylase (Calhoon, 1991), and in the thyroid hormone level (Balada, Torrubia, and Arque, 1992) of high sensation seekers (HSS) and low sensation seekers (LSS). HSS also display reduced motoneuronal excitability in test (Pivik, Stelmack, and Bylsma, 1988).

Sensation seeking has been most thoroughly examined using Zuckerman's (Zuckerman, Kolin, Price and Zoob, 1964; Zuckerman, 1979) four sensation seeking subscales: *thrill and adventure seeking* (people who seek sensation through risk such as parachuting, non-condom use); *experience seeking* (people who seek sensation in a nonconforming life style, such as having unconventional friends, music, art); *disinhibition* (people who seek sensation through social stimulation such as parties, variety of sexual partners); and *boredom susceptibility* (people who seek change of conditions that remain the same for any period of time).

A need for high sensation is a need for complex, intense and ambiguous stimuli (Pearson, 1970; 1971; Zuckerman, 1983; 1988; Zuckerman, Kolin, Price and Zoob, 1964). HSS prefer, for example, expressionist style paintings to low tension pastoral scenes (Zuckerman, Ulrich and McLaughlin, 1993), hard rock and heavy music (Arnett, 1992) opposite to LSS. They more regularly practice exercises (Terre, Ghiselli, Taloney and DeSouza, 1992) which are not of formal and structural nature (Babbit, Rowland and Franken, 1990): such as athletics (Rossi and Cereatti, 1993; Schroth, 1995), mountain climbing (Cronin 1991), skydiving (Hymbaugh and Garrett, 1974), and skiing (Bouter, Knipschild, Feij, and Volovics, 1988). HSS seek adventure more (Pilkington, Richardson, and Utler, 1988): for instance, adventure holidays (Gilchrist, Povey, Dickinson, Povey, 1995), take more financial risks (Wong and Carducci, 1991), drive more when drunk (Arnett, 1989), accumulate more traffic violations (Wilson, 1990), have higher interest in gambling involving money (Wolfgang, 1988), have more flamboyant, sensual and varied fantasies (Franken and Rowland, 1990). HSS are more introspective (Kumar, Pekala and Cummings, 1993) than LSS, but, at the same time they are less inhibited in their interactions because they are more talkative (Williams and Ryckman, 1984), more competitive (Ryckman, Thornton, and Butler, 1994), disclose personal thoughts and feelings more, and encourage others to do so as well (Franken, Gibson and Mohan, 1990). It seems unclear whether HSS and LSS differ in assertiveness. Apt and Hurlbert (1992) found no differences, but Williams and Ryckman (1984) found that HSS are more assertive. Opposite to LSS, HSS are more attracted to people with dissimilar attitudes (Thornton, Ryckman and Gold, 1981; Williams, Ryckman, Gold and Lenney, 1982), perhaps because HSS have better stress management skills (Smith, Ptacek and Smoll, 1992), are more confident and have higher self-control (Lubin, Cain, Van-Whitlock, 1992). HSS are more willing to try many foods (Raudenbush, Van-der-Klaauw, and Frank, 1995).

There are differences between HSS and LSS males and females. HSS males prefer news/documentary reports, whilst HSS females prefer activities centred on alcohol and rock music (Schierman and Rowland, 1985). LSS males and females prefer musical, drama, and comedy plays, and romantic/dramatic novels (Schierman and Rowland, 1985).

HSS have described themselves as having less feminine characteristics than LSS (Tobacyk and Thomas, 1980; Waters and Pincus, 1976), and indeed males are higher sensation seekers than females (Ball, Farnill and Wangeman, 1984; Furnham, 1984; Gundersheim, 1987; Kurtz and Zuckerman, 1978; Madsen, Das, Bogen, Grossman, 1987; Murphy, *et al.*, 1977; Zuckerman, Eysenck and Eysenck, 1978; Zuckerman and Litle, 1986). However, Nickel, Lubin and Rinck, (1986) found that female adolescents were higher in sensation seeking than male adolescents. In comparison to LSS females, HSS females, are more into athletics (Gundersheim, 1987), are more domineering and oblige less because they are more uninhibited and seek more adventure (Pilkington, Richardson, and Utler, 1988), have higher education, higher occupational status

(Magaro, Smith, Cionini, Velicogna, 1979) and are more creative (Schaeffer, Diggins, and Millman, 1976).

In order to experience high sensation, HSS tend to keep their options open by putting off making decisions until the last minute, breaking commitments if something more interesting arises, acting impulsively regarding new opportunities, and by guarding themselves against making commitments that might prevent them from making advantage of new opportunities (Franken, 1993).

One of the barriers to condom use is that they are perceived as detracting from sexual sensation (Campbell, Peplau and DeBro, 1992; Choi, Rickman, and Catania, 1994; Norris and Ford, 1994). Norris and Ford found that condom use decreases when people have experienced loss of sensation in prior condom use. Choi, Rickman, and Catania found that 41% of heterosexual adults complain that condoms reduce sensation. As people search for sensation in a sexual act, the relationship between sensation seeking personalities and condom use needs to be understood.

Sensation seeking influences people's number of sexual partners, length of relationship, experience of casual sex, percentage of condom use, and preference for sexually explicit materials. HSS have a higher number of sexual partners in total (Kraft and Rise, 1994; Seto, Lalumiere, and Quinsey, 1995; Sheer and Cline, 1995; Sheer and Cline, 1994) and per year (Seto, Lalumiere, and Quinsey, 1995). They have sex with a new sexual partner sooner, have less long-term relationships (Seto, Lalumiere, and Quinsey, 1995), engage more in casual sex (Kraft and Rise, 1994), have more anal sex (Mulry, Kalichman, Kelly, Ostrow, *et al.*, 1997), and use condoms less frequently (Sheer and Cline, 1994). HSS also have their first sexual intercourse earlier, and desire to have more sexual variety and more sexual partners in the next year (Seto, Lalumiere, and Quinsey, 1995). Finally, HSS prefer sexually explicit material (Schierman and Rowland, 1985).

Sensation seeking also influences sexual and marital enjoyment in a peculiar manner. HSS tend to report sex as pleasurable and LSS as tolerable (Ficher, Zuckerman and Steinberg, 1988). HSS females have greater sexual desire, greater sexual arousability, more positive attitudes towards sex, but they are less satisfied in their sexual and marital life than LSS females (Apt and Hurlbert, 1992). This occurs independently of males' level of sensation seeking (Gibson, Franken and Rowland, 1989).

In summary, sensation seeking could influence intentions and behaviour in so far as these can meet a need to increase or reduce sensation. HSS are guided mainly by their affective moods, therefore their intentions to use a condom, as well as their condom use, should be less affected

by reasoning than would be true among LSS. If this is the case, sensation seeking should have a direct impact on condom use and HSS should be less likely to plan condom use. In addition, as HSS might be more impulsive, they might have lower perceived behavioural control. However, previous research has found a positive correlation between self-control and sensation seeking, and between self-confidence and sensation seeking.

Previous studies on HIV/AIDS and condom use, using the FCE and the sensation seeking approach

A few studies have used the FCE to show that people having unsafe sexual practices assume that their behaviour is normative (Abrams *et al.*, 1992 a; Van-der-Eijnden *et al.*, 1993). Some other studies have proved that HSS are more likely to have more sexual partners (Seto, Lalumiere, and Quinsey, 1995) and to engage in sexual practices involving risk (Fisher and Misovich, 1990).

Conclusion

In Chapter 1, it was pointed out that the TRA, the TPB, as well as the HBM, all consider the relationship between self and others, and why this is important for condom use was discussed. In the present chapter, it was outlined that people tend to project their beliefs onto others. Therefore, their assumptions of subjective norms about condom use might express their motivation to comply with their own social projection, rather than to comply with relevant others. In addition, people's personality differences in sensation seeking may act as a facilitator or inhibitor of condom use. So, the FCE as well as the sensation seeking personality approach may need to be considered in the prediction of condom use.

The next four chapters will be empirical. In the first two, it will be examined the social projection bias, using beliefs based on the HBM, as well as its relationship to past-current condom use. Afterwards, in Chapter 5 it will be described a study developing measures relevant to prediction of condom use for use in Chapter 6. In both Chapters, 5 and 6, it will be investigated sub-sample differences that might affect people's standing on various variables. Comparisons with previous research will be made where appropriate.

Chapter 3: Perceived social norms, social projection and condom use: A study of Portuguese students.

"Shall we say, then, that we look out from the inside...?"

Maurice Merleau-Ponty
"Eye and Mind" (1961)

This chapter presents the findings of a survey of Portuguese student's beliefs about HIV, AIDS and suggesting condom use. The beliefs measured are based on the health belief model and divided into three types: own beliefs, consensus (C) beliefs (the beliefs one thinks people hold) and meta-consensus (Mt) beliefs (the beliefs one thinks people believe that other people hold). Beliefs respondents think others hold refer to perceived social norms and these are assessed as own beliefs may mediate between people's perceived social norms and past-current condom use. The focus of the chapter is on the link between past-current condom use and perceived social norms/social projection.

INTRODUCTION

It is known that past behaviour affects beliefs (Sutton, 1994) and that in turn future behaviour is affected by beliefs (Ajzen, 1988; Cialdini, Reno and Kallgren, 1990; Fishbein and Ajzen, 1975; Rosenstock, 1974 a and b). Also, the younger and unmarried are likely to swap sexual partners and be at great risk of HIV infection. Therefore, understanding the relationships between beliefs and condom use is particularly relevant among the young. This study is set to examine such relationships.

The health belief model (HBM)

The HBM (Rosenstock, 1974 a and b) is one of the models that links beliefs to behaviour. It is composed of four beliefs and cues to action (Janz and Becker, 1984) that could directly influence the adoption of condom use. These beliefs are in decreasing order of importance (p. 37, Rutter, Quine and Chesham, 1993): perceived barriers (to condom use), perceived vulnerability (to catch HIV and AIDS if condoms are not used), perceived benefits (of using condoms) and perceived seriousness (of catching HIV). Specific cues to action are a symptom (of AIDS) or a health message (encouraging condom use to prevent the HIV/AIDS spread). Demographic variables such as class, gender and age are mediated through these beliefs (Becker, Heafner, Kasl, Kirscht, Maiman and Rosenstock, 1977). For the HBM, beliefs are immediate correlates of behaviour (Rosenstock, 1974 a and b).

Previous research suggests that the model is limited for predicting condom use, although useful

to predict other sexually risky behaviours such as having multiple partners (Lollis, Johnson and Antoni, 1997). However, some of the model's components have been significantly related to condom use, as follows. Perceived disadvantages of condom use, such as condoms reduced feelings and pleasure (Oswald and Pforr, 1992), are barriers to condom use (Abraham *et al.*, 1992; Catania *et al.*, 1992; Pleck *et al.*, 1990; Thorpe, Ford, Fajans and Wirawan, 1997; Wilson *et al.*, 1992). Perceived benefits resulting from condom use, such as gaining the partners' appreciation, influence intentions (Pleck *et al.*, 1990) and are related to condom use (Laraque, McLean, Brow-Peterside and Ashton, 1997). Perceived seriousness of becoming infected is related to condom use (Edem and Harvey, 1994-1995; Simon, Morse, Balson, Osofsky *et al.*, 1993; Yep, 1993).

Some studies have associated feeling vulnerable to using condoms. Homosexual men with high perceptions of vulnerability to sexually transmitted disease infection were found to be more likely to use condoms (Valdisseri *et al.*, 1989), and so were women sex workers (Thorpe *et al.*, 1997) and others who felt more vulnerable to sexual transmitted diseases (Boyd *et al.*, 1991; Catania, Coates, Golden, Dolcini *et al.*, 1993; Zimet, Bunch, Anglin, Lazebnik *et al.*, 1992). However, Montgomery *et al.* (1989) suggest that vulnerability better predicts simple behaviours such as attending a screening clinic than more complex behaviours that involve extreme threat, such as breast self examination. In addition, older respondents may report both high perception of own vulnerability and high risk practices (Abraham *et al.*, 1992). This is because prior behaviour is correlated to current and future behaviour (Sutton, 1994) and it is one of the major predictors of future condom use (Baldwin and Baldwin, 1988; Richard and van-der-Pligt, 1991). On the other hand, people may report feeling invulnerable because they already use condoms. Furthermore, vulnerability is also influenced by people's perception of control over their behaviour. People who believe that catching the HIV virus is under their own control tend to feel less vulnerable than others of their own gender and age (Van-der-Velde *et al.*, 1992). Thus, there seems to be little evidence that high vulnerability concerning HIV motivates risk reduction (Gerrard, Gibbons, Warner and Smith (1993). Yet, perceiving one's partner as vulnerable to AIDS might relate to condom use, because people tend to believe that they are not exposed to sexual partners infected with the AIDS virus (Abraham *et al.*, 1991).

The HBM does not include in its components beliefs about self-vulnerability, such as of becoming infected with the HIV virus, but there is not either strong empirical evidence linking feelings about self-vulnerability to condom use. The model could perhaps include beliefs about others, particularly about one's sexual partner as vulnerable to catch the HIV virus. These beliefs about others express perceived social norms and may sustain people's own beliefs.

Perceived social norms and social projection

One of the models which include the role of perceived norms on behaviour is the theory of

planned behaviour (Ajzen, 1991). It regards norms as a combination of people's motivation to comply with what they believe others important to them expect them to do. It also states that the link between these subjective norms and intentions is weaker than the link between attitudes and intentions and the material presented in Chapters 3 and 4 upheld this view. A possible reason for this is that subjective norms might not represent the actual beliefs held by significant others, but rather be a form of self-generated attitudes which are called in this chapter perceived social norms. These norms result from people's social projection of their own beliefs onto others. Own beliefs should mediate between perceived social norms and past-current condom use.

Social projection (Allport, 1924; Fenigstein and Abrams, 1993; Holmes, 1968) has been found to be relevant to the prevention of HIV and AIDS. An explanation for this is that people find justification for their own beliefs and practices when they assume that these are shared by others. Several findings illustrate this. For instance, men who feel vulnerable to HIV and AIDS assume that others are also, but men who do not feel vulnerable assume that their fellow classmates are not either (McCall, DePalma, English and Potts, 1996). Another study found that people who mistakenly believed that others share their unsafe attitudes towards sex, intend less to engage in safe sex practices (Abrams, Abraham, Sheeran and Spears, 1992 a; Van-den-Eijnden, Buunk and Bakker, 1993).

It is possible that social projection of beliefs about sexual practices should be stronger for non-virgins than virgins except, perhaps, concerning vulnerability. This is because non-virgins might seek approval of their sexuality and beliefs about it. Previous research conducted by Whitley (1998) seems to support this assumption: sexually experienced women make higher estimates of peer sexual activity than sexually inexperienced women. Virgins might seek approval of their sexual avoidance by believing that others are also avoiding sex (for example, sex before marriage and sex with multiple partners), and thus, others are invulnerable too.

According to Terry and Hogg (1996), perceived social norms would only be influential when they were thought to characterize a group that people strongly identified themselves with. They would serve people's needs either for social support or self-esteem (Rouhana, O'Dwyer and Morrison, 1997). Thus, it is proposed that men own beliefs should mediate between past-current condom use and perceived social norms for men. Women own beliefs should mediate between past-current condom use and perceived social norms for women.

Cialdini *et al.* (1990) differentiated between two types of beliefs: about descriptive norms (what people do) and injunctive norms (what others approve of). They concluded that in order to change behaviour it is more effective to focus on injunctive than descriptive norms, unless people already behave in a desirable way. Injunctive norms are relevant because people

engaging in risky behaviours regard their behaviours as normative in the injunctive sense that others approve them (Abrams, Abraham, Sheeran and Spears, 1992 a). Injunctive norms are similar to perceived social norms, except that they focus on others beliefs about the approval of condom use. Perceived social norms focus on others beliefs about the severity of catching the AIDS virus.

Following Terry and Hogg, and Cialdini *et al.*'s findings, as well as the HBM, it is expected to find that in order to increase condom use it would be advisable to convince people that their cautious beliefs are supported by their ingroup. Students are expected to perceive that their beliefs are supported by their ingroup when they assume consensus on their cautious or risky beliefs rather than disensus. Cautious beliefs are believing that AIDS is serious, feeling vulnerable to infection with the AIDS virus, believing that they are exposed to infected partners, seeing benefits and no barriers for condom use. The following is predicted:

- a. condoms should have been used more frequently among those who assume consensus on cautious beliefs than among those who assume consensus on risky beliefs;
- b. condoms should have been used more frequently among those that hold cautious beliefs and assume consensus than among those that hold cautious beliefs and assume disensus;
- c. condoms should have been used more frequently among those that hold risky beliefs and assume disensus than among those that hold risky beliefs and assume consensus.

In summary, it is believed that perceived social norms should be self-generated and help people to feel socially accepted. Thus, social projection of beliefs involving people's sexuality should be stronger for non-virgins than for virgins. Perceived social norms should be influenced by --and in turn influence-- behaviour when thought to characterize people's ingroup. Own beliefs mediate between past-current condom use and perceived social norms. There should also be differences in social projection as a function of past-current condom use. Thus, past-current behaviour should be linked to perceived social norms through mediation of own beliefs and should affect whether people assumed support (assumed consensus) or not (assumed disensus) for their beliefs.

Finally, a lot has been suggested to prevent the spread of the HIV virus (Manhart and Holmes, 2005; Robin *et al.*, 2004), but it is still unknown the extent to which interventions may be successful among university students. These are usually below 24 years old and those who are 15 to 24 years old compose half of all new HIV infections worldwide, with over 6.000 of people this age becoming infected each day (Joint United Nations Programme on HIV/AIDS, 2004). Moreover, university students tend to be away from home and, in their need to discover the new world, swap sexual partners frequently. In addition, the data shall be collected in Portugal because the relationship between social projection of this young population and their condom use does not seem to have been examined, yet.

Summary of hypotheses

Following this literature it was predicted that:

1. Perceived social norms should be self-generated and this social projection should be stronger among non-virgins than virgins, perhaps except on vulnerability;
2. Past-current condom use should be significantly related to perceived social norms for gender ingroups;
3. Own beliefs should mediate between past-current condom use and perceived social norms for gender ingroups;
4. Past-current condom use should also affect social projection such that:
 - 4.a. condoms should have been used more frequently among those who assume consensus on cautious beliefs than on risky beliefs;
 - 4.b. condoms should have been used more frequently among those that assume consensus than among those who assume disensus on cautious beliefs;
 - 4.c. condoms should have been used more frequently among those who assume disensus than among those that assume consensus on risky beliefs.

METHOD

Subjects and Procedure

Subjects were Portuguese university students. One hundred and one anonymous questionnaires were sent to student residents in Portugal who volunteered via the Internet News. An additional 100 were posted to the University of Porto; 200 to the *Universidade Classica de Lisboa* and 60 to the *Escola Superior de Belas Artes de Lisboa*. Some of those who volunteered via the Internet News returned their questionnaires by post, some by electronic mail. All students were guaranteed confidentiality. Questionnaires in Porto were handed out by lecturers who volunteered to do so by e-mail. The data from Lisbon was collected by the researcher and by a member of the Students Union at the University Restaurants.

Students were asked to participate in a study about their opinions of other people's attitudes and perceptions about AIDS. Three hundred and nineteen questionnaires were answered between mid-February and beginning of June, a response rate of sixty-nine percent. Sixty-eight women and 9 men responded to the e-mail survey; 32 women and 36 men responded to the Porto survey; and 80 women and 91 men responded to the Lisbon survey. Ages ranged from 18 to 27 years old (50% between 18 and 22; 67% under 25).

Design and Materials

The data were analyzed using a within subjects design. The measures were based on the health belief model and were taken from a survey on Scottish teenagers of ages between 16 and 20 years old (Abraham, Sheeran, Abrams, Spears and Marks, 1991; Abraham, Sheeran, Spears and Abrams, 1992; Abrams, Sheeran, Abraham and Spears, 1992 b). Own, consensus (C) and meta-consensus (Mt) beliefs (Table 1) were assessed to investigate the effects of past-current condom use on perceived social norms and on social projection. For each statement students indicated whether they personally endorsed it (own beliefs). Next they estimated the proportion of the population that would endorse it (C and Mt beliefs). Some demographic information such as age, sex, frequency of past-current sexual intercourse, number of sexual partners they ever had, and number of sexual partners in the last twelve months was obtained.

Table 1.
Correspondence of Own, C and Mt beliefs items.

| Items | Own | C | Mt |
|--|-----|-----|----|
| seriousness: Getting the AIDS virus is one of the worst things that could happen to me. | * | * | * |
| non-exposure: I do <u>not</u> think anyone I have a sexual relationship with is likely to have the AIDS virus. | * | * | * |
| vulnerability: I will get the AIDS virus in the next 5 years. | * | * | * |
| benefit: If I have sex with a new partner he/she will be pleased if I suggest using a condom. | * | n/a | * |
| barrier: I would be offended if someone who wanted to have sex with me suggested protecting themselves against the AIDS virus. | * | * | * |

* = items in the same row correspond to one another; n/a = item not measured in the consensus.

Own beliefs about AIDS were measured by the 5 items shown in Table 1, responded to on six-point measures (1= strongly disagree, 6= strongly agree). Consensus beliefs (perceived social norms) were measured by 8 items. Students estimated what percentage (from 0 to 100) of men, and what percentage of women, they believed would agree with each of the Own beliefs' statements. Owing to a technical error the item measuring benefit was missed. Meta-consensus beliefs (perceived social norms) were measured by 10 items. Students estimated what percentage (from 0 to 100) of men believed that other men would agree with each of the own beliefs' statements. They were also asked what percentage of women believed that other women would agree with each of these statements.

Assumed consensus/disensus (assumed ingroup support or not of own beliefs) were assessed by a two-point measure (1= assumed consensus, 2= assumed disensus). Assumed consensus represented those who thought that their own beliefs were supported by their gender ingroup on the consensus beliefs. It was obtained by computing scores of men/women who agreed/disagreed and estimated that above 49% / below 50% of men/women agreed with the same statement. To establish assumed disensus there were computed scores of men/women who agreed/disagreed and estimated that below 50% / above 49% of men/women agreed with the same statement.

Assumed meta-consensus/meta-disensus (assumed ingroup support or not of own beliefs) was measured on a two-point measure (1= assumed meta-consensus, 2= assumed meta-disensus). Assumed meta-consensus represented those who thought that their own beliefs were supported by their gender ingroup on the meta-consensus beliefs. It was obtained by computing scores of men/women who agreed/disagreed and estimated that above 49% / below 50% of men/women believed other men/women agreed with the same statement. To establish assumed meta-disensus, scores of men/women who agreed/disagreed in regard to a statement and estimated that below 50% / above 49% of men/women believed other men/women agreed with

the same statement were computed.

Students' prior sexual risky behaviour was analyzed using a series of filtered questions.

Students were first asked whether they had penetrative sexual intercourse (PSI) (yes or no), and if yes, how frequently they currently used condoms (1= never, 6= every time). Subsequent questions asked the total number of partners with whom they had ever had PSI, the number of partners in the last 12 months, and their age of first experience of PSI. Next, students were asked whether they currently had a steady partner (yes or no), whether they had PSI with that partner (yes or no), whether they had been going out with a steady partner in the last year but having intercourse with others (yes or no), and if yes, how frequently did they use condoms (1= every time, 5= never). Students were asked whether they had ever tried injectable drugs; were emotionally close to an injectable drug user, or to someone with AIDS. The last three questions asked students to give their sex, age and occupation.

Data analysis

The data were first screened for outliers and unusual responses. Then, differences between the consensus and meta-consensus perceptions of social norms were checked using t-tests.

Afterwards, the existence and size of social projection between subgroups (eg., virgins and non-virgins) within the sample was examined through the correlations among constructs. Next, past-current condom use was analyzed in the following two steps. First, correlation analyses looked at the relationship between past-current condom use and own beliefs. Second, correlation and regression analyses tested whether own beliefs mediated between past-current condom use and perceived ingroup social support. Ingroup social support referred to men and women's consensus beliefs for men and for women, respectively; as well as men and women's meta-consensus beliefs for men and for women respectively. The size of the correlations between subgroups (for eg., virgins and non-virgins; men and women) were compared using Z-tests. Differences on social projection among those who assumed consensus and those who assumed disensus as a function of reported past-current condom use was examined using t-tests.

RESULTS

The data were screened for outliers and unusual responses. Mahalanobis distance and chi-square statistics revealed 9 multivariate outliers and these were excluded from further analyses. All items were based on the health belief model and were analyzed as individual measures. Means, standard deviations and scoring for all measures and samples are shown in Table 2.

The present analyses examined whether past-current condom use influenced students' beliefs about HIV/AIDS and condoms. Correlation analyses were applied to identify whether: a. beliefs about others (perceived social norms) were self-generated (social projection), b. projection was stronger for non-virgins, and c. own beliefs mediated between perceived social norms and past-current condom use. To investigate mediation, multiple regression analyses were also conducted. T-tests were employed to examine differences on assumed gender ingroup support of students' own beliefs (assumed consensus/assumed disensus) as a function of students' frequency of past-current condom use. These analyses were performed to examine the link between past-current condom use and perceived social norms/social projection.

Students behavioural self-reports

Seventy percent (223) of the students were non-virgins (139 women and 83 men) and 61% (136) of these had sex with penetration before 19 years old. In the last twelve months sixty-five percent (144) of the non-virgins had one sexual partner, 79% (177) had one or two, and 13% (28) had more than two sexual partners. Fifty-one percent (163) of the students had a stable partner, and 93% (152) of these had penetrative sex with their partners. Twelve percent (39) of the students had a stable partner and penetrative sex with another in the last twelve months. Fifty-four percent (21) of these used condoms almost every time and most time in the encounters with affairs. Forty-one percent (91) of the non-virgins had used condoms almost every time and most of the time in penetrative sex since they started having sex. Seven percent (23) of the students were close to someone who injected drugs and 1% (3) had tried them. Three percent (9) of the students were close to someone with AIDS.

Correlation analyses on the behavioural self reports revealed the following significant findings. Students with higher number of sexual partners in the last twelve months had started having sexual intercourse at an earlier age ($r = -.25, p < .001$), were more likely to have had an affair ($r = -.48, p < .001$), more likely to be close to someone who injects drugs ($r = .28, p < .001$) and more likely to have tried injectable drugs ($r = -.24, p < .001$). The earlier the students' first sexual intercourse, the more likely they were to have had affairs ($r = .17, p < .01$), and to have tried injecting drugs ($r = .14, p < .05$). There was also a significant correlation between having tried injectable drugs and being close to someone who has tried them ($r = .35, p < .001$).

Own beliefs

Descriptive analyses printed in Table 3 revealed that Portuguese students thought that AIDS was serious (90%), saw benefits (84%) and no barriers (86%) for condom use, but believed they were not exposed to sexual partners infected with the AIDS virus (88%) and felt invulnerable to AIDS (95%). These findings were similar to those obtained in the survey among Scottish students from where the measures were taken, although Scottish young people seemed to feel less non-exposed (52%). There were no significant differences on the beliefs according to risk (virgins/non-virgins at risk: non-virgins without a stable partner or with a stable partner that had an affair in the last twelve months), but a couple of beliefs varied according to gender (men/women). Women felt significantly more vulnerable (men $M= 1.73$ $SD= .89$, women $M= 2.08$ $SD= 1.04$, $t(306) = -3.09$, $p<.01$). Men believed significantly more that a new sexual partner would be pleased by the suggestion of condoms (benefit) (men $M= 4.88$ $SD= 1.06$, women $M= 4.36$ $SD= 1.45$, $t(311) = 3.67$, $p<.001$).

Consensus and meta-consensus beliefs

As shown on Tables 4a and 4b, consensus (C) and meta-consensus (Mt) estimates were significantly different with a tendency for greater extremity in the C than in the Mt estimates. There were also significant differences between the estimates about men and women as follows.

* Non-exposure: Men were estimated to hold stronger consensus beliefs than women that their partner's would not have the AIDS virus (Mt for men $M= 70.51$ $SD= 22.85$, Mt for women $M= 65.56$ $SD= 26.07$, $t(309) = 3.71$, $p<.001$).

* Vulnerability: Men were estimated as believing themselves to be significantly more vulnerable than women to AIDS (C for men $M= 17.63$ $SD= 21.56$, C for women $M= 15.76$ $SD= 19.26$, $t(311) = 4.40$, $p<.001$).

* Benefit: Men were estimated to hold stronger consensus beliefs than women that their partners would be pleased by the suggestion of condoms (Mt for men $M= 47.40$ $SD= 25.12$, Mt for women $M= 41.26$ $SD= 26.20$, $t(309) = 4.02$, $p<.001$).

* Barrier: Men were estimated to feel significantly less offended than women were by the suggestion of using condoms (C for men $M= 41.33$ $SD= 26.85$, C for women $M= 48.15$ $SD= 28.04$, $t(310) = -5.70$, $p<.001$). This pattern was repeated for Mt beliefs (Mt for men $M= 45.26$ $SD= 27.48$, Mt for women $M= 52.09$ $SD= 26.58$, $t(308) = -4.25$, $p<.001$).

Social projection

It was expected that perceived social norms (C and Mt beliefs) would be self-generated and the correlations between own and C and Mt beliefs were examined, as shown on Table 5. These analyses were performed for virgins, all non-virgins and for non-virgins at Risk (non-virgins without a stable partner or with a stable partner that had an affair in the last twelve months). It was hypothesized that non-virgins would project more than virgins, perhaps except on

vulnerability. However, the only significant difference in the correlations for virgins/non-virgins was on the own-Mt relationship estimated for women on benefit. The relationship was larger among non-virgins at Risk ($r = .51$) than virgins ($r = -.01$, $Z = 3.75$, $p < .001$).

The more students held a belief (own) the more they thought others held the belief too (Table 5). However, overall analyses of cell sizes on Table 6 show that non-virgins often thought that others held a different magnitude of their beliefs. This is because non-virgins assumed that their beliefs about AIDS and suggestion of condoms were shared by others. But, at the same time they also differentiated themselves from others in a positive manner by assuming more disensus than consensus on their beliefs. In addition, non-virgins saw no barriers to condom use and thought others did not see any either, but those who saw barriers thought others saw fewer barriers than themselves. In summary, non-virgins thought other people took AIDS less seriously than they did, were more exposed to infected partners, were more vulnerable, and saw more barriers and fewer benefits in condom use.

Own beliefs, perceived social norms and past-current condom use

It was hypothesized that past-current condom use would be significantly related to perceived social norms (measured by C and Mt beliefs) for gender ingroups. It was also expected that own beliefs would mediate between past-current condom use and perceived social norms for gender ingroups. To test for mediation it is necessary that both the independent (consensus/meta-consensus) and mediating variables (own belief) are significantly related to the dependent variable (condom use). However, as shown on Table 7, this condition was not met for any ingroup measure. The only measure this condition was met was women's outgroup perception of seriousness, and exploratory multiple regression analyses examined whether there was any mediation for women. Mediation would also have required that the relationship between own belief on seriousness and past-current condom use decreased in the presence of consensus about seriousness. As this was not the case, there was not mediation.

Frequency of past-current condom use among men was associated with perceived social norms about men (non-exposure, vulnerability and barrier), as if these norms represented part of the identity of being a sexually active man. Frequency of past-current condom use was weakly associated with own, C and Mt beliefs for men and women. The analyses were performed for non-virgins at risk too. Only seriousness was relevant for non-virgins at risk. These findings are described below.

* Seriousness: For women past-current condom use was significantly related to believing that catching the AIDS virus would be serious both for them and for men. Past-current condom use for non-virgins at risk was also significantly related to finding AIDS serious ($r = .36$, $p < .001$, $n = 93$, Table 7).

* Non-exposure: For men past-current condom use was significantly related to believing that both men's and women's sexual partners could have the AIDS virus. That is, the more men had used condoms the less they thought they were going to be exposed, the less they thought other men would be exposed, the less they thought that men and women thought there was consensus that they would be exposed. Thus, men seem to believe that condoms are protecting them, but women do not think so.

* Vulnerability: For men past-current condom use was significantly related to believing that it was the norm among men to feel vulnerable to catch the AIDS virus.

* Benefit: For men past-current condom use was significantly related to both believing that a new partner (for eg., women) would be pleased by the suggestion of condoms, and to believe that it was the norm among women to expect a new (men) partner to be pleased too.

* Barrier: For men past-current condom use was significantly related to believing that it was the norm among men to feel that their sexual partners would not be offended by the suggestion of condoms.

In summary, the direction of the correlations followed the HBM and there were more correlates of past-frequency of condom use among men than women. Among men, condom use was related to both own beliefs and perceived ingroup social norms (C and, mainly, Mt). That is, men seem more likely to protect themselves against the AIDS virus when they believe that other men share the same need. They also seem likely to protect themselves when they believe condom use will please their sexual female partners.

Searching for differences in social projection as a function of past-current condom use

T-tests investigated whether condoms had been used more frequently among those who assumed consensus on cautious than on risky beliefs. There were no statistically significant differences, though. Next, it was explored whether condoms had been used more frequently among those who assumed consensus than among those who assumed disensus on cautious beliefs. Again, there were no statistically significant differences. Then, it was examined whether condoms had been used significantly more frequently among those who assumed disensus than among those who assumed consensus on risky beliefs. It was found that condoms had been used more frequently among those that assumed meta-disensus than meta-consensus on risky beliefs about sexual partners not being exposed to the HIV virus (Mt-consensus $M=3.06$ $SD=1.19$, Mt-disensus $M=3.43$ $SD=1.10$, $t(181) = -1.97$, $p<.05$), and on self invulnerability (Mt-consensus $M=3.05$ $SD=1.12$, Mt-disensus $M=3.38$ $SD=1.16$, $t(195) = -1.93$, $p<.05$).

In summary, there were differences in social projection as a function of past-current condom use. As hypothesized, those who had been using condoms more frequently and held risky beliefs (felt non-exposed, invulnerable and saw no benefits of using condoms) assumed more

disensus (no support) than consensus. Thus, it might be that risky beliefs would be linked to non-condom use more when people would assume consensus than disensus.

Summary of hypotheses tests

As shown earlier in this section the following hypothesis were or were not confirmed.

- * Hypothesis 1 that, perceived social norms would be self-generated and that this social projection would be stronger among non-virgins than virgins, was supported.
- * Hypothesis 2 that, past-current condom use would be significantly related to perceived social norms for gender ingroups, was partially supported. Perceived social norms about men were associated with past-current frequency of condom use for men.
- * Hypothesis 3 that, perceived social norms would mediate between past-current condom use and own beliefs among gender ingroups, was not supported.
- * Hypothesis 4 that, there would be differences in social projection as a function of past-current condom use, such that:
 - 4.a. condoms would have been used more frequently among those who assumed consensus on cautious beliefs than on risky beliefs, was not supported;
 - 4.b. condoms would have been used more frequently among those that assumed consensus than among those that assumed disensus on cautious beliefs, was not supported;
 - 4.c. condoms would have been used more frequently among those that assumed disensus than among those that assumed consensus on risky beliefs, was partially supported. Those who used condoms more frequently assumed more disensus than consensus in their feelings of invulnerability and non-exposure.

Table 2.

Means, standard deviations and scoring for own, consensus and meta-consensus belief measures and sample.

| Measures | Mean | SD | N | Scoring |
|--|-------|-------|-----|---|
| Own beliefs | | | | |
| Seriousness | 5.32 | 1.26 | 317 | 1= strongly disagree; 6= strongly agree |
| Non-exposure | 5.12 | 1.30 | 227 | 1= strongly disagree; 6= strongly agree |
| Vulnerability | 1.89 | .97 | 311 | 1= strongly disagree; 6= strongly agree |
| Benefit | 4.65 | 1.26 | 316 | 1= strongly disagree; 6= strongly agree |
| Barrier | 1.82 | 1.34 | 317 | 1= strongly disagree; 6= strongly agree |
| Own beliefs on 2-point scale | | | | |
| Seriousness | 1.90 | .30 | 317 | 1= disagree; 2= agree |
| Non-exposure | 1.88 | .33 | 227 | 1= disagree; 2= agree |
| Vulnerability | 1.05 | .23 | 311 | 1= disagree; 2= agree |
| Benefit | 1.84 | .37 | 316 | 1= disagree; 2= agree |
| Barrier | 1.14 | .34 | 317 | 1= disagree; 2= agree |
| Consensus beliefs (percentage of men/women that you imagine would agree with the statement) | | | | |
| Estimates for men | | | | |
| Seriousness | 87.64 | 15.55 | 312 | 0 to 100 would agree |
| Non-exposure | 73.42 | 23.97 | 313 | 0 to 100 would agree |
| Vulnerability | 17.63 | 21.56 | 312 | 0 to 100 would agree |
| Barrier | 41.33 | 26.85 | 311 | 0 to 100 would agree |
| Estimates for women | | | | |
| Seriousness | 87.83 | 15.30 | 312 | 0 to 100 would agree |
| Non-exposure | 72.12 | 24.72 | 313 | 0 to 100 would agree |
| Vulnerability | 15.76 | 19.26 | 312 | 0 to 100 would agree |
| Barrier | 48.23 | 27.98 | 313 | 0 to 100 would agree |
| Meta-consensus beliefs (percentage of men/women that you imagine believe other men/women would agree with the statement) | | | | |
| Estimates for men | | | | |
| Seriousness | 84.44 | 18.29 | 316 | 0 to 100 would agree |
| Non-exposure | 70.45 | 22.89 | 316 | 0 to 100 would agree |
| Vulnerability | 19.51 | 20.65 | 314 | 0 to 100 would agree |
| Benefit | 47.18 | 25.19 | 315 | 0 to 100 would agree |
| Barrier | 45.19 | 27.31 | 314 | 0 to 100 would agree |
| Estimates for women | | | | |
| Seriousness | 83.74 | 20.21 | 309 | 0 to 100 would agree |
| Non-exposure | 65.56 | 26.07 | 310 | 0 to 100 would agree |
| Vulnerability | 19.04 | 19.97 | 310 | 0 to 100 would agree |
| Benefit | 41.26 | 26.20 | 310 | 0 to 100 would agree |
| Barrier | 52.03 | 26.56 | 310 | 0 to 100 would agree |

Table 3.

Percentage (%) of Scottish (S) and Portuguese (P) own beliefs as well as percentage of Portuguese students who think that others hold a belief (consensus (C) and meta-consensus (Mt) estimates).

| Items | Own | | CMen | CWomen | MtMen | MtWomen |
|---------------|-----|-----|------|--------|-------|---------|
| | S | P | | | | |
| Seriousness | 82% | 90% | 88% | 88% | 84% | 84% |
| Non-exposure | 52% | 88% | 73% | 72% | 70% | 66% |
| Vulnerability | 2% | 5% | 18% | 16% | 20% | 19% |
| Benefit | ? | 84% | --- | --- | 47% | 41% |
| Barrier | 17% | 14% | 41% | 48% | 45% | 52% |

? = not mentioned in the article.

--- = item not measured in the consensus beliefs.

Table 4a.

Differences between consensus and meta-consensus estimates for men.

| Items | Target | | | | r | t | df |
|---------------|----------|-----------|----------|-----------|--------|---------|-----|
| | CMen | | MtMen | | | | |
| Seriousness | M= 87.66 | SD= 15.57 | M= 84.29 | SD= 18.38 | .46*** | 3.34*** | 310 |
| Non-exposure | M= 73.46 | SD= 24.00 | M= 70.47 | SD= 22.90 | .45*** | 2.15* | 311 |
| Vulnerability | M= 17.49 | SD= 21.54 | M= 19.55 | SD= 20.71 | .56*** | -1.84 | 310 |
| Benefit | --- | --- | --- | --- | --- | --- | --- |
| Barrier | M= 41.36 | SD= 26.90 | M= 45.13 | SD= 27.44 | .54*** | -2.55** | 307 |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

Table 4b.

Differences between consensus and meta-consensus estimates for women.

| Items | Target | | | | r | t | df |
|---------------|----------|-----------|----------|-----------|--------|---------|-----|
| | CWomen | | MtWomen | | | | |
| Seriousness | M= 87.99 | SD= 15.24 | M= 83.62 | SD= 20.27 | .42*** | 3.91*** | 309 |
| Non-exposure | M= 72.08 | SD= 24.86 | M= 65.54 | SD= 26.07 | .41*** | 4.14*** | 307 |
| Vulnerability | M= 15.89 | SD= 19.37 | M= 19.08 | SD= 19.98 | .50*** | -2.88** | 306 |
| Benefit | --- | --- | --- | --- | --- | --- | --- |
| Barrier | M= 48.07 | SD= 27.94 | M= 52.19 | SD= 26.54 | .58*** | -2.90** | 307 |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

Table 5.

Correlations between own (O), consensus (C) and meta-consensus (Mt) beliefs for virgins, all non-virgins (All N_V), and non-virgins at risk (Risk N_V) (non-virgins without a stable partner or with a stable partner that had an affair in the last twelve months).

| Items | C and Mt for Men | | C and Mt for Women | | |
|---------------|---------------------|-----------------|--------------------|-----------------|-----------------|
| | O - C | O - Mt | O - C | O - Mt | |
| Seriousness | Virgins | .18 (87) | .11 (87) | .23* (87) | .20 (87) |
| | Risk N_V | .23* (92) | .32** (95) | .29** (92) | .25* (91) |
| | Z-test (V and R)= | .34 | 1.47 | .42 | .35 |
| | All N_V | .26*** (216) | .19** (220) | .35*** (216) | .19** (213) |
| | Z-test (V and All)= | .65 | .64 | 1.02 | .08 |
| Non-exposure | Virgins | n/a | n/a | n/a | n/a |
| | Risk N_V | .14 (93) | .25** (95) | .23* (93) | .39*** (91) |
| | All N_V | .17** (215) | .22*** (218) | .23*** (215) | .27*** (212) |
| Vulnerability | Virgins | .39*** (85) | .41*** (85) | .43*** (85) | .32** (85) |
| | Risk N_V | .33*** (92) | .24* (93) | .39*** (92) | .22* (90) |
| | Z-test (V and R)= | .45 | 1.25 | .31 | .70 |
| | All N_V | .20** (214) | .25*** (216) | .24*** (214) | .24*** (211) |
| | Z-test (V and All)= | 1.61 | 1.39 | 1.65 | .67 |
| Benefit | Virgins | --- | -.08 (87) | --- | -.01 (87) |
| | Risk N_V | --- | .23* (95) | --- | .51*** (91) |
| | Z-test (V and R)= | | 2.08 | | 3.75** |
| | All N_V | --- | .23*** (218) | --- | .37*** (213) |
| | Z-test (V and All)= | | 1.20 | | 2.93 |
| Barrier | Virgins | .07 (87) | .12 (86) | -.04 (87) | -.04 (87) |
| | Risk N_V | .19 (93) | .27** (95) | .17 (93) | .19 (91) |
| | Z-test (V and R)= | | 1.03 | | |
| | All N_V | .10 (215) | .19** (219) | .13 (217) | -.01 (214) |
| | Z-test (V and All)= | | .56 | | |

*P<.05; **P<.01; ***P<.001

n/a = item only measured among non-virgins as it required having already had sex.

--- = item not measured in the consensus beliefs.

Table 6.

Cell sizes as a function of own beliefs (cautious/risky) and assumed ingroup support (consensus/meta-consensus, disensus/meta-disensus) of own beliefs among non-virgins.

| Items | N | | | | Total N | |
|---------------|----------------|-------|---------------|-------|----------|-------|
| | cautious | risky | cautious | risky | cautious | risky |
| | Consensus | | Disensus | | | |
| Seriousness | 69 | 1 | 124 | 21 | 193 | 22 |
| Exposure | 5 | 50 | 23 | 136 | 28 | 186 |
| Vulnerability | 2 | 64 | 10 | 137 | 12 | 201 |
| No barrier | 37 | 6 | 154 | 17 | 191 | 23 |
| | Meta-consensus | | Meta-disensus | | | |
| Seriousness | 63 | 1 | 129 | 20 | 192 | 21 |
| Exposure | 5 | 50 | 21 | 135 | 26 | 185 |
| Vulnerability | 2 | 65 | 9 | 134 | 11 | 199 |
| Benefit | 29 | 13 | 147 | 23 | 176 | 36 |
| No barrier | 31 | 6 | 156 | 18 | 189 | 24 |

Table 7.

Correlations between frequency of past-current condom use (Freq) and own (O), consensus (C) for men/women and meta-consensus (Mt) beliefs.

| Items | Freq - O | Freq-CMen | Freq-MtMen | Freq-CWom | Freq-MtWom |
|---------------|--------------------------|---------------|---------------|---------------|---------------|
| Females | .19* (137) | .17* (133) | .07 (137) | .16 (133) | .08 (131) |
| Males | .04 (80) | .00 (79) | -.00 (80) | -.07 (79) | .07 (79) |
| Seriousness | Z-test (F and M)= 1.07 | | 1.19 | | |
| All | .13 (218) | .11 (213) | .04 (218) | .08 (213) | -.02 (211) |
| Risk N_V | .36*** (93) | .04 (91) | .17 (94) | .05 (91) | .06 (90) |
| | Z-test (All and R)= 1.96 | | | | |
| Females | .07 (136) | .13 (133) | .07 (137) | .10 (133) | .13 (131) |
| Males | -.12 (79) | -.25* (80) | -.25* (80) | -.22* (80) | -.14 (80) |
| Non-exposure | Z-test (F and M)= | | 2.69 | 2.28 | 2.25 |
| All | -.00 (216) | -.00 (214) | -.04 (218) | -.01 (214) | .05 (212) |
| Risk N_V | -.01 (93) | .11 (92) | .01 (94) | .08 (92) | .10 (90) |
| | Z-test (All and R)= | | | | |
| Females | .01 (136) | -.02 (133) | .01 (136) | .02 (133) | -.05 (131) |
| Males | -.10 (78) | .14 (80) | .28** (80) | .15 (80) | .08 (80) |
| Vulnerability | Z-test (F and M)= | | 1.94 | | |
| All | -.05 (215) | .02 (214) | .08 (217) | .05 (214) | -.02 (212) |
| Risk N_V | .05 (92) | -.08 (92) | .15 (94) | .01 (92) | .11 (90) |
| | Z-test (All and R)= | | | | |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

Note: Regression analyses investigated whether females own beliefs about seriousness mediated the relationship between consensus beliefs for men about seriousness and frequency of past-current condom use. Own seriousness among females predicted CMen about seriousness ($F(1, 171) = 47.80, p < .001, RSquare = .22, Beta = .47, T = 6.91, p < .001$). Females' past-current condom use was related to own belief about seriousness ($F(1, 135) = 5.08, p < .05, RSquare = .04, Beta = -.19, T = -2.25, p < .05$), and CMen belief about seriousness ($F(1, 131) = 3.85, p < .05, RSquare = .03, Beta = -.17, T = -1.96, p < .05$). However, when both (Own and CMen) beliefs were entered together into the equation none of them were significant. Therefore, there was no mediation.

Table 7 /continued.

Correlations between frequency of past-current condom use (Freq) and own (O), consensus (C) for men/women, and meta-consensus (Mt) beliefs.

| Items | Freq - O | Freq-CMen | Freq-MtMen | Freq-CWom | Freq-MtWom |
|----------|---------------------|---------------|-----------------|---------------|---------------|
| Females | -.04 (136) | --- | -.00 (136) | --- | -.08 (131) |
| Males | .22* (80) | --- | .16 (80) | --- | .22* (80) |
| Benefit | Z-test (F and M)= | 1.84 | | | 2.11 |
| All | .09 (217) | --- | .05 (217) | --- | .04 (212) |
| Risk N_V | .04 (93) | --- | -.11 (94) | --- | -.15 (90) |
| | Z-test (All and R)= | | | | |
| Females | -.04 (137) | -.05 (133) | -.13 (136) | -.03 (133) | -.03 (131) |
| Males | .16 (80) | -.13 (78) | -.23* (80) | -.09 (80) | -.10 (80) |
| Barrier | Z-test (F and M)= | | .72 | | |
| All | .04 (218) | -.09 (212) | -.17** (217) | -.06 (214) | -.06 (212) |
| Risk N_V | .05 (93) | -.13 (92) | -.05 (94) | -.08 (92) | .08 (90) |
| | Z-test (All and R)= | | .97 | | |

*P<.05; **P<.01; ***P<.001

DISCUSSION

This chapter looked at the effects of past-current condom use on perceived social norms and social projection. Consistent with previous research on social projection perceived social norms tended to be self-generated (Allport, 1924; Fenigstein and Abrams 1993; Holmes, 1968) and therefore, did not always represent the actual beliefs held by others. Students projected their beliefs onto others and at the same time differentiated themselves as being better than their ingroup. People are likely to feel supported by their ingroup (Marks and Miller, 1987; Mullen *et al.*, 1985; Ross *et al.*, 1977; Sherman *et al.*, 1984; Suls *et al.*, 1990), except when they need to feel positively unique (Snyder and Fromkin, 1980).

Past-current condom use was related to perceived social norms, but contrary to what was expected own beliefs did not mediate such relationship. Nevertheless, the potentially important finding of the present study is that past-current condom use has affected social projection. Those who used condoms more frequently believed that there was less ingroup support for their risky beliefs about self and partner's invulnerability. Men believed that their ingroup supported their condom use. Cialdini *et al.*'s (1990) also found that others approve of influence behaviour. In addition, the present findings widen the applicability of the health belief model in the presence of risky beliefs. If people hold risky beliefs, they might be more likely to use condoms when they think that their ingroup hold cautious beliefs. The findings suggest that, people might choose to follow socially desirable ingroup norms, such as cautious ingroup beliefs, rather than self risky beliefs about self and partner's vulnerability to catch the AIDS virus.

Terry and Hogg's (1996) study has concluded that the ingroup provides an important bases for self definition. Indeed, having actual support of others may cause condom use, but perceiving social support may do so too, even if it does not represent the actual support of others. Unfortunately, it is not possible to be sure about the causal relationships as both beliefs and behaviour were measured at the same time.

Thus, it arises that perceived social norms might facilitate condom use mainly among those who hold risky beliefs and envisage that their beliefs are not socially supported. The same principle might apply to subjective norms from the TPB, what would explain why only sometimes subjective norms affect condom use. Note that, most of the students held cautious beliefs. As such, their subjective norms might be less influential on condom use.

In conclusion, the belief that there is ingroup support for condom use might cause people to use condoms, particularly men and those who hold risky beliefs. However, as the respondents were not randomly selected these findings might not represent the actual student population. In addition, the effects found were only significant at an alpha level of .05. Therefore, the next

chapter will examine whether social projection of own beliefs onto perceived social norms remains associated to condom use when different measures are used. It will also investigate whether men continue to appear more likely to protect themselves against the AIDS virus when they believe that other men share the same need. Furthermore, AIDS is less of an issue in Portugal than in Brazil, despite of the cultural heritage that ties both countries. Thus, the next study will be carried out among Brazilian university students. In this manner, the next chapter will work as a continuation and clarification to the present findings.

Chapter 4: Perceived social norms, social projection and condom use: A study of Brazilian students.

This chapter presents the findings of a study of Brazilian students' beliefs about AIDS. It examines the relationship between their past-current condom use with their beliefs, with their perceived social norms, and with their social projection. It aims to clarify the findings of chapter 3 by verifying whether the same pattern of relationships is obtained on a Brazilian sample and with some different measures than those used in the previous Portuguese sample.

INTRODUCTION

Unlike Portugal, where the rate of HIV/AIDS cases has not become much of an issue, in Brazil, a country where the majority of the population live in poverty, the high rate of HIV/AIDS has had already a devastating social impact. Yet, despite of the limited financial resources, the Brazilian Government has managed to put in place some measures which have considerably protected the population, especially the babies to be born from HIV positive mothers. In 2004, at least 371,827 approximate number of AIDS cases in adults, of which 118,520 were women, had been identified in Brazil. The main route of transmission had been through heterosexual contact, with 1 HIV positive woman to every 2 infected men. Most of the children infected under 13 years old have caught the virus from their mothers before being born (Brazilian Ministry of Health, 2005). In order to reduce the mother-baby transmission, every pregnant woman has access to free HIV test, since 1996. If HIV positive, mother-to-be are offered highly active antiretroviral treatment. In addition, babies are delivered by caesarean sections when the blood viral load of mothers-to-be is over 1,000 copies/mL after 34 weeks of pregnancy. Afterwards, babies are fed with free formula milk for six months instead of being breastfed (Brazilian Ministry of Health, 2004). These procedures have decreased the mother-baby transmission rates before birth. At the Hospital dos Servidores do Estado do Rio de Janeiro, for instance, the decrease was from 3.5% in 1996, when there was not highly active antiretroviral therapy offered to mothers-to-be, to 1.6% in 2004 when 88% of women were effectively treated. Note that, between the years 1996 and 2004 the number of HIV-infected pregnant women grew, particularly among the poorest. Thus, the length of time in the administration of the antiretroviral drugs during pregnancy has played a crucial decrease in the mother-baby transmission in Brazil.

Poverty is not the only cause of the spread of HIV/AIDS, though. Research has found that fatalism is related to sexual risk (Moore and Rosenthal, 1991) as well as to intention to use condoms (Hardeman, Pierro and Mannetti, 1997). Therefore, in the present study past-current condom use should be negatively correlated to the belief that little can be done to stop the AIDS spread. Another possible negative correlate of past-current condom use should be the belief that

the HIV virus is restricted to specific groups to which people do not belong to. Identifying other groups as the ones at risk of HIV infection gives the illusion that catching the virus is improbable (Van-der-Pliigt, 1991; Van-der-Velde *et al.*, 1992). Asking a sexual partner about his/her sexual history and sexual life style to know whether a partner is infected might also be a negative correlate of condom use. This is because people might feel mistakenly safe for taking precautions by asking and be then less likely to use condoms. Even American medical students have been found to be unprepared to assess the HIV risk of infection of their patients. For instance, they failed to ask patients concerned about HIV infection about several HIV risk behaviours (Cook, Steiner, Smith, Evans, Willis, Petrusa, Harward and Richards, 1998).

Due to the media, students should be aware that contamination by the HIV virus is serious because AIDS is fatal. For the health belief model, perceived seriousness and severity of AIDS should be positive correlates of past-current condom use. In chapter 3 it was reported that condoms had been used more frequently among those that assumed disensus than consensus on risky beliefs about non-exposure and invulnerability. Thus, these beliefs are also examined. The same predictions tested in chapter 3 apply to the present study. It is predicted that:

1. Perceived social norms should be self-generated;
2. Past-current condom use should be significantly related to perceived social norms;
3. Own beliefs should mediate between past-current condom use and perceived social norms;
4. Past-current condom use should also affect social projection such that:
 - 4.a. condoms should have been used more frequently among those who assume consensus on cautious than on risky beliefs;
 - 4.b. condoms should have been used more frequently among those that assume consensus than among those that assume disensus on cautious beliefs;
 - 4.c. condoms should have been used more frequently among those that assume disensus than among those that assume consensus on risky beliefs.

METHOD

Subjects and Procedure

Subjects were Brazilian university students from a town called Florianopolis, located in the south of Brazil. They were second year university students (in a five year degree programme) studying for a degree in either civil, mechanic, or electronic engineering. They were selected and recruited during December. One hundred and seventeen students answered a questionnaire. Among these 11 were women and 10 were virgin men. Only the responses of non-virgin men (96) were analyzed. Their ages ranged from 19 to 22 years old (45% below 20 years old).

Permission to hand out the questionnaires was given by the head of the faculty, followed by the head of the department, and the lecturer. Students were told by the researcher that the survey was looking at their opinions of other people's attitudes and perceptions about AIDS. Students answered the questionnaire in their classrooms, during a formally scheduled lecture slot. All questionnaires were collected at the end of the sections. The class sizes ranged from 20 to 30 students. Nobody declined to take part in the study. The data collection involved 6 sessions during 2 working days, after checks to guarantee that these students would not be chosen for other data collection organized by the researcher at the same University. Students attended compulsory lessons of an Engineering Course and were unaware of the data collection prior to the day in which they answered the questionnaires. Engineering classes were chosen because they were mainly composed of men.

Design and Variables

The data were analyzed using a within subjects design. The measures investigated perceptions of self and sexual partner vulnerability, seriousness, and perceived control of AIDS (Table 1). Items measuring seriousness, non-exposure, vulnerability, and severity 1 and 2, were taken from a survey of Scottish people of ages between 16 and 20 years old conducted by Abraham, Sheeran, Abrams, Spears and Marks's (1991). The item measuring low control was taken from Abrams, Sheeran, Abraham and Spears (1992 b), a survey on the same young Scottish people. Measures on seriousness, non-exposure and vulnerability were selected from the measures applied in Chapter 3 (A Study of Portuguese Students) in order to reduce the size of the questionnaire employed in the present study.

Own, C and Mt beliefs were assessed to investigate the effects of past sexual history and past-current condom use on perceived social norms and on social projection. For each statement students indicated whether they personally endorsed it (own beliefs). Next they estimated the proportion of the population that would endorse it (C and Mt beliefs). Some demographic information such as age, sex, how many times per month they had been having

sexual intercourse, and number of sexual partners in the last twelve months was obtained. More details about the measures are below.

Table 1.

Correspondence of Own, C and Mt beliefs items.

| Items | Own | C | Mt |
|--|-----|-----|-----|
| low control: Little can be done to stop the spread of AIDS. | * | * | * |
| seriousness: Getting the AIDS virus is one of the worst things that could happen to me. | * | * | * |
| non-exposure: I do <u>not</u> think anyone I have a sexual relationship with is likely to have the AIDS virus. | * | * | * |
| vulnerability: I will get the AIDS virus in the next 5 years. | * | dff | dff |
| ask 1 (history): To know if my sexual partner(s) has(have) the AIDS virus I ask about his/her sexual history. | * | * | * |
| ask 2 (life): To know if my sexual partner(s) has(have) the AIDS virus I ask about his/her sexual lifestyle. | * | * | * |
| specific groups: I believe that AIDS is a problem only of homosexuals and injectable drug users. | * | * | * |
| severity 1: Percentage of people that when get the AIDS virus develop the illness. | * | * | * |
| severity 2: Percentage of people that when develop AIDS die of it. | * | * | * |

* = items in the same row correspond to one another

dff = items shared a different format from own beliefs: in the consensus and in the meta-consensus instead of "will get" was said "perhaps they will get".

Own beliefs about AIDS were measured by the 9 items shown in Table 1. Seven of these items were responded to on six-point measures (1= strongly disagree, 6= strongly agree) and two were responded to on a continuous scale from 0 to 100 percent. Consensus beliefs (perceived social norms) were measured by 16 items. Students estimated what percentage (from 0 to 100), and what percentage of women, they believed would agree with each of the own beliefs' statements. Owing to a technical error the item measuring ask 1 (history) for women and ask 2 (life) for men were missed. Meta-consensus beliefs (perceived social norms) were measured by 18 items. Students estimated what percentage (from 0 to 100) of men believed other men would agree with each of the own beliefs' statements. They were also asked what percentage of women believed other women would agree with these statements.

Assumed consensus/disensus (assumed ingroup support or not of own beliefs, as well as on Ask 1 and 2) were assessed by a two-point measure (1= assumed consensus, 2= assumed disensus). Assumed consensus represented those who thought that their own beliefs were supported by their gender ingroup on the consensus beliefs. It was obtained by computing scores of men/women who agreed/disagreed and estimated that above 49% / below 50% of men/women agreed with the same statement. To establish assumed disensus scores of men/women who agreed/disagreed and estimated that below 50% / above 49% of men/women

agreed with the same statement were computed .

Assumed meta-consensus/meta-disensus (assumed ingroup support or not of own beliefs) were assessed by a two-point measure (1= assumed meta-consensus, 2= assumed meta-disensus).

Assumed meta-consensus represented those who thought that their own beliefs were supported by their gender ingroup on the meta-consensus beliefs. It was obtained by computing scores of men/women who agreed/disagreed and estimated that above 49% / below 50% of men/women believed other men/women agreed with the same statement. To establish assumed meta-disensus there were computed scores of men/women who agreed/disagreed and estimated that below 50% / above 49% of men/women believed other men/women agreed with the same statement.

Students' prior sexual risky behaviour was analyzed using a series of filtered questions.

Students were first asked whether they had penetrative sexual intercourse (PSI) (yes or no), and if yes, how frequently they currently used condoms for vaginal, active anal, receptive anal intercourse (1= every time, 6= never) (this item was reversed during the analyses). Subsequent questions asked students' the total number of partners with whom they had PSI in the last 12 months, how many times per month they had been having PSI, their age of first experience of PSI, whether they were trying to get or make someone get pregnant. Next, students were asked whether they currently had a steady partner (yes or no), whether they had PSI with that partner (yes or no), whether they had been going out with a steady partner in the last year but having intercourse with others (yes or no), and if yes, how frequently did they use condoms (1= every time, 5= never). Students were asked whether they had ever tried intravenous drugs; were emotionally close to an intravenous drug user or to someone with AIDS. The last three questions asked students to give their sex, the sex of partners with whom they had PSI in the last twelve months (1=men, 2= women, 3= both men/women), their age, and where could they get free condoms if they wanted them.

Data analysis

The data were first screened for outliers and unusual responses. Next, differences between consensus and meta-consensus perceptions of social norms were investigated using t-tests. Then, the existence of social projection in the sample was analyzed through the correlations among constructs. Afterwards, the relationship between past-current condom use and beliefs was investigated by correlation analysis. The differences on social projection among those who assumed consensus and those who assumed disensus as a function of reported past-current condom use was examined using t-tests.

RESULTS

The data were composed of non-virgin men and it was screened for outliers and unusual responses. Mahalanobis distance and chi-square statistics revealed that there were not any multivariate outliers. All measures were analyzed as individual measures. Means, standard deviations and scoring for all measures and samples are shown in Table 2.

It was examined whether past-current condom use influenced students' beliefs about HIV/AIDS and condoms. Correlation analyses were applied to identify whether: a. beliefs about others (perceived social norms) were self-generated (social projection), and b. own beliefs mediated between perceived social norms and past-current condom use. To investigate mediation, multiple regression analyses were also conducted. T-tests were employed to examine differences on assumed support of students' own beliefs as a function of students' past-current condom use. The main focus of the analyses was to examine the link between past-current condom use and perceived social norms/social projection.

Students behavioural self-reports

Ninety-nine percent (91) of the students had had sex with penetration by the age of 21 years old. Seventy percent (42) had penetrative sex at the age of 15 and 16 years old. Twenty-one percent (20) had had active anal sex. In the last twelve months 2% (2) had no sexual partners, 40% (36) had one sexual partner, 58% (52) had two or more sexual partners. Fifty percent (43) reported having sex up to five times per month, 19% (20) six to nine times, and 31% (23) above ten times per month. Seventy percent (67) of the students had a stable partner, and 44% (42) had penetrative sex with another in the last twelve months. Forty percent (17) used condoms almost every time and most time in the encounters with affairs. Forty-one percent (19) had used condoms almost every time and most of the time in penetrative sex since they started having sex. One percent (1) was close to someone who injected drugs and nobody had tried them. Three percent (3) of the students were close to someone with AIDS. Students could not easily get free condoms and only 43% (41) of them were aware of either one or two places in the city that gave out free condoms.

Own beliefs

Descriptive analyses printed in Table 3 revealed that students thought AIDS was controllable (91%), serious (88%), severe (86% and 82%), and that it did not affect only homosexuals and drug injectors (92%). However, they also believed they were not exposed to sexual partners with AIDS (77%) and felt invulnerable to becoming infected with AIDS (86%). These findings were similar to those obtained in the survey among Scottish students from where the measures were taken, although Scottish young people seemed to feel less non-exposed (52%), but less

vulnerable (2%) too. To know whether their sexual partners were infected, students asked them both about their sexual history (ask 1: 52%) and about their sexual life style (ask 2: 56%).

Consensus and meta-consensus beliefs

As shown on Tables 4a and 4b, consensus (C) and meta-consensus (Mt) estimates were significantly different with a tendency for greater extremity in the C than in the Mt. However, in the Portuguese sample (Chapter 3), seven out of eight comparisons were significant while in the present Brazilian sample seven out of sixteen comparisons were significant. This was likely to be due to both culture differences and a smaller Brazilian sample. The following statistically significant differences were found in estimates for men and women.

* Low control: Men were estimated to hold stronger consensus beliefs than women that AIDS was controllable (Mt for men $M= 52.51$ $SD= 25.45$, Mt for women $M= 45.04$ $SD= 24.01$, $t(88)= 3.76$, $p<.001$).

* Seriousness: Men were estimated to hold stronger consensus beliefs than women that AIDS was serious (Mt for men $M= 85.45$ $SD= 20.72$, Mt for women $M= 77.59$ $SD= 25.10$, $t(86)= 2.77$, $p<.01$).

* Non-exposure: Men were estimated as believing more than women that they themselves were not exposed to sexual partners with AIDS (C for men $M= 68.18$ $SD= 25.71$, C for women $M= 64.14$ $SD= 27.90$, $t(95)= 2.44$, $p<.05$). This pattern was repeated for Mt beliefs (Mt for men $M= 69.28$ $SD= 25.32$, Mt for women $M= 62.92$ $SD= 27.02$, $t(88)= 2.16$, $p<.05$).

* Ask 1: Women were estimated to hold stronger consensus beliefs than men that they would talk to their partners to know whether the partners were infected with AIDS (Mt for men $M= 42.35$ $SD= 26.15$, Mt for women $M= 49.27$ $SD= 23.94$, $t(88)= -2.60$, $p<.01$). This pattern was repeated for Ask 2 (Mt for men $M= 42.54$ $SD= 26.71$, Mt for women $M= 50.53$ $SD= 25.44$, $t(88)= -2.92$, $p<.01$).

* Specific groups: Men were estimated as believing themselves more than women that AIDS was a problem only of homosexuals and drug injectors (C for men $M= 47.74$ $SD= 28.80$, C for women $M= 40.02$ $SD= 27.68$, $t(94)= 5.02$, $p<.001$). This pattern was repeated for Mt beliefs (Mt for men $M= 56.24$ $SD= 30.30$, Mt for women $M= 42.71$ $SD= 26.35$, $t(88)= 4.83$, $p<.001$).

* Severity 1: Women were estimated to hold stronger consensus beliefs than men that people with the AIDS virus would develop AIDS (Mt for men $M= 80.70$ $SD= 19.44$, Mt for women $M= 88.48$ $SD= 16.49$, $t(89)= -3.99$, $p<.001$).

* Severity 2: Women were estimated to hold stronger consensus beliefs than men that people with AIDS would die of it (Mt for men $M= 80.54$ $SD= 19.57$, Mt for women $M= 88.21$ $SD= 16.13$, $t(83)= -3.77$, $p<.001$).

Social projection

It was expected that perceived social norms (C and Mt beliefs) would be self-generated and the

correlations between own beliefs and C/Mt beliefs were examined. As shown on Tables 5, students projected their own beliefs onto others, except concerning ask 1 (history) and specific groups. In addition, as displayed in Table 6, Brazilian students more frequently projected an assumed consensus of their beliefs than an assumed disensus. The opposite pattern occurred in Chapter 3 among Portuguese students.

Own beliefs, perceived social norms and past-current condom use

It was hypothesized that past-current condom use would be significantly related to perceived social norms measured by C and Mt beliefs. The correlations between past-current condom use and beliefs are shown on Table 7. Past-current condom use was associated with perceived social norms about men (non-exposure, ask 1 and 2), but also with perceived social norms about women (non-exposure). It was also hypothesised that own beliefs would mediate the relationship between past-current condom use and perceived social norms. To test for mediation it is necessary that both the independent variable (consensus/meta-consensus) and mediating variable (own belief) are significantly related to the dependent variable (past-current condom use). It is also required that the relationship between the own belief and past-current condom use would decrease in the presence of consensus/meta-consensus beliefs. However, as shown on Table 7 there was no mediation. Past-current condom use was significantly related to the following variables.

- * Non-exposure: As in Chapter 3, past-current condom use was related to believing that everybody's sexual partners could have the AIDS virus.
- * Vulnerability: Past-current condom use was related to feeling invulnerable, perhaps as a consequence of having been using condoms.
- * Ask 1 and 2: Past-current condom use was related to not asking sexual partners' about their sexual history and life style.

Searching for differences in social projection as a function of past-current condom use

T-tests investigated whether condoms had been used more frequently among those who assumed consensus on cautious than on risky beliefs. There were no statistically significant differences, though. Next, it was explored whether condoms had been used more frequently among those who assumed consensus than among those who assumed disensus on cautious beliefs. There were the following statistically significant differences. Those who used condoms more frequently were more likely to assume consensus than disensus on the following cautious beliefs: vulnerability (Ass Cons M= 4.80 SD= 1.10, Ass Diss M= 2.40 SD= 1.43, $t(13)= 3.28$, $p<.01$), and Ask 1 (history) (Ass MtCons M= 4.17 SD= 1.74, Ass MtDiss M= 2.83 SD= 1.66, $t(58)= 3.30$, $p<.01$). Then, it was verified whether condoms had been used more frequently among those who assumed disensus than consensus on risky beliefs. There were the following statistically significant differences. Those who used condoms more frequently were more likely

to assume disensus than consensus on their risky beliefs about not Asking 1 (history) (Ass MtCons $M= 3.14$ $SD= 1.61$, Ass Diss $M= 4.48$ $SD= 1.60$, $t(41)= 2.57$, $p<.01$), and about not Asking 2 (life) (Ass MtCons $M= 2.66$ $SD= 1.44$, Ass Diss $M= 4.33$ $SD= 1.65$, $t(40)= 3.07$, $p<.01$).

Thus, the hypotheses were confirmed only on beliefs about vulnerability and about asking questions about a partner's sexual history and lifestyle (ask 1 and 2). In addition, there were fewer differences on social projection as a function of past-current condom use among the previous study (Portuguese students, in Chapter 3) than among the Brazilians.

Summary of hypotheses tests

As shown earlier in this section the following hypothesis were or were not confirmed.

- * Hypothesis 1 that, perceived social norms would be self-generated, was supported.
- * Hypothesis 2 that, past-current condom use would be significantly related to perceived social norms, was partially supported. Perceived social norms about men on non-exposure, ask 1 (history) and ask 2 (life) beliefs were associated with past-current frequency of condom use for men. Perceived social norms about women on beliefs about non-exposure were also associated with past-current condom use for men.
- * Hypothesis 3 that, perceived social norms would mediate between past-current condom use and own beliefs, was not supported.
- * Hypothesis 4, that there would be differences on social projection as a function of past-current condom use, such that:
 - 4.a. condoms would have been used more frequently among those who assumed consensus on cautious beliefs than on risky beliefs, was not supported;
 - 4.b. condoms would have been used more frequently among those that assumed consensus than among those that assumed disensus on cautious beliefs, was partially supported. Those who used condoms more frequently assumed more consensus than disensus on beliefs about vulnerability and ask 1 (history).
 - 4.c. condoms would have been used more frequently among those that assumed disensus than among those that assumed consensus on risky beliefs, was partially supported. Those who used condoms more frequently assumed more disensus on beliefs about ask 1 (history) and ask 2 (life).

Table 2.

Means, Standard Deviations and Scoring for Own, Consensus and Meta-consensus belief measures and sample.

| Measures | Mean | Std Dev | N | Scoring |
|--|-------|---------|----|---|
| Own beliefs | | | | |
| Low control | 2.02 | 1.15 | 95 | 1= strongly disagree; 6= strongly agree |
| Seriousness | 5.24 | 1.13 | 95 | 1= strongly disagree; 6= strongly agree |
| Non-exposure | 4.65 | 1.40 | 93 | 1= strongly disagree; 6= strongly agree |
| Vulnerability | 2.28 | 1.26 | 95 | 1= strongly disagree; 6= strongly agree |
| Ask 1 (history) | 3.71 | 1.79 | 95 | 1= strongly disagree; 6= strongly agree |
| Ask 2 (life) | 3.72 | 1.83 | 94 | 1= strongly disagree; 6= strongly agree |
| Specific groups | 1.81 | 1.19 | 94 | 1= strongly disagree; 6= strongly agree |
| Severity 1 | 74.52 | 21.07 | 93 | 0 to 100= percentage of people that would get the AIDS virus and develop AIDS |
| Severity 2 | 88.21 | 17.36 | 86 | 0 to 100= percentage of people that would develop AIDS and die of it |
| Own beliefs on 2-point scale | | | | |
| Low control | 1.09 | .29 | 95 | 1= disagree; 2= agree |
| Seriousness | 1.93 | .26 | 95 | 1= disagree; 2= agree |
| Non-exposure | 1.83 | .38 | 93 | 1= disagree; 2= agree |
| Vulnerability | 1.15 | .36 | 95 | 1= disagree; 2= agree |
| Ask 1 (history) | 1.55 | .50 | 95 | 1= disagree; 2= agree |
| Ask 2 (life) | 1.60 | .49 | 94 | 1= disagree; 2= agree |
| Specific groups | 1.09 | .28 | 94 | 1= disagree; 2= agree |
| Severity 1 | 1.92 | .27 | 93 | 1= disagree; 2= agree |
| Severity 2 | 1.95 | .21 | 86 | 1= disagree; 2= agree |
| Consensus beliefs (percentage of men/women that you imagine would agree with the statement) | | | | |
| Estimates for men | | | | |
| Low control | 40.19 | 21.53 | 96 | 0 to 100 would agree |
| Seriousness | 92.04 | 11.91 | 96 | 0 to 100 would agree |
| Non-exposure | 68.18 | 25.71 | 96 | 0 to 100 would agree |
| Vulnerability | 37.14 | 25.80 | 96 | 0 to 100 would agree |
| Ask 1 (history) | 42.59 | 27.83 | 95 | 0 to 100 would agree |
| Specific groups | 47.74 | 28.80 | 95 | 0 to 100 would agree |
| Severity 1 | 78.08 | 21.68 | 95 | 0 to 100 would agree |
| Severity 2 | 85.89 | 20.46 | 95 | 0 to 100 would agree |
| Estimates for women | | | | |
| Low control | 40.31 | 24.45 | 96 | 0 to 100 would agree |
| Seriousness | 90.99 | 14.77 | 96 | 0 to 100 would agree |
| Non-exposure | 64.14 | 27.90 | 96 | 0 to 100 would agree |
| Vulnerability | 36.51 | 25.50 | 96 | 0 to 100 would agree |
| Ask 2 (life) | 48.05 | 27.04 | 95 | 0 to 100 would agree |
| Specific groups | 40.02 | 27.68 | 95 | 0 to 100 would agree |
| Severity 1 | 75.55 | 23.55 | 95 | 0 to 100 would agree |
| Severity 2 | 85.60 | 19.95 | 95 | 0 to 100 would agree |
| Meta-consensus beliefs (percentage of men/women that you imagine believe other men/women would agree with the statement) | | | | |
| Estimates for men | | | | |
| Low control | 52.40 | 25.87 | 95 | 0 to 100 would agree |
| Seriousness | 85.19 | 20.64 | 95 | 0 to 100 would agree |
| Non-exposure | 68.69 | 25.07 | 95 | 0 to 100 would agree |
| Vulnerability | 42.51 | 28.77 | 95 | 0 to 100 would agree |
| Ask 1 (history) | 41.67 | 25.54 | 95 | 0 to 100 would agree |
| Ask 2 (life) | 41.96 | 26.57 | 95 | 0 to 100 would agree |
| Specific groups | 55.03 | 30.27 | 95 | 0 to 100 would agree |
| Severity 1 | 80.70 | 19.44 | 90 | 0 to 100 would agree |
| Severity 2 | 80.54 | 19.57 | 84 | 0 to 100 would agree |

Table 2/continued.

Means, Standard Deviations and Scoring for Own, Consensus and Meta-consensus belief measures and sample.

| Measures | Mean | Std Dev | N | Scoring |
|---------------------|-------|---------|----|----------------------|
| Estimates for women | | | | |
| Low control | 45.04 | 24.01 | 89 | 0 to 100 would agree |
| Seriousness | 77.59 | 25.10 | 87 | 0 to 100 would agree |
| Non-exposure | 62.92 | 27.02 | 89 | 0 to 100 would agree |
| Vulnerability | 38.03 | 22.48 | 89 | 0 to 100 would agree |
| Ask 1 (history) | 49.27 | 23.94 | 89 | 0 to 100 would agree |
| Ask 2 (life) | 50.53 | 25.44 | 89 | 0 to 100 would agree |
| Specific groups | 42.71 | 26.35 | 89 | 0 to 100 would agree |
| Severity 1 | 88.48 | 16.49 | 90 | 0 to 100 would agree |
| Severity 2 | 88.21 | 16.13 | 84 | 0 to 100 would agree |

Table 3.

Percentage (%) of Scottish (S) and Brazilian (B) own beliefs, as well as percentage of Brazilian students who think that others hold a belief (consensus (C) and meta-consensus (Mt) estimates).

| Items | Own | | CMen | CWomen | MtMen | MtWomen |
|-----------------|-----|-----|------|--------|-------|---------|
| | S | B | | | | |
| Low control | * | 9% | 40% | 40% | 52% | 45% |
| Seriousness | 82% | 88% | 92% | 91% | 85% | 78% |
| Non-exposure | 52% | 77% | 68% | 64% | 69% | 63% |
| Vulnerability | 2% | 14% | 37% | 37% | 43% | 38% |
| Ask 1 (history) | ? | 52% | 43% | --- | 42% | 49% |
| Ask 2 (life) | ? | 56% | --- | 48% | 42% | 51% |
| Specific groups | ? | 8% | 48% | 40% | 55% | 43% |
| Severity 1 | * | 86% | 78% | 76% | 81% | 88% |
| Severity 2 | * | 82% | 86% | 86% | 81% | 88% |

* = information provided in the article: low control => the average Mean was 2.25 (5-point scale: 1= disagree, 5= agree), so people disagreed too.

severity 1 => 48% said almost half, 28% said about half, 24% said someone.

severity 2 => 75% said almost half, 10% said about half, 15% said someone.

? = not mentioned in the article.

--- = item not measured in the consensus beliefs.

Table 4a.

Differences between consensus and meta-consensus estimates for men.

| Items | Target | | | | r | t | df |
|-----------------|----------|-----------|----------|-----------|--------|----------|-----|
| | CMen | | MtMen | | | | |
| Low control | M= 40.51 | SD= 21.42 | M= 52.40 | SD= 25.87 | .28** | -4.06*** | 94 |
| Seriousness | M= 92.06 | SD= 11.97 | M= 85.19 | SD= 20.64 | .21* | 3.11** | 94 |
| Non-exposure | M= 68.26 | SD= 25.83 | M= 68.69 | SD= 25.07 | .57*** | -.18 | 94 |
| Vulnerability | M= 37.52 | SD= 25.66 | M= 42.51 | SD= 28.77 | .66*** | -2.15* | 94 |
| Ask 1 (history) | M= 42.59 | SD= 27.83 | M= 41.67 | SD= 25.54 | .74*** | .46 | 94 |
| Ask 2 (life) | --- | --- | --- | --- | --- | --- | --- |
| Specific groups | M= 47.74 | SD= 28.80 | M= 55.03 | SD= 30.27 | .82*** | -3.98*** | 94 |
| Severity 1 | M= 78.09 | SD= 21.71 | M= 80.70 | SD= 19.44 | .29** | -1.01 | 89 |
| Severity 2 | M= 86.13 | SD= 19.82 | M= 80.54 | SD= 19.57 | .54*** | 2.72** | 83 |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

Table 4b.

Differences between consensus and meta-consensus estimates for women.

| Items | Target | | | | r | t | df |
|-----------------|----------|-----------|----------|-----------|--------|----------|-----|
| | CWomen | | MtWomen | | | | |
| Low control | M= 40.60 | SD= 23.61 | M= 45.04 | SD= 24.01 | .34*** | -1.53 | 88 |
| Seriousness | M= 90.24 | SD= 15.29 | M= 77.59 | SD= 25.10 | .40*** | 5.00*** | 87 |
| Non-exposure | M= 65.47 | SD= 27.15 | M= 62.92 | SD= 27.02 | .33** | .77 | 88 |
| Vulnerability | M= 37.79 | SD= 25.76 | M= 38.03 | SD= 22.49 | .41*** | -.09 | 88 |
| Ask 1 (history) | --- | --- | --- | --- | --- | --- | --- |
| Ask 2 (life) | M= 49.02 | SD= 27.22 | M= 50.53 | SD= 25.44 | .75*** | -.76 | 88 |
| Specific groups | M= 40.89 | SD= 27.69 | M= 42.71 | SD= 26.35 | .72*** | -.84 | 88 |
| Severity 1 | M= 75.39 | SD= 23.65 | M= 88.48 | SD= 16.49 | .21* | -4.81*** | 89 |
| Severity 2 | M= 85.80 | SD= 19.85 | M= 88.21 | SD= 16.13 | .61*** | -1.37 | 83 |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

Table 5.

Correlations between own (O), consensus (C) and meta-consensus (Mt) beliefs for men/women beliefs.

| Items | C and Mt for Men | | C and Mt for Women | |
|-----------------|------------------|----------------|--------------------|----------------|
| | O - C | O - Mt | O - C | O - Mt |
| Low control | .48*** (95) | .14 (94) | .32** (95) | .15 (88) |
| Seriousness | .20* (95) | .01 (94) | .23* (95) | .14 (86) |
| Non-exposure | .21* (93) | .16 (92) | .21* (93) | .03 (87) |
| Vulnerability | .30** (95) | .26** (94) | .17 (95) | .18 (88) |
| Ask 1 (history) | .17 (94) | .19 (94) | --- | .04 (88) |
| Ask 2 (life) | --- | .33*** (93) | .29** (93) | .28** (87) |
| Specific groups | -.08 (93) | .00 (93) | -.05 (93) | .12 (87) |
| Severity 1 | .24* (92) | .30** (88) | .20* (92) | .20 (88) |
| Severity 2 | .47*** (85) | .31** (75) | .50*** (85) | .55*** (75) |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

Table 6.

Cell sizes as a function of own beliefs (cautious/risky) and assumed social support (consensus/disensus; meta-consensus/meta-disensus).

| Items | N | | | | Total N | |
|----------------------------------|----------------|-------|---------------|-------|----------|-------|
| | cautious | risky | cautious | risky | cautious | risky |
| | Consensus | | Disensus | | | |
| High control | 53 | 7 | 33 | 2 | 86 | 9 |
| Seriousness | 87 | 00 | 1 | 7 | 88 | 7 |
| Exposure | 6 | 63 | 10 | 14 | 16 | 77 |
| Vulnerability | 5 | 26 | 10 | 55 | 15 | 81 |
| Ask 1 (history) | 20 | 31 | 32 | 11 | 52 | 42 |
| Not a problem of specific groups | 42 | 2 | 44 | 5 | 86 | 7 |
| Severity 1 | 78 | 2 | 7 | 5 | 85 | 7 |
| Severity 2 | 77 | 1 | 4 | 3 | 81 | 4 |
| | Meta-consensus | | Meta-disensus | | | |
| High control | 36 | 7 | 49 | 2 | 85 | 9 |
| Seriousness | 82 | 1 | 5 | 6 | 87 | 7 |
| Exposure | 6 | 65 | 10 | 11 | 16 | 76 |
| Vulnerability | 12 | 54 | 2 | 26 | 14 | 80 |
| Ask 1 (history) | 30 | 14 | 30 | 29 | 60 | 43 |
| Ask 2 (life) | 30 | 12 | 26 | 30 | 56 | 42 |
| Not a problem of specific groups | 5 | 31 | 2 | 55 | 86 | 7 |
| Severity 1 | 76 | 2 | 5 | 5 | 81 | 7 |
| Severity 2 | 67 | 2 | 4 | 2 | 71 | 4 |

Table 7.

Correlations between frequency of past-current condom use (Freq) and own (O), consensus (C) for men/women, meta-consensus (Mt) for men/women beliefs.

| Items | Freq - O | Freq-CMen | Freq-MtMen | Freq-CWom | Freq-MtWom |
|-----------------|---------------|----------------|----------------|-----------------|---------------|
| Low control | -.18 (95) | .11 (96) | -.19 (95) | .07 (96) | -.15 (89) |
| Seriousness | -.10 (95) | -.06 (96) | -.04 (95) | -.14 (96) | .04 (87) |
| Non-exposure | -.20 (93) | -.27** (96) | -.07 (95) | -.35*** (96) | -.25* (89) |
| Vulnerability | -.21* (95) | -.04 (96) | -.11 (95) | -.12 (96) | -.01 (89) |
| Ask 1 | -.15 (95) | -.11 (95) | -.30** (95) | --- | -.09 (89) |
| Ask 2 | -.03 (94) | --- | -.28** (95) | -.11 (95) | -.14 (89) |
| Specific groups | -.07 (94) | -.12 (95) | -.12 (95) | -.09 (95) | -.07 (89) |
| Severity 1 | .00 (93) | -.17 (95) | -.00 (90) | -.11 (95) | .10 (90) |
| Severity 2 | .14 (86) | -.05 (95) | .01 (84) | -.03 (95) | .13 (84) |

*P<.05; **P<.01; ***P<.001

--- = item not measured in the consensus beliefs.

DISCUSSION

In the previous study on social projection, in Chapter 3, the direction of the relationships were found to follow the health belief model. Of paramount importance may be that men were likely to use condoms when they believed it would please their sexual partners, probably as then their chances of having sex could increase. Also, unlike women, men's condom use was associated with social projection to their ingroup (Mt mainly). That is, men seemed likely to use condoms when they felt that there was social support among men concerning their beliefs. Thus, the present study was conducted only among men and it examined whether social projection remained associated to condom use when different beliefs were measured across countries.

Ideally, the analyses of both samples should have been conducted using the same demographics (for eg., only men in both samples) and the same measures, but this was not deemed necessary as the main interest of these exploratory analyses were to find out more about the associations between social projection and condom use. Despite of the limitations of not having compared the same demographics, the following may be established.

Compared to Portuguese, there was a tendency among Brazilian university students to assume consensus of their beliefs and for their perceived social norms to be related to past-current condom use. Portuguese university students were likely to assume dissensus of their beliefs. Moreover, perceived social norms for men's ingroup, but not for women's ingroup, related to past-current condom use in the Portuguese sample. Notwithstanding, the findings of Chapters 3 and 4 were quite similar in both samples. Perceived social norms were self generated and own beliefs did not mediate between them and past-current condom use. They were related to past-current condom use. When Portuguese men and Brazilians in general believed that, both men and women's sexual partners could be infected by the AIDS virus, they used condoms more frequently. Similarly, Brazilians who believed men thought that other men were unlikely to ask about a partner's sexual adventures used condoms more frequently.

In addition, both Portuguese and Brazilians who assumed dissensus of their risky beliefs used condoms more frequently, compared to those who assumed consensus. This pattern was observed for beliefs about non-exposure and invulnerability in the Portuguese sample, but not in the same beliefs in the Brazilian sample. Those who did not ask a sexual partner about his/her sexual adventures and assumed dissensus used condoms more in the Brazilian sample. Therefore, there appears to be a link between assuming dissensus of one's risky beliefs and condom use. In other words, condom use seems linked to the feeling that one's risky beliefs are not socially supported.

Furthermore, among Brazilians condom use also appears to be associated to feeling that one's cautious beliefs are supported by others, such as feeling vulnerable to getting AIDS or the need to ask a sexual partner about his/her sexual history. Unfortunately, these findings entail that in Brazil condom use may also be less likely if others are believed to hold risky beliefs when one holds cautious beliefs.

Although which risky beliefs must be perceived as socially unsupported seem likely to vary across countries, the present findings favour the inclusion of injunctive norms in messages framed to promote condom use. Cialdini, Kallgren and Reno (1989; 1990) distinguished between injunctive (what others approve of) and descriptive norms (what others do). They argue that drawing people's attention to descriptive norms only has a beneficial impact on the behaviour of people who already behave in the desirable way. Based on Cialdini et al.'s injunctive norms and on the present findings, two messages will be placed in the poster intervention which is planned for Chapter 8 of this thesis. These messages will draw people's attention to both injunctive and descriptive norms through the following messages: "Everybody thinks that it is ok to use condoms. What about you?", and "Modern women protect their body and have condoms".

The present study suggests that social projection could be included in the prevention of HIV/AIDS. It also shows that there is a need to develop self-relevant scales to use in the promotion of condom use, rather than rely solely on single item measures. These measures should be more robust than single item measures about AIDS knowledge. Also, five out of the nine beliefs were not related to past-current condom use. These beliefs were not associated to condom use and they were more about AIDS knowledge than about the relevance of protecting one's self. They referred to perceived control over AIDS, seriousness of AIDS, severity of AIDS and specific groups.

Thus, in the next Chapter 5 there will be developed self-relevant scales to use in this thesis. These will be based on the *theory of planned behaviour* (TPB) as this model has been widely applied to the prevention of HIV/AIDS. Moreover, since sex has a lot to do with a search for sensations, the adequacy of Kalicham *et al.*'s (1994) and Zuckerman *et al.*'s (1964) measures, which are based on sensation seeking as a personality trait, will also be examined. This will allow for the relationship between sensation seeking and the variables based on the TPB to be examined. As it is necessary to have a condom available in order to use it, in the next Chapter 5 will be also checked "who is carrying condoms".

Chapter 5: Survey of Brazilian students: Measurement method and sub-sample differences.

This chapter develops measures of variables relevant to condom use in a Brazilian context for use in future studies, examines demographic and other sub-sample differences (for eg., how factors such as gender, sensation seeking and condom use together influence people's ratings on variables which may be relevant to condom use), and establishes comparisons with previous research.

INTRODUCTION

Condom use varies according to whether the relationship is casual or long-term, with those in stable relationships using condoms less frequently (Juran, 1995; Rosenthal, Fernbach and Moore, 1997). Some research has looked at condom use as a rational choice, not influenced by personality variables. This is certainly the case of the TPB (theory of planned behaviour, Ajzen, 1985) which considers intentions the most proximate predictor of behaviour. Intentions refer to what one intends or plans to do (eg., I will use a condom next time I have penetrative sex). According to this, condom use is considered to be under volitional control (Ajzen, 1985; Fishbein and Ajzen, 1975) and it is influenced by intentions to use condoms (Reinecke *et al.*, 1996). Recently it has been suggested that implementation intentions are more effectively related to behaviour than Fishbein and Ajzen's intentions (Gollwitzer and Brandstatter, 1997). This is because implementation intentions are commitments to respond to certain anticipated situations with an intended goal-directed behaviour. Another important item on condom use is prior behaviour, which is known to influence intentions (Hardeman, Pierro and Manneti, 1997) and future behaviour (Triandis, 1977; Sutton, 1994).

Intentions are closely related to behavioural expectations (Warshaw and Davis, 1985) and these refer to self-predictions about what one is likely to do (eg. How likely it is that I will use a condom the next time I have penetrative sex). They allow people to think about constraints which may interfere with behaviour. Behavioural expectations reflect the perceived likelihood of performing a behaviour in the future, whereas intentions indicate the plan to perform behaviour. People's beliefs about a behaviour dictate their intentions, whereas their thoughts about prior behaviour and the presence or absence of situational constraints form their behavioural expectations (Gordon, 1990). Behavioural expectations might be a better predictor of behaviour than intentions because people might not use condoms under certain conditions, regardless of their intentions to use them. Sometimes the average correlation of behavioural expectations/condom use and intentions/condom use do not differ (Randall and Wolff, 1994; Sheeran and Orbell, 1998), but other times it does (Sheppard, Hartwick and Warshaw, 1988).

Intentions to use condoms are associated to attitudes, perceived behaviour control (Corby, Schneider-Jamner and Wolitski, 1996) and to subjective norms (Fishbein, Trafimow, Middlestadt, Helquist, *et al.*, 1995; Reinecke, Schmidt and Ajzen, 1996; Reinecke, Schmidt and Ajzen, 1997; White, Terry and Hogg, 1994). They are predicted by partner subjective norms but not by social subjective norms (Corby, *et al.*, 1996). Anticipated regret, based on the regret theory (Bell, 1982; Loomes and Sugden, 1982), is also relevant to condom use and it predicts behavioural expectations concerning condom use over and above the TPB (Richard, van-der-Pligt and de-Vries, 1995). Thus, the present study develops measures based on the TPB and investigates group differences on condom use. The following hypotheses are drawn from this literature. It is expected to find those sexually active without a stable partner intending to use them more and using them more frequently. Condom users should regret failure on intended condom use more, have more positive attitudes towards condoms, perceive more subjective norms supporting their condom use and have more positive intentions towards condom use, particularly among those without a stable partner.

Furthermore, competing intentions influence condom use (Abraham, Sheeran, Norman, Conner, de-Vries and Otten, *in press*) as they show that those who intended to use condoms and used them regarded condoms to be more important than having sexual intercourse, unlike those who intended to use condoms but did not use them. Therefore, in the present study behavioural principles are assessed to examine their relationship with condom use. They have not been measured before and refer to whether people would act to assure safe sex when highly sexually aroused but having had their suggestion of condom use refused.

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Some research suggest that there are no differences between men and women actual condom use, despite of men purchasing condoms more (Cline and McKenzie, 1994), but there have been also found some gender differences concerning condom use. Men hold more positive intentions to use condoms and claim to use them more frequently (Sutton, McVey, Glanz, 1997). Women hold more positive attitudes towards condom use (Cline and McKenzie, 1994; Juran, 1995; Sacco, Levine, Reed, and Thompson, 1991) and talk about AIDS more (Cline and McKenzie, 1994), but, their condom use is mainly under their sexual partners' control (Helweg and Collins, 1994). Thus, women's positive attitudes to use condoms might not lead

to condom use as it probably would in men. From this literature, it is proposed that women would have more positive attitudes towards condoms and feel less embarrassed to talk about them, but perceive themselves as having lower control over condom use. Men should hold more positive intentions to use condoms and use them more frequently.

In addition, the social need to keep sex private may make it difficult to talk about condoms, buy, and have them available when needed. There is stigma against women who carry condoms as these women tend to be stereotyped as "sluts" (Loxley, 1996; Organista, Organista, de-Alba-G, Moran, *et al.*, 1996). Since the unavailability of condoms interferes with safer sex practices (Hetherington, Harris, Bausell, Kanavagh, *et al.*, 1996; Opio, Asiimwe, Musinguzi, and Kaweesa, 1997), it is expected to find that stigma against condom carriers would be associated with non-condom use. That is, those who believe that men who carry condoms are "womanisers" and women who carry condoms are "easy women" might not have a condom available when necessary.

Other obstacles to HIV prevention are the incorrect use of condoms, lack of skills in problem solving and self-management strategies (such as deciding to always have a condom and a quarter of US currency --a condom for an unplanned sexual encounter, and the quarter to call someone in order to escape), and lack of skills in communication, negotiation, and assertion (St. Lawrence, Jefferson, Alleyne and Brasfield, 1995). Skills in communication also influence intentions to use condoms (Boldero *et al.*, 1992), perhaps because this may enable people to assert their wishes. Self-assertion has been suggested to be an element of self-efficacy (Treffke, Tiggemann, and Ross, 1992). In addition, women are more willing than men to initiate discussion about AIDS (Cline and McKenzie, 1994) and condoms with their sexual partners (Rosenthal, Fernbach, Moore, 1997). In summary, the ability to communicate the decision to use a condom, the skills to escape and postpone sex if necessary, as well as the correct condom use altogether are likely to prevent risky sexual behaviour, and women are more likely to initiate discussion about condoms with sexual partners. Therefore, the present study expects discussion about condoms to be more common between condom users than non-condom users, and women to discuss condoms more both immediately before sex and hours/days before sex. It also investigates when people put condoms on, in terms of before penetration/before ejaculation.

Condom use is also influenced by people's reasons for using them. People use condoms to avoid infections (Pilkington, Kern and Indest, 1994) and thus, HIV positive homosexual men tend to use them more (Catania, Coates, Stall, Bye, *et al.*, 1991). People also use condoms to avoid pregnancy (Flaskerud, Uman, Lara, Romero, *et al.*, 1996) and they are the most popular contraceptive method after the pill (Harel, Biro, Kollar, and Rauh, 1996). People use condoms for pleasure as well (Rosenthal, Biro, Succop, Baker *et al.*, 1994) and use them less

when they believe condoms diminish pleasure (Estebanez, Rua, Aguilar, Bru, *et al.*, 1996). As such, this study investigates to what extent would the following be the reasons for people to use a condom: for instance, to avoid infections and pregnancy, to have pleasure, because a partner wants to.

Perceived partner participation in putting on condoms, as well as whether including condoms in foreplay influences condom use do not seem to have been studied yet. It might be useful to know whose responsibility it is to put condoms on, and whether partner participation in putting on condoms influences frequency of condom use. In addition, condom users should include condoms in foreplay more frequently.

Research has also looked at the need to search for sensation, a personality trait, on unsafe sex. It was found that high sensation seekers (HSS) do not have sex more frequently than LSS (Apt and Hurlbert, 1992), but HSS are more likely to have more sexual partners (Seto, Lalumiere, and Quinsey, 1995), more anal sex (Mulry, Kalichman, Kelly, Ostrow, *et al.*, 1997) and to engage more in sexual practices involving risk (Arnett, 1990; Fisher and Misovich, 1990). HSS are probably less likely to be virgins and to start their sexual life earlier, have more affairs and put on condoms more before ejaculation rather than before penetration. This is because HSS search more for variety of stimuli (Zuckerman, Eysenck, and Eysenck 1978, Zuckerman, 1983; 1988), prefer unplanned situations better, and like to keep their options open by putting off making decisions until the last moment (Franken, 1993). Thus, HSS should also prefer condoms with different shapes and colours and be more likely to put off discussing condom use until the last moment, immediately before sex.

Sensation seeking should influence intentions and behaviour as these can meet a need to increase or reduce sensation. HSS are guided mainly by their affective moods. As a result their intentions to use a condom, as well as their condom use, should be less affected by reasoning than would be true for low sensation seekers (LSS). That is, sensation seeking should influence intentions to use a condom such as that, HSS would be less likely than LSS to plan condom use. It should influence condom use such that, in the event of intending to use a condom, HSS would be more likely to have sex without a condom when a partner disapproves of condom use. In addition, HSS have been found to have higher self-control and to be more self-confident (Lubin, Cain and Van-Whitlock, 1992). Finally, sensation seeking does not influence people's sexual-orientations (homosexuality/heterosexuality) (Zuckerman and Myers, 1983), but those who are homosexuals tend to be higher sensation seekers than those who are LSS.

Research is not clear about the interaction of age, gender and sensation seeking. Compared to older people, younger people have been found to be HSS (Adams, 1980; Haapasalo, 1990;

Hirschman, 1984; Lawton, Kleban, Rajagopal and Dean, 1992; Zuckerman *et al.*, 1978), but LSS too (Ball *et al.*, 1984; Jacobs and Koepfel, 1974; Lawton, Kleban, Rajagopal, and Dean, 1992). Older women have been stated as HSS (Ball *et al.*, 1984), but so have younger women (Magaro, Smith, Cionini and Velicogna, 1979; Zuckerman *et al.*, 1978). The findings on the interaction of age and sensation among men are more consistent. Younger men were found to be HSS (Ball *et al.*, 1984; Magaro *et al.*, 1979; Zuckerman *et al.*, 1978). Men are also more likely to be HSS than women (Ball, Farnill and Wangeman, 1984; Furnham, 1984; Gundersheim, 1987; Kurtz and Zuckerman, 1978; Murphy *et al.*, 1977; Zuckerman *et al.*, 1978; Zuckerman and Litle, 1986).

It is unclear whether there is a difference in the number of men and women's sexual partners. It has been suggested that men have more sexual partners (Cline and McKenzie, 1994; Juran, 1995; Walsh, 1993); that such discrepancy in the number of sexual partners reported by men and women might be exaggerated by the presence of outliers in data (Morris, 1993); and that men and women are equally promiscuous (Schopper, Doussantousse, and Orave, 1993), but do not report so in surveys (Einon, 1994; Smith, 1992). Whether men and HSS differ in their number of sexual partners is yet to be known and it will be examined in will be investigated in the present chapter. It will also be checked whether younger men engage more in unsafe sex than older men, since they are higher sensation seekers and HSS engage more in unsafe sexual practices. In addition, it is expected to find that men are higher sensation seekers than women.

There are differences between the sexuality of HSS and LSS women. HSS women have more positive attitudes towards sex, greater sexual desire and arousability (Apt and Hurlbert, 1992), but are less satisfied in their marital life than LSS (Gibson *et al.*, 1989). There are no differences between HSS and LSS women on frequency of sexual intercourse (Apt and Hurlbert, 1992), although HSS women might be having as frequent sex with different sexual partners.

Zuckerman's original measures of sensation seeking have been adapted in several ways. Two of them are the following two scales: sexual sensation seeking (Kalicham, Johnson, Adair, Rompa, Multhauf, and Kelly, 1994) and keeping your options open (KYOO from Franken, 1993). The sexual sensation seeking scale was applied to homosexual men and showed that sensation seeking is a potential mediating factor in sexual risk for HIV. In this study, Kalicham *et al.*'s measures will be applied to a predominantly heterosexual sample. The KYOO correlates positively to Zuckerman's scale (Franken, 1992) and it shows that HSS tend to choose opportunities that offer variety and change by keeping their options open, but it does not specifically look at variables involving sexuality. Thus, the present study will adapt the KYOO to assess people's tendencies to keep sexual open options. If HSS prefer

open sexual options they might be less likely to plan condom use.

In summary, people have different reasons for using condoms. Knowing when people put a condom on, whether before penetration or before ejaculation, is important in terms of identifying correct or incorrect condom use. Difficulty in discussing condom use both hours/days before sex and immediately before sex, as well as stigma against condom carriers, might be barriers to condom use. The role that perceived partner participation in putting on condoms, inclusion of condoms in foreplay, preference for coloured and flavoured condoms play on condom use seems unknown. Positive behavioural expectations, intentions towards condom use, attitudes, subjective norms, perceived behavioural control, anticipated regret and behavioural principles should be associated to condom use. Moreover, the influence of such variables should vary according to the following factors: sex-orientation (homosexual-bisexual/heterosexual), type-relationship (with/without a stable or main sexual partner), sexual-activity (without a stable or main sexual partner that had/did not have sex in the last twelve months), activity-type (those with/without a stable or main sexual partner and had sex in the last twelve months), prior condom use (users/non-users), sensation seeking (high/low seekers), age (older/younger) and gender (men/women). Thus, in this chapter there will be developed a set of measures to ensure comparability with previous research and for use in the future analyses of the thesis. Later chapters will examine the relationship among the psychological variables.

Context of the study.

The sample of this survey has been chosen in Brazil for the following reasons:

1. Only 10% of people in UK had more than one sexual partner in the last twelve months (HEA/BMRB, 1992), but it has been estimated that the sexual behaviour of 36% of most sexually active Brazilians risk HIV infection (Hughes, Stall, Klouri, Barrett, *et al.*, 1995);
2. Brazil has the highest number of people with AIDS in Latin America, despite government attempts since the mid 1980s to stop the infection. The government has invested in campaigns and has implemented laws which allow drugs to be copied at a fraction of the big multi-nationals price.
3. The WHO states that Brazil has an increasingly high rate of HIV and had 550,000 cases of infected adults at the end of 1994 (population of Brazil in 1994 was 153.7 million);
4. The Demographic Bulletin for Latin America figure of young people in Brazil for the year 2000 is still high: up to 14 years old 32%; 15 to 19 years old 10%, 20 to 24 years old 8%; 25 to 29 years old 28% of the entire population. This young population face greater risk of catching HIV/AIDS as they often do not have a single long lasting stable partner. The UNAIDS estimated that more than 3 million people under 25 were infected in 1998 with HIV in the world --equivalent to nearly six new infections every minute;
5. One in four of the reported AIDS cases between 1980 and 1997 in Brazil were women, the

majority of them in a reproductive age (Barbosa, Munhoz, Castilho, Chequer, and Medeiros, 1998). Simultaneously the number of paediatric HIV cases is on increase (Ministry of Health, 1998). About 60,000 children in Brazil have a mother with AIDS, and about 140,000 have a mother who is HIV-positive (figures released by the Global Orphan Project and the Instituto Promundo at the EduAids Conference, 2000, Sao Paulo, 14th of June). In addition, compared to 1993, in 1997 the number of deliveries by girls aged 15-19 years rose from 21.41% to 25.27% (Csillag, 1999). There have been projects considering the need to start sex education in preschool age, but they have been rejected;

6. Forty-nine percent of the entire Brazilian population lived in absolute poverty in 1972 while another 54% of the rest of the population lived in relative poverty (Statistical Yearbook for Latin America and the Caribbean, 1985). Previous research has shown that the poor are more vulnerable to HIV (Bond, Mazin, and Jiminez, 1992; Cochran and Mays, 1993; Gillies, Tolley, and Wolstenholme, 1996; Ward, 1993);

7. University classes in Brazil start at 7.30am and finish at 10pm and class sizes range from 10 to 40, increasing the possibility of collecting a large sample in a short time. It was desired to obtain a large sample because of the complexity of the 2x2x2 designs;

8. There were contacts in the city of Florianopolis, Brazil which made the possibility for the collecting of data easier and more fruitful.

Hypotheses.

It was predicted that:

1. Those sexually active without a stable partner should use condoms more frequently and intend to use them more than those with a stable partner;
2. Compared with non condom users (NCUs), condom users (CUs) should:
 - a. have more positive attitudes, perceive subjective norms supporting their condom use, and hold more positive intentions towards condom use;
 - b. have higher regret for failing on intended condom use;
 - c. discuss condom use more;
 - d. have more positive behavioral principles about condom use;
 - e. include condoms in foreplay more frequently;
3. Condom users without a stable partner (SP) should have more positive attitudes, perceive subjective norms supporting their condom use, and hold more positive intentions towards condom use than CUs with a SP;
4. Men should hold more positive intentions to use condoms and should claim using them more frequently;
5. Women should have more positive attitudes towards condoms, but perceive themselves as having lower control over condom use;
6. Women should feel less embarrassed to talk about condoms;
7. Women should discuss condoms more both immediately before sex, as well as a few hours

or days before sex;

8. People should use condoms more if their partners participated in putting the condoms on more frequently;

9. Men should be higher sensation seekers than women;

10. Homosexuality should not affect sensation seeking;

11. Younger men should be higher sensation seekers than older men;

12. Younger HSS men should be less likely to use condoms than older HSS men;

13. Compared with LSS, HSS should:

a. prefer condoms with different shapes and colours;

b. be more likely to put off discussing condom use until the last moment tending thus, to discuss it more immediately before sex;

c. be less likely to intend to use condoms;

d. prefer unplanned sexual encounters;

e. be less likely to use condoms;

f. in the event of having conflicting emotions such as the wish of having sex with a partner, and having had the suggestion of condoms refused, HSS should be less likely to believe they would act to assure safe sex (this will be proved if LSS have more positive behavioral principles than HSS).

g. have higher perceived behavioural control;

h. be more likely to put condoms on more before ejaculation than before penetration to increase sensation, thus, using condoms incorrectly;

i. have more affairs, that is, be more likely of having sexual intercourse with other, in a period of 12 months, whilst in a steady sexual relationship;

j. have had more sexual partners in the last twelve months;

k. not differ from LSS on the number of times they had sex per month;

l. be less likely to be virgins;

m. start their sexual life earlier;

n. have more anal sex.

METHOD

Subjects

Participants were second to fourth year Brazilian university students, in a five year degree programme, from a town called Florianopolis located in the south of Brazil. First and fifth years were excluded from the selection as the youngest ones were probably more likely to be virgins and the oldest were probably more likely to be in monogamous long term relationships. Among the 799 students analyzed, 716 were non-virgins (446 men and 270 women), 685 had sex by the age of 21 years old (432 men and 253 women), 171 had had a steady or main sexual partner in the last twelve months and sex with another (114 men and 57 women). Information on the cell size as a function of gender and different factors in the research design is printed in Table 1, below.

Table 1.
Cell sizes as a function of gender and different factors in the research.

| Categories | N | | | |
|--|--------------|-------|--------------|-------|
| | men | women | men | women |
| Sexual orientation (homosexual-bisexual /heterosexual) | hom-bisexual | | heterosexual | |
| | 16 | 4 | 410 | 262 |
| Age (19 to 21 / 22 to 27 years old) | older | | younger | |
| | 216 | 123 | 236 | 196 |
| Type-relationship (with/without a stable or main sexual partner) | with | | without | |
| | 272 | 233 | 192 | 93 |
| Sexual activity (those without a stable or main sexual partner that had/did not have sex in the last twelve months) | had | | did not have | |
| | 153 | 43 | 36 | 50 |
| Activity- type (with/without a stable or main sexual partner that had sex in the last twelve months) | with | | without | |
| | 268 | 216 | 153 | 43 |
| C_use (condom use for vaginal or anal sex) | non-user | | user | |
| | 234 | 178 | 211 | 92 |
| Sensation seeking (high/low) | high | | low | |
| | 248 | 72 | 219 | 257 |

Men: n = 467, Women: n = 329.

Design

The data was analyzed using a factorial design in which the sample was divided for the, purpose of comparative analyses, according to gender (men/women), condom use (users/non-users), age (older/younger subjects), sex-orientation (homosexual-bisexual/heterosexual), type-relationship (those with/without stable or main sexual partner), sexual-activity (those without stable or main sexual partner that had/did not have sex in the last twelve months), activity-type (those with/without a stable or main sexual partner that had sex in the last twelve months) and sensation seeking (high/low seekers).

Procedure

It took from September to October to recruit students and get permission to conduct the study from everybody involved. So as to make a choice of the university courses by chance, these were written in small pieces of paper and drawn from a box by a member of the university staff in early September. At the end of September and part of October the aims of the study were explained to the heads of the faculties and to the heads of the departments who gave the go ahead for the work. Afterwards, the lecturers were contacted to decide on times for collection of the data and they were all very supportive. After having got the go ahead for the work the data collection took three weeks, from October to November, and involved 40 sessions, during 16 working days.

Obtaining a random sample from around 20,000 students would be a laborious (although carefully controlled) process with its disadvantages. It would be necessary to employ a table of random numbers containing columns of digits generated by a computer program, from which the researcher would select consecutive random numbers to be read in any direction (for eg., horizontally or vertically). The major disadvantage of trying to obtain such random sampling is that it would be time-consuming and make it extremely difficult to obtain data from the same students later at times 2 and 3.

Nonetheless, students were never aware of the dates for the data collection and they took part on the study during formally scheduled lecture slots, in classes that ranged from 10 to 40 people. They were asked to take part on an anonymous study looking at matters related to human sexuality conducted by a Phd student. Next, they were requested to choose and memorize two letters of their surname and their mother's date of birth to become their identity in the research. They were told that they would need to remember this information in a future questionnaire, and wrote the code on the top of the questionnaires. Students then heard and read that there were no right or wrong answers, that they should give their own and very sincere opinions, and that, although the questionnaire was long, they should try to persist and answer all of it. At the end of the sessions, the questionnaires were put in the envelopes provided and placed in one of the two boxes on the table. There was a second box on the

table for those who wished to receive the results to leave a name and an address. One or two people declined to participate in some classes, and they were politely asked to leave the room.

Materials

Pre-established scales and some new measures were pretested among ten Brazilians (5 men and 5 women) in England. Items were translated from English into Portuguese and then from Portuguese to English again to verify the accuracy and veracity of the translation. Minor modifications were made where wording was judged ambiguous or inaccurate. The questionnaire measured variables based on the theory of planned behaviour among other ones. Most responses were made on a variety of 6-point, rather than 5 or 7-point, Likert-type items in order to encourage students to choose a non-neutral position. Some items were reversed for analyses and all their final scores are presented along the following description of the measures.

a. Sensation seeking was measured using twenty-three items taken from Kalicham, Johnson, Adair, Rompa, Multhauf, and Kelly's (1994) scales: nonsexual, compulsivity, and sexual sensation seeking. Their paper assessed sensation seeking, amongst a homosexual sample, as a potential mediating factor in sexual risk for HIV. Originally Kalicham *et al.*'s scales were composed of items adapted from Zuckerman, Kolin, Price and Zoob (1964). Responses were made from 1 to 6 (strongly disagree, strongly agree).

The nonsexual scale was measured by six items: "I can imagine myself searching for pleasures around the world with exciting people", "I would like to do parachuting", "Sometimes I like doing things that are a little dangerous", "I like the sensation of driving at high speed", "I usually do not like films or theatre plays in which I can anticipate the final", and "My friends believe I am a person that likes living dangerously". Kalicham *et al.*'s scale had four more items, but these were chosen at random to be dropped to reduce the length of the questionnaire. Such items were the following: "I would enjoy the sensations of skiing very fast down a high mountain slope", "While driving, I will sometimes try to run yellow lights for the thrill of it", "I would like to try bungee jumping", and "I get tired of seeing the same faces everyday".

The compulsivity scale was measured by ten items: "My sexual appetite has driven my emotional relationships", "My sexual thoughts and my behaviour have been causing problems in my life", "My sexual desires have disturbed my life", "Sometimes I do not keep the commitments I have made because of my sexual behaviour", "Sometimes I get so excited that I can lose my self-control", "I think about sex while I am working", "I feel that my sexual feelings and thoughts are stronger than I am", "I have to make a great effort to control

my sexual feelings and behaviour”, “I think about sex more than I would like to”, and “It has been difficult for me to find sexual partners who have the same intense sexual desire that I have”.

The sexual sensation seeking scale was measured by seven items: “I like wild and relaxed sexual encounters”, “I made promises that I did not plan to keep in order to make someone have sex with me”, “I like the company of sensual people”, “I like to watch erotic and pornographic films”, “I want to try new sexual experiences”, “I want to explore more my sexuality”, and “I like new and exciting sexual experiences and sensations”. Kalicham *et al.*'s scale had a further item (“I have felt curious about having anal intercourse without a condom”) which was chosen at random to be dropped to reduce the length of the questionnaire.

b. Open options was measured on a scale composed by three items: “I would like to change the places I have sex / I rarely think that I would like to change the places I have sex”, “I like sexual situations planned fairly far in advance / I like unpredictable sexual situations”, and, “I like to try my sexual fantasies in completely new environments and decide doing it suddenly, without planning / I like sex better in known, familiar, and planned places”. Responses were either 1 or 2 (A or B). Open options was based on the evidence that sensation seekers tend to keep their options open (Franken, 1993).

c. Condom preference was measured by an individual item and a scale. The individual item was “For me, using transparent, non-coloured condoms with spermicide would”. The scale was composed by four items: “For me, using sweet and flavoured condoms would”, “For me, using coloured condoms would”, “For me, using luminous condoms in the dark or less light would”, and “For me, using condoms with different shapes would”. Responses were made from 1 to 6 (make sex less fun, make sex more fun). Condom preference assessed students' attitudes towards using condoms according to their make.

d. Stigma against condom carriers was measured by two items: “I think women carrying condoms are easy women”, and “I think men carrying condoms are womanisers”. Responses were made from 1 to 6 (strongly agree, strongly disagree) and were computed as a single measure. Stigma assessed the social acceptance of both men and women who carried condoms.

e. Reasons for using condoms were measured by four individual items assessing what would be students' main reasons for using condoms: avoid pregnancy, avoid infections, have pleasure, because partner wanted to. Responses were made from 1 to 6 (strongly disagree, strongly agree).

f. Frequency of inclusion of condoms in foreplay was assessed by two items. Students were first asked if they “have included condoms in foreplay” (1= no, 2= yes). Afterwards, they answered the question “How often do I include condoms in foreplay” (1= never, 6= always).

g. Partner(s) participation in putting on condoms was assessed by a single item: “How frequently does/do my partner(s) participate in putting on a condom”. Responses were made from 1 to 6 (never, always).

h. Discussion of condom use was assessed by two individual items: “When do I discuss condom use: a) a few hours or days before having penetrative sex; and b) immediately before having penetrative sex”. Students were told to answer these items only if they usually discussed condom use with their sexual partner(s). Responses were made from 1 to 6 (strongly disagree, strongly agree).

i. Who suggests condoms? was assessed by a single item asking students who usually suggested condom use (1= you, 2= your partner, 3= both equally).

j. Subjective norms were assessed by multiplying the items from two scales: normative beliefs and motivation to comply. This procedure was based on Ajzen and Fishbein (1980). The product was then square rooted in order for the scale to retain six-points (1= extremely unlikely, 6= extremely likely), making it easier to visualize its meaning in the descriptive of the measures. Normative beliefs consisted of asking students to answer the following question: “How likely it is that each of the following people would think that I/my partner(s) should use a condom next time I have penetrative sex”. Motivation to comply consisted of asking students to answer the question: “In general how much do I want to do what the following people think concerning my sexual life”. Responses on both scales were placed alongside the following list: steady partners, close friends, casual sexual partners, mother, father, brothers/sisters and doctors.

k. Attitudes about using condoms were measured on a semantic differential scale composed by ten items. In order to reduce the number of items, attitudes comprised of nine beliefs and only one evaluative item. Nine items asked people whether using condoms next time they would have penetrative sex would “1= reduce intimacy, 6= enhance intimacy”, “1= show cold emotions, 6= show warm emotions”, “1= interrupt sex, 6= be part of sex”, “1= impair sexual performance, 6= enhance sexual performance”, “1= reduce sexual pleasure, 6= not reduce sexual pleasure”, “1= reduce sensation, 6= not reduce sensation”, “1= show lovelessness, 6= show love”, “1= show distrust, 6= show trust”, and “1= offend the partner, 6= please the partner”. One item measured general evaluation of condom use the next time students would have penetrative sex (1= is bad, 6= is good).

l. Embarrassment was assessed by two scales: embarrassment to buy condoms and to talk about them. Responses were made from 1 to 6 (strongly agree, strongly disagree).

Embarrassment to buy condoms was measured by five items: “It is very embarrassing to buy condoms for me”, “When I need condoms I often dread having to get them”, “I don't think that buying condoms is awkward”, “It would be embarrassing to be seen buying condoms in a store”, and “I always feel my sexual life is very exposed when I buy condoms”. This scale has been used previously by Helweg-Larsen and Collins (1994), but the last item has replaced their item “I always feel really uncomfortable when I buy condoms”. This was done for the scale to be better understood by the students. One item (“I don't think that buying condoms is awkward” had its scores reversed for analyses.

Embarrassment to talk about condoms was measured by three items: “I would feel embarrassed suggesting condom use the next time I have sex”, “For me, to bring up the issue of using condoms to my partner would be really hard”, and “For me, talking about condoms to my partner is very easy”. This scale was an adaptation of Helweg-Larsen and Collins's scale (1994) in order to produce more self-orientated items. That is, there were included the words, “For me, ...”, instead of, for example, “It is really hard to bring up the issue of using condoms to my partner”. One item (“For me, talking about condoms to my partner is very easy”) had its scores reversed for analyses.

m. Anticipated regret was measured on a scale composed by six items based on the measures of regret used by Richard and Van Der Pligt (1991). These items were initially on two semantic differential scales: regret and non-regret. Non-regret was measured by asking students to rate how they would feel if they had planned to use a condom the next time they had penetrative sex and actually ended up using a condom. Regret was measured by asking students to rate how they would feel if they had planned to use a condom the next time they had penetrative sex and did not use a condom. Non-regret had its items reversed for analyses. Both regret and non-regret were computed as a single scale: anticipated regret (1= happy, 6= unhappy; 1= calm, 6= anxious; 1= no regret 6= regret).

n. Behavioural principles were measured on a scale composed by five items asking students to imagine that at the next time they were highly sexually aroused and about to have penetrative sex that they would ask a sexual partner to use a condom and the partner would refuse. Afterwards, students answered: “How much would I insist on condom use? (1= not very much, 6= very much)”; “What would I do: a) 1= would have sex without a condom, 6= postpone the sex for another time; b) tell my partner everybody uses a condom (1= strongly disagree, 6= strongly agree); c) tell my partner(s) condoms are reliable and the only way of having sex (1= strongly disagree, 6= strongly agree); and d) condom: without it I won't do it,

you won't do it (1= strongly disagree, 6= strongly agree)". Behavioural principles assessed the likelihood of actions to assure safe sex when highly sexually aroused and with a partner who refused to use condoms.

o. Perceived behavioural control was measured on a scale composed by five items: "For me, having a condom available next time I have penetrative sex is: 1= extremely difficult, 6= extremely easy", "For me, forgetting to use a condom next time I have penetrative sex is: 1= extremely likely, 6= extremely unlikely", "For me, to ensure the use of a condom next time I have penetrative sex is: 1= extremely difficult, 6= extremely easy", "I have complete control over whether my partner(s) and I use a condom next time I have penetrative sex: 1= strongly disagree, 6= strongly agree", "There are many things that can cause difficulty in my condom use. I think about some of them before answering the following. How likely is it that I will have penetrative sex next time with a condom: 1= extremely unlikely, 6= extremely likely". Items were based on Nucifora, Gallois and Kashima's (1993) study about partner's sexual influence on one's self-control over condom use.

p. Behavioural expectations were measured by two items: "If my sexual partner does not want to use a condom will I have sex without a condom?", "If I do not have a condom will I have penetrative sex without a condom?". Responses were made from 1 to 6 (extremely likely, extremely unlikely) and were computed as a single measure. Behavioural expectations assessed the likelihood of deciding to have sex when a partner does not want sex with a condom and when a condom is unavailable.

q. Intention was measured by responses on three scales: relationship, onset, and current intention.

Relationship was measured by six items enquiring students how often (1= never, 6= every time) they would use condoms the next time they had penetrative sex. Students considered these statements: 1)"if were the first time I had penetrative sex with my partner(s)", 2)"if I was highly sexual aroused", and 3)"if I was with": a)"an ex-boyfriend/ex-girlfriend"; b)"someone that was a one night stand"; c)"a close friend"; and d)"someone who looked clean and beautiful and I had just met".

Onset was measured by three items enquiring how frequently (1= never, 6= every time) students would use condoms when they had been going out with a sexual partner: a) for a month or less; and b) for two or three months.

Current intention was measured by responses made from 1 to 6 (strongly disagree, strongly agree) on six items: "Next time I have penetrative sex, I am going to include a condom in

foreplay, before the penetration”, “I plan to use a condom next time I have penetrative sex”, “I intend to use a condom the next time I have penetrative sex”, “I will use a condom the next time I have penetrative sex”, “I am sure I am going to suggest a condom next time I have penetrative sex”, and “I am going to carry a condom with me the next time I have penetrative sex”.

r. Students' prior sexual risky behaviour was established using a series of filtered questions. They were asked whether they had penetrative vaginal, receptive anal and/or active anal sexual intercourse (PSI) (1= no, 2= yes), and if yes, how frequently they had been using condoms for vaginal, active anal, receptive anal sexual intercourse (1= never, 6= every time). They were requested to inform their total number of sexual partners with PSI in the last twelve months, their age of first PSI, whether they were trying to get or make someone get pregnant (1= no, 2= yes), whether they had a stable/main sexual partner currently (1= no, 2= yes), whether they had been going out with a stable/main sexual partner in the last twelve months and having penetrative sexual intercourse with others (1= no, 2= yes), and if yes, how frequently did they use condoms (1= never, 6= every time). Students expressed how many times per month they had PSI, when they put on condoms (1= before the ejaculation, 6= before the penetration), whether they had ever bought/got condoms (1= no, 2= yes), if they were currently carrying condoms (1= no, 2= yes), with whom they had PSI in the last twelve months (1= men, 2= women, 3= both men/women) and their gender (1= men, 2= women).

s. Students were also asked information about their age and whether they had ever tried intravenous drugs, were emotionally close to an intravenous drug user, or to someone with AIDS. An open ended question asked students where they could get free condoms from if they wanted to.

Data analysis

The data were first screened for outliers and unusual responses. Next the factor analytic coherence of each set of measures was assessed and items were kept or dropped in order to maximize the reliability for each construct measured. Composite scores were created for each construct. Next, there were performed comparisons between sub-groups within the sample using MANOVAs, ANOVAs, and chi-square tests. The subgroups analyzed were gender, age, type-relationship, sexual activity, sexual orientation, condom use, activity-type and sensation seeking.

RESULTS

The analysis of the data is divided into two main sections. First, the factor structure and the reliability of all measures were examined. These either came from previous research or were specifically devised for the present research. Then, all measures were analyzed between sub-groups within the sample using multi factor MANOVA, ANOVA and chi-square tests. A relatively strict alpha level, greater than .05, was used as the sample was large, these comparisons were in part exploratory, and it was useful to reduce the number of variables. This alpha restriction was waved in the analyses of those that had affairs in the last 12 months as only a minority of people (25%) had been recently unfaithful. The results for those differences that were hypothesized on the basis of previous research are collated at the end of this section.

Inspection of Mahalanobis distances revealed 10 multivariate outliers. On inspecting the relevant questions it was decided to keep these in the data. The responses were extreme in each case, but they made sense and did not appear to reflect random or flippant responses. Although there was statistically a danger that outliers would distort the means, it was believed that they reflected the true population.

Data reduction

Principal components and oblique factor analyses were carried out on each set of items designed to measure the following constructs: normative beliefs, motivation to comply, open options personalities, sensation seeking, condom preference, anticipated regret, attitudes, embarrassment to buy condoms, embarrassment to talk about condoms, reasons to use a condom, perceived behavioural control, behavioural principles, general-intentions, current-intentions. These analyses were done in order to ascertain the factorial coherence of each scale, and also to see whether any items should be dropped. All factor loadings and factor correlations can be seen in Tables 1 to 13, appendix 1. Stigma against condom carriers, behavioural expectations, and discussion of condom use were not factor analyzed because each of these was measured by only two items.

The first factor analyses showed that each of the following scales were composed by a single factor (Tables 1 to 6, appendix 1): anticipated regret (6 items, eigenvalue= 2.94, % variance= 49), condom preference (4 items, eigenvalue= 2.80, % variance= 56), open options personalities (3 items, eigenvalue= 1.61, % variance= 54), behavioural principles (5 items, eigenvalue= 2.55, % variance= 51), and perceived behavioural control (5 items, eigenvalue= 2.75, % variance= 55), and attitudes about using condoms (10 items, eigenvalue= 3.96, % variance= 40). The items that concerned reasons to use a condom (avoid pregnancy; avoid infections; to have pleasure; partner(s) wants to) also loaded on to a single factor, but as this

factor was not reliable each item was individually analyzed.

A subsequent factor analysis extracted six factors from the items that measured sensation seeking (Table 7a, appendix 1). As most of the items loaded above .30 on factor 1 (20 items, eigenvalue= 5.42, % variance= 24) of the principal components analysis it was chosen to keep a one factor solution (Table 7b, appendix 1) for the analyses. In addition, for comparability with previous research, there were also computed Kalicham *et al*'s (1994) three scales: nonsexual, compulsivity, and sexual sensation seeking (Tables 8 to 10, appendix 1).

Afterwards, two factors were extracted first from normative beliefs and then from motivation to comply. In order to form a measure of subjective norms, each of the items from normative beliefs and motivation to comply were multiplied (Ajzen and Fishbein, 1980). The product was square rooted in order for the scale to retain six-points, making easier to visualize its meaning in the description of the measures. Subjective norm was composed by two factors (Table 11, appendix 1): the perceived influence of intimates, namely those who were sexual partners and close friends (3 items, eigenvalue= 1.30, % variance= 19), and the perceived influence of family-doctor (4 items, eigenvalue= 3.47, % variance= 50). It was chosen to analyze intimates and family-doctor, rather than the entire subjective norms scale, because Corby *et al.* (1996) found that partner norms were better predictors of intentions to use condoms.

For the purposes of comparing the findings to Helweg-Larsen and Collins (1994), items from embarrassment to buy (5 items, eigenvalue= 3.37, % variance= 42) and embarrassment to talk (3 items, eigenvalue= 1.91, % variance= 24) were factor analyzed together. Consistent with Helweg-Larsen and Collins, it was found that these scales were independent of one another (Table 12, appendix 1).

The next analyses dealt with the three sets of items that measured intentions: relationship, onset and current. Two factors (Table 13, appendix 1) were then extracted: general-intentions (8 items, eigenvalue= 5.68, % variance= 41) and current-intentions (6 items, eigenvalue= 2.80, % variance= 20). General-intentions was composed of relationship and onset scales, and referred to using condoms with different sexual partners, early in a relationship, and when highly sexually aroused. Current-intentions referred to intentions to carry and suggest condoms, include them in foreplay and use them.

Following the factor analyses, composite scales were created and Cronbach's reliability coefficients were examined. The final scoring for all measures is printed in Table 2. The means and standard deviations for all measures, as well as Cronbach's reliability coefficients of each scale are printed in Table 3. The reliability of all measures ranged from .59 to .90 and

only three were below .70. All items were defined in detail in the Method section.

In summary, the factor coherence of measures was clear in the case of behavioural principles, perceived behavioural control, anticipated regret, condom preference, open options, intimates, family-doctor, attitudes, embarrassment to buy and to talk about condoms, general-intentions, and current-intentions. Although the factor analyses of sensation seeking did not yield such clear results, it was decided to use both the whole scale as well as Kalichman's standard measures of nonsexual, compulsivity, and sexual sensation seeking. Behavioural expectations, stigma against condom carriers, and discussion of condom use were constructs composed each by two items, and were also measured reliably. Therefore, it appears that on the whole the constructs were measured reliably.

Additional measures

The additional measures of the questionnaire were treated as independent from each other for practical and theoretical reasons. Some items tended to concern questions which could not sensibly be measured using a multiple item approach. These items asked about who suggests using a condom, whether a condom is put on before ejaculation or before penetration, frequency of inclusion of a condom in foreplay, frequency of partner(s) participation in putting on a condom, frequency of condom use with a non-stable partner, and frequency of condom use for vaginal or anal sex. The attractiveness of transparent, non-coloured condoms with spermicidal was negatively correlated to the condom preference scale and it was also analyzed as an individual measure.

Cross-cultural compatibility of the measures

Five scales (sensation seeking, perceived behavioural control, anticipated regret, embarrassment to buy and to talk about condoms) were based on previous research and these remained all internally consistent in the Brazilian sample as well. In addition, the measures of perceived behavioural control, subjective norms, attitudes, current and general-intentions, were based on the internationally known theory of planned behaviour (TPB).

Data Analysis

Chi-square tests were applied on several categorical variables to examine the differences by gender and by sensation seeking. First, however, preliminary exploratory analyses were performed on gender (men and women) and condom use (users and non-users) along with one of 4 other factors: age (older: 22 to 27 and younger: 19 to 21), type of relationship (those with and those without a stable or main sexual partner, regardless of whether they had been or not sexually active in the last 12 months), sexual-activity (those without a stable or main sexual partner that had sex in the last 12 months and those that did not), and sexual-orientation (homosexual-bisexual and heterosexual). There were many statistically significant

findings, the principle ones are reported under the section entitled preliminary analysis, whilst more information is in Tables 1 to 13, appendix 2. These 4 factors were dropped from further analyses, but type of relationship and sexual activity were joined into a new factor called activity-type, which was composed by those with and without a stable or main sexual partner that had sex in the last 12 months.

The main analyses then focused on gender, activity-type, condom use and sensation seeking. Condom users were computed as those who used condoms most of the time or always (answers 5 and 6 in the scale) and the remaining ones were considered non-condom users. High sensation seekers were computed as those with scores slightly greater than the mean and the remaining ones were low sensation seekers. Multivariate analyses of variance were conducted on these 4 factors across theoretically connected variables, first on all items relating to the TPB, and afterwards, on all items relating to the reasons to use a condom. Such comparisons involved 3-factor designs, rather than the too complex to interpret full 4-factor design.

The sample was large and there were several statistically significant dependent variables. In order to reduce the number of these variables, only univariate effects greater than .05 that were supported by statistically significant multivariate effects were reported in the text. Since the listwise deletion of missing variables in the MANOVA procedure resulted in loss of df, separate 2-way ANOVAs for each measure were also included in Tables 1 to 6 of the appendixes 3 and 4.

Often the same factor, for instance gender, was repeatedly analyzed in MANOVAs and ANOVAs, for instance gender x sensation seeking x condom use; gender x sensation seeking and activity-type; and gender x activity-type x condom use. Sometimes the differences between the levels of a factor were significant in one analysis, but not in another. In this case, the differences were only described if they were statistically significant in the 3-way analyses with higher power. Simple effects were examined to understand the 2 factor interactions. This simple slopes method was used (instead of the one suggested by Aiken and West) as used by Abrams, D., Viki, G.T., Masser, B.M., and Bohner, G. (2003).

Preliminary information about the students

Ten percent of the students were virgin. For 518 the suggestion of condom use was both partners' responsibility (291 men and 227 women), while for 207 it was their own responsibility (134 men and 73 women), and for 42 it was the partner's responsibility (33 men and 9 women). Students could not easily get free condoms and only 341 of them were aware of either one or two places in the city that gave out free condoms. Thirty students were close to someone who injected drugs (20 men and 10 women), 4 had tried intravenous drugs

(4 men), and 22 were close to someone with the HIV virus (12 men and 10 women). Fifty-three percent of them said that they had had sex with a new sexual partner in the last 12 months, 25% had been unfaithful in the last 12 months and 55% said that they had used condoms with their affairs. Fifty-six percent of those sexually active without a SP used condoms. In the previous Chapter 4, which was composed mainly of young men, the results were similar concerning number of sexual partners (58%), higher concerning having been unfaithful (44%) and lower concerning condom use (40%).

Preliminary analyses: summary of the main findings in the appendix 2

Age: comparison between older: 22 to 27 and younger: 19 to 21. Previous research has been unclear concerning the effects of age on unsafe sex. Some research has suggested that older heterosexual adults have more unsafe sex than younger (Rosenthal, Fernbach, and Moore, 1997), but other research has suggested the opposite (Kelly, Sikkema, Winett, Solomon *et al.*, 1995; Schwarcz and Rutherford, 1989). From the data analysed in the present chapter, it is clear that the younger were aware of the issues regarding safe sex but were less comfortable with the idea of using condoms. Tables 1 to 4, in appendix 2, show that there were the following statistically significant univariate effects of age. The younger generation perceived more social pressure to use condoms and more of them knew that condoms should be put on before penetration. However, they felt more embarrassed to talk and to buy condoms. Also, there were no significant effects of age among high sensation seeking men ($\chi^2 = 1.61$; number of younger high sensation seeking men= 131 number of older high sensation seeking men= 107) neither on frequency of condom use among men ($F(1,426) = 1.82$; mean younger high sensation seeking men= 3.88 older high sensation seeking men= 3.64; $MSe = 2.87$). As the effects of age might be due to sexual experience, this factor will be dropped from further analyses.

Sexual orientation: comparison between homosexual-bisexual and heterosexual. As shown in Tables 5 and 6, in appendix 2, there was a statistically significant univariate effect of sexual orientation with heterosexuals suggesting the use of condoms more. There were also statistically significant univariate effects of condom use by sexual orientation and simple effect analyses revealed the following statistically significant differences. Both homosexual-bisexual and heterosexual condom users (CUs) had more positive general-intentions to use condoms, preferred transparent, non-coloured condoms with spermicidal, and perceived more support from their intimates to use condoms than non condom users (NCUs). In addition, heterosexual NCUs held more positive general-intentions to use condoms and preferred transparent, non-coloured condoms with spermicidal than homosexual NCUs. This means that among NCUs those who were heterosexual should be more likely to shift their behaviour and start using condoms. Nonetheless, as the sample was predominantly heterosexual

(97.5%) the main analyses will only look at the heterosexual population.

Type-relationship: comparison between those with and those without a stable or main sexual partner, regardless of whether they had been or not sexually active in the last 12 months. As shown in Tables 7 to 10, in appendix 2, there were the following statistically significant univariate effects of type-relationship. Those without a stable or main sexual partner (SP) held more positive attitudes towards condoms, perceived higher control over their use, held more positive expectations, behavioural principles, and current-intentions about using condoms, used condoms more frequently, believed more that condoms should be used to avoid infections, and regretted more the failure on intended condom use. However, they felt more embarrassed to talk about and to buy condoms and these factors may hinder their condom use.

There were also statistically significant univariate effects of condom use by type-relationship, as well as of gender by type-relationship. Simple effects analyses revealed the following statistically significant differences:

1. Condom users with a SP regretted more the failure on intended condom use than NCUs with and than CUs without a SP. Perhaps CUs with a SP who rely on condoms as a way of contraception regard failure of condom use as having a negative impact in their stable relationship.
2. Condom users without a SP perceived less control over condom use than CUs with a SP. They also suggested the use of condoms less frequently than CUs with a SP, but more than NCUs without a SP.
3. Non condom users with a SP expected less to use condoms than CUs with and than NCUs without a SP. They also held lower current-intentions to use condoms than NCUs without a SP.
4. Women with a SP included condoms in foreplay more frequently than men with a SP and than women without a SP.
5. Women without a SP expected more to use condoms than men without a SP. However, these women suggested condom use less frequently than men without a SP, showing that they relied on partners to suggest condom use.

Therefore, condom use appears to be a decision supported by both parties involved. It is made more easily in stable relationships. It seemed more likely to occur when people suggested condoms and perceived control over its use, and less likely among women without a SP. Although these women expected condom use more than their sexual partners, they included condoms less in foreplay than other women and relied more on men to suggest condoms.

Sexual-activity: comparison between those without a stable or main sexual partner that had sex in the last 12 months (recently) and those that did not have. As shown in Tables 11 to 14, in appendix 2, there were the following statistically significant univariate effects of sexual-activity. Those without a SP that had sex recently were higher sensation seekers and even higher sexual sensation seekers. They believed that condoms should be used more to avoid infections, but they held more negative attitudes, weaker general-intentions and lower expectations in relation to condom use, which suggests that those without a SP that had sex recently were very likely to avoid condom use.

There were also statistically significant univariate effects of condom use by sexual-activity, as well as of gender by sexual-activity. Simple effects analyses revealed the following statistically significant differences within those without a SP:

1. CUs that did not have sex recently preferred less coloured condoms with different shapes and flavours than CUs that had sex recently, and than NCUs that did not have sex recently. That is, sexually active CUs preferred coloured condoms with different shapes and flavours.
2. Women that did not have sex recently held more positive attitudes than men that did not have sex recently and than women that had sex recently. That is, sexual activity might have a negative impact on women's attitudes towards condoms.
3. Among those that had sex recently, women felt less control over condom use than men. Women also felt less control over condom use and used condoms less frequently when they had sex than when they did not, but the opposite happened to men.
4. Men that either had or did not have sex recently tended more to sexual compulsivity than their female sexual partners. Women that had sex recently tended more to sexual compulsivity than women that did not have sex.

Thus, fun-condoms are especially recommended to those sexually active without a SP. Unfortunately, sexually active women without a SP were less confident about condom use than their sexual partners and might find it difficult to implement safe sex behaviour. These findings are consistent with those obtained in the previous analyses of type-relationship, in which women without a SP had greater expectations of condom use, but felt less responsible for condom use and relied more on men to suggest and to include condoms in foreplay. So, as type-relationship and sexual-activity have both important findings in common, they will be merged together for comparison between those with and without a stable or main sexual partner that had sex in the last 12 months. The new factor will be named activity-type and will be entered into the main analyses of this chapter.

Main analyses: gender, activity-type, condom use and sensation seeking

Gender: comparison between men and women. There were the following statistically

significant gender differences. Chi-square tests revealed that, more men reported having sex earlier, before the age of 17 (number men= 217 women= 110, $\chi^2= 14.12$, $p<.001$), affairs (number men= 114 women= 57, $\chi^2= 32.75$, $p<.001$), buying (number men= 438 women= 172, $\chi^2= 175.32$, $p<.001$) and carrying condoms (number men= 155 women= 28, $\chi^2= 24.22$, $p<.001$). By contrast, as shown by the multivariate and univariate effects printed in Tables 5 and 6 (see appendix 4, Tables 1 to 3 for means), more women believed that condoms should be put on before ejaculation rather than before penetration, discussed condom use a few hours or days before sex, cited pleasure as the reason to use a condom and the partner as the responsible one for putting a condom on. More women held positive attitudes and behavioural principles about condom use, expected to use condoms, and intended to use condoms with different sexual partners, early in a relationship, and when highly sexually aroused (general-intentions), but felt embarrassed to buy condoms. Less women felt stigma against condom carriers and pressure from their family-doctor to use condoms. More men were higher sensation seekers, especially higher sexual sensation seekers, and tended more to sexual compulsivity. The largest differences were for partner(s) participation on putting a condom on, embarrassment to buy, and stigma, respectively.

Activity-type: comparison between those with and without a stable or main sexual partner that had sex in the last 12 months. As shown in Tables 5 and 6 (see appendix 4, Tables 1, 4 and 6 for means), there were the following statistically significant multivariate and univariate effects of activity-type. Less of those with a SP used condoms, cited avoidance of infections as the reason to use a condom, felt embarrassed to talk about condoms, and intended to use condoms next time they had sex (current-intentions). However, more of them intended to use condoms with different sexual partners, early in a relationship, and when highly sexually aroused (general-intentions). The largest differences were for frequency of condom use, current-intentions, and avoidance of infections as one of the reasons to use a condom, respectively.

There were also statistically significant multivariate and univariate effects of activity-type by gender (Tables 7 and 8) (see appendix 4, Table 1 for means). Simple effects analyses revealed the following statistically significant differences among those sexually active in the last 12 months:

1. More men without a SP felt they had control over condom use than women without a SP and than men with a SP.
2. More women with a SP, but more men without a SP, included condoms in foreplay.
3. More women with a SP would use condoms to have pleasure, and more of them held positive general-intentions, than any other group. Women without a SP were the ones to least use condoms for pleasure and also held the lowest positive general-intentions.

4. The largest multivariate difference was for general-intentions. The largest univariate difference was for frequency of inclusion of condoms in foreplay.

So far, the findings suggest that sexually active women without a SP are less assertive concerning condom use than men and very vulnerable to catching the HIV virus. These women could gain more control over condom use by starting to carry and include condoms in foreplay more, for example by giving men the condom or by putting it on. Yet, women's control over condom use is probably the ultimate result of complex socio-economic and cultural differences between men and women across societies. As such, it might be difficult to change women's behaviour without challenging the functioning of a society.

Condom use: comparison between those who used condoms most of the time or always (38% of the sample) and those who did not. As shown by the multivariate and univariate effects printed in Tables 5 and 6 (see appendix 4, Tables 3 to 5 for means), there were the following statistically significant differences. Non condom users held lower attitudes, behavioural expectations and principles, as well as lower current and general-intentions. Less of them were embarrassed to talk about condoms, felt control over condom use, used condoms with affairs, regretted the anticipated failure of condom use, discussed its use a few hours or days before sex, included a condom in foreplay, would use condoms to avoid pregnancy and infections or to have pleasure. The largest differences were for behavioural expectations, perceived behavioural control and general-intentions, respectively.

There were also statistically significant multivariate and univariate effects of condom use by gender (Tables 7 and 8) (see appendix 4, Table 3 for means), as well as of condom use by activity-type (Tables 7 and 8) (see appendix 4, Table 4 for means). Simple effects analyses revealed the following statistically significant differences:

1. Men CUs felt that their family-doctor supported their condom use more than men NCUs. Women CUs felt the least support of all.
2. Condom users with a SP expected the most whilst NCUs with a SP expected the least to use condoms. Condom users without a SP expected more than NCUs without a SP.
3. Condom users with a SP intended the most to use condoms with different people, early in a relationship, and when highly sexually aroused (general-intentions) whilst NCUs without a SP intended the least. Condom users without a SP intended more than NCUs with a SP, but less than CUs with a SP.
4. Although NCUs with a SP held very positive general-intentions, they intended to carry, suggest, and use condoms (current-intentions) the least. CUs without a SP held the most positive current-intentions.
5. The largest multivariate difference was for current-intentions.

In summary, CUs with a SP held the most positive expectations and general-intentions, whilst CUs without held the most positive current-intentions of using condoms. Such findings suggest that those with a SP were more committed to keeping safe sexual choices than those without. Again, like in type-relationship, condom use appears to be an easier decision when there is the support of both parties involved.

Sensation seeking: comparison between high sensation seekers (HSS: scores of 3.5, slightly higher than the mean and above) and low sensation seekers (LSS: scores below 3.5) yield the following statistically significant differences. HSS preferred to keep their sexual options open in order to have unplanned and unexpected sexual encounters (number HSS= 374 LSS= 337, $\chi^2= 58.97$, $p<.001$). Perhaps because they need novelty, HSS started their sexual life earlier ($F(1,708)= 24.11$, $p<.001$, mean HSS= 16.84 LSS= 17.64, $MSe= 4.65$) and less of them were virgin (number non-virgin HSS= 415 LSS= 304, $\chi^2= 10.26$, $p<.001$). They were less in stable sexual relationships (number HSS= 186 LSS= 319, $\chi^2= 6.81$, $p<.01$), had a greater number of sexual partners in the last 12 months ($F(1,789)= 90.69$, $p<.001$, mean HSS= 3.10 LSS= 1.47, $MSe= 5.54$), had more affairs (number HSS= 109 LSS= 82, $\chi^2= 30.77$, $p<.001$) and experimented more anal sex (number HSS= 89 LSS= 50, $\chi^2= 39.32$, $p<.001$). As it could be argued that the differences in sensation seeking were due to gender differences, men and HSS number of sexual partners were also compared. Indeed, the analyses of gender showed that men tend more to be HSS. However, more HSS than men had had above two sexual partners in the last 12 months (number HSS= 310 men= 160, $\chi^2= 11.13$, $p<.001$). Thus, it seems more relevant to examine sensation seeking than gender in relation to sexual behaviour.

As HSS seemed more into sex, it was investigated whether HSS were more sexually active than LSS, when both low and HSS were in stable sexual relationships. This was because of the following statistically significant findings. In general, people with a stable sexual partner had sex more frequently per month than those without (mean with= 9.5 mean without= 1.38). It was already known that among those without a stable sexual partner, more HSS than LSS had sex in the last 12 months (see sexual-activity). It was found that those who had affairs in the last 12 months had sex more frequently per month during that time ($cor= .14$, $p<.001$) ($F(1,745)= 14.45$, $p<.001$, mean affair= 8.15 no affair= 6.03, $MSe= 41,81$), and HSS also had more affairs. All these findings suggest that HSS would have more sex also when in stable relationships. However, contrary to what was expected, HSS had then sex per month almost as often as LSS ($F(1,492)= 2.85$, $p<.09$, mean HSS= 10.12 LSS= 9.14, $MSe= 39.31$). Perhaps HSS were more into sexual variety or quality than into quantity.

Moreover, although HSS are apparently more into sexual risky behaviour, it is important to bring up to attention that HSS used condoms more with affairs (mean condom use with

affairs= 4.13 SD= 1.85, mean overall condom use= 3.73 SD= 1.47, $t(110)= 2.22$, $p<.05$) whilst LSS did not (mean condom use with affairs= 3.67 SD= 1.94, mean overall condom use= 3.60 SD= 1.63, $t(89)=.44$). In addition, more HSS were carrying condoms than LSS (number HSS= 111 LSS= 72, $\chi^2= 16.33$, $p<.001$). Note that, only a minority of students (183) students were carrying condoms with them.

Thus, sensation seeking is a variable that must be considered in any analysis of sexual behaviour. HSS are more into novelty and as such they have a greater number of sexual partners. Their higher condom use with affairs suggests that they might be open to persuasive messages encouraging safe sex.

Further analyses of sensation seeking found the following statistically significant multivariate and univariate effects, as shown in Tables 4 and 5 (see appendix 4, Tables 2, 5 and 6 for means). More HSS discussed condom use immediately before sex, held lower general-intentions, and preferred condoms which were coloured, flavoured and with different shapes. The largest difference was for general-intentions and the lowest was for condom preference. In other words, messages which aim to increase HSS condom should aim at strengthen their general-intentions, for instance, by presenting condom use as socially accepted and practiced by a number of different important people.

There were also statistically significant multivariate and univariate effects of sensation seeking by condom use (Tables 7 and 8) (see appendix 4, Table 5 for means), as well as of sensation seeking by gender (Tables 7 and 8) (see appendix 4, Table 2 for means). Simple effects analyses showed the following statistically significant differences:

1. There was almost no difference between HSS CUs and HSS NCUs, but LSS CUs perceived much greater support to use condoms from their family-doctor than LSS NCUs. So, the perceived support to use condoms from family-doctor might affect mainly LSS condom use.
2. Women felt the lowest, and men the highest, stigma against condom carriers, and this difference was greater for HSS than for LSS. Moreover, women HSS and LSS felt less stigma against condom carriers than men HSS.
3. Women LSS and men HSS believed more that condoms should be used to avoid pregnancy.
4. Women HSS and men LSS included condoms in foreplay more often than men HSS.
5. The largest univariate difference was in stigma.

Last, there were multivariate and univariate effects of gender by sensation seeking by activity-type (Tables 9 and 10) (see appendix 4, Table 7 for means), as well as of gender by

activity-type by condom use (Tables 9 and 10) (see appendix 4, Table 8 for means). Simple effects analyses revealed the following statistically significant differences among those that had sex in the last 12 months:

1. Frequency of inclusion of condoms in foreplay: Men LSS without a SP included condoms the most of all, whilst women LSS without a SP did so the least. Among LSS, women with a SP included condoms more than men with a SP and than women without a SP. Men LSS with a SP included condoms more than women LSS without a SP, and than men HSS with a SP. Among HSS, women without a SP included condoms the most, but women with a SP also included condoms more than men with and without a SP. Women HSS without a SP included condoms far more than women LSS without a SP. Men HSS without a SP included condoms more than men HSS with a SP.
2. Family-doctor: Women HSS without a SP felt the most support of all to use condoms from their family-doctor. Among those with a SP, men HSS felt more support than women HSS and than men LSS. Among LSS, men without a SP felt the most support and they also felt more support than men HSS without a SP. Men LSS with a SP felt more support than women LSS without a SP.
3. The largest difference on gender by sensation seeking by activity-type was in family-doctor.
4. Stigma: Women CUs without a SP felt the lowest stigma against people carrying condoms of all, whilst men NCUs with a SP felt the highest stigma. Both women and men CUs with a SP felt less stigma than men CUs without a SP. Women CUs without a SP felt less stigma than women NCUs without a SP. Men CUs with a SP felt less stigma than men NCUs with a SP. Women with a SP felt the lowest stigma of all NCUs. Women NCUs without a SP felt less stigma than men NCUs with and without a SP.

In summary, women HSS without a SP included condoms in foreplay more than all HSS men. However, women LSS without a SP included condoms less than all LSS men. Thus, women HSS without a SP seemed more sexually assertive and more likely to engage in safe sex than women LSS without a SP. In addition, among LSS without a SP, it was men's responsibility to include condoms in foreplay and they did so even more than HSS women without a SP. That is, the gender traditional roles, which portrait men as the sexual seekers, seem to be particularly present among LSS.

Furthermore, the amount of support that people perceived to have from their family-doctor might have enthused them to include condoms in foreplay. That is because women HSS without a SP felt very supported. Men LSS without a SP felt more supported than men HSS without a SP. Men HSS with a SP felt more supported than LSS with a SP; hence, perhaps, HSS greater use of condoms with affairs.

Summary of hypotheses tests

The following hypotheses were or not supported:

* Hypothesis 1 that, those sexually active without a stable partner (type-relationship) would use condoms more frequently and intend to use them more than those with a stable partner, was supported.

* Hypothesis 2.a. that, CUs would have more than NCUs positive attitudes, perceive subjective norms supporting their condom use, and hold more positive intentions towards condom use, was partially supported. CUs only had more positive attitudes and held more positive intentions towards condom use.

Hypothesis 2.b. that, CUs would regret more the failure on intended condom use than NCUs, was supported.

Hypothesis 2.c. that, CUs would discuss more condom use than NCUs, was partially supported. CUs discussed more condom use a few hours or days before sex, but there were no differences on the discussion of condom use immediately before sex.

Hypothesis 2.d. that, CUs would have more positive behavioural principles, was supported.

Hypothesis 2.e. that, CUs would include condoms in foreplay more frequently, was supported.

* Hypothesis 3 that, CUs without a stable partner would have more positive attitudes, perceive subjective norms supporting their condom use, and hold more positive intentions towards condom use than CUs with a stable partner, was not supported.

* Hypothesis 4 that, men would hold more positive intentions of using condoms and would claim using them more frequently, was partially supported. Women held more positive intentions of using condoms with different sexual partners, early in a relationship, and when highly sexually aroused (general-intentions). Men used condoms more in their non-stable sexual encounters.

* Hypothesis 5 that, women would have more positive attitudes towards condoms, but perceive themselves as having lower control over condom use, was partially supported. Women had more favourable attitudes towards condoms, but felt more embarrassed to buy condoms.

* Hypothesis 6 that, women would feel less embarrassed to talk about condoms, was not supported.

* Hypothesis 7 that, women would discuss condoms more both immediately before sex, as well as a few hours or days before sex, was partially supported. Women only discussed condom use more a few hours or days before sex.

* Hypothesis 8 that, people would use condoms more if their partners participated on putting the condoms on, was supported.

* Hypothesis 9 that, men would be higher sensation seekers, was partially supported.

* Hypothesis 10 that, homosexuality would not affect sensation seeking, was supported.

- * Hypothesis 11 that, younger men would be higher sensation seekers than older men, was not supported.
- * Hypothesis 12 that, younger HSS men would be less likely to use condoms than older HSS men, was not supported.
- * Hypothesis 12.a. that, compared with LSS, HSS would prefer condoms with different shapes, flavours and colours, was supported.
- * Hypothesis 12.b. that, compared with LSS, HSS would be more likely to put off discussing condom use until the last moment tending thus, to discuss it more immediately before sex, was supported.
- * Hypothesis 12.c. that, compared with LSS, HSS would be less likely to intend to use condoms, was supported. HSS intended less to use condoms with different sexual partners, early in relationships, and when highly sexually aroused (general-intentions).
- * Hypothesis 12.d. that, compared with LSS, HSS would prefer unplanned sexual encounters, was supported.
- * Hypothesis 12.e. that, compared with LSS, HSS would be less likely to use condoms, was not supported. HSS used condoms more when having affairs. However, as HSS swap partners more this figure does not mean that they are less at risk of catching the HIV virus.
- * Hypothesis 12.f. that, compared with LSS, HSS would be less likely to act to assure safe sex when they suggest condoms to a partner who refuses condom use, was not supported.
- * Hypothesis 12.g. that, compared with LSS, HSS would have higher perceived behavioural control, was not supported.
- * Hypothesis 12.h. that, compared with LSS, HSS would be more likely to use condoms incorrectly, putting them on more before ejaculation than before penetration, was not supported.
- * Hypothesis 12.i. that, compared with LSS, HSS would have more affairs, was supported.
- * Hypothesis 12.j. that, compared with LSS, HSS would have had more sexual partners in the last twelve months, was supported.
- * Hypothesis 12.l. that, HSS would not differ from LSS on the number of times they had sex per month, was supported.
- * Hypothesis 12.m. that, compared with LSS, HSS would be less likely to be virgins, was supported.
- * Hypothesis 12.n. that, compared with LSS, HSS would start their sexual life earlier, was supported.
- * Hypothesis 12.o. that, compared with LSS, HSS would have had more anal sex, was supported.

Table 2.

Final scoring for all measures.

| Composite scales | Scoring |
|---|--|
| Behavioural expectation | 1= low, 6= high behaviour expectation of condom use |
| Behavioural principles | 1= low, 6= high behaviour principles about condom use |
| Perceived behaviour control | 1= low, 6= high perceived control over condom use |
| Anticipated regret | 1= low, 6= high self-regret concerning non-condom use |
| Stigma | 1= high, 6= low stigma against condom carriers |
| Condom preference | Using sweet and flavoured, coloured, luminous, different shapes of condoms would make sex 1= less, 6= more fun |
| Open options | 1= dislike, 6= like to keep sexual options open |
| Sensation Seeking | 1= low, 6= high sensation seeker on non-sexual and sexual situations |
| Nonsexual | 1= low, 6= high sensation seeker in non-sexual situations |
| Compulsivity | 1=low, 6= high sensation seeker: compulsivity in sexual situations |
| Sexual sensation seeking | 1= low, 6= high sexual sensation seeker |
| Normative beliefs | 1= low, 6= high perceived pressure to use condoms from important others |
| Motivation to comply | 1= low, 6= high motivation to comply with important others |
| Subjective norms | 1= low, 6= high perceived pressure to use condoms from important others and motivation to comply with them |
| Intimates | 1= low, 6= high perceived pressure to use condoms from intimates and motivation to comply with them |
| Family-doctor | 1= low, 6= high perceived pressure to use condoms from family/doctors and motivation to comply with them |
| Attitudes | 1= negative, 6= positive attitudes about condom use |
| Embarrassment to buy | 1= it is, 6= it is not embarrassing to buy condoms for me |
| Embarrassment to talk | 1= it is difficult, 6= it is easy to talk about condoms to a partner |
| Relationship | 1= do not intend, 6= intend to use condoms depending on who has sex with |
| Onset | 1= do not intend, 6= intend to use condoms depending on length of relationship |
| General-intentions | 1= do not intend, 6= intend to use condoms with different people and depending on the length of the relationship |
| Current-intentions | 1= do not intend, 6= intend to use condoms next time that has penetrative sex |
| Individual items | |
| When discuss condom use: a few hours or days before sex | 1= disagree, 6= agree |
| When discuss condom use: immediately before sex | 1= disagree, 6= agree |
| Who usually suggests condoms | 1= Other, 2= Both, 3= Self |
| Transparent, non-coloured condoms with spermicide | Make sex 1= less, 6= more fun |
| Reasons to use a condom: avoid pregnancy | 1= disagree, 6= agree |
| Reasons to use a condom: avoid infections | 1= disagree, 6= agree |
| Reasons to use a condom: to have pleasure | 1= disagree, 6= agree |

Table 2/continued.

Final scoring for all measures.

| Individual items | Scoring |
|--|---|
| Reasons to use a condom: partner(s) wants to | 1= disagree, 6= agree |
| When put a condom on | 1= before the ejaculation, 6= before the penetration |
| How often include condoms into the foreplay | 1= never, 6= always include condoms into the foreplay |
| Frequency of partner(s) participation in putting on a condom | 1= never, 6= always |
| Frequency of condom use with the non-stable partner | 1= never used, 6= always used condoms |
| Frequency of condom use: vaginal or anal sex | 1= never use, 6= always use condoms |

Table 3.Reliability (α), overall Means, Standard Deviations (SD) for all measures and sample.

| Composite scales | α | Mean | SD | N |
|--|----------|------|------|-----|
| Behavioural expectation | .79 | 3.99 | 1.43 | 788 |
| Behavioural principles | .76 | 4.53 | 1.10 | 798 |
| Perceived behaviour control | .79 | 4.52 | 1.03 | 788 |
| Anticipated regret | .79 | 5.18 | .96 | 767 |
| Stigma | .72 | 4.76 | 1.29 | 799 |
| Condom preference | .74 | 3.91 | 1.33 | 798 |
| Open options | .56 | 1.74 | .32 | 777 |
| Sensation Seeking | .84 | 3.31 | .71 | 799 |
| Nonsexual | .62 | 3.87 | .91 | 799 |
| Compulsivity | .82 | 2.56 | .90 | 799 |
| Sexual sensation seeking | .73 | 3.90 | .94 | 783 |
| Normative beliefs | .85 | 4.97 | 1.07 | 763 |
| Motivation to comply | .79 | 3.22 | 1.02 | 778 |
| Subjective norms | .82 | 3.78 | .86 | 757 |
| Intimates | .65 | 3.76 | .95 | 757 |
| Family-doctor | .87 | 3.80 | 1.08 | 751 |
| Attitudes | .83 | 4.08 | 1.09 | 785 |
| Embarrassment to buy | .86 | 4.01 | 1.38 | 778 |
| Embarrassment to talk | .76 | 5.15 | 1.03 | 787 |
| Relationship | .81 | 5.44 | .83 | 792 |
| Onset | .83 | 5.06 | 1.30 | 680 |
| General-intentions | .85 | 5.26 | .96 | 792 |
| Current-intentions | .90 | 4.13 | 1.40 | 797 |
| Individual items | | | | |
| When discuss condom use: a few hours or days before sex | | 3.39 | 1.82 | 614 |
| When discuss condom use: immediately before sex | | 4.21 | 1.79 | 617 |
| Who usually suggests condoms: 1(Other) 2 (Both) 3 (Self) | | 2.22 | .53 | 770 |
| Transparent, non-coloured condoms with spermicide | | 3.87 | 1.44 | 793 |
| Reasons to use a condom: avoid pregnancy | | 5.42 | 1.14 | 781 |
| Reasons to use a condom: avoid infections | | 5.39 | 1.24 | 776 |
| Reasons to use a condom: to have pleasure | | 2.10 | 1.35 | 768 |
| Reasons to use a condom: partner (s) wants to | | 3.52 | 1.77 | 771 |
| When put a condom on (before ejaculation/before penetration) | | 5.06 | 1.70 | 674 |
| How often include condoms into the foreplay | | 4.49 | 1.53 | 307 |
| Frequency of partner(s) participation in putting on a condom | | 3.44 | 1.68 | 765 |
| Frequency of condom use with the non-stable partner | | 3.92 | 1.90 | 201 |
| Frequency of condom use: vaginal or anal sex | | 3.59 | 1.76 | 718 |

Table 4.

Main effects of gender (male/female), sensation seeking (high/low), activity-type (with/without a stable or main sexual partner and had sex) and frequency of condom use in vaginal or anal sex (C-use: user/non-user) on variables based on the theory of planned behaviour and related variables, as well as on reasons to use a condom.

| Composite scales and individual items | MSe | G | MSe | C-use | MSe | T | MSe | S |
|--|------|----------|------|-----------|------|----------|------|----------|
| Multivariate (G, S, C-use df= 11, 607) (T df= 11, 574) | ---- | 10.55*** | ---- | 18.67*** | ---- | 6.02*** | ---- | 2.44** |
| Univariate (G df= 1, 617) (C-use df= 1, 617) (T df= 1, 584) (S df= 1, 617) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| Behavioural expectations | 1.62 | 8.65** | 1.62 | 104.91*** | 1.97 | .36 | 1.62 | 1.08 |
| Behavioural principles | 1.00 | 10.26*** | 1.00 | 67.82*** | 1.14 | .20 | 1.00 | .00 |
| Perceived behaviour control | .73 | 2.66 | .73 | 139.19*** | 1.00 | .00 | .73 | 1.00 |
| Intimates | .82 | 1.99 | .82 | 4.52* | .82 | 1.33 | .82 | 5.84* |
| Family - doctor | 1.05 | 7.31** | 1.05 | .27 | 1.04 | 2.96 | 1.05 | .03 |
| Attitudes | .96 | 14.04*** | .96 | 56.29*** | 1.04 | 3.51 | .96 | 5.36* |
| Embarrassment to buy | 1.64 | 34.38*** | 1.64 | 1.43 | 1.59 | 2.64 | 1.64 | .11 |
| Embarrassment to talk | .94 | 5.74* | .94 | 6.30** | .93 | 9.84** | .94 | 1.54 |
| General - intentions | .67 | 9.05** | .67 | 78.63*** | .83 | 6.94** | .67 | 11.25*** |
| Current - intentions | 1.63 | .04 | 1.63 | 69.24*** | 1.84 | 22.82*** | 1.63 | .94 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | .29 | .01 | .29 | 1.99 | .29 | 1.21 | .29 | .02 |
| Multivariate (G, S, C-use df= 4, 672) (T df= 4, 637) | ---- | 2.48* | ---- | 13.65*** | ---- | 4.76*** | ---- | 1.29 |
| Univariate (G df= 1, 675) (C-use df= 1, 675) (T df= 1, 640) (S df= 1, 675) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| Reasons to use a condom: avoid pregnancy | 1.26 | .24 | 1.26 | 15.72*** | 1.20 | 2.71 | 1.26 | .57 |
| Reasons to use a condom: avoid infections | 1.45 | .89 | 1.45 | 6.07** | 1.48 | 13.31*** | 1.45 | 2.52 |
| Reasons to use a condom: to have pleasure | 1.72 | 6.68** | 1.72 | 21.78*** | 1.77 | .13 | 1.72 | 2.09 |
| Reasons to use a condom: partner(s) wants to | 3.00 | .74 | 3.00 | 4.65* | 3.04 | .21 | 3.00 | .25 |

* P < 0.05; ** P < 0.01; *** P < 0.001.

Table 5.

Main effects of gender (male/female), sensation Seeking (high/low), activity-type (with/without a stable or main sexual partner and had sex) and frequency of condom use in vaginal or anal sex (C-use: user/non-user) on the remaining measures.

| Composite scales and individual items | MSe | G | MSe | C-use | MSe | T | MSe | S |
|---|--------|----------|-------|----------|-------|----------|-------|--------|
| Anticipated regret (G, C-use, S df= 1, 678) (T df= 1, 643) | 5.11 | 5.98* | 27.81 | 32.56*** | 1.81 | 1.96 | .34 | .40 |
| Stigma (G, C-use, S df= 1, 707) (T df= 1, 672) | 42.32 | 26.96*** | 8.54 | 5.44* | .04 | .03 | .24 | .15 |
| Condom preference (G, C-use, S df= 1, 706) (T df= 1, 671) | 5.00 | 2.91 | 1.09 | .64 | 2.48 | 1.46 | 12.09 | 7.05** |
| Sensation seeking (G, C-use, S df= 1, 707) (T df= 1, 672) | 5.80 | 35.76*** | .03 | .19 | .30 | 1.89 | ----a | ----a |
| Nonsexual (G, C-use, S df= 1, 707) (T df= 1, 672) | .01 | .02 | .00 | .01 | .14 | .24 | ----a | ----a |
| Compulsivity (G, C-use, S df= 1, 707) (T df= 1, 672) | 18.70 | 49.95*** | 1.95 | 5.20* | .01 | .02 | ----a | ----a |
| Sexual sensation seeking (G, C-use, S df= 1, 696) (T df= 1, 661) | 4.28 | 8.34** | 1.00 | 1.95 | 1.28 | 2.54 | ----a | ----a |
| When discuss condom use: a few hours or days before sex (G, C-use, S df= 1, 558) (T df= 1, 536) | 41.51 | 12.99*** | 30.94 | 9.67** | 1.83 | .57 | .61 | .19 |
| When discuss condom use: immediately before sex (G, C-use, S df= 1, 565) (T df= 1, 536) | 5.11 | 1.69 | 9.24 | 3.05 | 8.67 | 2.97 | 27.20 | 9.98** |
| Transparent, non-coloured condoms with spermicide (G, C-use, S df= 1, 701) (T df= 1, 668) | 1.43 | .68 | 7.37 | 3.53 | .23 | .11 | 1.56 | .75 |
| When put a condom on (before ejaculation/before penetration) (G, C-use, S df= 1, 633) (T df= 1, 611) | 30.42 | 10.68*** | 5.33 | 1.87 | 7.92 | 2.81 | 4.76 | 1.67 |
| How often include condoms into the foreplay (G, C-use, S df= 1, 281) (T df= 1, 265) | 10.84 | 4.90* | 19.25 | 8.71** | 2.15 | 1.03 | .03 | .01 |
| Frequency of partner(s) participation on putting a condom on (G, C-use, S df= 1, 685) (T df= 1, 654) | 164.19 | 66.43*** | 6.51 | 2.64 | .26 | .10 | 6.06 | 2.45 |
| Frequency of condom use with the non-stable partner (G, C-use, S df= 1, 193) (T df= 1, 189) | .24 | .09 | 66.42 | 24.88*** | ----b | ----b | 16.54 | 6.19* |
| Frequency of condom use: vaginal or anal sex (G, C-use, S df= 1, 707) (T df= 1, 671) | .57 | .87 | ----c | ----c | 68.02 | 23.90*** | 1.77 | 2.71 |

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Main effects of this Table differ from the ones on Appendix 4 because the ones printed in this Table were taken from the output of the 3-way ANOVAs and the ones in Appendix 4 were taken from the output of the 2-way ANOVAs.

----a = not applicable because the factor sensation seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity and sexual sensation seeking were subscales of sensation seeking.

----b = not applicable because one level of activity-type implies not having a stable partner.

----c = not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use, as explained in Table 2.

Table 6.

Effects of gender (male/female), activity-type (with/without a stable or main sexual partner and had sex) and frequency of condom use in vaginal or anal sex (user/non-user) on variables based on the theory of planned behaviour and related variables, as well as on reasons to use a condom.

| Composite scales and individual items | MSe | GxT | MSe | TxC | MSe | SxT |
|---|------|---------|------|----------|------|-------|
| Multivariate (GxT, SxT df= 11, 574) (TxC df= 11, 573) | ---- | 3.13*** | ---- | 5.03*** | ---- | 1.22 |
| Univariate (GxT df= 1, 584) (TxC df= 1, 583) (SxT df= 1, 584) | ---- | ---- | ---- | ---- | ---- | ---- |
| Behavioural expectations | 1.97 | .51 | 1.59 | 9.97** | 1.97 | 3.13 |
| Behavioural principles | 1.14 | .68 | 1.00 | .20 | 1.14 | 5.60* |
| Perceived behaviour control | 1.00 | 6.87** | .74 | 1.26 | 1.00 | .45 |
| Intimates | .82 | .89 | .80 | 5.01* | .82 | .62 |
| Family - doctor | 1.04 | 1.81 | 1.05 | 3.41 | 1.04 | 3.26 |
| Attitudes | 1.04 | 3.55 | .94 | .03 | 1.04 | .00 |
| Embarrassment to buy | 1.59 | 4.16* | 1.61 | .63 | 1.59 | .10 |
| Embarrassment to talk | .93 | 1.85 | .90 | .32 | .93 | .23 |
| General - intentions | .83 | 9.19** | .68 | 6.74** | .83 | .37 |
| Current - intentions | 1.84 | .00 | 1.54 | 14.39*** | 1.84 | 1.41 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | .29 | 4.62* | .29 | 5.46* | .29 | .22 |
| Multivariate (GxT, SxT df= 4, 637) (TxC df= 4, 636) | ---- | 4.56*** | ---- | 1.54 | ---- | 1.08 |
| Univariate (GxT df= 1, 640) (TxC df= 1, 639) (SxT df= 1, 640) | ---- | ---- | ---- | ---- | ---- | ---- |
| Reasons to use a condom: avoid pregnancy | 1.20 | 5.13* | 1.20 | 3.74* | 1.20 | .25 |
| Reasons to use a condom: avoid infections | 1.48 | 2.05 | 1.47 | .07 | 1.48 | .11 |
| Reasons to use a condom: to have pleasure | 1.77 | 9.49** | 1.73 | .73 | 1.77 | 3.28 |
| Reasons to use a condom: partner(s) wants to | 3.04 | 1.75 | 3.02 | 1.16 | 3.04 | .44 |

* P < 0.05; ** P < 0.01; *** P < 0.001.

Table 6/continued.

Effects of gender (male/female), sensation seeking (high/low) and frequency of condom use (user/non-user) on variables based on the theory of planned behaviour and related variables, as well as on reasons to use a condom.

| Composite scales and individual items | MSe | GxS | MSe | GxC | MSe | CxS |
|--|------|--------|------|--------|------|----------|
| Multivariate (df= 11, 607) | --- | 1.53 | --- | 2.42** | --- | 2.41** |
| Univariate (GxS df= 1, 617) (GxC df= 1, 617) (CxS df= 1, 617) | --- | --- | --- | --- | --- | --- |
| Behavioural expectations | 1.62 | .88 | 1.62 | 2.51 | 1.62 | .55 |
| Behavioural principles | 1.00 | .25 | 1.00 | .01 | 1.00 | .94 |
| Perceived behaviour control | .73 | 2.18 | .73 | .62 | .73 | .05 |
| Intimates | .82 | .47 | .82 | .05 | .81 | .02 |
| Family - doctor | 1.05 | .59 | 1.05 | 6.54** | 1.05 | 15.45*** |
| Attitudes | .96 | .66 | .96 | 4.70* | .96 | .17 |
| Embarrassment to buy | 1.64 | 5.43* | 1.64 | 1.12 | 1.64 | .40 |
| Embarrassment to talk | .94 | .37 | .94 | 1.09 | .94 | .01 |
| General - intentions | .67 | .00 | .67 | 1.29 | .67 | .60 |
| Current - intentions | 1.63 | .01 | 1.63 | .58 | 1.63 | .09 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | .29 | 1.04 | .29 | 3.43 | .29 | 2.77 |
| Multivariate (df= 4, 672) | --- | 3.14** | --- | 1.26 | --- | .85 |
| Univariate (GxS df=1, 675) (GxC df= 1, 675) (CxS df= 1, 675) | --- | --- | --- | --- | --- | --- |
| Reasons to use a condom: avoid pregnancy | 1.26 | 9.17** | 1.26 | 2.95 | 1.26 | .59 |
| Reasons to use a condom: avoid infections | 1.45 | .74 | 1.45 | 1.15 | 1.45 | .38 |
| Reasons to use a condom: to have pleasure | 1.72 | 1.87 | 1.72 | .16 | 1.72 | .26 |
| Reasons to use a condom: partner(s) wants to | 3.00 | .95 | 3.00 | .53 | 3.00 | 2.10 |

* P < 0.05; ** P < 0.01; *** P < 0.001.

Table 7.
Main effects of gender (male/female), activity-type (with/without a stable or main sexual partner and had sex) and frequency of condom use in vaginal or anal sex (user/non-user) on the remaining measures.

| Composite scales and individual items | MSe | GxT | MSe | GxC | MSe | TxC |
|--|-------|----------|-------|-------|-------|-------|
| Anticipated regret (GxT df= 1, 643) (GxC df= 1, 678) (TxC df= 1, 642) | .91 | .99 | 1.14 | 1.33 | 5.10 | 5.91* |
| Stigma (GxT df= 1, 672) (GxC df= 1, 707) (TxC df= 1, 671) | .08 | .05 | .08 | .05 | .40 | .25 |
| Condom preference (GxT df= 1, 671) (GxC df= 1, 706) (TxC df= 1, 670) | .01 | .00 | 7.63 | 4.45* | 2.33 | 1.37 |
| Sensation seeking (GxT df= 1, 672) (GxC df= 1, 707) (TxC df= 1, 671) | .50 | 3.10 | .16 | .99 | .10 | .24 |
| Nonsexual (GxT df= 1, 672) (GxC df= 1, 707) (TxC df= 1, 671) | .78 | 1.32 | 2.17 | 3.59 | 3.27 | 4.23* |
| Compulsivity (GxT df= 1, 672) (GxC df= 1, 707) (TxC df= 1, 671) | .41 | 1.15 | .45 | 1.20 | .97 | 1.51 |
| Sexual sensation seeking (GxT df= 1, 661) (GxC df= 1, 696) (TxC df= 1, 660) | .13 | .26 | .24 | .47 | 1.30 | 1.77 |
| When discuss condom use: a few hours or days before sex (GxT df= 1, 536) (GxC df= 1, 558) (TxC df= 1, 536) | 15.17 | 4.69* | .91 | .28 | 14.98 | 4.75* |
| When discuss condom use: immediately before sex (GxT df= 1, 536) (GxC df= 1, 565) (TxC df= 1, 536) | 12.29 | 4.21* | 14.49 | 4.78* | 3.10 | 1.05 |
| Transparent, non-coloured condoms with spermicide (GxT df= 1, 668) (GxC df= 1, 701) (TxC df= 1, 667) | 2.72 | 1.28 | .32 | .16 | 1.38 | .66 |
| When put a condom on (before ejaculation/before penetration) (GxT df=1, 611) (GxC df= 1, 633) (TxC df= 1, 610) | 2.85 | 1.01 | 7.67 | 2.69 | .04 | .02 |
| How often include condoms into the foreplay (GxT df= 1, 265) (GxC df= 1, 281) (TxC df= 1, 265) | 24.71 | 11.81*** | .50 | .22 | 1.65 | .77 |
| Frequency of partner(s) participation on putting a condom on (GxT df= 1, 654) (GxC df= 1, 685) (TxC df= 1, 653) | .01 | .00 | .03 | .01 | 2.81 | 1.12 |
| Frequency of condom use with the non-stable partner (GxC df= 1, 193) | ----a | ----a | 1.13 | .42 | ----a | ----a |
| Frequency of condom use: vaginal or anal sex (GxT df= 1, 671) | 1.48 | .52 | ----b | ----b | ----b | ----b |

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Interaction effects of this Table differ from the ones on Appendix 4 because the ones printed in this Table were taken from the output of the 3-way ANOVAs and the ones in Appendix 4 were taken from the output of the 2-way ANOVAs.

----a= not applicable because one level of activity-type implies not having a stable partner. Simple effects analyses on those with a SP revealed no significant differences between males and females frequency of condom use in their sexual affairs ($F(1,147)= 3.02$). In addition, simple effects analyses on those with a SP revealed that those who used condoms more frequently for vaginal or anal sex (Cus) also used them more often when had sex with other one than non-condom users (NCUs) ($F(1,147)= 48.76***$).

----b = not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use, as explained in Table 2.

Table 7/continued.

Main effects of gender (male/female), activity-type (with/without a stable or main sexual partner and had sex), sensation seeking (high/low) and frequency of condom use in vaginal or anal sex (user/non-user) on the remaining measures.

| Composite scales and individual items | MSe | GxS | MSe | CxS | MSe | SxT |
|--|-------|--------|------|------|-------|-------|
| Anticipated regret (GxS; CxS df= 1, 678) (SxT df= 1, 643) | 1.77 | 2.07 | .02 | .02 | 2.23 | 2.41 |
| Stigma (GxS; CxS df= 1, 707) (SxT df= 1, 672) | 14.11 | 8.99** | 3.69 | 2.35 | .42 | .26 |
| Condom preference (GxS; CxS df= 1, 706) (SxT df= 1, 671) | .25 | .14 | .43 | .25 | 2.34 | 1.38 |
| Sensation seeking (GxS; CxS df= 1, 707) (SxT df= 1, 672) | ---- | ---- | ---- | ---- | .01 | .04 |
| Nonsexual (GxS; CxS df= 1, 707) (SxT df= 1, 672) | ---- | ---- | ---- | ---- | 2.66 | 4.52* |
| Compulsivity (GxS; CxS df= 1, 707) (SxT df= 1, 672) | ---- | ---- | ---- | ---- | .02 | .06 |
| Sexual sensation seeking (GxS; CxS df= 1, 696) (SxT df= 1, 661) | ---- | ---- | ---- | ---- | 2.52 | 5.00* |
| When discuss condom use: a few hours or days before sex (GxS; CxS df= 1, 558) (SxT df= 1, 536) | 2.28 | .71 | 3.40 | 1.07 | .97 | .30 |
| When discuss condom use: immediately before sex (GxS; CxS df= 1, 565) (SxT df= 1, 536) | .65 | .21 | 6.32 | 2.09 | 3.24 | 1.11 |
| Transparent, non-coloured condoms with spermicide (GxS; CxS df= 1, 701) (SxT df= 1, 668) | 2.08 | 1.00 | .07 | .03 | 2.63 | 1.24 |
| When put a condom on (before ejaculation/before penetration) (GxS; CxS df= 1, 633) (SxT df= 1, 611) | .16 | .06 | .07 | .03 | 11.42 | 4.06* |
| How often include condoms into the foreplay (GxS; CxS df= 1, 281) (SxT df= 1, 265) | 13.54 | 6.13** | 6.67 | 3.02 | 6.13 | 2.93 |
| Frequency of partner(s) participation on putting a condom on (GxS; CxS df= 1, 685) (SxT df= 1, 654) | 3.19 | 1.29 | 1.49 | .60 | 2.99 | 1.19 |
| Frequency of condom use with the non-stable partner (GxS; CxS df= 1, 193) | 15.41 | 5.77* | .27 | .10 | ---- | ---- |
| Frequency of condom use: vaginal or anal sex (GxS; CxS df= 1, 707) (SxT df= 1, 671) | 1.16 | 1.78 | ---- | ---- | 1.82 | .64 |

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Interaction effects of this Table differ from the ones on Appendix 4 because the ones printed in this Table were taken from the output of the 3-way ANOVAs and the ones in Appendix 4 were taken from the output of the 2-way ANOVAs.

----a = not applicable because the factor sensation seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity and sexual sensation seeking were subscales of sensation seeking.

----b = not applicable because one level of activity-type implies not having a stable partner. Simple effects analyses on those with a SP revealed that HSS used condoms more frequently when had sex with affairs ($F(1,147) = 5.88^*$), but LSS did not.

----c = not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use, as explained in Table 2.

Table 8.

Effects of gender (male/female), sensation seeking (high/low), activity-type (with/without a stable or main sexual partner and had sex) and frequency of condom use in vaginal or anal sex (user/non-user) on variables based on the theory of planned behaviour and related variables, as well as on reasons to use a condom.

| Composite scales and individual items | MSe | GxSxC | MSe | GxSxT | MSe | GxCxT |
|--|------|-------|------|----------|------|--------|
| Multivariate (GxSxC df= 11, 607) (GxSxT df= 11, 574) (GxCxT df=11, 573) | ---- | .64 | ---- | 2.82*** | ---- | 2.22** |
| Univariate (GxSxC df= 1, 617) (GxSxT df= 1, 584) (GxCxT df= 1, 583) | ---- | ---- | ---- | ---- | ---- | ---- |
| Behavioural expectations | 1.62 | 1.49 | 1.97 | 2.43 | 1.59 | .30 |
| Behavioural principles | 1.00 | .76 | 1.14 | .56 | 1.00 | .13 |
| Perceived behaviour control | .73 | .51 | .99 | .52 | .74 | .29 |
| Intimates | .82 | .45 | .82 | 1.36 | .80 | 3.23 |
| Family - doctor | 1.05 | 1.50 | 1.04 | 13.79*** | 1.05 | .90 |
| Attitudes | .96 | .06 | 1.04 | 3.95* | .94 | .31 |
| Embarrassment to buy | 1.64 | 1.15 | 1.59 | .24 | 1.61 | .01 |
| Embarrassment to talk | .94 | 1.44 | .93 | .00 | .90 | 2.29 |
| General - intentions | .67 | .18 | .83 | .18 | .68 | .97 |
| Current - intentions | 1.63 | .14 | 1.84 | 3.69 | 1.54 | 2.36 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | .29 | .04 | .29 | 1.00 | .29 | .21 |
| Multivariate (GxSxC df= 4, 672) (GxSxT df= 4, 637) (GxCxT df=4, 636) | ---- | 1.30 | ---- | 1.00 | ---- | .79 |
| Univariate (GxSxC df= 1,675) (GxSxT df= 1,640) (GxCxT df= 1,639) | ---- | ---- | 1.20 | 1.75 | ---- | ---- |
| Reasons to use a condom: avoid pregnancy | 1.26 | 3.44 | 1.48 | .07 | 1.20 | .13 |
| Reasons to use a condom: avoid infections | 1.45 | .34 | 1.77 | 2.58 | 1.47 | .07 |
| Reasons to use a condom: to have pleasure | 1.72 | .02 | 3.04 | .12 | 1.73 | 3.00 |
| Reasons to use a condom: partner(s) wants to | 3.00 | 1.07 | ---- | ---- | 3.02 | .06 |

* P < 0.05; ** P < 0.01; *** P < 0.001.

Table 9.

Main effects of gender (male/female), sensation seeking (high/low), activity-type (with/without a stable or main sexual partner and had sex) and frequency of condom use in vaginal or anal sex (user/non-user) on the remaining measures.

| Composite scales and individual items | MSe | GxSxC | MSe | GxSxT | MSe | GxCxT |
|---|------|-------|-------|--------|-------|--------|
| Anticipated regret (GxSxC df= 1,678) (GxSxT df= 1,643) (GxCxT df= 1,642) | 2.39 | 2.80 | .08 | .09 | 1.20 | 1.39 |
| Stigma (GxSxC df= 1,707) (GxSxT df= 1,672) (GxCxT df= 1,671) | 2.77 | 1.76 | 1.01 | .63 | 12.92 | 8.13** |
| Condom preference (GxSxC df= 1,706) (GxSxT df= 1,671) (GxCxT df= 1,670) | .65 | .38 | 1.79 | 1.05 | 6.16 | 3.62 |
| Sensation seeking (GxCxT df= 1,671) | ---- | ---- | ---- | ---- | .01 | .02 |
| Nonsexual (GxCxT df= 1,671) | ---- | ---- | ---- | ---- | .10 | .13 |
| Compulsivity (GxCxT df= 1,671) | ---- | ---- | ---- | ---- | .12 | .18 |
| Sexual sensation seeking (GxCxT df= 1,660) | ---- | ---- | ---- | ---- | .03 | .03 |
| When discuss condom use: a few hours or days before sex (GxSxC df= 1,558) (GxSxT df= 1,536) (GxCxT df= 1,536) | .86 | .27 | .25 | .08 | 5.10 | 1.62 |
| When discuss condom use: immediately before sex (GxSxC df= 1,565) (GxSxT df= 1,536) (GxCxT df= 1,536) | 5.26 | 1.74 | 4.73 | 1.62 | .00 | .00 |
| Transparent, non-coloured condoms with spermicide (GxSxC df= 1,701) (GxSxT df= 1,668) (GxCxT df= 1,667) | .20 | .10 | .21 | .10 | 3.58 | 1.71 |
| When put a condom on (before ejaculation/before penetration) (GxSxC df= 1,633) (GxSxT df= 1,611) (GxCxT df= 1,610) | 3.86 | 1.36 | 9.57 | 3.40 | .12 | .04 |
| How often include condoms into the foreplay (GxSxC df= 1,281) (GxSxT df= 1,265) (GxCxT df= 1,265) | .57 | .26 | 17.22 | 8.24** | .08 | .04 |
| Frequency of partner(s) participation on putting a condom on (GxSxC df= 1,685) (GxSxT df= 1,654) (GxCxT df= 1,653) | 3.06 | 1.24 | .41 | .16 | .22 | .09 |
| Frequency of condom use with the non-stable partner (GxSxC df= 1,193) | 2.49 | .93 | ---- | ---- | ---- | ---- |
| Frequency of condom use: vaginal or anal sex (GxSxT df= 1,671) | ---- | ---- | 6.07 | 2.13 | ---- | ---- |

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

----a = not applicable because the factor sensation seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity and sexual sensation seeking were subscales of sensation seeking.

----b = not applicable because one level of activity-type implies not having a stable partner.

----c = not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use in vaginal or anal sex as explained in Table 2.

DISCUSSION

This study set out to establish a set of measures that could reliably assess condom use. This was necessary in order to ensure comparability with previous research and also for the subsequent research of the thesis. In this discussion two issues will be examined: the measurement and the nature of the differences among sub-groups within the overall sample.

Reliability of measures.

Analyses of the internal consistency of the measures revealed that all composite constructs were internally consistent with alphas ranging from .59 to .90 (three were below .70). In addition, the difference in reliability was only marginal for gender differences. Thus, most of the measures appeared to have reasonably high internal reliability.

Comparison among sub-groups.

Main and 2-way effects are reported in here for purposes of comparison with previous studies when possible. The 3-way effects: gender x sensation seeking x activity-type; gender x activity-type x condom use; and gender x sensation seeking x condom use are also discussed.

Consistent with the findings of Juran (1995), the analyses of activity-type showed that condom use varied according to whether the relationship was with a stable partner or not. Those in stable relationships did not use condoms frequently, as found by Rosenthal, Fernbach, and Moore (1997), but those in stable relationships intended to use them more in the next penetrative sex if it happened with different people, early in a relationship, and when they were highly sexually aroused, to avoid infections --and perhaps to avoid possible problems with their stable partner too. Therefore, although those in stable relationships were not condom users, they intended to use condoms with different people, early in a relationship, and when highly sexually aroused. That is perhaps why they used condoms more frequently with affairs (73% used condoms frequently or always) than those sexually active without a SP used in their current sexual encounters (only 56% of these used condoms frequently or always). That is, people sexually active without a SP were at higher risk of catching HIV than people in stable relationships with affairs. These findings do not confirm Sutton's (1994) assumption that past behaviour should always be the best predictor of future behaviour, certainly this is not the case among those in stable relationships.

Consistent with Cline and McKenzie (1994) there were no differences between men and women frequency of condom use. However, men who had one or more sexual partners in the last twelve months used condoms more frequently, perhaps because they carried condoms more than women. Nevertheless, women high and LSS felt that there was less *stigma* against

condom carriers than HSS men, and so did women NCUs without a SP when compared to men NCUs with and without a SP. Men' negative perceptions of condom carrying are likely to be an obstacle to condom carrying, and ultimately to condom use. After all, women CUs without a SP, and men CUs with a SP, associated less *stigma* to carrying condoms than women NCUs without a SP, and than men with a SP. The unavailability of condoms is known to be an obstacle to safe sex (Hetherington, Harris, Bausell, Kanavagh, *et al.* 1996). Obviously, in order to use condoms, one needs to have them at hand. Furthermore, CUs and women tended to *discuss condom use a few hours or days* before sex.

Previous research on sensation seeking has suggested that high sensation seekers (HSS) would be unlikely to plan their future (Franken, 1992): engaging in more risky sexual practices (Jeffrey *et al.*, 1990) and having a greater number of sexual partners (Fisher and Misovich, 1990). The present results confirmed these findings, though not completely. There were no differences between LSS and HSS concerning when they put condoms on (before ejaculation/before penetration), neither concerning frequency of condom use. This was probably because almost everybody knew that condoms should be put on before penetration, and just over half of the people were aware of the need of condom use (56% of those without a SP sexually active used them). However, HSS seemed to be more likely to catch HIV because of the following reasons. Fewer HSS were virgins and they had their first sexual intercourse earlier. HSS had more anal sex, more affairs, greater number of sexual partners in the last twelve months (even when compared to men), and were less likely to be in stable sexual relationships. HSS preferred to keep their sexual options open, discussed condom use more immediately before sex, and held lower intentions of using condoms in the next penetrative sex if it happened with different people, early in a relationship, and when they were highly sexually aroused (general-intentions). These findings are consistent with Franken's (1992) study, which concluded that HSS put off making decisions until the last minute.

In addition, men were higher *sexual sensation seekers* and more into *sexual compulsivity* than women. Previous research has also found that men were higher sensation seekers than women (Ball, Farnill, and Wangerman, 1984; Kurtz and Zuckerman, 1978). Thus, the population to target on campaigns to prevent the spread of HIV seem to be HSS and HSS men. HSS are also the ones to target when advertising condoms with different colours and flavours as they prefer these types of condoms more than LSS.

The analyses of condom use suggested that the following variables were the most relevant to condom use: *attitudes; embarrassment to talk; perceived behaviour control; behavioral principles; behavioral expectations; two types of intentions (general and current); reasons to*

use a condom (to have pleasure, to avoid infections and pregnancy); inclusion of condoms into foreplay; discussion of condom use a few hours or days before sex, and anticipated regret. Some of these findings are consistent with previous research. Perceived behavioral control and intentions have accounted for about 10% in reported condom use assessed one year later in Reinecke, Schmidt, and Ajzen's study (1996). Discussion of condom use with a partner has been associated with intentions to use condoms by Boldero *et al.* (1992), and so has anticipated regret by Richard, van-der-Pligt, and de-Vries (1995). However, subjective norms did not seem to be especially relevant to condom use, which is not consistent with previous research (Sutton, McVey, Glanz, 1997; Fishbein, Trafimow, Middlestadt, Helquist, 1995). Fishbein *et al.* found that perceived normative pressure was the most important determinant of condom use. Sutton *et al.* also suggested that if young people believed their partners wanted them to use condoms, they would end up intending to use condoms and using them more frequently. Subjective norms were not relevant in the present study, perhaps due to the presence of more influential variables on condom use measured in this study, but not measured by Fishbein *et al.* and Sutton *et al.*. Attitudes were related to condom use in this study, and this is consistent with the findings of Ploem and Byers (1997) and Raj (1996). However, it is also known that even people with responsible attitudes to safe sex do not always adopt condom use as a norm with either casual or regular partners (Rosenthal, Fernbach, and Moore, 1997).

The analyses of condom use by activity-type showed that non condom users (NCUs) without a SP responded to the measure of *current-intentions* in a more positive way than to the measure of *general-intentions*. These findings indicate that it was difficult for NCUs without a SP to use condoms in the next penetrative sex if it happened with different people, early in a relationship, and when they were highly sexually aroused (*general-intentions*). This happened although NCUs without a SP thought that next time they would have penetrative sex they would carry condoms, suggest them, include condoms in foreplay, and use them (*current-intentions*). Therefore, varying the context of the measures permitted a better understanding of the limitation of the measure of *current-intentions*, especially among NCUs without a SP. It showed that NCUs without a SP were in greater danger of engaging in sexually risky behaviour because they had lower *general-intentions* of using condoms than NCUs with a SP.

The analyses of condom use by sensation seeking revealed that condom users (CUs) LSS perceived higher influence of their *family-doctor's* opinions on their condom use than NCU LSS. Non condom user HSS also perceived higher influence of their *family-doctor's* opinions on their condom use than NCU LSS, but they did not use condoms. These findings suggest that the influence of one's *family-doctor's* opinions increases frequency of condom use among

LSS, but not among HSS. Perhaps, HSS' enjoy the excitement of taking risks and breaking rules, such as not using condoms when expected to and having affairs when expected not to. It is known that HSS take more risks in financial matters (Wong and Carducci, 1991) and accumulate more traffic violations (Wilson, 1990).

The analyses of gender revealed that carrying a condom was not common, especially among women, though women felt there was less *stigma* against condom carriers. Women were previously found to be less likely to carry condoms with them (Rosenthal, Fernbach and Moore, 1997) and to buy condoms (Cline and McKenzie, 1994). In the present study women had more positive *behavioral principles* about condom use, *expected* more to use condoms, and held more *general-intentions* of using condoms. However, it is known that carrying a condom may ultimately lead to condom use (Wilson, Manual, and Lavelle, 1992) and that unavailability of condoms interfere with safer sex practices (Hetherington, Harris, Bausell, Kavanagh, *et al.*, 1996). Thus, even though women had greater behavioral principles about condom use, expected and intended to use condoms more, they were unlikely to carry condoms, and therefore, women were likely to have unsafe sex. These findings suggest that sole measures of intentions to use condoms may not correlate to condom use, unless a measure of current condom carrying is also assessed.

The analyses of gender by activity-type showed important differences on two of the TPB variables: *perceived behaviour control* and *general-intentions*. Some studies have not found a significant effect of perceived behaviour control on intentions, but some others have (Conner and Armitage, 1997). However, even when perceived behaviour control predicts intentions to use condoms, it may not lead to future condom use because of the influence of situational factors such as not having a condom available when needed. It has also been suggested that condom use is more under men's control than women (Helweg-Larsen and Collins, 1994), and if men without a SP perceived themselves as having more control over condom use than women without a SP and than men with a SP, as they do, they might be more likely to engage in safer sex. This is important because these men are possibly at higher risk of catching HIV/AIDS as they vary their sexual partners more than those with a SP. Nevertheless, the findings in the present study also imply that because women without a SP perceived themselves having less control, they might be less likely to use condoms and more likely to catch HIV/AIDS if they engaged in casual sex.

The analyses of gender by condom use revealed that for men CUs the perceived subjective norms from their *family-doctor* were more important than other variables on condom use. This finding is not consistent with Ajzen's (1985) model which states that intentions and perceived behaviour control are the direct link to behaviour. However, Ajzen's model did not

account for the effects of gender.

The analyses of gender by activity-type by condom use revealed that these sub-groups of people differed on how much they felt that there was *stigma* against condom carriers. Non condom user women without a SP seemed to be less likely to carry condoms themselves than CU women without a SP because they felt there was more *stigma* against condom carriers. However, in order to use condoms one needs to carry them to have a condom when needed. That is possibly why CU women without a SP and CU men with a SP perceived less *stigma* than NCUs. Non condom user women with a SP regarded condom carrying more positively than any other NCUs possibly because: 1. women with a SP intended more to use condoms in the next penetrative sex if it happened with different people, early in a relationship, and when they were highly sexually aroused (general-intentions), associated condom use more to pleasure, and included more condoms in foreplay (see gender by activity-type); 2. NCU women with a SP would not like to receive or transmit to a partner a sexually transmitted disease should an affair occur. Finally, NCU men, especially the ones without a SP, were less likely to carry condoms than NCU women without a SP. Condom carrying among all women was already very low (only 9% of women carried them), thus NCU men without a SP were very likely to keep engaging in risky sexual practices. The present findings are consistent with the effects of gender (women felt less stigma), and gender by sensation seeking (HSS women and LSS felt less stigma).

The analyses of gender by sensation seeking suggested that HSS men were at higher risk of engaging in unsafe sex because they felt there was more *stigma* against condom carriers and *included condoms in foreplay* less frequently. In this study, it was found that inclusion of condoms in foreplay was more frequent among CUs.

The analyses of gender by sensation seeking by activity-type revealed that these sub-groups of people differed on how influential they believed the subjective norms from their *family-doctor* was on their condom use and in *how often they included condoms in foreplay*. Among other significant differences, HSS women without a SP attached more importance to their family-doctor's opinions than any other HSS. LSS men without a SP attached more importance to their family-doctor's opinions than any other LSS. LSS men without a SP gave more importance to their *family-doctor's* opinions than HSS men without a SP. HSS men with a SP valued more their *family-doctor's* opinions than HSS women with a SP, and LSS men with a SP. These findings are especially relevant because the effects of *family-doctor* were only significant in the previous analyses of gender, and condom use with sensation seeking. Thus, the findings obtained in the 3-way analyses throw light on the understanding of this variable in the presence of other factors. In addition, HSS women and LSS men without a SP

included condoms in foreplay more than HSS men with a SP. HSS women with a SP included more than both HSS men with and without a SP. LSS women with a SP included more than LSS men. These results were compatible with the main effects of activity-type (those without a SP used condoms more frequently), condom use (CUs included condoms more in foreplay), gender by activity-type (women with a SP, but men without a SP, included more), and gender by sensation seeking (HSS women, but LSS men, included condoms in foreplay more frequently than HSS men).

In summary, HSS women and LSS men without a SP valued more their family-doctor's opinions and included condoms in foreplay more. Therefore, one could believe that HSS women and LSS men without a SP would be more likely to use condoms than those with a SP, in particular if they believed their family-doctor supported their condom use. However, previous analyses in this study suggested that *inclusion of condoms in foreplay* would be directly related to condom use, but the normative component of *family-doctor* would not among HSS. Therefore, messages to prevent the spread of HIV/AIDS could address LSS men without a SP, rather than HSS women without a SP, showing that their family-doctor supports their condom use. In addition, messages could target both women and men HSS without a SP to reinforce their inclusion of condoms in foreplay as well as their carrying of condoms. Finally, messages could encourage women LSS to continue including condoms in foreplay so that their male partners would, perhaps, become consistent condom users and be like HSS more likely to use condoms with affairs (prior behaviour predicting future condom use). Also, women with a SP intended more to use condoms in the next penetrative sex if it happened with different people, early in a relationship, and when they were highly sexually aroused (general-intentions). In addition, women HSS and LSS felt less stigma against condom carriers than HSS men, and these men are more promiscuous than LSS men. Campaigns might need to portray condom use as ideal for all; it makes sex safe and last longer, thus more likely to please women and by extension men who want to have sex with women.

Theoretical implications.

There were a substantial number of interesting and potentially important differences among sub-groups within the sample. These differences can account for variance independently of other psychological factors, and might also moderate the relationship among variables.

All models ultimately aim to predict behaviour. There were a number of differences in prior behaviour. Condom use was less frequent among those with a SP and this is consistent with the findings of Juran (1995), Rosenthal, Fernbach, and Moore (1997). It was also more frequent among men that had one or more sexual partners in the last twelve months than

women. Condom use was more frequent in sexual encounters with affairs among CUs. It was associated with frequency of inclusion of condoms in foreplay, and the latter was less frequent among HSS men than among HSS women and LSS men. Inclusion of condoms in foreplay was also more frequent among men without a SP but women with a SP, and among LSS men without a SP but HSS women without a SP. Whether a partner participated in putting a condom on was not associated to people's frequency of condom use. Putting on condoms was the main responsibility of men, and they were more likely than women to put condoms on more before penetration than before ejaculation.

For the multivariate analyses of theory of planned behaviour and related variables (TPB), there were significant subgroup differences in the following variables: *attitudes* about using condoms, attitudes concerning *embarrassment to buy and to talk* about condoms, perception of the influence of subjective norms from *family-doctor* on condom use, *perceived behavioural control* over condom use, *behavioral principles* about using condoms, *behavioral expectations* about condom use, current *and general intentions* to use condoms. Consistent with previous research women had more positive *attitudes* about condom use (Severn, 1990), and so did CUs (Fernandez-Esquer, Krepcho, Freeman, Magee, *et al.*, 1997), but women also felt more *embarrassed to buy* condoms (Helweg-Larsen and Collins, 1994; Jadack, Hyde, and Keller, 1995). Condom users, and those with a SP, found it easier to *talk* about condoms to a sexual partner.

The influence of subjective norms from the *family-doctor* on condom use was weaker for women than men. It was higher for: 1. Men CUs than for men NCUs and than for women CUs; 2. Non condom user HSS, and CU LSS, than for NCU LSS; 3. LSS men without a SP than HSS men without a SP. These findings show that high subjective norms from the family-doctor are associated with an increase in condom use for men and LSS. Therefore, high subjective norms from the family-doctor might also increase condom use among LSS men without a SP. Note that, Ajzen's (1985) model proposes that subjective norms affect behaviour via intentions, but does not specify to which sub-groups of people these subjective norms are likely to be more relevant.

Perceived behavioural control, intentions (Ajzen, 1985) and behavioral expectations (Warshaw and Davis, 1985) have been considered to be direct predictors of behaviour. Consistent with these theories, *perceived behavioural control* over condom use was higher among CUs. In addition, men without a SP also *perceived more behavioural control* over condom use than men with and women without a SP. It is useful to remember that people without a SP, and men, both reported higher frequency of condom use.

Consistent with the above theorists (Ajzen, 1985; Warshaw and Davis, 1985), and with (Gallois, Terry, Timmins, Kashima, *et al.*, 1994) CUs differed from NCUs on the measures of intentions (general and current intentions). Non condom users without a SP intended more than NCUs with a SP to carry condoms, to suggest them, to include condoms in foreplay, and to use them the next time they had penetrative sex (*current-intentions*), but intended less to use condoms with different sexual partners, early in a relationship, and when highly sexually aroused (*general-intentions*). These findings suggest that both those with and without a SP had a particular person in mind with whom they thought they would have sex the next time. They also showed that NCUs without a SP were more likely to engage in risky sexual behaviour when having sex with different partners than NCUs with a SP. Perhaps an explanation for these findings is that people without a SP tended to be HSS, and thus avoided planning their future far ahead and left their sexual options open. Consistent with Ajzen's model, CUs with and without a SP held both more positive current and general-intentions to use condoms than NCUs with and without, respectively. Previous research has found that men hold more positive intentions to use condoms (Sutton, McVey, Glanz, 1997), but in the present study women held more positive intentions of using condoms more in the next penetrative sex if it occurred with different sexual partners, early in a relationship, and when highly sexually aroused (*general-intentions*). Condom users, and those with a SP, also held more positive general-intentions, whilst HSS intended less. Women with a SP also held more positive general-intentions than men with a SP and women without a SP. Therefore, the people most likely to engage in sexually risky behaviour are HSS, those without a SP, men, and women without a SP.

Intentions have also been considered to be closely related to *expectations* by Warshaw and Davis (1985). Consistent with Ajzen's model and Warshaw's and Davis' findings, expectations about using a condom were directly related to condom use. Condom users *expected* to use condoms more, and CUs with a SP *expected* to use condoms more than CUs without a SP. These findings suggest that it is easier to plan condom use with a SP than without a SP. Non condom users without a SP, *expected* to use condoms more than NCUs with a SP, probably because they understood that they were at higher risk of catching infections. Women also expected more to use condoms, but their expectations may not necessarily link to behaviour because it has been suggested that condom use is under men control (Helweg and Collins, 1994). In addition, women were also less likely to carry condoms in this study, and therefore should be less likely to use them.

Anticipated *regret* was higher for CUs than for NCUs. This finding is consistent with Rischard, van-der-Pligt, and de-Vries (1995) who found that *regret* predicted condom use over and above Ajzen's model. Condom users had also more positive behavioral principles

about condom use in the present study than NCUs. *Reasons to use condoms* differed on the following sub-groups. Those with a SP believed more that condoms should be used to *avoid infections*. Condom users believed more that condoms should be used to *avoid infections* and *pregnancy*, as well as *to have pleasure*, and this is consistent with previous research (Juran, 1995; Sacco, Levine, Reed, and Thompson, 1991). Women with a SP associated condoms with *pleasure* more than men with and without a SP. LSS women, and HSS men, believed more that condoms should be used *to avoid pregnancy*.

In summary, the findings in the present chapter suggest that the variables based on the TPB, as well as anticipated regret, behavioural principles, activity-type, sensation seeking and gender might all influence condom use. Furthermore, activity-type, sensation seeking and gender might moderate the relationship between the TPB, anticipated regret, behavioural principles and expectations/intentions. Chapter 6 will explore this.

Conclusions

In general, the measures are reliable with most alphas exceeding .70, indicating that these measures can be used in future studies. The differences between sub-groups are understandable and meaningful, relating almost always to previous research as predicted. This suggests that people responded to the questionnaire honestly and the measures are reasonably valid. There were important sub-group differences (for eg., men and women were HSS, but women were less high on *sexual sensation seeking* and *sexual compulsivity*). Activity-type and prior condom use, sensation seeking and gender each affected general-intentions to use condoms.

Perhaps the most important findings came from the analyses of sensation seeking. HSS were found to be less in stable sexual relationships, have more anal sex, a higher number of sexual partners in 12 twelve months and more affairs, but intended less to use condoms in the next penetrative sex with different sexual partners, early in a relationship and when highly sexually aroused. Thus, HSS might be the population to target in campaigns to prevent the spread of HIV/AIDS. However, it is not yet known the processes through which high and low sensation seekers are best persuaded to use condoms. Therefore the following empirical Chapters 6 and 8 will explore this matter. The theoretical frame will be based on the theory of planned behaviour, but the effects of anticipated regret, behavioural principles, activity-type, sensation seeking and gender will be tested in light of the findings from the present chapter.

Chapter 6: Study 3. Theoretical and descriptive models for predicting behavioural expectations and intentions to use condoms, as well as behaviour.

This chapter develops models to account for behavioural expectations about condom use, as well as two types of intentions (current and general) to use condoms. Afterwards, it looks at predictors of condom use. In the prediction of behavioural expectations and intentions, it examines whether activity-type, sensation seeking and gender moderate the effects of attitudes, subjective norms, perceived behaviour control, anticipated regret and behavioural principles. It also looks at whether sensation seeking moderates the effects of expectations/intentions on to condom use. These models are tested employing a multiple regression approach.

INTRODUCTION

The TPB states that a positive evaluation of behaviour X, perceived social pressure to perform behaviour X, and perceived control over performing behaviour X are directly linked to positive intentions to perform behaviour X. Indeed, these three components of the TPB have all predicted intentions to use condoms (Reinecke, Schmidt and Ajzen, 1996; Reinecke, Schmidt and Ajzen, 1997; White, Terry and Hogg, 1994). However, sometimes perceived behavioural control has not predicted intentions (Chan and Fishbein, 1993) and the TPB excludes the influence of motivational affective processes such as anticipated regret. Yet, if people anticipate negative feelings before performing behaviour they become more cautious (Janis and Mann, 1977; Richard, van-der-Plicht and de-Vries, 1995). Richard et al. have concluded that anticipated regret is neither a behavioural belief nor an attitude. It is an independent determinant of behavioural expectations about safe sexual behaviour and explains additional variance beyond that accounted for by the TPB. The average correlation between behavioural expectations-condom use and intentions-condom use did not differ in meta-analyses (Randall and Wolff, 1994; Sheeran and Orbell, 1998).

People's expectations/intentions to use condoms might also be influenced by their behavioural principles about condom use. Behavioural principles are possible actions to assure safe sex in a situation in which people experience conflicting emotions, such as the wish to have sex due to being highly sexually aroused and at the same time experiencing the discomfort of having had their suggestion of condoms refused. In order to test the hypothesis people will be asked to imagine they were in a situation where they wished to have sex due to being highly sexually aroused, they had suggested condoms (behavioural belief that a condom should be used) and the partner refused this request. They were then asked to evaluate how likely they would be to insist that sex would be conditional on using a condom. Other people have measured negotiation planning, such as Abraham, Sheeran, Norman, Conner, de-Vries and Otten (in press), but they did not assess people's likelihood of acting to assure safe sex.



Activity-type

Correlates of intentions to use condoms also vary according to people's type of sexual activity, that is, whether the sexual encounter is with a main/stable sexual partner or not (Baker, Morrison, Carter and Verdon, 1996; Corby, Schneider, and Wolitski, 1996). Activity-type entails both prior sexual behaviour and to whether it is necessary to use a condom. People with a main/stable sexual partner (SP) might not need to use condoms, unless they have affairs.

Sometimes norms and attitudes predict intentions to use condoms with a stable partner, while with casual sexual partners attitudes are a predictor for men and norms a predictor for women (Baker *et al.*, 1996). Other times, attitudes predict intentions to use condoms regardless of activity-type; partner norms and perceived behavioural control influence intentions to use condoms with a SP; partner norms (among men only) and perceived behavioural control (among women only) influence intentions without a SP Corby *et al.*'s (1996). These findings underline the need to examine the role of activity-type as a moderator in the prediction of behavioural expectations/intentions. If intentions to use condoms in the next penetrative sex refer to different sexual partners (general-intentions), the relationship between attitudes and intentions should be stronger for people with a SP. These people's attitudes could be the result of an evaluation of the possible negative outcomes (eg., pregnancy, infections) of unprotected sex with an affair. Strong attitudes would protect their stable relationship from the unpleasant consequences of an affair, such as infections and pregnancy.

It is also expected that the relationship between the perceived behavioural control and behavioural expectations/general-intentions should be stronger for people without a SP because of prior behaviour. For instance, in Chapter 5, those without a SP used condoms more frequently than those with a SP. These people without a SP probably know better how much control they are likely to have in the presence of different sexual partners. In addition, the relationship between anticipated regret and general-intentions, as well as between behavioural principles and general-intentions, should be stronger for people with a SP. Those with a SP might fear more the impact on their relationship of the failure on intended condom use.

Likewise, activity-type should moderate the relationship between intimates and current-intentions, as well as between perceived behavioural control and current-intentions. The relationship between intimates and current-intentions should be stronger for people with a SP than for people without a SP. Those with a SP might feel more easily persuaded by their intimates, people they feel close to and with whom they are likely to have the next sexual encounter. For instance, in Chapter 5, those with a SP intended to use condoms less the next time they had penetrative sex (current-intentions), perhaps as a consequence of a mutual

agreement on it. Besides, the relationship between perceived behavioural control and current-intentions should also be stronger for people with a SP. The perception of control might be more accurate among those with a SP because these people know better what is likely to happen in the presence of their sexual partners, people that they already know.

Moreover, according to Ajzen and Fishbein, unless the predictor (independent variables) and the criterion (dependent variables) are measured at the same level of specificity, it is difficult "to predict the extent, magnitude, or frequency" (1980, p.46) of behaviour. This principle of scale correspondence is interpreted a little flexibly in the present study in order to reduce the number of measures predicting behavioural expectations, current-intentions and general-intentions. Behavioural expectations are designed to assess whether people expect to reject unsafe sex if a partner does not want to use a condom and if a condom is not available. Current-intentions assess people's intentions to carry and suggest condoms, include them in foreplay and use them next time. This measure might be appropriate for those with a stable partner (SP), but not for those without. It may be too general for those without a SP because these people might find it difficult to know with whom their next sexual encounter will be. Considering this, general-intentions referred to using condoms next time with different sexual partners and when highly sexually aroused. Highly sexually aroused people are less likely to intend to use condoms (Boldero, Moore and Rosenthal, 1992).

Sensation seeking

In Chapter 5 it was found that people who were sexually active without a SP intended to use condoms less with different sexual partners and in new relationships (general-intentions) than people with a SP. Thus, those without a SP were at higher risk of catching HIV/AIDS. They were also higher sensation seekers, and consequently, might have a more reckless personality. So, it seems important to account for sensation seeking in the intention formation. Perhaps those with a SP carefully plan having an affair without risking unpleasant consequences such as infections and pregnancy.

So far, research does not seem to have looked at the relationship between sensation seeking and intentions. However, sensation seeking could influence intentions to use condoms as these can meet a need to increase or reduce sensation and HSS need to experiment intense sensations. It may also be that HSS are more guided by their affective moods and less guided by reasoning. In Chapter 5, there were differences between HSS and LSS on intentions, but not on the variables based on the TPB, anticipated regret and behavioural principles.

Opposite to LSS, HSS have been found to be attracted to people with dissimilar attitudes

(Thornton, Ryckman and Gold, 1981; Williams, Ryckman, Gold and Lenney, 1982), and this may weaken HSS' relationship between attitudes and behavioural expectations/intentions. Also, having sex might be the main goal for HSS, whilst LSS might weigh more the unpleasant outcomes from having unprotected sex. So, the relationship between the predicting variables and behavioural expectations/intentions should be stronger for LSS.

Furthermore, in Chapter 5, it was found that LSS condom users valued more the influence of their family-doctor, whilst HSS did not. It might be that the influence of one's family-doctor increased frequency of condom use among LSS, but not among HSS. HSS are more into gambling (Wolfgang, 1988), are risk takers (Wong and Carducci, 1991) and might be less inclined to plan following norms than LSS. The relationship between subjective norms and behavioural expectations/intentions should be stronger for LSS. Likewise, the relationship between perceived behavioural control and behavioural expectations/intentions should be stronger for LSS. This is because HSS are willing to act more impulsively to experience new situations (Franken, 1993) and as found, in Chapter 5, they prefer unpredictable sexual situations.

HSS might be pleasure seekers and might focus more on the anticipated sexual satisfaction than on the negative experience of anticipated regret. Also, as LSS have fewer stress management skills (Smith, Ptacek and Smoll, 1992), LSS might pay more attention to the anticipated regret. So, the relationship between anticipated regret and behavioural expectations/intentions should be stronger for LSS. By contrast, the relationship between behavioural principles and behavioural expectations/intentions should be stronger for HSS as they might be more persuasive. After all, HSS are more domineering and oblige less (Pilkington, Richardson, and Utley, 1988). They have a higher number of sexual partners (Kraft and Rise, 1994; Seto, Lalumiere, and Quinsey, 1995; Sheer and Cline, 1995), have sex with a new partner sooner (Seto, Lalumiere, and Quinsey, 1995), prefer to keep their sexual options open (as found in Chapter 5), and they might be aware that they are more likely to catch sexually transmitted diseases. So, if HSS believe that they should act to ensure safe sex, even when a partner refuses condoms and they are highly sexually aroused, they should be more likely to expect/intend to use condoms.

Activity-type might also moderate the effects between sensation seeking and behavioural expectations/intentions. It is envisaged that LSS without a SP should hold more positive behavioural expectations/intentions than HSS without a SP. This is because in Chapter 5 it was found that both HSS and those without a SP held lower general-intentions to use condoms.

Gender

Gender will also be included into the analysis but, there are not envisaged many theoretical implications of gender in the prediction of behavioural expectations about condom use and intentions to use condoms. Previous findings suggest that gender affects people's intentions to use condoms as men tend to express greater intentions to use condoms in the future (Wilson, Zenda, McMaster and Lavelle's (1992). Yet, in Chapter 5 it was found that men expected less to use condoms and they also intended less to use condoms with different sexual partners and in new relationships (general-intentions).

The research will also investigate the role of gender as a moderator of the effects of all variables discussed until now in this chapter and behavioural expectations/intentions to use condoms. Gender, however, is not a central issue for the current research. It is expected the relationship between the TPB variables and behavioural expectations/intentions to be stronger for men because they are the ones who wear the condoms. It is known that women are more favourable towards condoms (Campbell, Peplau, and DeBro, 1992; Cline and McKenzie, 1994), whilst men might have more direct control over condom use (Kasen, Vaughan and Walter, 1992; Morrison, Gillmore and Baker, 1995). Indeed, in Chapter 5 women had more positive attitudes about condoms but felt more embarrassed to buy them. Men were the mainly responsible for carrying and putting condoms on.

It is not anticipated that there will be different effects of gender on the relationship between behavioural principles and behavioural expectations/intentions, and these analyses are going to be exploratory. However, it is expected that the relationship between anticipated regret and behavioural expectations/intentions to be stronger for women, although there were no gender differences on anticipated regret in Chapter 5. This is because although infections can affect both genders equally, an unexpected pregnancy should affect mainly women, and thus make a stronger link between thoughts about the consequences of the action and intentions/expectations. There are envisaged moderating effects of gender between activity-type and behavioural expectations/intentions, neither between sensation seeking and behavioural expectations/intentions.

Additional measures

Behavioural expectations, current-intentions, and general-intentions might also be predicted by a number of other measures, which have been discussed in Chapter 5, and are not of central theoretical interest for the current research. These measures are stigma against condom carriers; condom preference; when to discuss condom use: a few hours or days before sex; when to discuss condom use: immediately before sex; who suggests using condoms; attractiveness of

transparent, non-coloured condoms with spermicide; reasons to use a condom: avoid pregnancy, avoid infections, to have pleasure, partner(s) wants to; when to put a condom on (before ejaculation/before penetration). Prior behaviour may also affect behavioural expectations/intentions to use condoms (Sutton, 1994) and it is going to be assessed via the following four items: how often condoms are included in foreplay; frequency of partner(s) participation in putting on a condom; frequency of condom use with the non-stable partner; frequency of condom use: vaginal or anal sex. In addition, activity-type is investigated and it refers to recent (in the last 12 months) sexual behaviour.

In conclusion, there is little research done on how the TPB variables, anticipated regret, activity-type, sensation seeking and gender, altogether influence behavioural expectations about condom use and intentions to use condoms. Thus, this chapter sets out to investigate ways of increasing the predictive power of models which account for behavioural expectations about condom use, current-intentions and general-intentions to use condoms by including the variables discussed.

Summary of hypothesis

Main effects on behavioural expectations and intentions

1. The TPB variables should all be correlated with behavioural expectations/intentions to use condoms;
2. Anticipated regret should significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by attitudes, subjective norms and perceived behavioural control;
3. Behavioural principles should significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by attitudes, subjective norms, perceived behavioural control, and anticipated regret;
4. Activity-type should significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by attitudes, subjective norms, perceived behavioural control, anticipated regret, and behavioural principles;
5. Sensation seeking should significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by attitudes, subjective norms, perceived behavioural control, anticipated regret, behavioural principles, and Activity-type;

Moderating effects on to behavioural expectations and intentions

6. Activity-type should significantly moderate the relationship between:
 - a. subjective norms from intimates--current-intentions such that it should be stronger for people with a SP;

- b. perceived behavioural control--current-intentions such that it should be stronger for people with a SP;
 - c. attitudes--general-intentions such that it should be stronger for people with a SP;
 - d. perceived behavioural control--behavioural expectations/general-intentions such that it should be stronger for people without a SP;
 - e. anticipated regret--general-intentions such that it should be stronger for people with a SP;
7. Sensation seeking should significantly moderate the relationship between:
- a. attitudes, subjective norms, perceived behavioural control, anticipated regret, and behavioural expectations/intentions such that these relationships should be stronger for LSS;
 - b. perceived behaviour principles and behavioural expectations/intentions such that this relationship should be stronger for HSS;
 - c. Activity-type and behavioural expectations/intentions such that this relationship should be stronger for LSS with a SP;
8. Gender should significantly moderate the relationship between:
- a. attitudes, subjective norms from family-doctor, perceived behavioural control and behavioural expectations/intentions such that these relationships should be stronger for men;
 - b. anticipated regret and behavioural expectations/intentions such that this relationship should be stronger for women;

Prior behaviour

9. Prior condom use should significantly affect behavioural expectations/intentions even in the presence of other variables;

Moderation effects on to condom use

10. Sensation seeking should significantly moderate the relationship between behavioural expectations/intentions and condom use, such that the relationship between general-intentions and condom use should be stronger for HSS.

METHOD

This study applies regression analyses to investigate the relationships among the constructs reported in the previous Chapter 5. The main analyses predict behavioural expectations and intentions to use condoms from variables based on the TPB (attitudes about using condoms, embarrassment to buy and to talk about condoms, subjective norms from intimates and from family-doctor, perceived behavioural control), as well as from anticipated regret and from behavioural principles. In addition, the role of activity-type, gender and sensation seeking as possible moderators and mediators between the correlates of behavioural expectations/intentions is investigated. Thus, this chapter examines the relative impact of sensation seeking on to the behaviour of using condoms. Whether sensation seeking moderates the effects of expectations/intentions on to condom use is examined. Activity-type, gender and sensation seeking are all between subject variables. Activity-type refers to recent (in the last 12 months) sexual behaviour.

Separate analyses, not of central interest for the current research, test whether additional measures have an impact on to behavioural expectations/intentions. These measures are stigma against condom carriers; condom preference; when to discuss condom use: a few hours or days before sex; when to discuss condom use; who suggests using condoms; attractiveness of transparent, non-coloured condoms with spermicide; reasons for using condoms; when to put a condom on; how often condoms are included into the foreplay; frequency of partner(s) participation in putting on a condom; and overall frequency of current condom use.

RESULTS

Data analysis

Correlations among all measures are presented in tables 1a to 1c. Hierarchical and standard regressions were performed to test main and interaction effects of the predictor variables. This was done to establish comparisons with previous literature which looked at influential factors on condom use. Hierarchical analyses started with proximal factors, followed by more distal factors. This revealed whether each more distal variable added significantly to the variance accounted for by the variables already in the model.

To test main and interaction effects the order of entry of the variables was the following:

- a. variables based on the theory of planned behaviour (TPB);
- b. anticipated regret (a proximal determinant of intention which has been assumed not to influence nor be influenced by attitude, subjective norms, and perceived behaviour control);
- c. behavioural principles;
- d. activity-type (which refers to recent sexual behaviour: in the last twelve months);
- e. sensation seeking (a fairly stable personality characteristic which should extend back in time for more than twelve months);
- f. gender (which can influence all other variables but cannot itself be influenced by any of the other variables);
- g. interaction terms testing activity-type, sensation seeking and gender as moderators of all other variables. Gender was included in the preliminary analyses, but it excluded from further analyses because once the effects of sensation seeking had been taken into account, the influence of gender onto behavioural expectations and intentions gave in to sensation seeking (appendix 4.1). Thus, gender became not a central issue for the current research. Besides, sensation seeking even overwhelmed the influence of prior behaviour (activity-type) on to behavioural expectations.

In order to account for the unique variance explained by the main effects before the interaction, all independent variables were centred and 'B's' (constant) rather than 'betas' were reported. Caution should be exercised in the interpretation of the interaction effects because they emerged in the context of the variance already explained in preceding steps by other variables. Further regression analyses looked at each of the moderation effects using only the independent variable relevant for that effect (for eg. separate regression analyses were performed on HSS and LSS and looked at the effect of anticipated regret alone).

The regression analyses were performed in two steps. In the first step all measures accounted

for theoretical specification using hierarchical regressions to investigate possible correlates of behavioural expectations, current-intentions and general-intentions to use condoms. These analyses are shown in tables 1 to 3, in appendix 4.1.

In the second step a path model empirically derived from the first step was tested. The aim was to find the most parsimonious, theoretically consistent, model by eliminating some variables that either did not contribute to the variance significantly in the first hierarchical regressions (tables 1 to 3, appendix 4.1) or contributed only at alpha levels of .05. To achieve this further hierarchical and standard regression analyses were conducted. The findings are shown in Tables 2 to 4 and summarized on the diagrams of Figures 1 to 3.

Both hierarchical and standard regressions were performed for comparisons between their B's size and significance. In this manner, the unique contribution of each independent variable was examined. Also, this permitted to check for the validity of the findings; that is, if the effects remained when the variance shared by all other variables had been accounted for.

The comparisons showed that in the second step of the data analyses some of the effects of the independent variables on general-intentions changed in the standard regressions as shown in Tables 2 to 4. This was because embarrassment to talk about condoms was no longer relevant and both anticipated regret and activity-type were less significant.

Main and interaction effects in the prediction of behavioural expectations about using condoms

Table 2 and Figure 1 show that when people perceived themselves as having positive behavioural control over condom use, had positive attitudes about condoms, regretted the failure on intended condom use, had positive behavioural principles over condom use, and were LSS, they had positive behavioural expectations about not having unsafe sex when a partner refuses condoms, or when a condom is not available. There were no significant moderation effects. The total variance explained by these variables was 49%, as shown on Figure 1: 41% due to TPB, 3% due to anticipated regret, 4% due to behavioural principles, and 1% due to sensation seeking. Therefore, the TPB variables that influenced behavioural expectations to use condoms were perceived behavioural control and attitudes. Anticipated regret, behavioural principles and sensation seeking explained additional variance beyond the variance accounted for by the TPB variables.

Main and interaction effects in the prediction of current-intentions to use condoms

Table 3 and Figure 2 show that when people perceived themselves as having high behavioural control over condom use, positive attitudes about condoms, and were sexually active without

having a SP (activity-type), they had positive intentions to carry and suggest condoms, include them in foreplay and use them next time in penetrative sex. High anticipated regret of failure on intended condom use was also associated with positive current-intentions, but mainly among LSS, as shown on the moderation effect printed in Table 3. The total variance explained by these variables was 42%, as shown on Figure 2: 39% due to TPB, 2% due to activity-type, and 1% due to the interaction. Therefore, the TPB variables that influenced current-intentions were perceived behavioural control and attitudes. Anticipated regret (mainly among LSS) and activity-type explained additional variance beyond the variance accounted for by the TPB variables.

Main and interaction effects in the prediction of general-intentions to use condoms

Table 4 and Figure 3 show that those with positive intentions to use condoms next time in penetrative sex with different people, early in a relationship, and when highly sexually aroused had in common the following. They perceived themselves as having high behavioural control over condom use (especially those with a SP), had positive behavioural principles over condom use (especially those who were HSS), had positive attitudes about condoms (especially those without a SP), and anticipated regret in the failure of intended condom use. Positive intentions were also associated with having a SP and being LSS. Moreover, those with positive general-intentions were less embarrassed to talk about condoms. However, as embarrassment to talk did not remain significant in the standard regression analyses, the effect was removed from further analyses. The total variance explained by these variables was 40%, as shown in Table 4. Twenty-six per cent due to the variables based on the TPB, 1% due to anticipated regret, 6% due to behavioural principles, 1% due to activity-type, 3% due to sensation seeking, 2% due to both interactions of activity-type X perceived behavioural control and of activity-type X attitudes, and 1% due to the interaction sensation seeking X behavioural principles. Anticipated regret, behavioural principles, activity-type and sensation seeking explained a further 14% of the variance above that explained by the variables based on the TPB.

Additional measures predicting behavioural expectations and intentions to use condoms

Standard regression analyses were performed using the remaining measures. These analyses aimed to verify whether prior behaviour and other measures explained additional variance to the diagrams on Figures 1 to 3. The analyses were conducted in three steps. First they were performed on all remaining measures with mean substitution of missing data¹ because otherwise the sample would be reduced to only 45 subjects. These analyses are shown in tables

¹ For all other analyses listwise deletion was chosen.

4a to 6a, in the appendix 4.2. In order to empirically derive a model with reduced variables, only those variables significant at alpha level of .01 and .001 entered second standard regression analyses. These analyses are shown in tables 4b to 6b, in the appendix 4.2. Last, those variables significant in the second regression analyses entered further analyses to verify whether they explained additional variance to the diagrams on Figures 1 to 3 drawn in the previous analyses. These analyses are shown in Tables 4c to 6c, in the appendix 4.2. The effects of the additional measures on the previous analyses of behavioural expectations, current-intentions, and general-intentions were the following.

Tables 4a to 6b, in the appendix 4.2, show that there were the following statistically significant predictors of behavioural expectations/intentions to use condoms. The feeling of low stigma against condom carriers, the belief that condoms should be used to have pleasure, and frequency of prior condom use were all significantly correlated with both behavioural expectations, current-intentions and general-intentions. The belief that condoms should be used to avoid infections, instead of because a partner wanted its use, were both significantly correlated with behavioural expectations. The preference for transparent, non-coloured or flavoured condoms, the belief that condoms should be used to avoid infections, the knowledge that condoms should be put on before penetration, and the inclusion of condoms in foreplay, were all significantly correlated with current-intentions. The disposition to discuss condom use immediately before sex, the belief that condoms should be used to avoid pregnancy, the prior condom use with affairs, and the preference for not keeping sexual options open, were all significantly correlated with general-intentions. The total variance explained by these variables was 28% of behavioural expectations, 32% of current-intentions and 27% of general-intentions.

The four strongest correlates of behavioural expectations were, in decreasing order of importance, prior condom use and the 3 beliefs that condoms should be used to have pleasure, to avoid infections and not because a partner wanted its use. The four strongest correlates of current-intentions were, in decreasing order of importance, prior condom use; frequency of inclusion of condoms in foreplay, the beliefs that condoms should be used to have pleasure and to avoid infections. The four strongest correlates of general-intentions were, in decreasing order of importance, prior condom use, the beliefs that condoms should be used to avoid pregnancy and to have pleasure, followed by the feelings of low stigma against condom carriers.

In addition, tables 4c to 6c in the appendix 4.2, show that the additional variables were analysed with the ones printed on the diagrams of Figures 1 to 3, to verify if these explained additional variance to behavioural expectations and intentions to use condoms. Due to listwise deletion of

missing data the sample was reduced. These measures explained an additional 2% of behavioural expectations, 13% of current-intentions and 5% of general-intentions. The additional significant correlates of behavioural expectations were the beliefs that condoms should be used to avoid infections and to have pleasure, as well as prior frequency of condom use. For current-intentions these were the belief that condoms should be used to avoid infections and the frequency of inclusion of condoms in foreplay. For general-intentions, the significant correlates were the belief that condoms should be used to avoid pregnancy and prior frequency of condom use.

Further analyses of the moderation effects

Regression analyses looked at each of the interaction effects. Separate analyses of HSS and LSS showed that sensation seeking significantly moderated the relationship between anticipated regret and current-intentions, such that this relationship was positive and stronger for LSS. Behavioural principles were a positive and significantly stronger correlate of general-intentions but for HSS.

Moreover, activity-type significantly moderated the relationship between attitudes and general-intentions such that this relationship was positive and stronger for people without a SP. On the other hand, perceived behavioural control was a positive slightly stronger correlate of general-intentions for people with a SP.

There were the following significant moderating effects of gender. The relationship between subjective norms from intimates and behavioural expectations was stronger for men ($\beta = .13$, $T = 2.67$, $p < .01$, $df(1,443) = 7.12$, $p < .01$, $R^2 = .02$) than for women ($\beta = .04$, $T = .64$, $df(1,303) = .41$, $R^2 = .00$). The relationship between attitudes and current-intentions was stronger for women ($\beta = .59$, $T = 13.04$, $p < .001$, $df(1,319) = 170.03$, $p < .001$, $R^2 = .35$) than for men ($\beta = .38$, $T = 9.85$, $p < .001$, $df(1,457) = 78.38$, $p < .001$, $R^2 = .15$). The relationship between anticipated regret and behavioural expectations was stronger for women ($\beta = .47$, $T = 9.27$, $p < .001$, $df(1,310) = 85.94$, $p < .001$; $R^2 = .22$) than for men ($\beta = .36$, $T = 8.08$, $p < .001$, $df(1,450) = 65.23$, $p < .001$, $R^2 = .13$). As mentioned earlier in this section, gender and its interactions were analysed only at the first step of the regression analyses, displayed in appendix 4.1. Afterwards, gender was excluded from the main analyses because its influence gave in to sensation seeking.

Prediction of condom use

Regression analyses, printed in tables 6a and 6b, show the influence of perceived behaviour control, behavioural expectations, current and general-intentions on to condom use. There was one moderation effect of sensation seeking with general-intentions on to condom use with

affairs. Separate analyses performed on high and low sensation seekers showed that general-intentions was a significantly stronger correlate of frequency of condom use with affairs for LSS ($\beta = .55$, $T=6.21$, $p<.001$, $df(1,89)=38.53$, $p<.001$, $R^2=.31$) than for HSS ($\beta = .41$, $T=4.67$, $p<.001$, $df(1,106)=21.76$, $p<.001$, $R^2=.17$). These findings did not confirm the hypothesis that general-intentions would be a stronger correlate of frequency of condom use for HSS.

Note that, it was found in Chapter 5 that HSS carried condoms more than LSS. They also used condoms more frequently with affairs than they generally used them, but LSS did not. That is, although HSS had been more unfaithful in the last 12 months (35% of HSS and 18% of LSS), they were also more likely to use condoms with affairs whilst LSS were not. Nonetheless, condom use of both high and low sensation seekers with affairs was high: 62% of HSS and 47% of LSS used condoms, and 59% of HSS and 42% of LSS used them always or most of the time.

Summary of hypotheses findings printed in Figures 1, 2 and 3

Main effects on behavioural expectations and intentions

* Hypothesis 1 that, attitudes, embarrassment to buy and to talk about condoms, subjective norms, and perceived behavioural control would all be significant correlates of behavioural expectations/intentions, was not fully supported. This is because the effects of subjective norms both from intimates and family-doctor were not relevant. Their variance was taken by perceived behavioural control, followed by attitudes, and embarrassment to buy. The variance explained by perceived behavioural control of intimates was 4% ($\beta = .20$; $df(1,721)= 29.38$, $p<.001$) and of family-doctor was 3% ($\beta = .18$; $df(1,715)= 24.48$, $p<.001$).

The effects of perceived behavioural control and attitudes on behavioural expectations, current and general intentions were significant, and positive. Perceived behavioural was stronger correlated with general-intentions among those with a SP, while attitudes were stronger correlated with general-intentions among those without a SP.

* Hypothesis 2 that, anticipated regret would significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by the variables based on the TPB, was partially supported. Anticipated regret was significantly, and positively, correlated with behavioural expectations and general-intentions, explained additional variance of both and was a stronger correlate of behavioural expectations. It was significantly correlated with current-intentions only among LSS.

* Hypothesis 3 that, behavioural principles would significantly explain additional variance of

behavioural expectations/intentions beyond the variance accounted for by attitudes, subjective norms, perceived behavioural control, and anticipated regret, was partially supported. Behavioural principles were significantly, and positively, correlated with behavioural expectations and general-intentions, explained additional variance of both, and they were a stronger correlate of behavioural expectations. In addition, behavioural principles were particularly correlated with general-intentions among HSS.

* Hypothesis 4 that, activity-type would significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by all variables already entered into the analyses, was partially supported. It explained additional variance of current and general intentions, and it was stronger correlated with current-intentions. Being without a SP was associated with stronger current-intentions and with weaker general-intentions.

* Hypothesis 5 that, sensation seeking would significantly explain additional variance of behavioural expectations/intentions beyond the variance accounted for by all variables already entered into the analyses, was partially supported. Sensation seeking explained additional variance in behavioural expectations and general-intentions, being negatively correlated with both. In addition, the interaction of sensation seeking X anticipated regret with current-intentions was stronger correlated for LSS.

Moderating effects on to behavioural expectations and intentions

* Hypothesis 6 that, activity-type would moderate the relationship between:

- a. intimates--current-intentions such that it would be stronger for people with a SP, was not supported.
- b. perceived behavioural control--current-intentions such that it would be stronger for people with a SP, was not supported.
- c. attitudes--general-intentions such that it would be stronger for people with a SP, was not supported. It was a stronger positive correlate for people without a SP.
- d. perceived behavioural control--behavioural expectations/general-intentions such that it would be stronger for people without a SP, was not supported. It was a stronger positive correlate of general-intentions for people with a SP.
- e. anticipated regret--general-intentions such that it would be stronger for people with a SP, was not supported.

* Hypothesis 7 that, sensation seeking would moderate the relationship between:

- a. attitudes, subjective norms, perceived behavioural control, anticipated regret and behavioural expectations/intentions such that these relationships would be stronger for LSS,

was partially supported. Anticipated regret was only a stronger positive correlate of current-intentions among LSS.

b. behavioural principles and behavioural expectations/intentions such that this relationship would be stronger for HSS, was supported only for general-intentions.

c. Activity-type and behavioural expectations/intentions such that this relationship would be stronger for LSS with a SP, was not supported.

* Hypothesis 8. As mentioned earlier in this section, gender and its interactions were excluded from the main analyses. Thus, the following findings refer to the preliminary analyses appended in appendix 4.1. It was predicted that, gender would moderate the relationship between:

a. attitudes, subjective norms, perceived behavioural control, and behavioural expectations/intentions such that these relationships would be stronger for men, was partially supported. The relationship between subjective norms from intimates and behavioural expectations was stronger for men. The relationship between attitudes and current-intentions was stronger for women.

b. anticipated regret and behavioural expectations/intentions such that this relationship would be stronger for women, was partially supported. The relationship between anticipated regret and behavioural expectations was stronger for women.

Prior behaviour

* Hypothesis 9 that, prior behaviour (inclusion of condoms in foreplay and frequency of condom use) would affect behavioural expectations/intentions even in the presence of other variables, was not fully supported. Prior condom use was influential to behavioural expectations and both intentions. However, after the variance of the variables on Figure 2 had been accounted for, prior condom use was no longer correlated to current-intentions. Frequency of inclusion of condoms in foreplay was influential only to current-intentions.

Moderation effects on to condom use

* Hypothesis 10 that, sensation seeking would moderate the relationship between behavioural expectations/intentions and condom use, such that the relationship would be stronger for HSS, was not supported. The relationship was stronger for LSS.

Table 1a.

Correlations between all measures.

| | BEH EXP | BEH PRIN | CONTROL | REGRET | STIGMA | CON PREF | OPEN | SEN SEEK | N SEXUAL | COMPULS | SEXUAL SEN | INTIMATE |
|----------|------------------|------------------|-----------------|-----------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|-----------------|
| BEH PRIN | .53*** (787) | | | | | | | | | | | |
| CONTROL | .62*** (787) | .50*** (787) | | | | | | | | | | |
| REGRET | .41*** (767) | .40*** (766) | .37*** (766) | | | | | | | | | |
| STIGMA | .16*** (788) | .18*** (798) | .17*** (788) | .12*** (767) | | | | | | | | |
| CON PREF | -.06 (787) | .05 (797) | .00 (787) | .03 (766) | -.02 (798) | | | | | | | |
| OPEN | -.06 (766) | -.02 (776) | -.04 (766) | .00 (748) | .05 (777) | .23*** (776) | | | | | | |
| SEN SEEK | -.13*** (788) | -.07* (798) | .00 (788) | -.02 (767) | -.08* (799) | .16*** (798) | .33*** (777) | | | | | |
| N SEXUAL | .00 (788) | .01 (798) | .07* (788) | -.01 (767) | -.01 (799) | .16*** (798) | .31*** (777) | ---- | | | | |
| COMPULS | -.18*** (788) | -.12*** (798) | -.07* (788) | -.06 (767) | -.13*** (799) | .05 (798) | .18*** (777) | ---- | .31*** (799) | | | |
| SEX SEN | -.07* (772) | -.03 (782) | .04 (772) | .04 (752) | -.03 (783) | .21*** (782) | .34*** (763) | ---- | .37*** (783) | .48*** (783) | | |
| INTIMATE | .07 (753) | .02 (756) | .20*** (753) | .08* (733) | .10** (757) | .05 (757) | .09** (737) | .19*** (757) | .17*** (757) | .10** (757) | .19*** (757) | |
| F DOCTOR | .05 (747) | .03 (750) | .16*** (747) | .05 (727) | .10** (751) | -.03 (751) | -.03 (731) | .05 (751) | .08* (751) | -.02 (751) | .08* (751) | .40*** (751) |
| ATTITUDE | .41*** (774) | .38*** (784) | .43*** (774) | .34*** (763) | .19*** (785) | -.03 (784) | -.12*** (764) | -.20*** (785) | -.07 (785) | -.25*** (785) | -.11** (769) | .18*** (744) |
| EMB BUY | .02 (769) | .07* (777) | .23*** (769) | .00 (748) | .11** (778) | -.02 (777) | .05 (757) | .12*** (778) | .18*** (778) | .06 (778) | .08* (764) | .11** (742) |
| EMB TALK | .13*** (783) | .20*** (786) | .26*** (783) | .11** (763) | .19*** (787) | .05 (786) | .02 (765) | -.08* (787) | -.02 (787) | -.10** (787) | -.06 (771) | .08* (753) |
| GEN INT | .41*** (781) | .49*** (791) | .45*** (781) | .33*** (760) | .20*** (792) | -.00 (791) | -.11** (770) | -.23*** (792) | -.16*** (792) | -.21*** (792) | -.16*** (778) | .13*** (753) |
| CUR INT | .50*** (787) | .38*** (796) | .57*** (788) | .32*** (766) | .16*** (797) | -.04 (796) | -.07 (769) | -.06 (791) | .05 (791) | -.07 (791) | -.05 (775) | .14** (750) |

Table 1a./continued

Correlations between all measures/continuation.

| | BEH EXP | BEH PRIN | CONTROL | REGRET | STIGMA | CON PREF | OPEN | SEN SEEK | N SENS | COMPUL | SEXUAL SEN | INTIMATE |
|--------------|---------|----------|---------|--------|--------|----------|---------|----------|--------|--------|------------|----------|
| DISCUSS | .07 | .10** | .05 | .06 | -.04 | -.04 | -.01 | -.10* | -.09* | -.11** | -.01 | .07 |
| HOURS/DAYS | (606) | (614) | (605) | (588) | (614) | (614) | (600) | (614) | (614) | (614) | (607) | (586) |
| DISC IMMED | .01 | .01 | .10** | .03 | -.02 | .06 | -.03 | .16*** | .07 | .15*** | .14*** | .18*** |
| BEFORE | (609) | (617) | (608) | (590) | (617) | (617) | (605) | (617) | (617) | (617) | (608) | (591) |
| WHO SUG | .05 | .09** | .09* | .09** | .02 | -.04 | -.12*** | -.06 | -.04 | -.03 | -.08* | -.03 |
| (759) | (770) | (759) | (738) | (770) | (770) | (770) | (752) | (770) | (770) | (770) | (756) | (732) |
| TRANSPARENT | .09* | .06 | .19*** | .09** | .04 | -.03 | .01 | .04 | -.01 | -.00 | .08* | .09** |
| (783) | (792) | (784) | (762) | (793) | (793) | (793) | (771) | (793) | (793) | (793) | (777) | (753) |
| R PREGNANCY | .09* | .14*** | .15*** | .09** | -.01 | .04 | .07* | -.05 | -.03 | -.06 | -.00 | .03 |
| (780) | (780) | (780) | (761) | (781) | (780) | (780) | (759) | (781) | (781) | (781) | (765) | (746) |
| R INFECTIONS | .25*** | .20*** | .17*** | .21*** | .08* | .07* | .08* | .11*** | .10** | .03 | .17*** | .07 |
| (775) | (775) | (775) | (756) | (776) | (775) | (775) | (755) | (776) | (776) | (776) | (760) | (742) |
| R PLEASURE | .29*** | .27*** | .23*** | .16*** | .12*** | .02 | -.06 | -.12*** | -.10** | -.10** | -.06 | .02 |
| (767) | (767) | (767) | (748) | (768) | (767) | (767) | (748) | (768) | (768) | (768) | (752) | (734) |
| R PARTNER | -.06 | -.02 | -.05 | .04 | -.04 | .09* | .02 | .04 | .02 | .04 | .02 | .04 |
| (770) | (770) | (770) | (751) | (771) | (770) | (770) | (750) | (771) | (771) | (771) | (755) | (737) |
| WHEN PUT | .12** | .07 | .11** | .01 | .04 | .03 | .05 | .02 | .07 | -.06 | .09* | .16*** |
| (672) | (674) | (671) | (653) | (674) | (674) | (674) | (658) | (674) | (674) | (674) | (662) | (647) |
| CARRY CONDOM | .14*** | .06 | .24*** | .02 | .01 | -.10** | .01 | .17*** | .12** | .11** | .16*** | .08* |
| (617) | (617) | (616) | (603) | (617) | (616) | (616) | (600) | (617) | (617) | (617) | (606) | (598) |
| FREQ INCLUDE | .20*** | .30*** | .27*** | .23*** | .10 | -.09 | -.12* | -.13* | -.00 | -.15** | -.12* | .04 |
| (307) | (307) | (306) | (302) | (307) | (307) | (307) | (300) | (307) | (307) | (307) | (299) | (292) |
| PARTN PARTIC | .01 | .11** | .05 | .10** | .15*** | .16*** | .04 | -.02 | .04 | -.09** | .02 | .05 |
| (765) | (764) | (764) | (748) | (765) | (765) | (765) | (744) | (765) | (765) | (765) | (750) | (732) |
| FREQ CON_USE | .27*** | .28*** | .44*** | .16* | .12 | -.15* | -.09 | .12 | .04 | .09 | .05 | .08 |
| AFAAIR | (196) | (201) | (196) | (192) | (201) | (201) | (197) | (201) | (201) | (201) | (198) | (191) |
| FREQ CONDOM | .46*** | .37*** | .59*** | .28*** | .09* | -.07 | -.05 | .04 | .04 | -.03 | .09* | .16*** |
| USE | (707) | (717) | (707) | (689) | (718) | (717) | (699) | (718) | (718) | (718) | (707) | (685) |

Table 1b.

Correlations between all measures/continuation.

| | F DOCTOR | ATTITUDE | EMB BUY | EMB TALK | GEN INT | CURR INT | DISCUSS H/DAYS | DISCUSS IMMEDIAT | WHO SUG | TRANSPARENT | REASON: PREGNANCY | REASON: INFECTIONS |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|---------------------|-----------------|-----------------|----------------------|-----------------------|
| ATTITUDE | .17*** (738) | | | | | | | | | | | |
| EMB BUY | .11** (736) | .07* (765) | | | | | | | | | | |
| EMB TALK | .08* (747) | .11** (773) | .18*** (766) | | | | | | | | | |
| GEN INT | .07 (747) | .40*** (779) | -.00 (772) | .20*** (780) | | | | | | | | |
| CURR INT | .17*** (749) | .47*** (783) | .13*** (776) | .09** (785) | .38*** (790) | | | | | | | |
| DISCUSS HOURS/DAYS | .01 (580) | .20*** (602) | -.09* (599) | -.01 (606) | .17*** (614) | .11** (613) | | | | | | |
| DISC IMMEDIAT BEFORE | .05 (585) | .01 (605) | .09* (603) | .04 (609) | -.04 (617) | .04 (616) | -.17*** (592) | | | | | |
| WHO SUG | -.00 (726) | .12*** (757) | .08* (752) | -.03 (758) | .13*** (763) | .12*** (768) | .08* (604) | -.01 (608) | | | | |
| TRANSPARENT | -.02 (747) | .13*** (779) | .07* (773) | .02 (781) | .06 (786) | .18*** (793) | .07 (613) | .07 (614) | .07* (766) | | | |
| R PREGNANCY | .04 (741) | .11** (767) | -.07* (762) | .07* (777) | .22*** (774) | .13*** (780) | .00 (601) | .09* (603) | -.08* (753) | .08* (776) | | |
| R INFECTIONS | .05 (737) | .15*** (762) | .07 (757) | -.00 (772) | .07* (769) | .23*** (775) | -.05 (600) | .09* (602) | .03 (747) | .07 (771) | .08* (771) | |
| R PLEASURE | .01 (728) | .43*** (754) | -.01 (749) | .08* (764) | .29*** (761) | .27*** (767) | .12** (594) | -.06 (596) | .04 (741) | .01 (763) | .09* (767) | .05 (767) |
| R PARTNER | -.04 (732) | .03 (757) | -.02 (752) | -.03 (767) | .03 (764) | .02 (770) | .03 (595) | .10* (597) | -.06 (742) | .07* (766) | .11** (770) | .21*** (771) |
| WHEN PUT | .13*** (641) | .12** (660) | .07 (661) | -.07 (673) | .07 (667) | .18*** (673) | .02 (554) | .07 (558) | -.09* (665) | .20*** (670) | -.06 (667) | .03 (662) |
| CARRY CONDOMS | .10* (595) | .06 (609) | .14*** (617) | .02 (613) | .05 (611) | .14*** (616) | .02 (492) | .09* (497) | -.05 (606) | .00 (613) | .01 (612) | .09 (609) |
| FREQ INCLUDE COND FOREPL | .05 (290) | .31*** (300) | .13* (302) | .24*** (306) | .27*** (301) | .50*** (306) | .16** (259) | -.17** (263) | .07 (305) | .09 (306) | .07 (305) | .14** (302) |
| PARTN PARTICI | .01 (726) | .14*** (751) | -.01 (746) | .17*** (761) | .11** (758) | .03 (764) | .17*** (593) | -.02 (595) | -.08* (743) | .05 (761) | .01 (758) | .02 (753) |
| FREQ COND_USE AFFAIR | .17* (187) | .23*** (199) | .18** (199) | .33*** (198) | .43*** (200) | .36*** (201) | .09 (168) | -.02 (170) | .09 (199) | .10 (199) | .06 (191) | .11 (195) |
| FREQ COND_USE | .11** (679) | .36*** (707) | .13*** (702) | .15*** (707) | .37*** (711) | .45*** (716) | .09* (568) | .06 (575) | .14*** (698) | .14*** (712) | .12*** (700) | .17*** (695) |

Table 1c.

Correlations between all measures/continuation

| | REASON: PLEASURE | REASON: PARTNER | WHEN PUT | CARRY CONDOMS | HOW OFTEN INCLUDE | PARTNER PARTICIPAP | FREQUENCY C-USE AFFAIR |
|----------------------|---------------------|--------------------|----------------|------------------|----------------------|-----------------------|---------------------------|
| R PARTNER | .08* (767) | | | | | | |
| WHEN PUT | .09* (656) | -.00 (658) | | | | | |
| CARRY CONDOM | -.02 (601) | .04 (605) | .06 (568) | | | | |
| FREQU INCLUDE | .10 (298) | .02 (300) | -.07 (302) | .07 (256) | | | |
| PARTN PARTICI | .10** (745) | .01 (748) | .05 (665) | .03 (610) | .20*** (307) | | |
| FREQ C_USE AFFAIR | .23*** (191) | .00 (191) | .05 (179) | .19** (180) | .12 (69) | .00 (195) | |
| FREQ CON_USE | .17*** (687) | -.07 (690) | .12** (643) | .21*** (594) | .31*** (291) | .08* (696) | .53*** (201) |

Table 2.

Regression predicting behavioural expectations about condom use on the significant predictors extracted from the preliminary hierarchical regression analyses.

| Variables | Hierarchical regression | | | | | | | Standard regression | |
|-------------------------------|-------------------------|-----------|-------|------------|----------|----------------|-----------------------|---------------------|-----------|
| | β | T | df | F equation | F change | R ² | R ² change | β | T |
| Perceived behavioural control | -.76 | -17.48*** | | | | | | -.58 | -12.87*** |
| Attitudes | -.24 | -5.70*** | | | | | | -.10 | -2.55** |
| | | | 2,758 | 261.02*** | | .41 | | | |
| Anticipated regret | -.28 | -6.24*** | 3,757 | 195.72*** | 38.97*** | .44 | .03 | -.20 | -4.58*** |
| Behavioural principles | -.32 | -7.52*** | 4,756 | 171.69*** | 56.53*** | .48 | .04 | -.31 | -7.38*** |
| Sensation seeking | .20 | 3.64*** | 5,755 | 142.22*** | 13.23*** | .49 | .01 | .20 | 3.64*** |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: This information is summarized in the diagram of Figure 1.

Table 3.

Regression predicting intentions to carry, suggest, include condoms in foreplay, and use them next time in penetrative sex (current-intentions) on the significant predictors extracted from the preliminary hierarchical regression analyses.

| Variables | Hierarchical regression | | | | | | | Standard regression | |
|---|-------------------------|-----------|--------|------------|----------|----------------|-----------------------|---------------------|-----------|
| | β | T | df | F equation | F change | R ² | R ² change | β | T |
| Perceived behavioural control | -.63 | -12.78*** | | | | | | -.60 | -12.22*** |
| Intimates | .03 | .56 | | | | | | .05 | .92 |
| Family-doctor | -.11 | -2.39* | | | | | | -.11 | -2.40* |
| Attitudes | -.32 | -6.63*** | 4,611 | 101.38*** | | .40 | | -.29 | -5.86*** |
| Anticipated regret | -.07 | -1.32 | 5,610 | 81.55*** | 1.73 | .40 | .00 | -.10 | -1.96* |
| Activity-type | -.51 | -5.25*** | 6,609 | 75.52*** | 27.57*** | .43 | .03 | -.52 | -5.33*** |
| Sensation seeking | .07 | .99 | 7,608 | 64.87*** | .98 | .43 | .00 | .05 | .73 |
| Activity-type \times intimates | .23 | 2.09* | 8,607 | 57.62*** | 4.38* | .43 | .00 | .22 | 2.01* |
| Sensation seeking \times family-doctor | -.13 | -2.21* | | | | | | -.13 | -2.21* |
| Sensation seeking \times anticipated regret | .17 | 2.76** | | | | | | .17 | 2.76** |
| | | | 10,605 | 47.95*** | 5.71** | .44 | .01 | | |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Separate regression analyses performed on high and low sensation seekers showed that anticipated regret was a significantly stronger correlate for LSS ($\beta = .34$; $T = 7.67$ ***; $df(1,451) = 58.85$ ***; $R^2 = .12$) than for HSS ($\beta = .29$; $T = 5.41$ ***; $df(1,311) = 29.29$ ***; $R^2 = .07$).

A further regression analysis was performed without intimates, family-doctor, activity-type \times intimates and sensation seeking \times family-doctor. The result is summarized in the diagram of Figure 2.

Table 4.

Regression predicting intentions to use condoms next time in penetrative sex with different people, early in a relationship, and when highly sexually aroused (general-intentions) on the significant predictors extracted from the preliminary hierarchical regression analyses.

| Variables | Hierarchical regression | | | | | | | Standard regression | |
|--|-------------------------|----------|--------|------------|----------|----------------|-----------------------|---------------------|----------|
| | β | T | df | F equation | F change | R ² | R ² change | β | T |
| Perceived behavioural ctrl | -.30 | -8.12*** | | | | | | -.23 | -6.22*** |
| Attitudes | -.21 | -6.10*** | | | | | | -.14 | -4.24*** |
| Embarrassment to talk | -.11 | -3.21*** | | | | | | -.04 | -1.23 |
| | | | 3,632 | 75.22*** | | .26 | | | |
| Anticipated regret | -.13 | -3.37*** | 4,631 | 60.19*** | 11.39*** | .28 | .02 | -.10 | -2.84** |
| Behavioural principles | -.25 | -6.97*** | 5,630 | 61.49** | 48.53*** | .33 | .05 | -.22 | -6.55*** |
| Activity-type | .24 | 3.30*** | 6,629 | 53.85*** | 10.86*** | .34 | .01 | .21 | 2.97** |
| Sensation seeking | .26 | 5.55*** | 7,628 | 52.75*** | 30.80*** | .37 | .03 | .25 | 5.25*** |
| Activity-type \times perceived behavioural control | .20 | 2.56** | | | | | | .19 | 2.52** |
| Activity-type \times attitudes | .25 | 3.33*** | | | | | | .24 | 3.20*** |
| | | | 9,626 | 45.97*** | 14.39*** | .39 | .02 | | |
| Sensation seeking \times behavioural principles | .09 | 2.48** | 10,625 | 42.33*** | 6.17** | .40 | .01 | .09 | 2.48** |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Embarrassment to buy was excluded from these analyses because in the correlation matrix it was not correlated with general-intentions. Separate analyses performed on those sexually active with and on those without a SP showed that perceived behavioural control was a significantly stronger correlate for those with a SP ($\beta = .42$; $T = 10.06$ ***; $df(1, 468) = 101.13$ ***; $R^2 = .18$) than for those without a SP ($\beta = .57$; $T = 9.49$ ***; $df(1, 190) = 90.06$ ***; $R^2 = .32$). However, attitudes were significantly stronger correlates for those without a SP ($\beta = .59$; $T = 9.92$ ***; $df(1, 188) = 98.41$ ***; $R^2 = .34$) than for those with a SP ($\beta = .35$; $T = 8.11$ ***; $df(1, 471) = 65.82$ ***; $R^2 = .12$). Behavioural principles were significantly stronger correlates for HSS ($\beta = .55$; $T = 11.92$ ***; $df(1, 320) = 142.06$ ***; $R^2 = .31$) than or LSS ($\beta = .44$; $T = 10.71$ ***; $df(1, 467) = 114.60$ ***; $R^2 = .20$).

A further regression analysis was performed without embarrassment to talk because it was not significant in the standard regression analysis. The result is summarized in the diagram of Figure 3.

Table 6a.
Regression predicting overall condom use.

| Variables | β | T | df | F equation | R ² |
|--------------------------|---------|---------|-------|------------|----------------|
| Current-intentions | .14 | 3.62*** | | | |
| General-intentions | .11 | 3.13** | | | |
| Behavioural expectations | .12 | 3.06** | | | |
| Behavioural control | .39 | 9.09*** | 4,694 | 101.37*** | .39 |

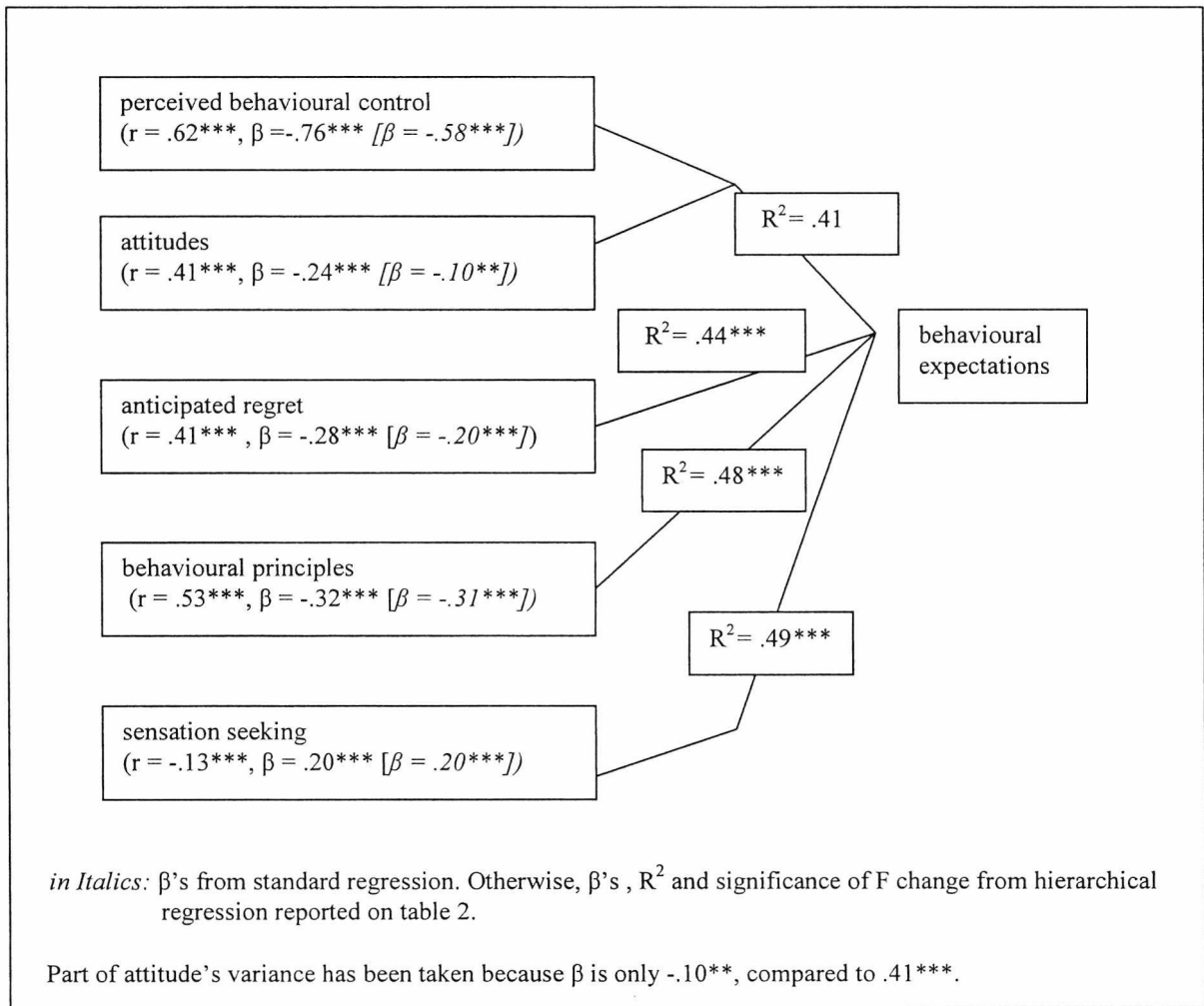
* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 6b.
Regression predicting condom use with an affair.

| Variables | β | T | df | F equation | R ² | R ² change |
|--------------------------|---------|--------|-------|------------|----------------|-----------------------|
| Current-intentions | .17 | 2.23* | | | | |
| General-intentions | .24 | 2.99** | | | | |
| Behavioural expectations | .01 | .13 | | | | |
| Behavioural control | .23 | 2.62** | | | | |
| Sensation seeking | .13 | 2.08 | 5,190 | 18.98*** | .27 | |
| Current-int X SS | .05 | .67 | | | | |
| General-int X SS | .22 | 2.39* | | | | |
| Beh expect X SS | .14 | 1.79 | | | | |
| Behavioural control X SS | .02 | .24 | 9,21 | 11.90*** | .28 | .01 |

* $p < .05$; ** $p < .01$; *** $p < .001$

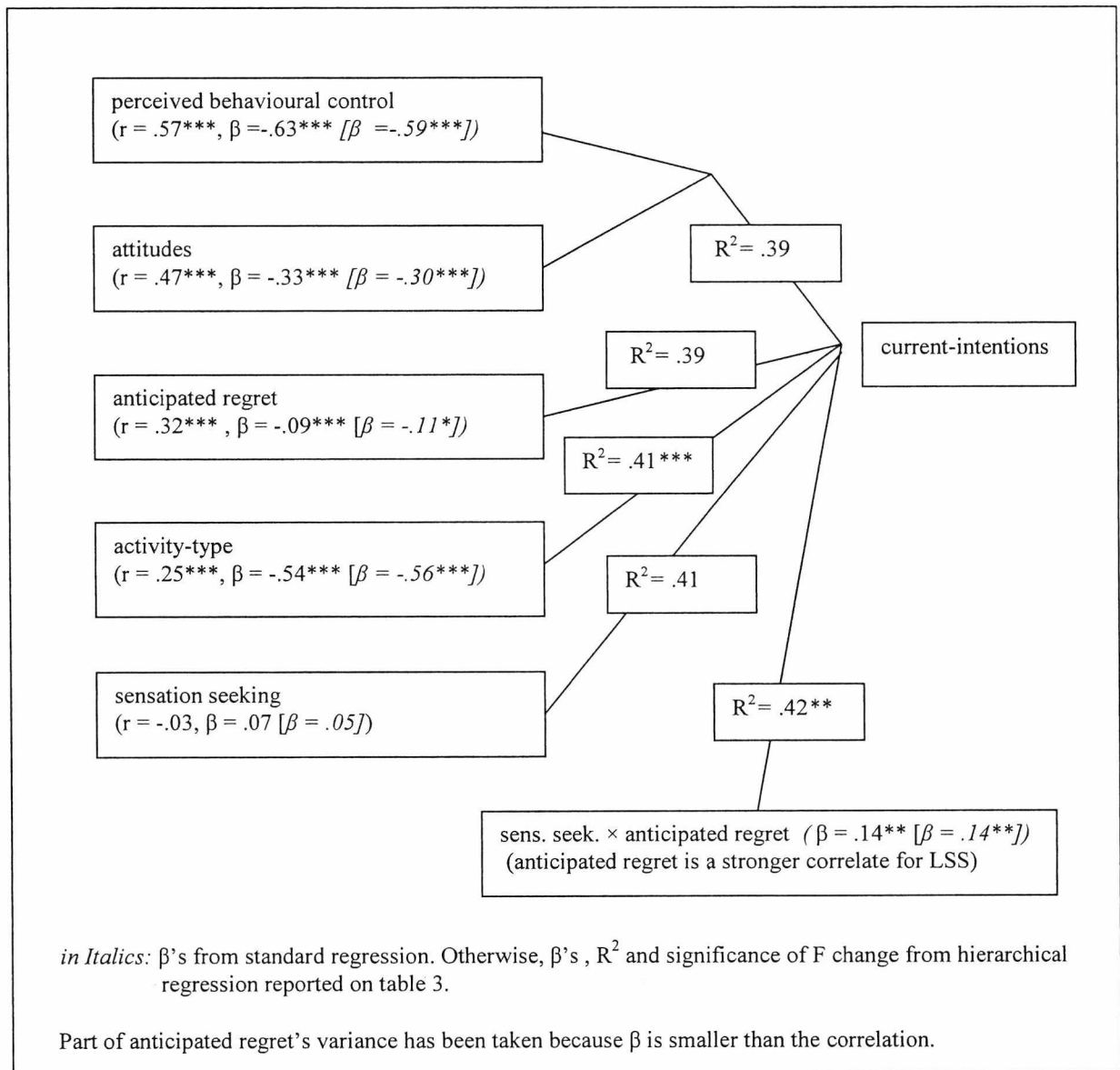
Figure 1.
Summary of standard regression analyses showing significant predictors of behavioural expectations.



* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Behavioural expectations are whether people expect to reject unsafe sex when a partner does not want to use a condom and when a condom is not available.

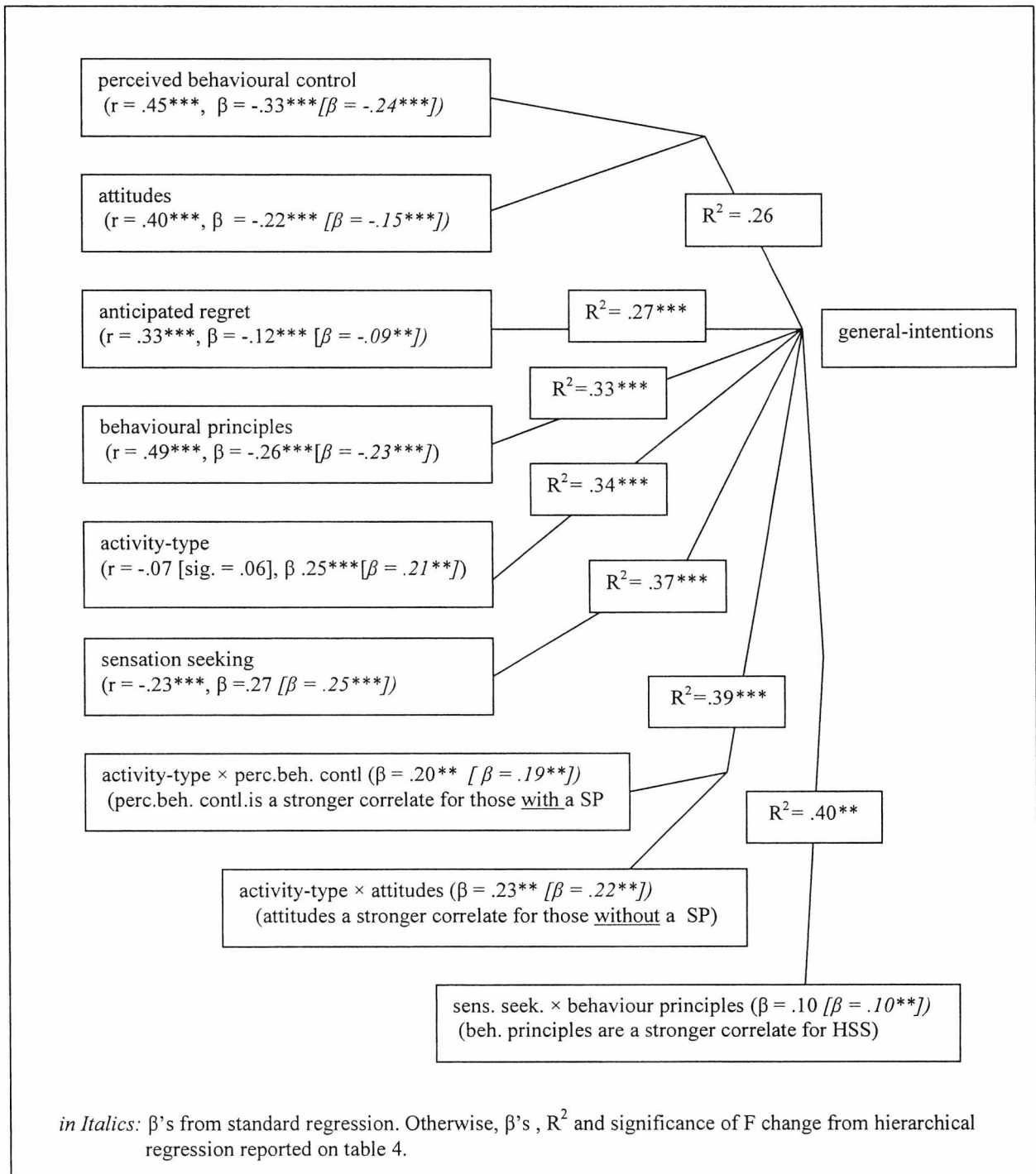
Figure 2.
Summary of hierarchical regression analyses showing significant predictors of current-intentions.



* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Current-intentions are intentions to carry, suggest, include condoms in foreplay and use them in the next penetrative sex.

Figure 3.
Summary of hierarchical regression analyses showing significant predictors of general-intentions.



* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: General-intentions are intentions to use condoms in the next penetrative sex with different people, early in a relationship or when highly sexually aroused.

DISCUSSION

This study investigated correlates and moderators of behavioural expectations, current-intentions and general-intentions. Behavioural expectations concern whether people expect to reject unsafe sex in two possible situations: first, if a partner does not want to use a condom; second, if a condom is not available. Current-intentions concern whether people intend to carry condoms, suggest them, include condoms in foreplay, and use them the next time they have penetrative sex. General-intentions concern whether people intend to use condoms in next time they have penetrative sex if it happens with different people, early in a relationship, and when they are highly sexually aroused. Different correlates were significant for behavioural expectations, current-intentions and general-intentions. Moreover, there were moderating effects of sensation seeking on current-intentions/general-intentions, and of type-activity on general-intentions.

Theory of planned behaviour.

According to the TPB, it was expected that attitudes, embarrassment when buying and talking about condoms, subjective norms and perceived behavioural control would be significant correlates of behavioural expectations/intentions. This hypothesis was not fully confirmed because the variance of subjective norms from intimates and family-doctor was taken away by perceived behavioural control, followed by attitudes and embarrassment about buying condoms. Possibly, this happened because of the following three reasons.

- a. First, Brazilians' perception of control and their attitudes were more important motivators of expecting and intending to use condoms than was their perception of social support from relevant others (subjective norms).
- b. Second, cautious subjective norms to use condoms might have been relevant among those who held risky beliefs towards condoms, but this was not investigated. In Chapters 3 and 4 it was concluded that, perceived social norms would influence condom use mainly when those who held risky beliefs felt that their beliefs were not socially supported. This was because those who assumed more dissensus than consensus of their own risky beliefs were more likely to have used condoms.
- c. The third reason for the lack of importance of subjective norms is that an important principle of Ajzen and Fishbein's (1980) theory was not fully achieved. Such principle states that the predictor and criterion should be measured at the same level of specificity or generality with respect to action, target, time and context. As explained earlier, in the introduction of this chapter, this procedure maximizes the predictive power, but also has the potential drawback that answers might be similar simply because they have similar wording. In addition, it would have been difficult to formulate questions to

match behavioural expectations, current-intentions and general-intentions without having to increase the number of items in the already long questionnaire.

Positive attitudes and perceived behavioural control were correlated with behavioural expectations/intentions. Attitudes were particularly correlated with general-intentions among those without a SP, while perceived behavioural control was particularly correlated with general-intentions among those with a SP. Awareness that buying condoms can be embarrassing as well as low embarrassment to talk about condoms (attitudinal measures based on Helweg-Larsen and Collins, 1994), as well as subjective norms, were not relevant and so these measures were not included in the diagrams summarizing the final regressions. Thus, support was found for the inclusion of perceived behavioural control on models of correlates of behavioural expectations, current-intentions and general-intentions. Attitudes need to be included in models of correlates of behavioural expectations and current-intentions, whilst the interaction of type-activity X attitudes should be included in a model of general-intentions.

Previous studies have shown that the variance explained of intentions using the theory of reasoned action and TPB varies between 40 and 50 percent (Sutton, 1997). In the present study the variances explained by the influential TPB variables (attitudes and perceived behavioural control) were the following: 41 percent of behavioural expectations, 39 per cent of current-intentions, and 26 percent of general-intentions. A greater percentage of variance was explained in behavioural expectations perhaps because the wording of behavioural expectations differed less from their correlates than did the wording of current-intentions and general-intentions. However, behavioural expectations, followed by general-intentions, should be more important in the prediction of HIV/AIDS spread than current-intentions as they address higher risk sexual situations (rejecting unsafe sex if a partner does not want to use a condom and if a condom is not available, having sex with different people, sex early in a relationship, and when highly sexually aroused) than do current-intentions. That is, behavioural expectations and general-intentions should be stronger predictors of condom use among those without a SP.

Anticipated regret.

Following Richard *et al.*'s (1995) findings, it was expected that anticipated regret would significantly explain additional variance beyond the variance accounted for by the TPB variables, and it did. Anticipated regret accounted for additional variance of both behavioural expectations and general-intentions, and it was a stronger correlate of behavioural expectations. Anticipated regret was also a correlate of intentions to carry, suggest, include in foreplay, and use condoms (current-intentions) mainly among LSS. This was probably because LSS prefer

planning (Franken, 1993) their sexual encounters (findings in Chapter 5), and have less developed stress management skills (Smith, Ptacek and Smoll, 1992). These findings showed that messages to develop current-intentions among LSS should address their feelings of anticipated regret. This should also be the case of messages aiming to develop all peoples' behavioural expectations and general-intentions to use condoms.

Behavioural principles.

It was expected that whether people were likely to act to assure safe sex in the presence of the desire of having sex and having had their suggestion of condoms refused (behavioural principles) would explain additional variance to the variance accounted for by the TPB and anticipated regret. Behavioural principles were relevant to both behavioural expectations (for entire sample) and general-intentions (for entire sample, but particularly among HSS). In other words, to specific sexually risky situations as these were measured by behavioural expectations and general-intentions. Therefore, it could be speculated that behavioural principles should be akin to implementation intentions as distant from expectations or intentions. This is because implementation intentions and behavioural principles both refer to actions when specific situations are met, in this case if next time people are about to have sex they meet a specific sexually risky situation. Implementation intentions are commitments to respond with an intended goal-directed behaviour in such a situation. Behavioural principles are possible actions to assure safe sex in a situation in which people experience conflicting emotions, such as the wish of having sex due to being highly sexually aroused and at the same time the discomfort of having had their suggestion of condoms refused.

As expected, positive behavioural principles were stronger correlates of general-intentions for HSS. This suggests that it might be more difficult to persuade HSS to engage in unsafe sex when they believe that they should act to ensure safe sex. This is because HSS are more domineering and do less to oblige (Pilkington *et al.*, 1988). In other words, for HSS to be motivated to engage in safe sex with different people, early in a relationship, and when highly sexually aroused, they need to be convinced that safe sex is necessary.

Behavioural principles were more influential on behavioural expectations and general-intentions than anticipated regret. Behavioural principles do not seem to have been measured by other researchers before, although Abraham *et al.* (in press) have measured negotiation planning in a very similar way, as mentioned in the introduction of this chapter. These findings showed that behavioural principles need to be included in both models of correlates of behavioural expectations and general-intentions. In addition, a model of the antecedents of general-intentions to use condoms also needs to include a component reflecting

the interaction between sensation seeking and behavioural principles.

Type-activity.

Being sexually active with or without a stable partner (SP) (type-activity) influences intentions to use condoms (Baker, Morrison, Carter and Verdon, 1996). Thus it was expected that it would be a useful addition to the TPB for predicting condom use. It was found that whether people were with or without a SP was irrelevant to behavioural expectations. Those without a SP had more positive current-intentions, and those with a SP had more positive general-intentions. These findings were consistent with the ANOVAs in Chapter 5. That is, in the presence of perceived behavioural control, attitudes, anticipated regret, and behavioural principles, type-activity became more relevant for general-intentions.

The ANOVAs in Chapter 5 suggested the following. Those without a SP had used condoms in their last sexual intercourse more frequently, perhaps as a result of holding more positive current-intentions. Those with a SP cited avoidance of infections less often as one of the reasons to use condoms, felt less embarrassed to talk about condoms to a sexual partner, were likely to use pills for contraception, and held more positive general-intentions. Those with a SP also used condoms more frequently when they had sex within an affair than those without a SP used in their current sexual encounters. Therefore, prior condom use with a stable partner was not influential on condom use with an affair. This suggests that condom use is not so much a result of habit, but a consequence of intended action. Condom use may only be a result of habit when people have not formulated any strong intention, but in the presence of a strong intention prior behaviour should be less influential. A similar hypothesis has already been confirmed by Orbell, Hodgkins and Sheeran (1997) findings in the realm of women's breast self-examination.

It was also expected that type-activity would moderate other relationships in the data. Corby, Schneider and Wolitski (1996) found that Type-activity moderated the relationship between the TPB (subjective norms and perceived behavioural control, but not attitudes) and intentions to use condoms. In the present study it was hypothesized that after the effects of sensation seeking and Gender had been also accounted for, type-activity would still moderate the relationship between: intimates--current-intentions; perceived behavioural control--current-intentions; attitudes--general-intentions; perceived behavioural control--general-intentions; and anticipated regret--general-intentions. However, this hypothesis was not supported in the direction expected and only the following moderation effects were found. Contrary to the hypothesis, perceived behavioural control was a stronger correlate for people with a SP (consistent with Corby *et al.*'s findings), while attitudes were stronger correlates for people without a SP --both concerning general-intentions. This meant that those with a SP held more

positive general-intentions to use condoms, especially when they perceived themselves as having control over having a condom available, remembering to use it, and ensuring its use next time in penetrative sex. Those without a SP held more positive general-intentions to use condoms when they believed that using a condom was good and would make sex nicer. Clearly, models of correlates of current-intentions and general-intentions to use condoms need to include type-activity. In addition, a model of correlates of general-intentions to use condoms also needs to include interactions between type-activity X perceived behavioural control, and type-activity X attitudes.

Sensation seeking.

From the literature on sensation seeking, it was expected that sensation seeking would explain additional variance to the variance accounted for by TPB, anticipated regret, behavioural principles, and type-activity. Sensation seeking was correlated with both behavioural expectations and general-intentions, and it was more strongly correlated with general-intentions. The main effects suggested that, because HSS are more impulsive (Franken, 1993) and compulsive (as found in Chapter 5), they thought less about the consequences (Zuckerman *et al.*, 1978) of unsafe sex, and might have felt less vulnerable in sexually risky situations than LSS. It is known that sensation seeking moderates drivers' perceived risk (Jonah, 1997).

Sensation seeking (like behavioural principles) influenced behavioural expectations/intentions to use condoms mainly 'if' a specific sexually risky situation was anticipated, and this was measured by behavioural expectations and general-intentions. Low sensation seeking was associated both with positive behavioural expectations and positive general-intentions. It also influenced the impact that high anticipated regret had on positive current-intentions, as discussed earlier in this section. High sensation seeking was related with low expectations and low general-intentions. It was also associated with the impact that positive behavioural principles had on general-intentions, as discussed earlier.

Therefore, the hypothesis that sensation seeking should moderate the relationship between: attitudes, subjective norms, perceived behavioural control, anticipated regret, behavioural principles, type-activity and behavioural expectations/intentions was partially supported. Contrary to what was expected, sensation seeking only moderated the effect of anticipated regret on current-intentions (a stronger correlate for LSS) and the effect of behavioural principles on general-intentions (a stronger correlate for HSS). However, these findings threw light on the literature of anticipated regret and sensation seeking. This is because anticipated regret was always relevant, either because its main effects were significant or because its

interaction with sensation seeking was. In addition, when HSS believed that there was sexual risk and that they should act to protect themselves, they were motivated to do so (general-intentions: sensation seeking X behaviour principles). Therefore, the evidence supports the inclusion of sensation seeking in models of correlates of behavioural expectations and general-intentions to use condoms. The interactions of sensation seeking X anticipated regret, as well as of sensation seeking X behavioural principles, also need to be included in models of correlates of current-intentions and general-intentions to use condoms.

Gender.

Gender did not increase the variance explained by more proximal variables, suggesting that the main effect of gender did not capture any theoretically relevant constructs that had not already been measured in this study. However, the influence of intimates on behavioural expectations was especially relevant for men. Attitudes affected current-intentions and anticipated regret affected behavioural expectations only among women. Thus, messages focusing on intimates, attitudes and anticipated regret may possibly gain from targeting both men and women separately when attempting to increase people's behavioural expectations and current-intentions. Cline and McKenzie (1994) also suggested that HIV/AIDS messages should target men and women separately. On the other hand, messages attempting to increase people's general-intentions could target both men and women at the same time. Gender was more distal than sensation seeking and was not of central theoretical relevance for the current research.

Additional measures.

Analyses using remaining items showed that being a condom user was the strongest correlate of behavioural expectations, current and general intentions. That is, it was the strongest motivator for people to carry condoms, suggest them, engage in safe sex with different people, early in a relationship, when highly sexually aroused, and to reject sex when a partner refused condoms, and when a condom was not available. After being a condom user the next most important correlates were frequency of inclusion of condoms in foreplay (for current-intentions), belief that a condom was necessary to avoid infections (for behavioural expectations) and pregnancy (for general-intentions), and to have pleasure (for behavioural expectations, current and general intentions). Thus, people were motivated to carry on performing their behaviours, and to use condoms in order to avoid the negative outcomes of non-use and to have pleasure. Previous research has also found that prior use of condoms increased prediction of intentions to use condoms (Baker, Morrison, Carter and Verdon, 1996), and so did perceived pleasure of using condoms (Kowalewski, Longshore and Anglin, 1994), but not perceived vulnerability (Togliatti, Pierro and Clemente, 1996). Perceived vulnerability was also not positively related with intentions to choose a low-fat diet (Plotnikoff and

Higginbotham, 1995).

When prior condom use was analyzed together with the variables central to the current research as well as along with the additional significant measures, it remained a significant correlate of behavioural expectations and general-intentions, while inclusion of condoms in foreplay remained a significant correlate of current-intentions. The additional measures explained an additional 2% of behavioural expectations, 13% of current-intentions, and 5% of general-intentions, but the sample was then very reduced. Analyses involving the additional measures were not of central theoretical interest for the current research.

Conclusions

The primary objective of this study was to develop models that could account for behavioural expectations, current-intentions, and general-intentions to use condoms using a common set of measures. Despite lack of direct correspondence between the predictor and the criterion variables this does not necessarily represent a great problem for the research or its conclusions. Matching the wording of both criterion and predictor might maximize the variance explained. Nonetheless, a reasonable amount of variance has still been explained by the models: 49 percent of behavioural expectations by five variables; 42 percent of current-intentions by five variables and one interaction; and 40 percent of general-intentions by six variables and two interactions.

In Chapter 5, there were differences between HSS and LSS on the TPB variables, but the analyses of the present chapter suggest that these differences may not always be influential on behavioural expectations, current-intentions, or general-intentions. In addition, the present chapter found that two of the TPB variables were related to behavioural expectations/intentions: perceived behavioural control and attitudes (not norms). Anticipated regret and sensation seeking were related to behavioural expectations, current-intentions, and general-intentions. Other variables were important as follows: behavioural principles (for behavioural expectations and general-intentions), type-activity (for current and general intentions). Variations on type-activity, sensation seeking and gender did not cause variations in the relationship between either of the predictors and behavioural expectations/intentions. Moderating effects were relevant because sensation seeking interacted with anticipated regret on current-intentions, and with behavioural principles on general-intentions. Type-activity interacted with attitudes and perceived behavioural control on general-intentions. It seems, therefore, that these should be the variables to address on AIDS prevention campaigns aiming to motivate people sexually active between ages of 19 and 27 years to decide to choose a

healthy sexual life. That is, to motivate a young population to carry condoms, suggest them, include condoms in foreplay, use them (current-intentions) in sexual encounters with different people, early in a relationship, when highly sexually aroused (general-intentions), and to choose safe sex when a partner does not want to use a condom and when a condom is not available (behavioural expectations). Thus, the predictive power of the TPB can be augmented by incorporating anticipated regret, behavioural principles, type-activity, and sensation seeking. Further research should also investigate the role of behavioural principles since these provide a complementary construct for the TPB.

The percentage of variance explained by sensation seeking was small (ranging from 1% to 3%), but sensation seeking does seem to be an important variable in HIV prevention on the basis of evidence in the present chapter and the previous chapter. In Chapter 5 it was found that fewer HSS were virgins, and they had their first sexual intercourse earlier, had more insertive anal sex, had more affairs, had more sexual partners in the last twelve months (and had more sexual partners in the last twelve months than men too), were less likely to be in stable relationships, and preferred to keep their sexual options open. In addition, Sutton (1997) has stated that percentage of variance can diminish the effect of size and gave the following example to illustrate it. If 16 percent of the variance was explained in quitting smoking, and 70 out of 100 smokers in the intervention condition quitted smoking, compared to 30 out of 100 in the control condition, the intervention was successful. Therefore, a small percentage of variance explained does not mean that there is a trivial effect of sensation seeking.

The next step in the present research is to conduct an intervention to see whether condom use can be increased. This is why the next Chapter 7 introduces the elaboration likelihood model, examines the role of emotions, visual images and sensation seeking in persuasion. Afterwards, in Chapter 8, it will be conducted a longitudinal experiment examining whether posters advertising condoms can change people's perceived behavioural control, behavioural expectations, current-intentions and general-intentions, and if so, whether such change influence their condom use. During the experiment people will be induced to consider the personal relevance of the messages and this, together with personality differences in sensation seeking will be analysed.

Chapter 7: Persuasion and condom use.

The first two chapters of this thesis introduced the health belief and the theory of planned behaviour models, the role of anticipated regret, the social projection phenomenon, and why these variables should be relevant to condom use. Then, in the empirical Chapters 3, 4, 5 and 6 the relationships between these variables and condom use were investigated. In Chapters 3 and 4, it was found that perceived social norms were the projection of people's own beliefs on to others. These norms were related to past-current condom use. In Chapters 5 and 6 condom use was examined using a framework based on the theory of planned behaviour, the role of anticipated regret and the personality differences in sensation seeking. It was found that subjective norms were not of much relevance for expectations and intentions to use condoms. Also, personality differences in sensation seeking moderated the influence of some variables on to behavioural expectations and intentions to use condoms, but not of any such variables on to the condom use behaviour. High sensation seekers used condoms more with affairs and low sensation seekers did not.

Having found that sensation seeking influences condom use, it is necessary to find out whether it affects the processing of messages persuading people to use condoms. Thus, the present chapter introduces the literature on persuasion. It starts by providing a summary of the elaboration likelihood model. Afterwards, examines the role of emotions, visual images, and sensation seeking in persuasion. It concludes by drawing hypotheses about the relationship between the personality differences in sensation seeking and the processing of messages about condoms on to the condom use behaviour. Such hypotheses will then be tested, in Chapter 8, by an experiment which will check if high and low sensation seekers' condom use is affected differently by visual messages when they are encouraged to engage in high rather than low elaboration of the messages.

INTRODUCTION

Persuasion theories are based on the belief that attitudes anticipate and explain people's behaviour, and that they need to be changed in order to change people's behaviour. Attitudes are broadly defined as evaluations, formed either in the present or sometime in the past, which express the degree to which people favour or disfavour something. They influence people's perception, thinking and behaviour. They tend to do so by automatically biasing the selection of people's memories and the interpretation of new information, such that these become consistent with people's past behaviour or existing positions.

Generally speaking, attitudes are composed of three sources of information, also known as three components (Rosenberg and Hovland, 1960): thoughts (cognitions), feelings (affects, emotions) and behaviour (actions or intentions). The cognitive component consists of beliefs, such as about posters advertising condoms and about condom use itself. The affective

component involves emotions, such as those elicited by posters advertising condoms and by condom use itself. The behavioural component comprises intentions and actions, such as those towards the advertisements on condoms and the condom use itself.

These three attitudinal components are believed to act all together to influence behaviour. They influence the formation of intentions, as elaborated in the theory of reasoned action (TRA: Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) and the theory of planned behaviour (TPB: Ajzen, 1985), as well as the processing of messages, as articulated by the elaboration likelihood model (ELM: Petty and Cacioppo, 1981, 1986; Petty and Cacioppo, 1986 a and b; Petty and Wegener, 1999).

In contrast to the TRA and the TPB, which are primarily tools to predict behaviour (Ajzen, 2001), the ELM describes the information processes that take place in persuasion and in attitude change. It states that behaviour change depends on how much cognitive processing of the messages occurs and the strength of the attitudes that result from this processing. The amount of cognitive processing ranges from little to effortful (Petty and Cacioppo, 1981).

Little cognitive effort is present in the use of emotions as information. Emotions influence persuasion because they tend to be automatic learnt responses which provide economic judgments. Emotions influence attitudes mainly when either people's ability or motivation to think in depth about a message are low, but not when both ability and motivation are low or both are high (Albarracín and Wyer, 2000). Emotions are further discussed later in this chapter.

Little cognitive effort is also present in the use of both classical and operant conditioning. Conditioning has probably been applied to change attitudes since Allport (1935) defined these as learned dispositions. In Pavlov's classical conditioning an initially neutral stimulus, such as a condom, is repeatedly paired with a non-neutral stimulus, such as sexual excitement. Learning implies that at the end the condom alone will evoke sexual excitement. In Skinner's operant conditioning condom use increases because of the positive consequences of reinforcement, such as having orgasms with a condom on.

It is not clear how conditioning works, though. Some state that it is entirely a matter of affective associations, others favour a more cognitive view of conditioning (people can be conditioned emotionally as well as semantically). There are others who argue that it is possible to associate a stimulus to the emotional area directly in the brain without mediation by the sensory and frontal cortex, and that this conditioning happens very fast (LeDoux, 1995, 1996). That is, affective conditioning is probably the type most likely to occur as it requires less effort.

Sometimes cognitive processes involve a great depth of thinking about the arguments of a message. This type of processing was first described by Greenwald's (1968) cognitive response approach, which postulates that people actively relate the arguments of a message to their beliefs and feelings, and that prior knowledge is more influential than the message arguments. However, it also states that exposure to a message generates new thoughts (favourable, unfavourable or neutral) which in turn influence attitude change.

According to the ELM, the direction of these thoughts can be assessed via content-analysis by asking people to list any thoughts that come to their mind while they are exposed to a message (Petty and Cacioppo, 1986). For instance, students exposed to a message promoting condom use may list thoughts like: "I will try condoms" (a favourable thought), "I do not need condoms" (an unfavourable thought); "I am going to the cinema today" (a neutral and irrelevant thought). When there are substantially more favourable than unfavourable thoughts, attitude change is likely to occur in the direction advocated. Messages are persuasive when they generate favourable thoughts and not when they generate unfavourable thoughts. For messages to generate favourable thoughts they must be processed using either a central route (more rational) or a peripheral route (less rational).

However, the ELM is not the only dual-process model developed in the 1980s to understand attitude change. The HSM (heuristic-systematic model; Chaiken, Liberman, and Eagly, 1989; Chen and Chaiken, 1999) is composed by a systematic mode of processing, which is equivalent to the central route, and a heuristic mode of processing, which is similar to the peripheral route. That is, both the ELM and the HSM incorporate the cognitive response approach of active and effortful processing, whilst also considering persuasion based on little cognitive effort. They both consider that sometimes the processing of messages that lead to attitude change requires high amounts of mental effort, whilst other times it requires little mental effort.

Both the ELM and the HSM agree on that people are more likely to process simple short arguments. People tend to choose this option to process information because they can not make great mental effort to process all of the messages they are exposed to. People need to be "cognitive misers" (Taylor, 1981) and to quickly rely on the knowledge stored in their memory, such as when there are time constraints.

In addition, in order to interpret complex information, people must engage in effortful processing and this requires more ability and motivation than to process easier information (Thompson and Kruglanski, 2000). Thus, for both models, motivational factors, such as personal relevance, and cognitive factors, such as time constraints, are influential.

The ELM and HSM diverge in several aspects, though. For the sake of economy, only a couple of their differences are described here. The ELM argues that both central and peripheral processing of messages are mainly alternators, and although it does not reject the idea that they may also co-occur (Petty and Wegener 1998 a), it does not specify exactly how they would interplay. The HSM, however, gives more attention to how both systematic (central) and heuristic (peripheral) processes can co-occur (Chaiken *et al.*, 1989). For instance, for the ELM, when motivation and ability for argument scrutiny increase, central processing of messages becomes more likely to influence judgment. For the HSM, when motivation and ability to scrutiny are high the effortful systematic processing comes into play, but the heuristic processing of messages continues to influence judgment.

The models also differ in the ways in which motivational influences on processing are thought to operate. According to Weary, Gleicher, and Marsh (1993), people are motivated to be accurate to feel that they live in a predictable and controllable world. For the ELM, people are accuracy motivated and the greater this motivation the greater the likelihood of central processing. By contrast, the HSM does not have overriding motivational assumptions and any given motivation can influence judgmental processes. For more on the similarities and differences between the two models see Eagly and Chaiken (1993) and Chaiken, Wood, and Eagly (1996). Despite their differences, the ELM and the HSM are both similar in offering evidence of two different types of processing of persuasive arguments and in the idea that processing effort is a function of motivation and cognitive capacity. Thus, the terminology used in this thesis will be that employed by only one of the models: the ELM.

Although dual-mode approaches, such as the ELM, have been in use for a while, there is now some disagreement over the need to replace these by a unimodel approach (Kruglanski, Thompson, and Spiegel, 1999). This new unimodel approach considers that both peripheral and central routes are functionally equivalent in the persuasion process. As such, it assumes that heuristic information is not necessarily briefer or less complex than message arguments and that processing the latter versus the former should not necessarily require greater effort or motivations (Kruglanski, Thompson, and Spiegel, 1999). For more on the entire debate about this subject see Kruglanski and Thompson (1999) as well as Manstead and van-der-Pligt (1999). Despite the contributions of the dual and unimodal approaches, none of these theories of persuasion (Chaiken, 1980; Kruglanski, Thompson, and Spiegel, 1999; Petty and Cacioppo, 1986 a, 1986 b) specify how people determine what information to use in judgment (Albarracin, 2002).

The elaboration likelihood model's central and peripheral routes to persuasion.

According to the ELM there are two routes to persuasion, on opposite poles of a continuum: one central and one peripheral. Each route shows different degrees of information processing,

which may occur outside people's awareness. The central route is based on cognitive response theory (Greenwald, 1968; Brock, 1967), and involves a rational process in which persuasion follows an effortful and careful examination of the arguments of the message. As such, it requires motivation to be accurate and ability to scrutinize messages, and the higher both of these the greater the likelihood of central route processing. So, those who think more and reach more positive arguments about a given message are more likely to be persuaded by this route (Petty *et al.*, 1994). When people are persuaded by this route their attitudes are relatively easy to call to mind, persistent and stable over time, resistant to change, and predictive of behaviour (Petty *et al.*, 1994; Petty and Krosnick, 1995).

The central route is likely to be activated when people take great pleasure in thinking (Cacioppo and Petty, 1982); when they are interested in and able to assess the central merits of an issue (Petty and Wegener, 1999); when they receive information in an unexpected fashion (Smith and Petty, 1996); when they are in an unpleasant mood (Schwarz, Bless, and Bohner, 1991); when they receive loss-framed messages (Dunegan, 1993); and when people are presented with questions rather than assertions (Burnkrant and Howard, 1984; Howard, 1990; Petty, Cacioppo and Heesacker, 1981; Myers, 1983). This route is also likely to occur in new situations, when circumstances have changed, when attitudes are challenged (Ajzen and Sexton, 1999); or when specific cases rather than general cases are highlighted (Sherman, Beike, Ryalls, 1999) because there is more self-involvement in decisions involving specific cases, such as about a child in need rather than about children in general.

Attitudes formed or changed by the peripheral route are less accessible, persistent, resistant, and predictive of behaviour (Krosnick and Petty, 1995; Petty, Cacioppo, Strathman, and Priester, 1994; Petty, Haugtvedt, and Smith, 1995). People use this mode to process information when they are not very motivated or have low ability to perform the central route. People are then less likely to identify, and to decide about, the relevance of the arguments contained in a message. This is because they focus their attention on the surface features of the message, the number of arguments, and on the emotions these elicit (Petty and Cacioppo, 1986 a, 1986 b; Petty and Wegener, 1991), since this requires less depth of thinking about the issue and relevant information. Most importantly, the peripheral route focuses on evidence external to the message, such as non-verbal cues and people's past behaviour, rather than on a careful consideration of the information. This route is the most chosen because it serves as a shortcut in the decision process; it is fast and does not demand much cognitive processing of messages.

The peripheral route is activated when interest in the issue is low; when gain-framed messages are used (Rothman *et al.*, 1993, Experiment 1); when there is not much time to take a decision, which restricts the ability for central processing of the message (Fazio and Roskos-Ewoldsen, 1994); when the message comes from multiple sources of information

(Harkins and Petty, 1987); when a large number of arguments are used regardless of their strength (Alba and Marmorstein, 1987; Petty *et al.*, 1994); when stereotypic beliefs about a target are presented (Bodenhausen, 1988, 1990); when the message source is an ingroup member (Mackie, Worth, and Asuncion, 1990); or is likable (Chaiken, 1980), attractive, reliable, or in a pleasant environment (Petty *et al.*, 1994). These cues can not, however, assure that messages will be processed via the peripheral route. That is because an expert is often conceptualized as a peripheral cue, but it is sometimes a central cue when it determines the credibility and relevance of the arguments (Petty and Wegener, 1999).

In the same way, strong arguments are expected to activate the central route, but they can be processed using the peripheral route instead (Axsom, Yates, and Chaiken, 1987), such as when people are distracted. Distraction can bias people's judgments making poor messages become more persuasive and good messages become less persuasive (Petty, Schumann, *et al.*, 1993). It does so by interfering with people's predominant thoughts and disrupting the process of counter arguing, decreasing the retention of the message arguments (Osterhouse and Brock, 1970). When people are both highly distracted and experiencing positive emotions, they are likely to develop favourable attitudes (Albarracin and Wyer, 2001).

In order to distract people, they can be asked to think about the positive or the negative aspects of an object. People asked to think about why something bad might be good are likely to enhance their perceptions of its goodness, by biased scanning of arguments (Janis and Gilmore, 1965). Likewise, people asked to think about why something unlikely to occur might occur are likely to increase their perceptions of its likelihood (Ross, Lepper, Strack, and Steinmetz, 1977).

In a similar manner, people asked to think about their marital satisfaction followed by general life satisfaction (Schwarz, Strack, and Mai, 1991; Schwarz and Bless, 1992) are likely to contrast or assimilate life satisfaction to their marriages. If contrasted with people's marriages, life satisfaction is judged: a. more favourably among those whose marital satisfaction is low; and b. less favourably among those whose marriage satisfaction is high. If assimilated to people's marriages, life satisfaction is judged: a. more favourably among those whose marital satisfaction is high; and b. less favourably among those whose marriage satisfaction is low.

In summary, for the ELM, the amount and the nature of thinking people do about a message matters greatly in attitude change and in persuasion, and may occur outside people's awareness. Attitudes of those who are persuaded by the central route are relatively easy to call to mind, persistent and stable over time, resistant to change, and predictive of behaviour. Attitudes formed or changed by the peripheral route are less accessible, persistent, resistant,

and predictive of behaviour. In order for messages to be processed using the central route, strong arguments should be used. Weak arguments are more likely to be processed using the peripheral route. However, strong arguments are not always processed using the central route, nor are weak arguments always processed using the peripheral route. For instance, strong arguments are likely to be dismissed if people are guided by their emotions.

Emotions.

Emotions influence people's judgments mainly by maintaining people's existing positions. They do so by inducing the peripheral route to less carefully examine the entire information when people are in a good mood, or by inducing the central route to carefully examine only part of the information when people are in an unpleasant mood. People in a positive mood express more favourable attitudes (Schwarz, 1990), by relating their emotions to attitudes, but not to message-relevant thinking (Petty *et al.*, 1993). They feel that they must agree because they are happy (Schwarz, 1990), and view messages more favourably than sad people (Schaller and Cialdini, 1990). People in a negative mood express more unfavourable attitudes (Schwarz, 1990), carefully and favourably examine part of the information congruent with their position (Pomerantz, Chaiken, and Tordesillas, 1995), or suspiciously scrutinize incongruent information in an effort to derogate its validity (Giner-Sorolla and Chaiken, 1997). It is important to note that mood does not influence the processing of information when people are prompted to discount the effects of mood, such as by considering the cause of their mood (Sinclair, Mark, and Clore, 1994).

Thus, emotions are relevant in persuasion because they affect how people respond to a message (Eagly and Chaiken, 1993; Jorgensen, 1998). They influence attention, encoding and retrieval, and are used as a shortcut in the judging process (Forgas, 1995), regardless of the extent to which they are "accurate" or "appropriate" (Koriat and Levy-Sadot, 1999). They are evoked in the course of free association, rather than from the situation itself (James, 1890; Lange, 1922), inform about past experiences with an object (DeSteno, Petty, Wegener, and Rucker, 2000; Epstein, 1994; Oatley, 1992) in a classical conditioning way (Greenwald, 1968), shape evaluations (Dillard and Peck 2000), and induce message acceptance or inhibition with or without people's awareness.

Emotions are also people's first response to the environment (Mandler, 1984), perhaps because the direct association of a stimulus to the emotional area in the brain happens quicker than the association of cognitive stimulus to its relevant areas (LeDoux, 1995, 1996). They reveal the changes taking place in the body (Buck, 1997) in terms of visceral changes (James, 1890; Lange, 1922), and result from physical sensations and images, as well as from thinking (Arieti, 1970).

There are at least three ways of studying emotions: according to their valence and arousal (Russel, 1980); as a system of categories in which different types of emotions are listed (Ekman, 1992; Oatley, 1992); and as a "discrete perspective" (Dillard and Peck 2000) in which each emotion supplies unique information. For instance, guilt can provide information about uncritical message acceptance (Batra and Stayman, 1990; Dillard and Peck, 2000).

Although the ELM only refers to emotions in general, they can be categorized as immediate (Ortony, Clore, and Collins, 1988) or deliberative (Giner-Sorolla, 1999) cognitive appraisals of features of the environment. Immediate are the conscious or unconscious emotions acquired via classical conditioning (Staats and Staats, 1958), which are associated with uncontrolled behaviours and have the following advantages over deliberative emotions: are more accessible; can be activated when the stimulus appears only momentarily; occur automatically, rapidly, effortlessly; and may be possible under cognitive load.

Conscious immediate emotions are the unintended reactions that people are aware of, such as the disgust towards horror films and the pleasure towards a smiling face. Unconscious immediate emotions are the unintended reactions that people are unaware of, such as the unconscious subliminal influence of happy and unhappy facial expressions on people's evaluations (Winkielman, Zajonc, and Schwarz, 1997).

Deliberative emotions are evoked slowly through conscious and controllable thoughts, even though emotions are not themselves under control. They happen when people are aware of their feelings and attempt to control them (Monteith, 1996; Giner-Sorolla, 1999), such as when a person watching a disturbing scene thinks of pleasant things to feel less disturbed. When these emotions support people's attitudes resistance to persuasion increases (Zuwerink and Devine, 1996). Nonetheless, eliciting deliberative emotions can be particularly useful when immediate emotional responses are in undesired directions.

Both deliberative and immediate emotions can be evoked by a single stimulus (Giner-Sorolla, 1999). Condoms can arouse immediate negative emotions among non-condom users or positive deliberative emotions if the advantages of using condoms are emphasized. Perhaps the advantages of using condoms should be outlined in terms of pleasure, so that condoms could be associated to immediate positive emotions. After all, sex is mainly about immediate emotional gratification.

Therefore, there could be at least two ways of convincing people to use condoms: either by targeting their immediate emotions or by targeting their deliberative emotions. Moreover, in order for emotions to bias judgments people who are about to make a judgment need to identify or direct their attention to the emotions first (Albarracin and Wyer, 2000). This

makes emotions particularly important in condom use, a behaviour which is likely to follow the emotional reactions associated with sex. One way of eliciting emotions is through visual images, and how to do this will be illustrated next.

Visual Persuasion

One of the reasons to use visual images is that it can produce emotional reactions that might be persuasive directly, not necessarily through reasoning, in the classical conditioning way. That is, when visual images elicit positive emotions on people they are likely to like a product (Dillard and Peck, 2000). Images are ideal tools in persuasion because they stimulate the sight, which is people's most developed sense (Turvey, 1998), and are most effective. People prefer to see images to reading (see Media Literacy's video: Television - What You Don't See!, 1997, Zill and Robinson, 1995) and recall better printed than videotaped images (Chaiken and Eagly, 1976). This might be why sex advertisements in newspapers are such a lucrative market (Neuwirth, 1998).

Most of the visual advertisements are very successful (Messaris, 1997) and do not need words to put a message across (Meyers, 1994); only around 24% of them do (Kaplan, 1990). This is because visual images can be more persuasive than written messages, as shown by Mitchell and Olson's (1981) test of four versions of a print advert for an imaginary brand of tissues. The first version was composed of a picture of the product but no other image. Instead, there was a verbal message declaring that the tissues were soft. All other three versions had a picture of the product juxtaposed with an image, but no text. The three juxtaposed images were either a kitten, a sunset, or an abstract painting. Both the verbal text and the image of the kitten produced higher ratings of the tissues' softness than did the other two images; but, the softness rating for the kitten image was significantly higher than the verbal message.

Thus, the juxtaposition of visual images with pictures of a product gets the point across (Zuckerman, 1990 b) and better than verbal messages when an indexical sign is used (Mitchell and Olson, 1981). Indexical signs serve as evidence of an advertisement's claim of physical causation (Peirce, 1991). Some of these signs are a bullet hole signifying that a shot was fired, a very white napkin signifying that the washing powder does work, photographs in general, and all sorts of comparisons of before and after. The indexicality of visual syntax confirms that the advertisement's claim is true (Messaris, 1997). They also allow the portrayal of the unusual, the exaggerated, the discrepant.

Indexical signs can be juxtaposed to express an analogy with a product in two ways: either embedding an image in the narrative or making it extradiegetically. Messages embedded in the narrative are more likely to be overlooked (Messaris, 1997). These are seen in a film

where the newly married hero and heroine get into bed in the sleeping compartment of a moving train, embrace, and the film ends with the train entering a tunnel (Messaris, 1997).

Images which are juxtaposed extradiegetically are more likely to capture attention. These are seen in a film where the sex scene takes place in an apartment, and the shot of a train entering a tunnel is brought in out of nowhere, together with a variety of other sexual metaphors such as exploding fire-works (Messaris, 1997). They are also seen in Madonna's music video "Take a Bow", where there is a scene of sex intercut with a bullfight. A video which is both about the violent aspects of sex and about the sexual aspects of violence (Messaris, 1997).

When indexical signs are either embed or used extradiegetically, two unrelated entities (an image and a product) can be connected without much awareness on the part of the viewer (Messaris and Nielsen, 1989). This process has been called iconicity (Peirce, 1991) and it is present in the associations of sharp angles (such as triangles and stars) with power and dynamism, of right angles (such as squares and rectangles) with solidity and stability, of curved shapes (such as circles and unrolled condoms) with gentleness and smoothness, and, of several city monuments gathered in one picture with the notion that a certain product is enjoyed everywhere (Messaris, 1997).

The iconicity of visual syntax makes it easier to advertise across cultures (Kernan and Domzal, 1993), a need (Levitt, 1983) which is on increase in the twenty-first century with the growing global shared common markets. In order to use visual syntax, the first step is to get to know the characteristics of the culture of interest. This entails the identification of differences in the meaning of images (Hill and Winski, 1987), including for men and women. Sometimes men are more responsive to the visual aspects of sex than women (Ellis and Symons, 1990; Wright, 1994), such as when women's nudity is used. Women can feel uncomfortable with the merchandize of their nude body on adverts (LaTour, 1990), but welcome sexualized images of men (Reichert, Morjan, Collister, and Harrison, 1995). In general, both women and men enjoy adverts with attractive models of the opposite sex (Baker and Churchill, 1977) or in which a man as well as a woman is naked (Severn, Belch, and Belch, 1990), but this might not be so everywhere in the world. Differences between cultures need to be accepted as they influence the efficacy of an advertisement. This is why local models are often used (Landler, 1994; Oyeleye, 1990); why USA's advertisements are more individualistic while Korean ones are more collectivistic (Han, 1990); USA's advertisements inform more explicitly about the product while European ones are more entertaining (Appelbaum and Halliburton, 1993; Cutler and Javalgi, 1992; Nevett, 1992); USA's advertisements contain less sex while French ones have a more relaxed attitude towards sex (Biswas, Olsen, and Carlet, 1992).

Moreover, differences between cultures mean that in some places the expression of certain emotions is more encouraged than in other ones (Hochschild, 1979). In Japan, the feeling that one has been a burden to someone is the most common negative emotion, whilst the relief that things are just okay and that events are harmonious are the most positive emotions (Markus and Kitayama, 1994). In USA anger is the most frequent negative emotion, whilst feeling good about oneself, pride and affirmation of one's self-worth and self-esteem are the most positive emotions (Zajonc, 1998). In Costa Rica, a more collective interdependent culture, people are more reluctant about expressing negative emotions than in the USA, a more individualistic independent culture (Stephan, Stephan, and DeVargas, 1996). In Turkey love is the most frequently mentioned emotion, whilst fear is not very frequently mentioned; but, in contrast, in Holland, fear is the most mentioned emotion and love is the least frequent (Frijda, Markam, Sato, and Wiers, 1995). However, in Holland's nearest neighbour, Belgium, joy is the most frequently mentioned emotion (Mesquita, 1993).

Likewise, the expression of people's sexual emotions might be more of a taboo for some cultures than for others. Taboos make it difficult to advertise condoms as a natural and enjoyable part of sex, especially without the syntactic indeterminacy of visual aid. Images are particularly useful as they can elicit emotions without explicitly revealing what message is being proposed. Yet, the use of symbolic or ambiguous images may also craft cognitive conflict in people. According to Festinger (1957), when cognitive conflict is experienced it elicits emotional arousal, which in turn motivates people to resolve the conflict. During this process, people try to make sense of the syntactic indeterminacy of the visual images (Metros 1999) and may analyze more carefully conflicting information about a product than non-conflicting information (Baker and Petty, 1994). People may then engage in effortful attempts to solve the conflict brought by the message without engaging in central processing to carefully examine all the information.

In summary, visual images can capture people's attention to a message by eliciting immediate emotions. They can be more powerful than written messages because they possess qualities that written language does not, such as indexicality, iconicity, and indeterminacy; and have the advantage of fluency across cultures. They are particularly useful for sensitive issues such as those referring to sex; and can persuade people to use condoms mainly in the classical conditioning way. They might, nonetheless, persuade some people more than others, according to people's personality differences in sensation seeking, and this will be explored next.

Sensation Seeking

It is important to promote condom use among high sensation seekers (HSS). In Chapters 5 and 6, it was found that HSS had their first sexual intercourse earlier; were less likely to be in

stable relationships; had higher number of sexual partners and more affairs in the last twelve months. They preferred to keep their sexual options open and had more anal sex. HSS intended less to use condoms in the next penetrative sex if it happened with different people, early in a relationship and when they were highly sexually aroused. Even so, HSS used condoms more frequently with affairs whilst low sensation seekers (LSS) did not. These findings were consistent with previous research, which found that HSS have a greater number of sexual partners (Fisher and Misovich, 1990), engage more in risky sexual practices (Jeffrey *et al.*, 1990), are unlikely to plan their future (Franken, 1992), are more impulsive (Hur and Bouchard, 1997) and behave like low self-monitors. Those who are low self-monitors agree more to statements such as "My behaviour is usually an expression of my true inner feelings, evaluations, and beliefs" (Snyder, 1987). Those who are high self-monitors agree more to statements such as "My behaviour is appropriate to each situation. In different situations and with different persons I act like very different persons"(Snyder, 1987). Low self-monitors behave more consistently with their attitudes than high self-monitors (Ajzen, Timko, and White, 1982; Snyder and Kendzierski, 1982; Snyder and Swann, 1976; Zanna, Olson, and Fazio, 1980).

As HSS seem guided by their emotions, they might care less about existing social norms on what most others approve of or actually do than LSS. If so, drawing people's attention to what most people do (descriptive norms) might be more beneficial than drawing people's attention to what others approve of (the injunctive norms) (Cialdini, Kallagren, and Reno, 1989) mainly among LSS. Besides, HSS might intend less to use condoms because of believing that others are already engaging in safe behaviour. In this manner, HSS would underestimate their personal vulnerability to catch the HIV virus. SS is known to be a strong determinant of general optimistic beliefs with HSS underestimating their own susceptibility to risks (Cicognani and Zani, 1999; Sheer and Cline, 1994).

Therefore, HSS seem more vulnerable to catching the HIV virus and must be encouraged to use condoms by messages that succeed in reaching them. HSS are less exposed to mass media (Hirschman, 1984), and tend to pay attention to, and to be persuaded by, messages high in sensation value, whilst the opposite occurs with LSS (Everett and Palmgreen, 1995; Lorch, Plamgreen, Donohew, Helm, *et al.*, 1994; Donohew *et al.*, 1980; Donohew *et al.*, 1988; Donohew, Lorch and Palmgreen, 1991; Donohew, Lorch and Palmgreen, 1991; Donohew, Lorch and Palmgreen, 1994). This has been explained by the "activation theory of information exposure" (Donohew *et al.*, 1980) which states that individuals operate most effectively at an optimal level of arousal. HSS are "arousal-seekers" and LSS are "arousal-avoidant". If either HSS or LSS were exposed to a too strong message, beyond their optimal level of arousal, they would not pay attention to it (Donohew, Lorch and Palmgreen, 1991).

HSS respond better to visual than to auditory messages (Smith, Davidson, Perlstein and Gonzalez, 1990) and are less into watching television than LSS (Rowland, Fouts and Heatherton, 1989). When HSS watch television they change channels frequently and choose action movies (Schierman and Rowland, 1985). This means that HSS would be best persuaded to use condoms by advertisements placed during action films, and by posters located in exciting youth places, such as nightclubs, sports centres and pubs. Also, HSS might need advertisements to elicit pleasant and intense immediate emotions, whilst LSS might need messages to focus on the deliberative emotions about the positive long-term consequences of condom use. This is because LSS prefer non-intense, familiar and less complex stimuli. For instance, they prefer caring and responsibility appeals associated to condoms (Sheer, 1995). HSS are receptive to stimuli that are intense, novel and complex, and pay attention to messages which are "stomach-turning", such as photographs of mutilation or drunken men with delicately applied shaving foam (Rawlings, 2003). So, they are more likely to use condoms when partner initiates condom use with fear, threat or health appeals than LSS, but above all they prefer pleasure appeals (Sheer and Cline, 1995).

In summary, people are motivated to behave in a particular direction by internal desires, needs and concerns (Young, 1961) and these may stem from personality differences in sensation seeking. So, messages encouraging condom use should address high and low sensation seekers differently. As the ELM places heavy emphasis on the role of cognition as a proximal determinant of persuasion (Chaiken and Trope, 1999), it does not consider personality differences but these may affect persuasion.

Therefore, the next chapter is set out to investigate differences between HSS and LSS in condom use after exposure to posters. It is envisaged that when motivated to consider the personal relevance of the messages contained in posters, both low and high sensation seekers would be likely to engage in the central route to process the messages and they would be then influenced by the messages, rather than by the pictures in the posters. However, when not motivated to consider the personal relevance of the message HSS would be persuaded by the posters with high sensationality pictures, whilst LSS would be persuaded by the low sensationality pictures. The next chapter tests both of these hypotheses.

Correlates of behavioural expectations, current-intentions, general-intentions applied to posters.

Correlates of behavioural expectations, current and general intentions have been identified in order to apply them to posters which are cheaper than advertisements on TV and have the advantage of persuading people by both image and text. It is known that messages should avoid offending public decency (Wellings and Field, 1996) and be clear. The French poster campaign, in 1991, lost part of its effect because the messages were not very clear and only

60% of those who had seen the posters associated them with condoms (ANRS-AFLS, Septembre, 1992). This campaign was composed by three posters: a. "J'ai toujours entretenu d'excellents rapports avec le sexe" (I have always had great relations towards sex); b. "Avec moi, une femme, elle se sent protegee" (With me a woman feels protected); c. "C'est ma premiere surprise-partie!" (It is my first surprise-party!).

In order to be clear, messages do not always require the usage of explicit material. A Swedish campaign used flowers (Posters 4a to 4e, Figure 4) as a metaphor for sex, a sensual attractive and non-threatening way of encouraging positive attitudes towards sex and condoms. This campaign was noticed by 80 per cent of young people and 97 per cent of these felt happy about it (Wellings and Field, 1996). In addition, the usage of explicit material does not necessarily increase recall (Alexander and Judd, 1978) --unless, perhaps among HSS. HSS prefer sexually explicit material (Schierman and Rowland, 1985). As being a HSS is associated with having low expectations about condom use and low general-intentions to use condoms, the usage of explicit material might also be recommended. Examples of explicit material are presented in Figures 5a to 5l, Figure 5. The message of condom use is clearer in Posters 5i to 5m, Figure 5, as the condom has been included in the pictures.

The Swedish posters with flowers represented the latest tendency to focus on the maintenance of sexual health by creating a positive climate around sexuality and promoting sexual enjoyment of condoms in a humorous and playful manner (Figure 6), rather than in a fearful manner --without being less effective (Dube' *et al.* 1993, a and b). It has been necessary to promote condoms in a positive manner because until 1987 they had such a poor image that they could not be advertised on TV in France or in the UK. In 1985 the Grand Prix was not shown on TV because Durex condoms sponsored one car and the advertising of condoms on television was forbidden. The association of condoms to HIV can also encourage people's negative attitudes towards them.

To invalidate people's negative attitudes, some countries created the "excuses campaigns". In France, for example, the excuses were expressed by a men and were the following: "But it's hell to put on"; "You can't feel anything"; "It seems women hate them". These excuses were disqualified by having the actors laughing at them, as shown in Figure 7 (Wellings and Field, 1996). In fact, France has focused on condoms rather than AIDS since the beginning, aiming to ease worries, create a positive feeling about condoms, and increase people's perceived behavioural control. The end line of one of the French campaigns was "Condoms protect against everything, everything except love", in Figure 8 (Wellings and Field, 1996). Posters 5i, 5j, 5l and 8a to 8c, are examples of attempts to increase people's perceived behavioural control.

There have been messages aiming to change people's attitudes and perceived behavioural control which have targeted men and women separately. The previous chapter concluded that messages aiming to strengthen people's perceived behavioural control and attitudes can target all groups at once to have a broader appeal. However, messages aiming to develop general-intentions to use condoms should try strengthening the attitudes of those sexually active without a SP, and the perceived behavioural control of those sexually active with a SP. Messages aiming to increase people's current-intentions and general-intentions to use condoms also need to target those with and without a SP separately. That is because being without a SP increases current-intentions while having a SP increases general-intentions.

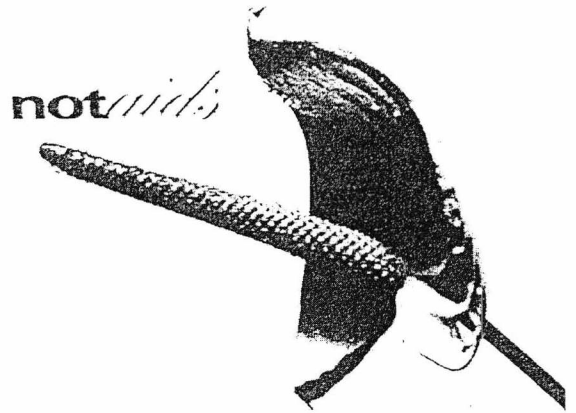
Messages aiming at motivating people to hold positive behavioural expectations and general-intentions to use condoms also need to consolidate peoples anticipated regret (Figure 9). Anticipated regret motivates LSS to hold positive current-intentions to use condoms. In addition, people's behavioural principles yield positive behavioural expectations towards condoms and motivate HSS to hold positive general-intentions to use condoms, so they need to be strengthened. Positive behavioural principles exist when people are likely to act to assure safe sex (Figure 10), even when a partner refuses condoms. Note that sensation seeking moderated the relationship between behavioural principles and intentions to use condoms. As such, it is an important item to address in the promotion of condoms.

The advertising of condoms works, as shown on Figure 11. Thus, well-designed posters should be effective in motivating people to use condoms. It seems better to motivate people to use condoms than to attempt to reduce their number of sexual partners, as they are unlikely to have fewer partners to protect themselves against AIDS (Wellings and Field, 1996). Focusing only on condoms does not protect against unplanned pregnancies (Bromham and Cartmill, 1993a, b; Taylor, 1993). That is why messages have also emphasized the need for the use of both pills and condoms (Figure 12).

Figure 4.
Posters from Sweden, 1991 (Wellings and Field, 1996).



Poster 4a.



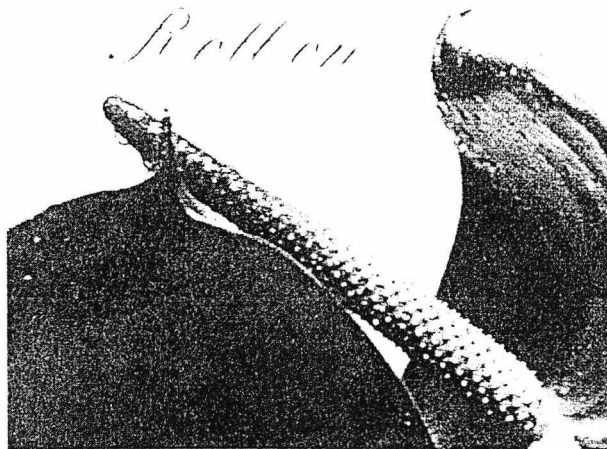
Poster 4b.



Poster 4c.

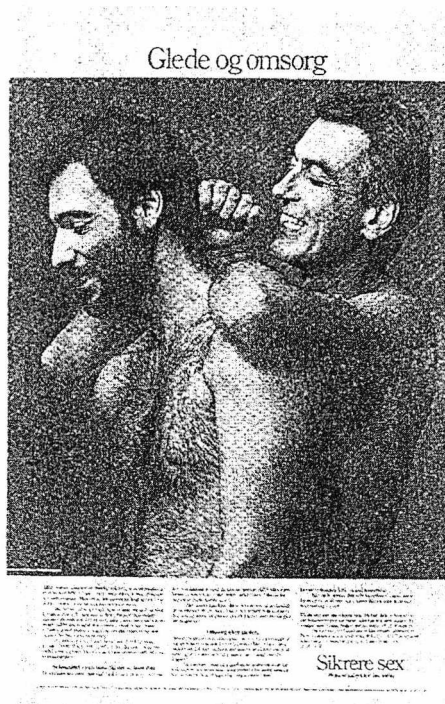


Poster 4d.

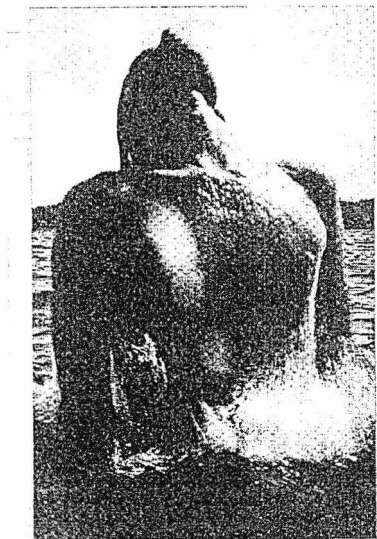


Poster 4e.

Figure 5.
Posters from Norway, 1988 and 1991 (Wellings and Field, 1996).



Poster 5a.



Sommerferie!

Se hva du end, der er på sommerferien.
Ta AIDS på alvor!

Poster 5b.



**Klart du forelsker deg
i sommer!** Men ikke uten å foreta deg
et smarte beslutning. Foreta deg
Ta AIDS på alvor!

Poster 5c.

Figure 5 /continued.
 Posters from Denmark, 1987 and UK, 1988-1990 (Wellings and Field, 1996).



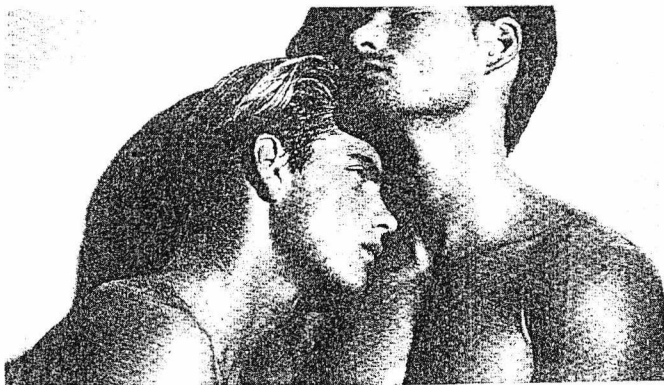
Poster 5d.
 Sex is lovely



Poster 5e.
 Sex is nice



Poster 5d.
 Sex is beautiful



THEY USED TO SAY MASTURBATION WAS BAD FOR YOU NOW IT COULD SAVE YOUR LIFE

...and the only way to stay safe is to use a condom every time you have sex. It's the only way to protect yourself from AIDS. So please, use a condom every time you have sex. It's the only way to stay safe.

Poster 5g.



Poster 5h.

Figures 5 /continued.
Posters from The Netherlands, 1993-94 (Wellings and Field, 1996).



Poster 5i.
Have Safe Sex Or No Sex

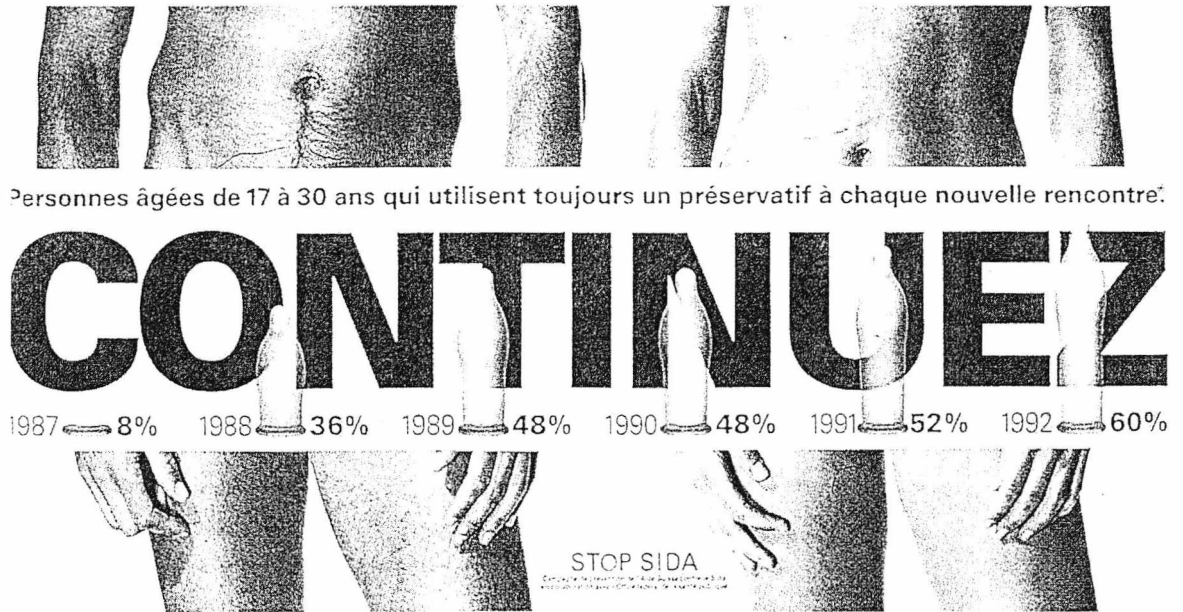


Poster 5j.
Have Safe Sex Or No Sex



Poster 5l.
Have Safe Sex Or No Sex

Figure 5/continued.
Poster from Switzerland, 1993 (Wellings and Field, 1996).



Poster 5m.

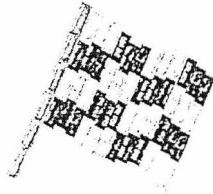
Figure 6.
Posters from Sweden, 1990 (Wellings and Field, 1996).



Blixtförälskad.



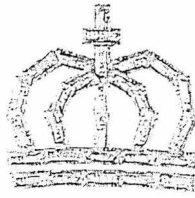
Poster 6a.
Head Over Heels.



Målgång.



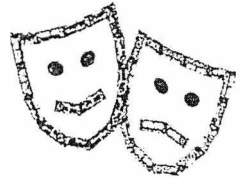
Poster 6b.
Reaching Goal.



I slott och kaja.



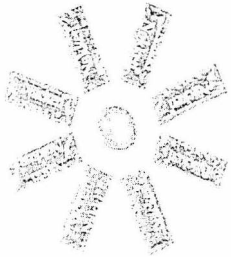
Poster 6c.
In Castle and Hut.



Allt vara eller inte vara.



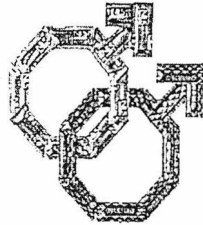
Poster 6d.
To Be or Not To Be.



Semesteräventyr.



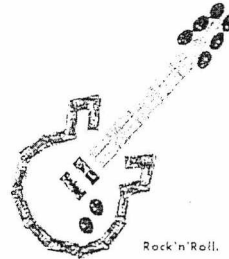
Poster 6e.
Holiday Adventure.



Man till man.



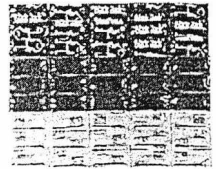
Poster 6f.
Man to Man.



Rock'n'Roll.



Poster 6g.
Rock 'n' Roll.



När två blir ett.



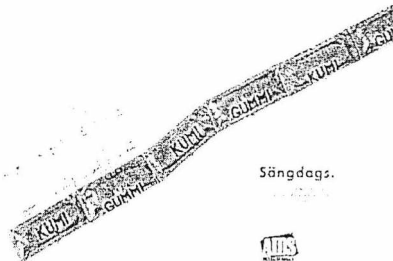
Poster 6h.
When Two Become One.



Kör försiktigt i kväll.



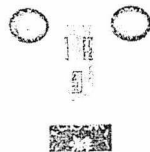
Poster 6i.
Drive Carefully Tonight.



Sängdags.



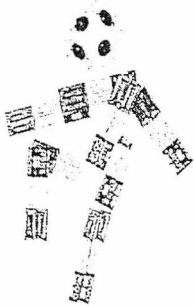
Poster 6j.
Bedtime.



HIV syns inte.



Poster 6l.
HIV Can't Be Seen.



Nya
spelregler.



Poster 6m.
New Rules.

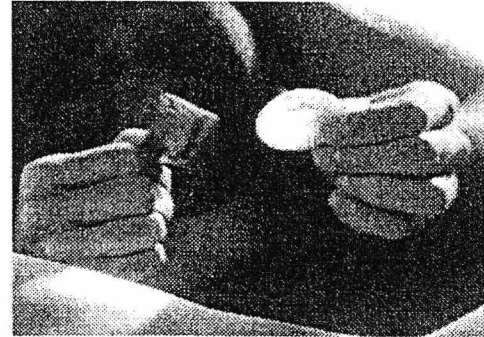
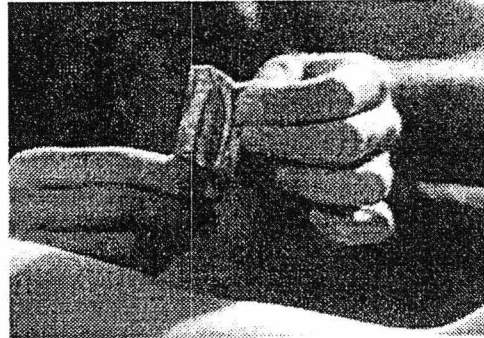
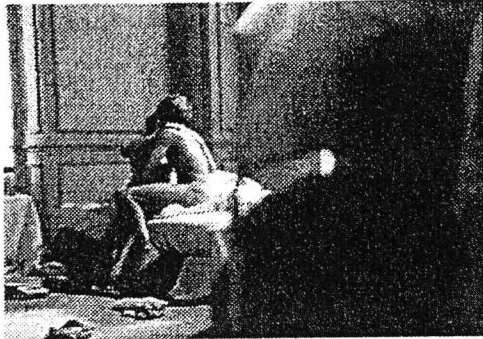
Figure 7.
Poster from France, 1988 (Wellings and Field, 1996).



Aujourd'hui
les préservatifs
préservent de tout
même
du ridicule

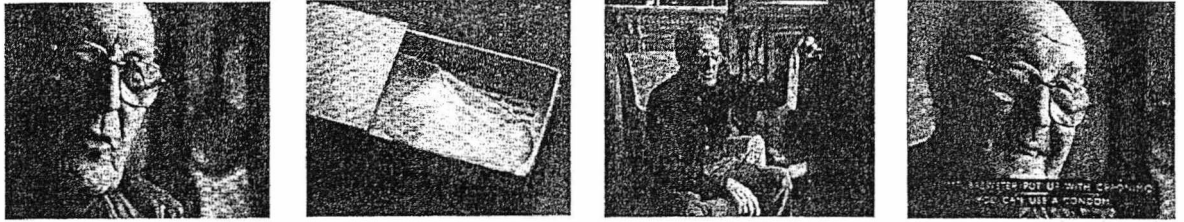
 comité français d'éducation pour la santé

Figure 8.
France, 1989 (Wellings and Field, 1996).



Images 8a

Figure 8. /continued.
 UK and Germany, 1993 (Wellings and Field, 1996).



Voice-over: Fred Brewster, 81
 Mr Brewster: I just don't know why young people complain about having to wear condoms against the HIV virus and AIDS, look what we had to wear...I

called it Geronimo, my friend. Compared with the condoms of today, it was like wearing the inner tube of a bicycle. It wasn't like the modern condoms, it was designed to be used again and again. It was

like having a bath with your socks on! But it never stopped me, no way.

The screen shows the words: 'If Mr Brewster can put up with Geronimo you can use a

condom'. On a black background, the caption reads 'A condom can help protect against HIV and other sexually transmitted diseases'

Images 8b.

Stop and go.



GIB AIDS
 KEINE
 CHANCE

mach's mit.

Poster 8c.
 Do It With One.

Figure 9.
UK, 1993 and 1988 (Wellings and Field, 1996).

HOW FAR WILL YOU GO BEFORE YOU MENTION CONDOMS?



THIS FAR!



THIS FAR!



THIS FAR!



THIS FAR!

Today, no one can ignore the need to protect ourselves. Here, the idea is to mention condoms before the idea of sex without having said we've already mentioned them. It's a subtle message, but one that's worth repeating. (Wellings, 1993, p. 100)

So the question isn't if we've mentioned condoms. It's if we've mentioned them at all. (Wellings, 1993, p. 100)

When is the point at which you've mentioned condoms? It's when you've mentioned them. (Wellings, 1993, p. 100)

It's when you've mentioned them. (Wellings, 1993, p. 100)



Poster 9a.

This ad isn't meant to spoil your sex life. It's meant to make it last longer.

Let's face it, you probably enjoy sex. If you want to continue enjoying it, there's a few facts you need to remember.

There's a growing number of men and women who are becoming infected with HIV, the virus that can lead to AIDS. AIDS is fatal, with no cure or vaccine.

What's worse, people can have the virus for years before they look or feel ill. It's possible for an infected person to pass the virus on to someone else through sex without either of them knowing.

And there's one more fact to be aware of: some people have a condom for protection, which means they're not using it.

And there's one more fact you have to know: if you're a man, you have to use a condom every time you have sex. If you're a woman, you have to use a condom every time you have sex. So next time you want someone you fancy, think. That way you can keep going in bed as long as you want.

For further information, phone the National AIDS Helpline on 0800 587 423. Free of charge.

AIDS. YOU KNOW THE RISK. THE MESSAGE IS FREE.

Poster 9b.

Figure 10.
UK, 1990 (Wellings and Field, 1996).

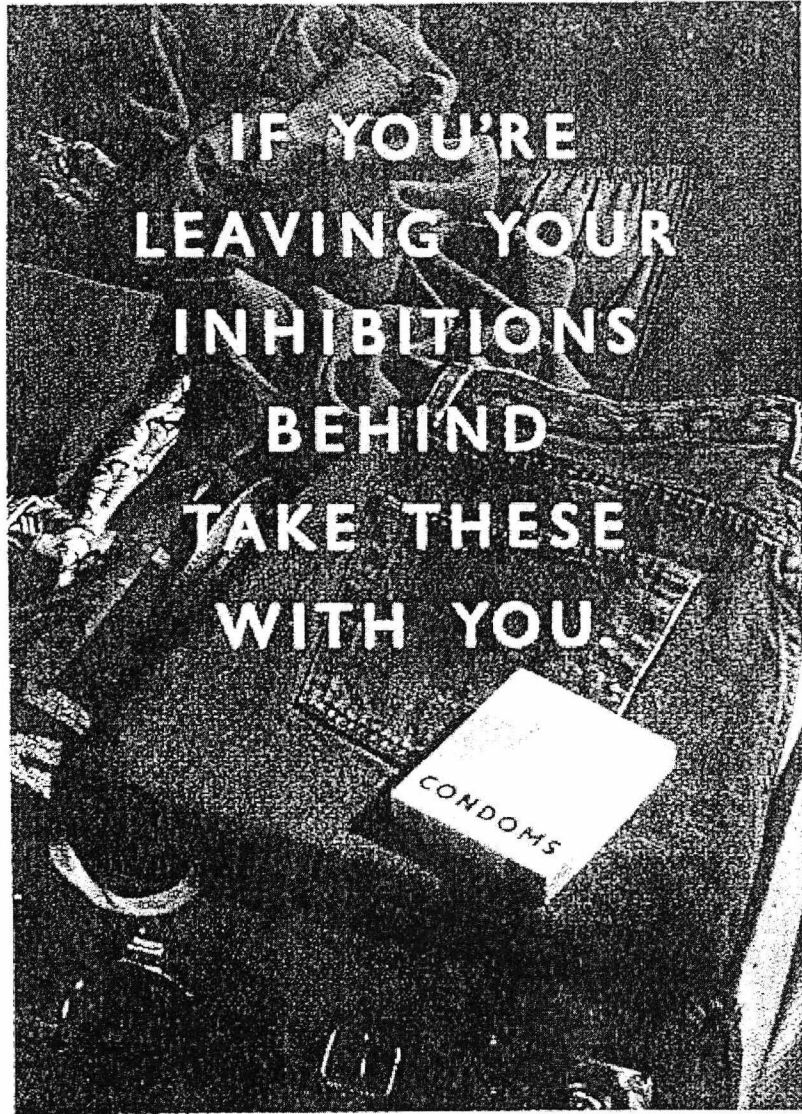
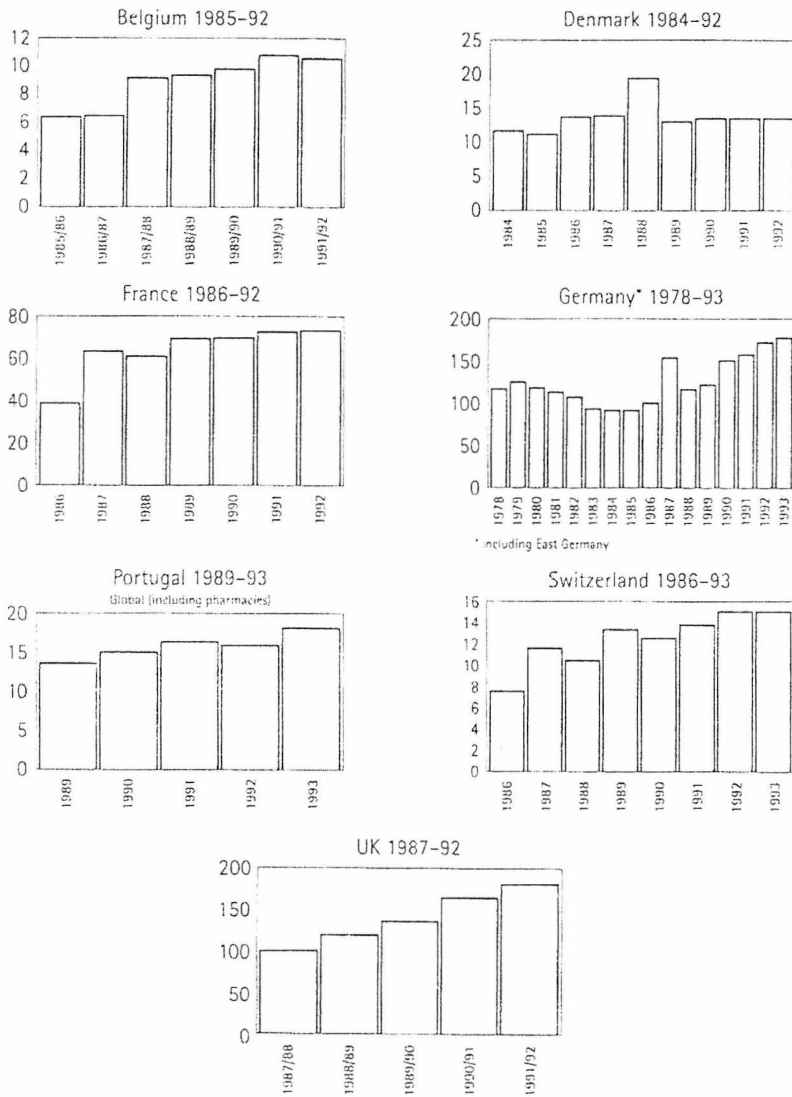


Figure 11.
Condom sales figures (millions) (Wellings and Field, 1996).



[Source: Goodrich et al. 1995]

Figure 12.
UK, 1993 (Wellings and Field, 1996).



Chapter 8: Predicting condom use from elaboration, sensation seeking and posters: A longitudinal study.

The previous Chapter 7 provided a summary of the elaboration likelihood model (ELM), introduced the role of both emotion and visual images in persuasion and advertising, and concluded that high and low sensation seeking personalities should respond differently to visual images. When motivated to consider the personal relevance of the messages contained in the posters, both low and high sensation seekers should be likely to engage in the central route to process the messages and they should be then influenced by the messages rather than by the pictures contained in the posters. However, when not motivated to consider the personal relevance of the messages high sensation seekers should be persuaded by the posters with high sensationality pictures, whilst low sensation seekers should be persuaded by the low sensationality pictures. In order to test both of these hypotheses, the present chapter examines the impact of a poster manipulation among high and low sensation seekers on condom use.

INTRODUCTION

The best way to prevent the sexual transmission of the HIV virus, which causes AIDS, is by using condoms. However, these are still so unpopular and said to reduce sexual sensation and break the sexual mood to the extent that research has even suggested a rectal microbicide to be used in the future as a potential alternative for preventing the spread of HIV among gay men (Rader, Marks, Mansergh, Crepaz, Miller, Appleby and Murphy, 2001). A microbicide may indeed be an alternative against the fatality of HIV, but there must be also ways of making condoms become more popular and part of the sexual pleasure. Until now the leading tools to encourage condom use are the theory of planned behaviour (TPB) and the ELM. Both of these models have been explored earlier in the Chapters 1, 5, 6 and 7 of this thesis. Other theories have linked health beliefs and the social projection phenomenon to behaviour, and this subject has also been examined in the Chapters 2, 3 and 4. As neither of these theories has been specifically created to promote safe sex, they do not include the sensation seeking personality (SS) into their prediction of behaviour. SS is defined as a need to seek varied, novel, complex, intense sensations and experiences, with the willingness to endure risks for the sake of such experience (Zuckerman, 1994), and it is biologically explained. According to Bardo, Donohew, and Harrington (1996), those who are high sensation seekers (HSS) search for novelty to activate the brain rewarding mesolimbic dopamine system, and obtain a similar reward to that achieved by the use of drugs.

Since HSS are less likely to settle in stable sexual relationships, SS should be considered in the prediction of sexual behaviour. When HSS settle they feel less satisfied, and even more if they are women. High sensation seeking in women has a negative impact on their marital

satisfaction, independent of their husband's level of SS (Gibson, Franken, Rowland, 1989). This could be because women who are HSS are more domineering, oblige less (Pilkington, Richardson, and Utley, 1988), have higher education and tend to be in higher occupational status (Magaro, Smith, Cionini, Velicogna, 1979) than LSS women. It might be difficult for women with such attributes to adjust to the restrictions that marriage and having kids have historically placed on women.

Of course, gender does influence sexuality too, but it is not going to be examined in this chapter. Gender needs to be simultaneously investigated across different socio-economic, cultural and ethnic groups. Otherwise, research can reach contradictory conclusions, such as that women have less power and control over the sexual encounter (Amaro, 1995; Wyatt and Riederle, 1994), and also more power and control because women seduce, manipulate men, and decide when and how sex will occur (Bryan *et al.*, 2001; Ford, Vieira and Villela, 2003) acting as the "gatekeepers" of sexual activity (Oliver and Hyde, 1993). Moreover, although men tend to be HSS (Ball *et al.*, 1984; Furnham, 1984; Gundersheim, 1987), men and women are generally equally promiscuous (Schopper *et al.*, 1993); but do not report so in surveys (Einon, 1994; Smith, 1992) as women are socialized to not appear to be promiscuous (Muehlenhard, 1988). Besides, in the Chapter 5 of this thesis, it became evident that HSS have almost twice the number of sexual partners in the last 12 months than men. That is, SS is an even greater motivator of sexual risky behaviour than gender.

Most importantly, any prediction of sexual behaviour must recognize that one's sexual fantasies and practices are the expression of one's personality. Those whose personalities are high in need for sensations depend on daily physical pleasure as a form of feeling daily life satisfaction (Oishi, Schimmack, and Diener, 2001) to the degree that they seek for the thrill of novelty and intensity of sexual contact. Obviously, HSS have sex sooner with a partner (Seto, Lalumiere, and Quinsey, 1995), desire to have more sexual partners (Seto *et al.*, 1995), engage more in extradyadic involvement during dating (Wiederman and Hurd, 1999), experience more a variety of sexual activities (Seto *et al.*, 1995), use more alcohol before sex (Donohew, Zimmerman, Cupp, Novak, Colon, and Abell, 2000), and if homosexual prefer anal pleasure over touching (Mulry, Kalichman, Kelly, Ostrow, *et al.*, 1997).

In this manner, HSS go on enjoying their sexual experimentations and pleasing their sexual partners more than LSS. HSS women have greater sexual desire, sexual arousability, and a more positive attitude towards sex (Apt and Hurlbert, 1992). Both HSS men and their partners consider sex pleasurable, whilst LSS men and their sexual partners consider sex tolerable (Ficher, Zuckerman, Steinberg, 1988). Perhaps HSS are sexually happier because they are more sexually assertive. HSS women know more what they want in sex, do not find it hard to state clearly what they would like in sex, and feel they have a lot of influence on

what happens (Vanwesenbeek, Bekker, and van Lenning, 1998). Both men and women HSS are more likely to use all their charm to influence their sexual partner to do what they want with flattery, and they try to get what they want by talking their sexual partner into things (Vanwesenbeek *et al.*, 1998).

Thus, HSS might be more likely to seduce their partners, and to be seduced, into unsafe sexual behaviour. By default, in their search for intensity HSS are more likely to engage in risky behaviour (Donohew *et al.*, 2000; Rolison and Scherman, 2003), and this is apparent in some of the following empirical findings of Chapters 5 of this thesis. HSS have sex more than LSS when they are single, but only slightly more when they have a main or stable sexual partner and such difference is too small to be statistically significant. That is, HSS have sexual intercourse more with a variety of sexual partners. They are less likely to be in stable relationships, less likely to be virgin, have an earlier sexual debut, have higher number of both affairs and new sexual partners in 12 months, have more anal sex, and keep their sexual options more open in order to have an unplanned and unexpected sexual encounter. HSS prefer condoms which are coloured, flavoured and with different shapes. They put off talking about condom use until the last minute, tending to discuss it more immediately before sex.

Just like SS influences people's sexual behaviour, it also influences their behavioural expectations and intentions to use condoms. The findings in Chapter 6 show both main and moderating effects of SS into behavioural expectations and intentions to use condoms, indicating that SS should be included into a model which explains condom use through variables which are based on the TPB. Hierarchical regression analyses show that, SS inversely predicts behavioural expectations of condom use and general-intentions to use condoms, after accounting for the influence of subjective norms, perceived behaviour control and principles over assuring sex with condoms, attitudes and anticipated regret. Behavioural expectations refer to the likelihood of deciding to have sex when a partner does not want sex with a condom or when a condom is not available. General-intentions refer to using condoms with different sexual partners, early in a relationship and when highly sexually aroused. That is, HSS are less likely than LSS to plan condom use, except perhaps with affairs, as it was found in Chapter 5 that they then use condoms more. These findings are consistent with previous research which has concluded that intentions to use condoms are associated to having fewer previous sexual partners (Campbell, Peplau, and DeBro, 1992): HSS tend to have more sexual partners than LSS.

It is interesting to note that, although HSS are less likely than LSS to plan condom use, they prepare themselves to have novelty-sex, such as sex with different people. According to Donohew *et al.*, (2000) and to the findings of Chapter 5, HSS carry condoms more than LSS. Perhaps because of this, HSS, but not LSS, use condoms more frequently with affairs than

they do otherwise. This does not mean that HSS are at a lower risk of catching the HIV virus as they also swap partners more.

The moderating roles of SS on to behavioural expectations and intentions in Chapter 6 show the following. Anticipated regret of failure in intended condom use predicts intentions to carry and suggest condoms, include them in foreplay and use them, especially among LSS. In contrast, behavioural principles influence general-intentions, mainly among HSS.

Behavioural principles refer to assuring safe sex and to rejecting unsafe sex when highly sexually aroused and with a partner who refuses condoms. In other words, although HSS are less likely to plan to use condoms, they are more likely to intend to do so when they have safe sex principles.

SS does not seem to have a direct impact on to the behaviour of using condoms. Yet, as behavioural expectations and intentions are theoretical predictors of condom use, any effect that SS has on it is relevant. It was clear in Chapter 6 that, SS moderates the impact of general-intentions on to condom use with affairs, such that the relationship is stronger for LSS than for HSS. In other words, those intentions which best mirror HSS' behaviour are less likely to predict condom use among them than among LSS. This finding is particularly important because 35% of HSS, and 18% of LSS, report having been unfaithful in the last 12 months. So, further ways of persuading especially HSS to use condoms need to be examined.

As HSS are more attentive to novel and unconventional sexual stimuli, their volunteer response rates on sexual research is higher than LSS (Bogaert, 1996; Gaither, 2000; Gaither, Sellbom, and Meier, 2003; Wiederman, 1999). These volunteers are more arousable, more open to a wider variety of sexual experiences and to a greater number of sexual partners (Plaud, Gaither, Hegstad, Rowan, and Devitt, 1999; Wolchik *et al.*, 1985; Seto *et al.*, 1995) than is true of the general population, and produce biased findings. For instance, when research concludes that habituation to same stimuli, but not to different stimuli, affects male sexual arousal (O'Donohue and Plaud, 1991; Plaud, Gaither, Henderson, and Devitt, 1997), it should be generalized among HSS. Likewise, when research reports on women who choose to watch sexually explicit images on TV on a regular basis, it must inform that most of these women are HSS (Vanwesenbeek, 2001).

HSS interest towards excitement and sex also prompts them to volunteer more to view sexually explicit images; although rates for this type of research drop considerably among everyone, and especially among women (Gaither *et al.*, 2003). Men volunteer more (a rate of almost 2 men for 1 woman) to view pictures of a man and a woman engaging in sexual activity together, but men and women volunteer above all for viewing their opposite sex nude (Gaither *et al.*, 2003). In general, both men and women are more likely to volunteer for

sexual research which involves merely answering questionnaires than for studies that involve being exposed to sexual images (Gaither, 2000; Wiederman, 1999).

Therefore, sexual research needs to obtain a more balanced sample in terms of SS. With this in mind, courses were randomly selected and data was obtained during formally scheduled lecture slots, without students being previously aware of the data collection. This way, almost half of the present sample is composed of HSS, and of even a greater percentage (65%) of high sexual sensation seekers. Such percentages might have been inflated by the age of the sample, as SS decreases with age (Adams, 1980; Haapasalo, 1990). Yet, such a large percentage among the youth means that, unless this young population learns to use condoms all the time, they are likely to be exposed to the HIV virus while discovering sex. So, research must focus on empowering HSS with condom use. One way of doing so is through advertisements encouraging condoms use.

According to Donohew *et al.* (1997, 2000) and to Zimmerman *et al.* (1997), personality differences in sensation seeking affect whether people pay attention to, and are persuaded by, messages. This issue has been explored in Chapter 7, where it was concluded that HSS might need messages to elicit pleasant and intense immediate emotions, whilst LSS might need messages to focus on the deliberative emotions about the positive long-term consequences of condom use. Furthermore, LSS prefer non-intense, familiar stimuli of low complexity. They also prefer caring and responsibility appeals associated to condoms (Sheer, 1995). HSS are the opposite and pay attention to messages which are "stomach-turning", such as photographs of mutilation or drunken men with delicately applied shaving foam (Rawlings, 2003). HSS are more likely to use condoms when partner initiates condom use with fear, threat or health appeals but above all prefer pleasure appeals (Sheer and Cline, 1995).

In addition, when people are highly sexually aroused they may be less likely to make deliberative analyses of condom use and be more inclined to follow their most accessible emotions. It is known that attitudes based on cognition predict best long-term behaviour, whereas attitudes based on emotions predict best short-term behaviour (Millar and Tesser, 1986, 1989). This is because the accessibility of short-term consequences is quicker than the accessibility of long-term consequences. Giner-Sorolla (1997) measured how much time it took to make a yes-no response to questions such as "eating candy makes me feel guilty". He found that affective judgments of long-term consequences were significantly slower than those associated with short-term consequences. Giner-Sorolla (1997) also found that people associate feelings such as regret, guilt, pride, self-esteem to long-term consequences, and feelings such as fun, relaxation, and boredom to short-term consequences. These findings suggest that under the cognitive load of sexual arousal, the consideration of long-term consequences by deliberative processing (such as the regret that will follow one's non condom

use) is less likely to occur. Instead people may rely on their immediate emotions to guide their condom use.

Thus, messages which focus mainly on the future and deliberative emotions that will follow sex might be less likely to promote condom use than gain-framed messages which focus on the immediate sexual gratification and on the immediate benefits of using condoms. Gain-framed messages elicit positive emotional reactions (Rothman et al., 1993), which can be transferred to condoms in a classical conditioning way. In order to elicit positive immediate emotions, messages must target LSS and HSS preferences for different stimulus. One way of achieving this is through visual messages which are high or low in sensationality. These type of messages, would perhaps, according to the ELM, be processed via the peripheral route. The disadvantage of choosing this route as a mode of persuasion is that, it leads to decisions which tend to have low consistency with people's beliefs and evaluations, and are relatively easy to change. The opposite occurs when the central route is used. This route is best activated by loss-framed messages (Dunegan, 1993) but these might not be ideal to condom use, especially when targeting HSS.

It has been suggested that in order to reach HSS, high sensation value messages should be matched with like television programs (Palmgreen *et al.*, 1995) so that to favour the transference of emotions from television programs to the commercials and enhance commercials recall (Mattes and Cantor, 1982). Likewise, messages encouraging HSS to use condoms should be embedded in posters with pictures which are likely to arouse intense emotions. This favours the association of a product with a positively evaluated stimulus; and can result on the change of the evaluations about a product without changing the beliefs about a product (Rossiter and Percy, 1983). For instance, Gibbons, McGovern, and Lando (1991) found that ex-smokers recognized the benefits of having quit smoking but did not change their beliefs about the dangers of smoking.

Thus, this study is set up to examine the effects of posters with pictures either high or low in sensationality among HSS and LSS' condom use. Specifically it is envisaged that, when motivated to consider the personal relevance of the messages contained in posters, both low and high sensation seekers would be likely to engage in the central route to process the messages and they would be then influenced by the messages, rather than by the pictures in the posters. However, when not motivated to consider the personal relevance of the message HSS would be persuaded by the posters with high sensationality pictures, whilst LSS would be persuaded by the low sensationality pictures.

In summary, HSS are more likely to be available to try new unpredictable sexual experiences and this puts them at higher risk of catching the HIV virus, unless they use condoms all the

time. As HSS are more optimistic (Cicognani and Zani, 1999; Sheer and Cline, 1994), more self-confident and have higher self-control (Lubin *et al.*, 1992), they should be particularly challenging to persuade, unless they were offered unconventional, pleasant, intense and novel stimuli, to attract and hold their attention.

METHOD

Subjects and overview

Participants were second to fourth year university Brazilian students in a five year degree programme and were measured at three different times for a longitudinal study of condom use. Time 1 occurred during the last week of October and the two first weeks of November. It measured 799 students' personalities, variables based on the theory of planned behaviour and frequency of condom use. Detailed information about the time 1 findings was reported in Chapters 5 and 6. Time 2 happened during the last week of November and the first two weeks of December. It involved an experiment in which 299 students saw a set of six posters advertising condoms high on visual stimulation and 257 saw a set of six posters low on visual stimulation. Compared to time 1, there were some new students and 100 were missing. After the posters students answered a questionnaire. Time 3 took place throughout March and assessed students' frequency of condom use in the last three months that followed the poster intervention. There were 126 less students at time 3 than at time 2. There was a base-line group of 242 students who were present only at times 1 and 3, but this group was not analysed. Due to a failure in the design there was no control group for a longitudinal comparison of frequency of condom use between those who saw the posters and those who did not see them.

Design

This was a mixed design with four factors: sensation seeking (SS) personality (low, high), time (1, 2, 3), poster visual stimulation (1= no poster, 2= low poster, 3= high poster) and elaboration instructions (1= low, 2= high). Time was a within subjects variable. Sensation seeking, elaboration instructions and poster visual stimulation were between subjects variables experimentally manipulated. During the poster experiment students rated one of two sets of posters advertising condom use (Figures 1 and 2). There were six posters in each set and they differed in their pictures: one set used low sensation pictures whilst the other used high. In three of the posters high on visual stimulation there were pictures of famous people: a male actor and two female top models. In each set of posters the following statements were written: 1. "Everybody thinks that it is ok to use condoms. What about you?"; 2. "Have safe sex, use condoms"; 3. "Modern women protect their body and have condoms"; 4. "Take condoms with you wherever you go"; 5. "Did not use a condom..."; and 6. "Condoms are fun".

After seeing the posters half of the students were allocated to the high elaboration condition. Only these students, not those allocated to the low elaboration instruction, were asked to think about what they least liked and what they most liked about the posters, as well as to list two items that would make them pay more attention to, and think more about, the message of the

posters. Then, both those in the high and in the low elaboration condition were instructed to answer the same questionnaire. On their way out, just outside the door, all students that had completed the study were given 2 condoms made in the UK.

Procedure

The list of all second to fourth year registered students containing their courses and classes was obtained, at the beginning of September, from the university. Yet, random selection proved complicated and with disadvantages. Thus, only courses were randomly selected and students were allocated to either intervention or base-line groups. An early agreement with the lecturers about the times for the collection of the data was prioritized. All lecturers were aware that the heads of faculties and heads of departments had given their go ahead for the data collection, and were all very supportive. The full data collection, from time 1 to time 3, took five months from the end of October to the end of March, with a three month gap between the intervention at time 2 and the measurement of frequency of condom use at time 3.

Students were never aware of the dates for the data collection and they took part on the entire study during formally scheduled lecture slots. Sometimes one or two students declined to participate in some classes and they were politely asked to leave the room. During other times there were new students that were absent at time 1 and these also participated in the experiment in order to encourage everybody to remain in class. However, only the longitudinal data of those present at time 1 was analyzed.

At times 2 and 3, students were told in the classrooms that the meeting was a continuation of the study on human sexuality and were thanked for their participation in the whole study so far. They were then asked to write on the top of the questionnaire the same identification code (two letters of their surname and their mother's date of birth) that they had used at time 1. At time 2 the class sizes ranged from 12 to 37 students. The time 2 data collection took three weeks, from the last week of November until the first two weeks of December, from Monday to Saturday, during 11 working days, and involved 28 sessions. The time 3 data was collected just after the carnival, a national party in which public nudity is repeatedly shown by the media and sexual promiscuity might increase. The class size ranged from 10 to 35 students. The time 3 data were collected in March, from Monday to Saturday, during 19 working days, and involved 49 sessions.

At time 2, one group of students saw posters and subsequently completed a questionnaire, whilst another base-line group did not. Before completing the questionnaire, students were requested, both verbally and in writing, to really try to answer all the questions. They were also told that the questionnaire was anonymous and that their own honest replies would be

very important. Next, students rated the posters and had their attitudes, perceived behavioural control, anticipated regret, behavioural expectations and intentions with regard to using condoms assessed. After completing the questionnaire, students placed it in the envelope provided, and put it in a box on the table.

Time 3 was very brief and assessed students' frequency of condom use in the last three months, following the poster intervention. A base-line group, which did not see or rate posters, was also assessed for the comparison of students' time 1 and time 3 frequency of condom use.

Materials

These involved posters and questionnaires. The questionnaires assessed some of the time 1 measures, which were analyzed in Chapters 3 and 4, using mainly a variety of 6-point, rather than 5 or 7-point, Likert-type measures in order to encourage students to choose a non-neutral position. Although some of the time 1 measures were reversed for the analyses, at times 2 and 3 none of them had to be reversed. Moreover, in order to reduce the length of the questionnaire at time 2, sometimes one or two items were randomly selected to be dropped out of the scales used at time 1. The posters were pre-tested among thirteen Brazilian students in England: 7 men and 6 women. All Brazilians agreed about which pictures in the posters were more stimulating and sensational and which were less. Detailed information about all measures, and their final scores, is presented below.

Students' prior sexual behaviour at time 1 was established using a series of filtered questions. Students were first asked whether they had ever had penetrative sexual intercourse (PSI) (1= yes, 2= no), and if yes, how frequently they had been using condoms for each of the following: vaginal sex, receptive anal sex, inserting anal sex (1= never, 2= few times, 3= half of the time, 4= most time, 5= every time, 6= always). Subsequent questions asked the number of sexual partners in the last 12 months, their age of first experience of PSI, and how many times did they have sex per month. Students reported whether they currently had a main or steady sexual partner (1= yes, 2= no). They were asked whether they had been going out with a steady partner in the last 12 months and having intercourse with others (1= yes, 2= no), and if yes, how frequently did they use condoms (1= never, 2= few times, 3= half of the time, 4= most time, 5= every time, 6= always). Students told their age, sex, and with whom did they have PSI in the last 12 months (1= male, 2= female, 3= both male and female).

Students' frequency of condom use at time 3 was assessed by the following questions. They were first asked whether they had a stable/main sexual partner (1= no, 2= yes). Then, they were asked how frequently they had used condoms in the last three months (1= never, 6= every time), and this information was analysed as 'overall' condom use. Next, they were

asked if, in the last three months, they either had started having sex with a new sexual partner or had had sex with a non-boyfriend/non-girlfriend (1= no, 2= yes), and if yes, how frequently did they use condoms (1= never, 6= every time) with them. This information was analysed as condom use with higher risk sexual partner, not necessarily a new lover.

Note that, at time 3 it was not measured whether students' had had an affair in the last three months, despite of 25% of the students reporting at time 1 that they had been unfaithful in the preceding 12 months. Earlier studies carried out among Brazilians have suggested that serial monogamy might be relevant in this young population. See Ford, Vieira and Villela (2003); Vieira, Villela, Rea, Frenandes, Franco and Ribeiro (2000) for further information on such studies.

Measures included at time 1 only

a. Sensation seeking was measured using twenty-three items taken from Kalicham, Johnson, Adair, Rompa, Multhauf, and Kelly's (1994) scales: nonsexual, compulsivity, and sexual sensation seeking. Their paper assessed sensation seeking, amongst an homosexual sample, as a potential mediating factor in sexual risk for HIV. Originally Kalicham et al.'s scales were composed of items adapted from Zuckerman, Kolin, Price and Zoob (1964). Responses were made from 1 to 6 (strongly disagree, strongly agree).

The nonsexual scale was measured by six items: "I can imagine myself searching for pleasures around the world with exciting people"; "I would like to do parachuting"; "Sometimes I like doing things that are a little dangerous"; "I like the sensation of driving at high speed"; "I usually do not like films or theatre plays in which I can anticipate the final"; and "My friends believe I am a person that likes living dangerously". Kalicham et al.'s scale had four more items, but these were chosen at random to be dropped to reduce the length of the questionnaire. Such items were the following: "I would enjoy the sensations of skiing very fast down a high mountain slope"; "While driving, I will sometimes try to run yellow lights for the thrill of it"; "I would like to try bungee jumping"; and "I get tired of seeing the same faces everyday".

The compulsivity scale was measured by ten items: "My sexual appetite has driven my emotional relationships"; "My sexual thoughts and my behaviour have been causing problems in my life"; "My sexual desires have disturbed my life"; "Sometimes I do not keep the commitments I have made because of my sexual behaviour"; "Sometimes I get so excited that I can loose my self-control"; "I think about sex while I am working"; "I feel that my sexual feelings and thoughts are stronger than I am"; "I have to make a great effort to control my sexual feelings and behaviour"; "I think about sex more than I would like to"; and "It has been difficult for me to find sexual partners who have the same intense sexual desire that I

have”.

The sexual sensation seeking scale was measured by seven items: “I like wild and relaxed sexual encounters”; “I made promises that I did not plan to keep in order to make someone have sex with me”; “I like the company of sensual people”; “I like to watch erotic and pornographic films”; “I want to try new sexual experiences”; “I want to explore more my sexuality”; and “I like new and exciting sexual experiences and sensations”. Kalicham et al.'s scale had a further item (“I have felt curious about having anal intercourse without a condom”) which was chosen at random to be dropped to reduce the length of the questionnaire.

Measures included at times 1 and 2

a. Attitudes about using condoms were measured on a semantic differential scale composed by ten items. One item measured general evaluation of condom use the next time students would have penetrative sex (1= is bad, 6= is good). Nine items included specific beliefs about using condoms the next time they would have penetrative sex. It would: “1= reduce intimacy, 6= enhance intimacy”; “1= show cold emotions, 6= show warm emotions”; “1= interrupt sex, 6= be part of sex”; “1= enhance sexual performance, 6= impair sexual performance”; “1= reduce sexual pleasure, 6= reduce sexual pleasure”; “1= reduce sensation, 6= not reduce sensation”; “1= show loveless, 6= show love”; “1= show distrust, 6= show trust”; and “1= offend the partner, 6= please the partner”.

b. Anticipated regret was measured on a scale composed by three items based on the measures of regret used by Richard and Van Der Pligt (1991). Students were asked to rate how they would feel if they had planned to use a condom the next time they had penetrative sex and did not use it (1= happy, 6= unhappy; 1= calm, 6= anxious; 1= no regret, 6= regret).

Anticipated regret at time 1 was measured by two semantic differential scales (regret and non-regret), each composed by three items, all based on the measures of regret used by Richard and Van Der Pligt (1991). Regret was measured as in time 2. Non-regret was measured by asking students to rate how they would feel if they had planned to use a condom the next time they had penetrative sex and actually ended up using a condom. Its items were reversed for the analyses. Both regret and non-regret were computed as a single scale (1= happy, 6= unhappy; 1= calm, 6= anxious; 1= no regret, 6= regret).

c. Perceived behavioural control was measured on a scale composed by four items: “For me, having a condom available next time I have penetrative sex is: 1= extremely difficult, 6= extremely easy”; “For me, forgetting to use a condom next time I have penetrative sex is: 1= extremely likely, 6= extremely unlikely”; “I have complete control over whether my

partner(s) and I use a condom next time I have penetrative sex: 1= strongly disagree, 6= strongly agree”; and “There are many things that can cause difficulty in my condom use. I think about some of them before answering the following: How likely is it that I have penetrative sex next time with a condom: 1= extremely unlikely, 6= extremely likely”. Items were based on Nucifora, Gallois and Kashima's (1993) study about partner's sexual influence on one's self-control over condom use.

d. Behavioural expectations were measured by two items: “If my sexual partner does not want to use a condom will I have sex without a condom?”; and “If I do not have a condom will I have penetrative sex without a condom?”. Responses were made from 1 to 6 (extremely likely, extremely unlikely) and were computed as a single measure. Behavioural expectations assessed the likelihood of deciding to have sex when a partner does not want sex with a condom and when a condom is unavailable.

e. General-intention was measured on a scale composed by six items with responses made from 1 to 6 (never, every time). It enquired about how often students would use condoms the next time they had penetrative sex “if they were highly sexual aroused”; “if were the first time they had penetrative sex with their partner(s)”; “if they were with an ex-boyfriend/ex-girlfriend”; “if they were with a close friend”; “if they were with someone who looked clean and beautiful and they had just met”; and “if they had been going out with a sexual partner for two or three months”.

Measure included at time 2 only

The elaboration condition was designed to motivate students to further consider the personal relevance of the posters. They were asked to think about what they least and most liked about the posters, and to list at least two items that would make them pay more attention to, and think more about, the message of the posters. Ideally, this condition should have measured content analysis by asking students to list all thoughts that came to their mind about the posters, but time constraints required the time 2 questionnaire to be as short as possible.

RESULTS

Students' behavioural self-reports

It was found earlier, in Chapter 5, that half of the sample had had sex with 2 or more new sexual partners in the last 12 months. Likewise, with regards to the 3 month period that followed the intervention, just after the Carnival, it was found that a large majority of students (61%) had had sex with a new sexual partner or with a non-boyfriend/non-girlfriend. It is unknown what percentage of these new or old high risk sexual partners became stable sexual partners. Yet, Ford, Vieira and Villela (2003) studied a Brazilian population and concluded that the young were likely to be in serial monogamy. Indeed, many students (65% now and 64% in Chapter 5) considered themselves to have a stable/main sexual partner. Among those in stable relationships, 32% affirmed that they had used condoms every time in the last three months; as assessed by the overall measure of condom use. In Chapter 5, the overall frequency of condom use every time was 17% and it did not refer to the last 3 months. It may be higher now due to the intervention, which happened just before the usual pre-Carnival government advertisements encouraging condom use.

There were no statistical significant differences between HSS and LSS frequency of overall condom use. However, an extremely high percentage (89%) of HSS, but less (39%) of LSS, alleged that they had had sex with a new sexual partner or with a non-boyfriend/non-girlfriend. During these higher risk sexual encounters, HSS said that they had used condoms more frequently [$F(1, 383) = 4.37^*$, Mean HSS = 4.51 Mean LSS = 4.05]. Yet, a very large percentage of both, HSS (49%) and LSS (46%), stated that they had used condoms all the time when they had sex with a higher risk sexual partner in the last 3 months. Some HSS (23%) and LSS (17%) also reported having used condoms almost all the time.

Data analysis

The data were first screened for outliers and unusual responses. Afterwards, the differences in scores between times 1 and 2 were computed. The relationships between all the measures are summarized on Tables 1 and 2. It was expected to find a 3-way statistically significant relationship between elaboration, sensation seeking and poster in the prediction of condom use. Specifically, it was hypothesized that in the high elaboration condition there would be similar frequency of condom use in the last three months among high and low sensation seekers, regardless of whether they had seen posters high or low in visual stimulation. However, in the low elaboration condition, HSS frequency of condom use would have been influenced by the posters which were high on visual stimulation. In contrast, LSS would have been influenced by the posters low on visual stimulation.

In order to investigate whether the change, from time 1 to time 2, in the variables based on

the theory of planned behaviour (TPB) had predicted frequency of condom use at time 3, regression analyses were conducted. Two types of frequency of condom use in the last 3 months were predicted: overall frequency and frequency with higher risk partner. Afterwards, analyses of covariance were applied to frequency of condom use. Covariates were prior behaviour and the change from time 1 to time 2 in the following variables based on the theory of planned behaviour (TPB): behavioural expectations, perceived behavioural control, attitudes and general-intentions. Independent variables consisted of sensation seeking (low, high), poster sensationality (low, high) and elaboration of messages (low, high), factorially combined.

Prediction of overall condom use in the last 3 months

First, a regression analysis investigated whether the changes, from time 1 to time 2, significantly predicted frequency of condom use at time 3. As displayed in Table 1, appendix 6, it was found that the changes were not enough to influence overall condom use and they were, thus, not entered into the next analysis of covariance, which is summarized in Table 3. Independent variables consisted of sensation seeking (low, high), poster (no poster, low sensationality, high sensationality) and elaboration of messages (low, high), factorially combined. The covariate was prior overall condom use.

As expected, prior overall condom use was the strongest predictor and it explained 53% of time 3 behaviour. There were also the following statistically significant predictors, after adjustment for the covariate. Posters high in visual sensationality predicted a further 11% (Means high poster = 4.41 low poster = 3.32). In addition, condom use varied with elaboration, with those who had been asked to reflect about the messages on the posters reporting greater use (Means low = 3.60 high = 4.13).

As shown in Figure 1, there was an interaction between elaboration and sensation seeking. When nobody was asked to think about the messages, HSS were more likely to use condoms than LSS, perhaps because of the following two reasons. First, they are more attentive to sexual stimuli (Bogaert, 1996; Gaither, 2000; Gaither, Sellbom, and Meier, 2003; Wiederman, 1999) and might have paid more attention to the posters. Second, it was found in Chapter 5 that, 61% of those carrying condoms were HSS and 29% were LSS. Thus, the posters might have served as an encouragement for HSS to go on and use the condoms that they already had.

Despite of carrying condoms more, HSS might not be fully aware that their being more sexual adventurous places them at greater risk of catching the HIV virus, though. Sensation seeking is known to be a strong determinant of general optimistic beliefs with HSS underestimating their own susceptibility to risks (Cicognani and Zani, 1999; Sheer and Cline, 1994). HSS may

focus on the fact that they already take some safe sexual precautions instead of thinking in depth about their personal vulnerability to catching the HIV virus. This might be why HSS were not affected by the elaboration condition. They used condoms regardless of reflecting or not about the messages.

In contrast, LSS used condoms more when they thought about the personal relevance of the messages in the posters. Then, they used condoms as much as HSS. In this manner, the present findings throw new light to what is known about the responses of LSS and HSS to posters advertising condoms. It seems that LSS need to reflect about their own need of, and the advantages of, condom use, whilst pictures might be 'enough' to remind HSS to engage in safe sex.

Had the sample been larger, there would perhaps have been a statistically significant interaction between elaboration and poster, as shown on Figure 2. This interaction was almost significant ($p < .07$), which suggests that exposure to the high posters encouraged condom use, especially among those who reflected about the messages. However, the reflection about the messages on the posters seems to have increased condom use only among those who had seen high posters.

Last, as shown on Figure 3, there was a statistically significant 3-way interaction between sensation seeking, poster and elaboration. Low posters did not affect condom use, but high posters did. High posters persuaded HSS equally when they reflected and when they did not reflect about the messages. However, they persuaded LSS to use condoms only when they reflected about the messages. The largest difference was that LSS used condoms much more when they reflected about the high posters than when they reflected about the low posters. That is, LSS changed from using condoms "few times" to "most time".

There were two hypotheses tested. The first was that when motivated to consider the personal relevance of the messages contained in the posters, both low and high sensation seekers' condom use would be influenced by the messages rather than by the pictures contained in the posters. This hypothesis was only confirmed among LSS who had seen high posters. The second hypothesis was that, when not motivated to consider the personal relevance of a message HSS would be persuaded by posters with high sensationality pictures, whilst LSS would be persuaded by low sensationality pictures. This hypothesis was only confirmed among HSS.

Therefore, the findings indicate that whilst HSS were persuaded by the images, LSS were persuaded by the reflection about the posters. However, as only the posters high on sensationality were persuasive, posters advertising condoms should resemble those. They

should have pictures of famous people, be colourful, sensational and encourage people to think about the personal relevance of the message. It is possible that the low posters were not effective because of a failure during the pre-test. It was assumed that all posters were persuasive as they had previously been used by Durex condoms. Yet, those posters which were classified as less sensational, during the pre-test, might not have appealed to either LSS or HSS. Moreover, the pre-test occurred only among 13 Brazilians and they were not categorized as HSS or LSS. Had the pre-test taken these issues into consideration, perhaps some posters would have appealed to HSS whilst others would have appealed to LSS, as hypothesised.

Prediction of condom use with high risk sexual partner in the last 3 months

First, a regression analysis was conducted (Table 4) to investigate whether the change, from time 1 to time 2, predicted frequency of condom use at time 3. It was found that the changes in behavioural expectations, perceived behavioural control and attitudes were statistically significant in the prediction. These changes, as well as prior condom use with an affair, were further analyzed as covariates. The dependent variable was frequency of condom use at time 3. Independent variables consisted of sensation seeking (low, high), poster sensationality (low, high) and elaboration of messages (low, high), factorially combined.

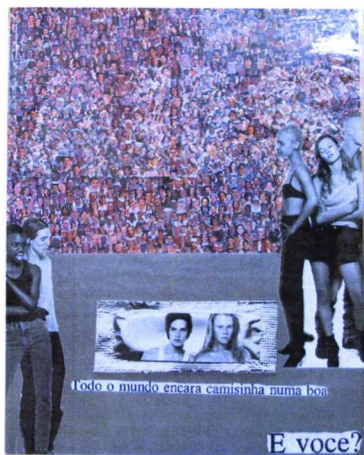
As shown in Tables 5 to 8, condom use always varied significantly with poster, elaboration and with the interaction between the two, after adjustment for the covariates. The pattern of the interaction was stable across covariates and it is plotted in Figure 5. What is more, in the former analyses, predicting overall condom use at time 3, the overall condom use at time 1 significantly predicted a larger percentage (53%) of the same behaviour at time 3 than the type of poster (11%). However, as summarized in Table 5, the type of poster explained more of condom use with high risk sexual partner at time 3, than previous condom use with an affair at time 1. High posters predicted 30% of time 3 behaviour (Means low = 3.72 high = 5.71), whilst previous condom use with affairs explained a further 9% of time 3 behaviour. Prior behaviour must have been less influential, in part, because it appraised different behaviours at time 1 and at time 3. At time 1, it referred to an action which could have consequences on students' stable relationships. It assessed frequency of condom use when having had a stable/main sexual partner and sex with another. At time 3, it referred to having had sex with a new sexual partner or with someone who was not a boyfriend/girlfriend. So, students might have answered this question without considering possible consequences to their stable relationships, that is, if they were in one. Yet, leaving aside the differences in the time 1 and 3 measures, which might have affected the results, it is interesting to note the impact of high posters on time 3 behaviour. An explanation could be that, to start with, people might have been already motivated to use condoms with high risk sexual partners and the pictures in the high posters might have affected the recall of the messages.

Alike the earlier analyses of overall behaviour, condom use varied with elaboration with those who had been asked to reflect about the messages on the posters reporting greater use (Means low = 4.34 high = 5.08). Moreover, as shown in Figures 4 and 5, there were also statistically significant 2-way interactions. As before, the interaction between elaboration and sensation seeking was associated to behaviour, after adjustment for prior behaviour, but not after adjustment for the change from time 1 to time 2. It demonstrated that in the low elaboration condition HSS were more likely to use condoms than LSS. Their condom use was unaffected by the elaboration condition. On the other hand, LSS used condoms more when they thought about the messages.

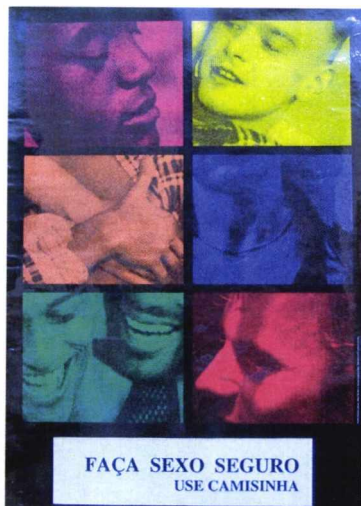
All over again, the interaction between elaboration and poster showed that high posters were more persuasive when people did not reflect about the messages than low posters, and this was the largest difference. They were also more influential than low posters when people reflected about the messages. Alike in the overall frequency of condom use, in which there was no effect of elaboration among low posters, in frequency of condom use with high risk sexual partner there was a main effect of high elaboration among low posters. That is, low posters were also important to frequency of condom use with high risk sexual partner, but only when people reflected about the messages. Nonetheless, high posters influenced condom use with high risk partner a bit more than they had increased overall condom use when people had reflected about the messages. They did so, regardless of whether people reflected or not about the messages.

So, high posters influenced condom use, perhaps because their pictures may have been easily recalled and have reminded students of what they were about. Low posters were only associated to condom use when people had reflected about their messages. People might have felt then greater need to use condoms in their high risk sexual encounters. It is important to emphasize that, condom use always increased much more with exposure to high posters than to low posters, regardless of whether people reflected about the messages.

Figure 1.
High Stimulus Sensationality of the Posters.



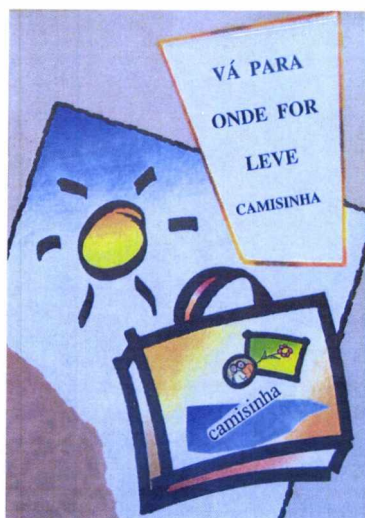
Poster 1



Poster 2



Poster 3



Poster 4



Poster 5



Poster 6

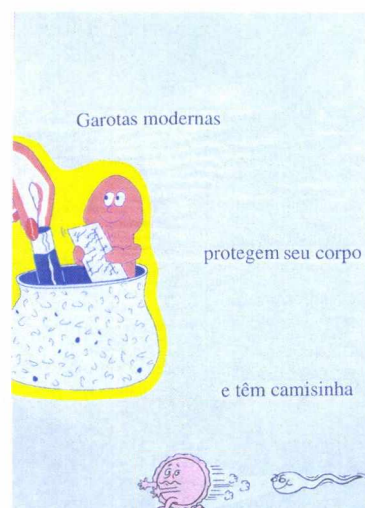
Figure 2.
Low Stimulus Sensationality of the Posters.



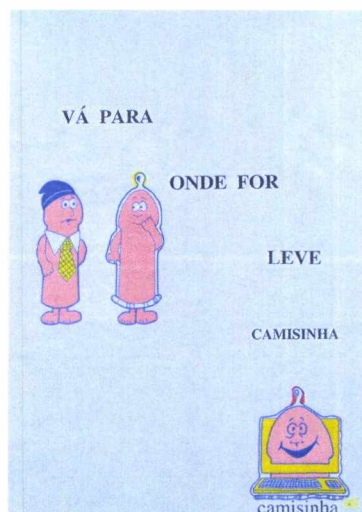
Poster 1



Poster 2



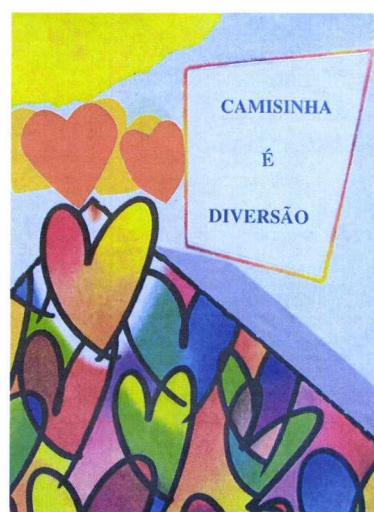
Poster 3



Poster 4



Poster 5



Poster 6

Table 1.

Correlations between times 1, 2 and 3 measures.

| Variables | GSseek | 1 beh exp | 2 beh exp | 1 beh ctrl | 2 beh ctrl | 1 ant regr | 2 ant regr | 1 attitude | 2 attitude | 1 gen int | 2 gen int | 2 elabor |
|---------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1 beh exp | -.13*** (788) | | | | | | | | | | | |
| 2 beh exp | -.10* (459) | .48*** (458) | | | | | | | | | | |
| 1 beh ctrl | -.00 (788) | .62*** (787) | .32*** (457) | | | | | | | | | |
| 2 beh ctrl | .07 (459) | .38*** (458) | .76*** (459) | .53*** (457) | | | | | | | | |
| 1 ant regr | -.03 (767) | .41*** (767) | .23*** (451) | .37*** (766) | .24*** (451) | | | | | | | |
| 2 ant regr | -.043 (458) | .32*** (457) | .31*** (458) | .31*** (456) | .34*** (458) | .65*** (450) | | | | | | |
| 1 attitude | -.20*** (785) | .41*** (774) | .23*** (456) | .43*** (774) | .28*** (456) | .34*** (763) | .34*** (455) | | | | | |
| 2 attitude | -.16*** (460) | .38*** (459) | .63*** (459) | .33*** (458) | .61*** (459) | .27*** (452) | .40*** (458) | .66*** (457) | | | | |
| 1 gen intent | -.23*** (792) | .41*** (781) | .22*** (457) | .45*** (781) | .23*** (457) | .33*** (760) | .33*** (456) | .40*** (779) | .30*** (458) | | | |
| 2 gen intent | -.16*** (460) | .43*** (459) | .48*** (459) | .43*** (458) | .47*** (459) | .28*** (452) | .37*** (458) | .35*** (457) | .47*** (460) | .75*** (458) | | |
| 2 elaborat | .01 (460) | .11** (459) | .12** (459) | .12** (458) | .12** (459) | .07 (452) | .07 (458) | .13** (457) | .11* (460) | .05 (458) | .10* (460) | |
| 1 C use | .04 (718) | .46*** (707) | .36*** (415) | .58*** (707) | .47*** (415) | .28*** (689) | .28*** (414) | .36*** (707) | .36*** (416) | .38*** (711) | .41*** (416) | .16*** (416) |
| 1 C use affai | .09 (201) | .27*** (196) | .28** (122) | .44*** (196) | .35*** (122) | .16* (192) | .08 (121) | .23*** (199) | .30*** (123) | .43*** (200) | .44*** (123) | .07 (123) |
| 3 C use | .06 (409) | .40*** (402) | .61*** (258) | .47*** (402) | .67*** (258) | .22*** (393) | .33*** (257) | .32*** (406) | .55*** (259) | .28*** (407) | .44*** (259) | .30*** (259) |
| 3 C new oth | .08 (386) | .19*** (383) | .72*** (263) | .31*** (382) | .77*** (263) | .14** (375) | .26*** (262) | .11* (382) | .56*** (263) | .21*** (384) | .50*** (263) | .22*** (263) |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: Variables with 1, 2 and 3 in front were measured at times 1, 2 and 3.

Table 1./continued

Correlations between times 1, 2 and 3 measures.

| Variables | 1 Condom use | 1 C use affair | 3 Condom use |
|----------------|-----------------|-----------------|-----------------|
| 1 C use affair | .53*** (201) | | |
| 3 C use | .72*** (399) | .46*** (129) | |
| 3 C new oth | .51*** (372) | .40*** (160) | .81*** (216) |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: Variables with 1, 2 and 3 in front were measured at times 1, 2 and 3.

Table 2.

Correlations between poster, times 1 and 3 behaviour and the changes from time 1 to time 2 measures.

| Variables | Change beh exp | Change beh contrl | Change ant regret | Change attitude | Change gen-inten | 1 Condom use | 1 Condom use affair | 3 Condom use | 3 Condom new other |
|----------------|-------------------|----------------------|----------------------|--------------------|---------------------|-----------------|------------------------|-----------------|-----------------------|
| Ch beh contrl | .64*** (457) | | | | | | | | |
| Chf ant regret | .22*** (450) | .15*** (449) | | | | | | | |
| Ch attitudes | .50*** (455) | .52*** (454) | .09* (450) | | | | | | |
| Ch gen intent | .33*** (456) | .42*** (455) | .13** (448) | .29*** (455) | | | | | |
| 1 C use | -.18*** (414) | -.16*** (413) | -.07 (407) | -.15** (414) | -.10* (414) | | | | |
| 1 C use affair | -.09 (121) | -.12 (121) | -.09 (120) | .02 (123) | -.22** (122) | .53*** (201) | | | |
| 3 C use | .13* (257) | .16** (257) | .05 (251) | .09 (257) | .13* (258) | .73*** (399) | .46*** (129) | | |
| 3 C new oth | .46*** (262) | .46*** (261) | .10 (260) | .40*** (262) | .30*** (262) | .51*** (372) | .40*** (160) | .81*** (216) | |
| 2 Poster | .50*** (458) | .58*** (457) | .09 (450) | .50*** (457) | .35*** (458) | .01 (497) | .14 (132) | .25*** (274) | .58*** (279) |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: The change from time 1 to time 2 was computed by taking away time 1 from time 2 measures. Variables with 1, 2 and 3 in front were measured at times 1, 2 and 3.

Table 3.

Analysis of covariance of overall condom use at time 3, after adjustment for prior overall condom use at time 1.

| Source of variance | df | MS | F | Partial Eta ² | R ² | Adjusted R ² |
|------------------------------|-----|---------|------------|--------------------------|----------------|-------------------------|
| Prior condom use | 1 | 515.933 | 268.40*** | .53 | | |
| Sensation seeking | 1 | 4.392 | 2.29 | .01 | | |
| Type of poster | 1 | 58.944 | 30.67*** | .11 | | |
| Elaboration | 1 | 13.192 | 6.86** | .03 | | |
| SSeek X poster | 1 | .579 | .30 | .00 | | |
| SSeek X elaboration | 1 | 16.665 | 8.67** | .04 | | |
| Poster X elaboration | 1 | 6.286 | 3.27 (.07) | .01 | | |
| SSeek X poster X elaboration | 1 | 7.733 | 4.02* | .02 | | |
| Error | 242 | 1.922 | | | .62 | .61 |

* $p < .05$; ** $p < .01$; *** $p < .001$.**Obs:** Report to Figures 1 to 3 for Plots. See Table 2, appendix 8, for Means.

Simple effect tests of the 2-way interaction of sensation seeking with elaboration resulted on the following: [df= 1,242 LSS X elaboration $F = 26.52^{***}$, Partial Eta² = .10, HSS X elaboration $F = .03$, Partial Eta² = .00, low elaboration X sensation seeking $F = 9.03^{**}$, Partial Eta² = .04, high elaboration X sensation seeking $F = 1.14$, Partial Eta² = .01] [Means LSS low elaboration = 3.16 high elaboration = 4.27, Means HSS low elaboration = 4.04 high elaboration = 3.99].

Simple effect tests of the almost significant 2-way interaction of poster with elaboration resulted on the following: [df= 1,242 low elaboration X poster $F = 6.33^{**}$, Partial Eta² = .03, high elaboration X poster $F = 29.90^{***}$, Partial Eta² = .11, low poster X elaboration $F = .30$, Partial Eta² = .00, high poster X elaboration $F = 12.36^{***}$, Partial Eta² = .05] [Means low elaboration: low poster = 3.23 high poster = 3.97, Means high elaboration: low poster = 3.40 high poster = 4.85].

Table 3a.

Simple effects of poster within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

| Sensation seeking | Elaborat | df | MS | F | Partial Eta ² |
|-------------------|----------|-----|--------|----------|--------------------------|
| LSS | low | 1 | 1.134 | .590 | .00 |
| | high | 1 | 63.233 | 32.89*** | .12 |
| HSS | low | 1 | 11.770 | 6.12** | .03 |
| | high | 1 | 13.702 | 7.13** | .03 |
| | | 242 | 1.922 | | |

Table 3b.

Simple effects of elaboration within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

| Sensation seeking | Poster | df | MS | F | Partial Eta ² |
|-------------------|-------------|-----|--------|----------|--------------------------|
| LSS | low poster | 1 | 2.669 | 1.38 | .01 |
| | high poster | 1 | 71.692 | 37.29*** | .13 |
| HSS | low poster | 1 | .002 | .00 | .00 |
| | high poster | 1 | .109 | .06 | .00 |
| | | 242 | 1.922 | | |

Table 3c.

Simple effects of sensation seeking within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

| Type of poster | Elaborat | df | MS | F | Partial Eta ² |
|----------------|----------|-----|--------|------------|--------------------------|
| low poster | low | 1 | 1.282 | .67 | .00 |
| | high | 1 | .000 | .00 | .00 |
| high poster | low | 1 | 28.266 | 14.71*** | .06 |
| | high | 1 | 5.446 | 2.83 (.09) | .01 |
| | | 242 | 1.922 | | |

Figure 1.

Plot of the 2-way interaction interaction predicting time 3 overall condom use from sensation seeking and elaboration conditions with prior behaviour as a covariate.

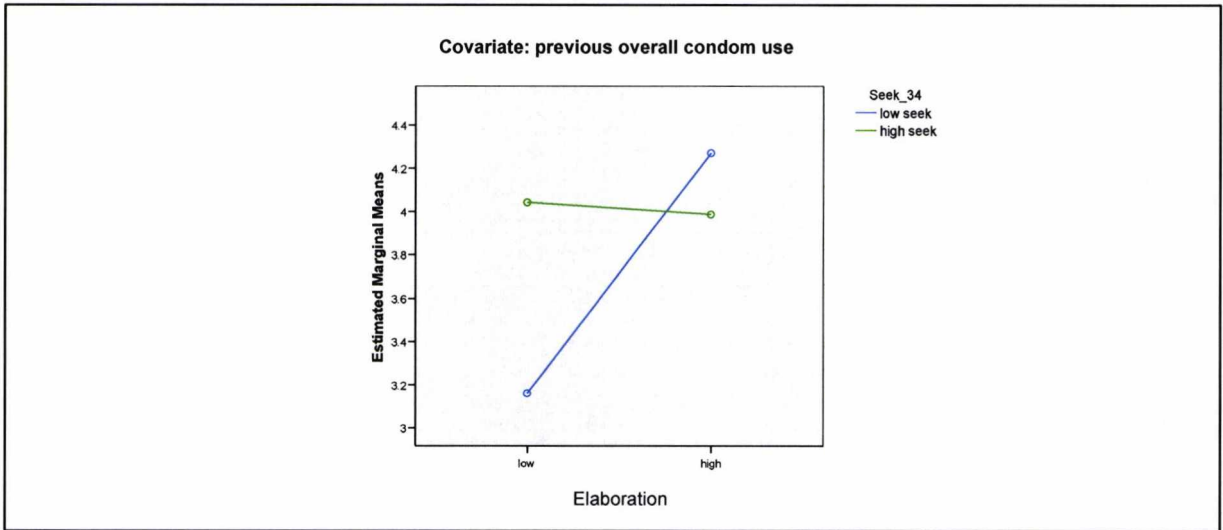


Figure 2.

Plot of the almost 2-way interaction predicting time 3 overall condom use from poster and elaboration conditions with prior behaviour as a covariate.

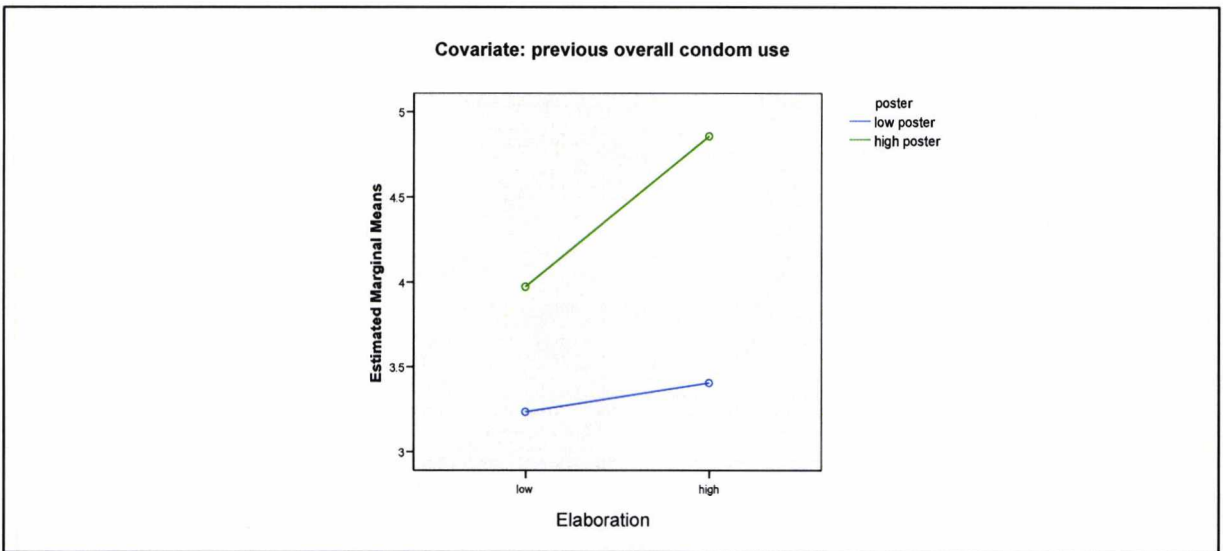


Figure 3.

Plots showing the 3-way interaction predicting time 3 overall condom use from sensation seeking, poster and elaboration conditions with prior behaviour as covariate.

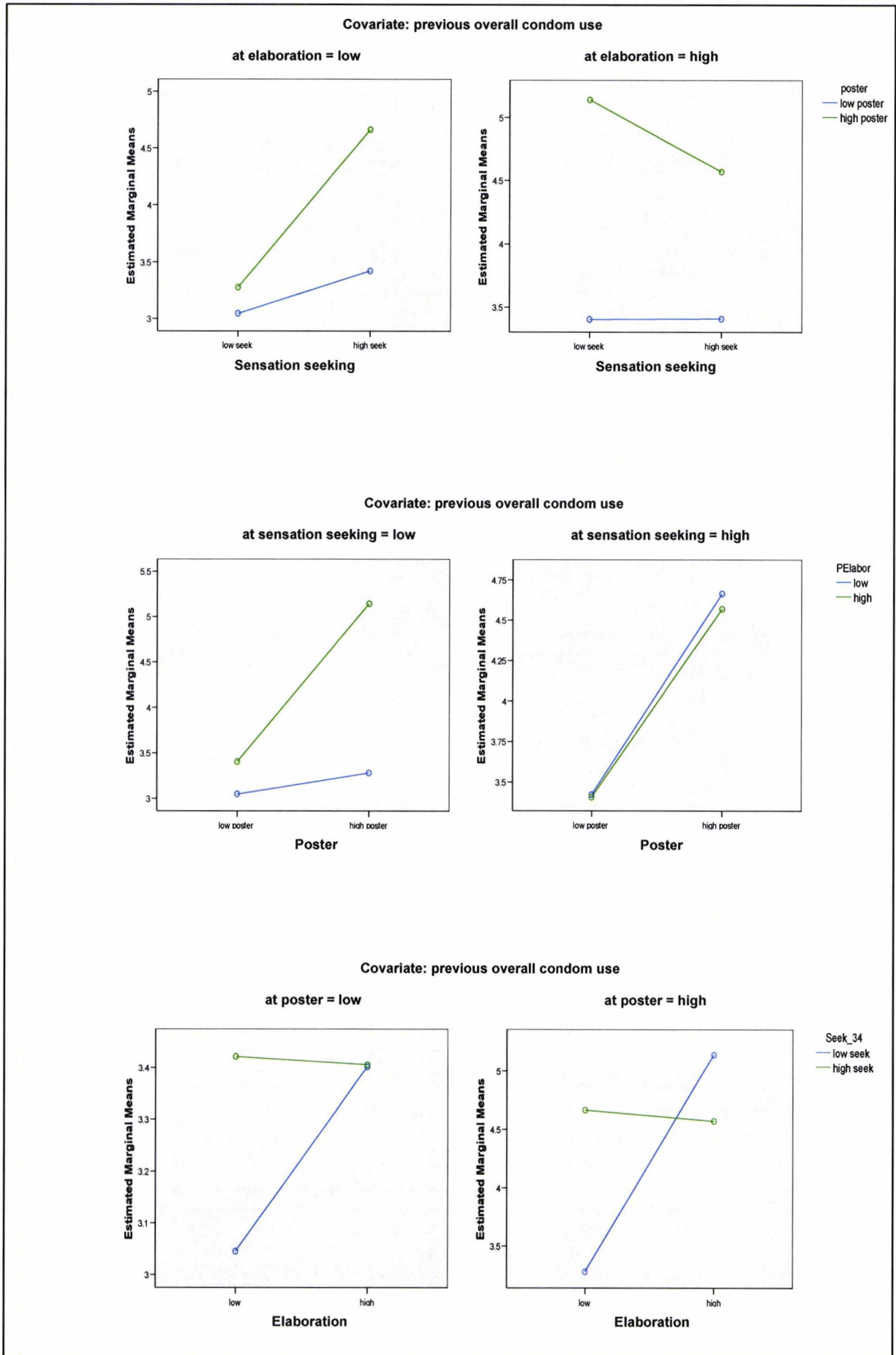


Table 4.

Regression predicting time 3 condom use with a high risk sexual partner from the change, from time 1 to time 2, in the variables based in the theory of planned behaviour.

| Variables | β | T | df | F equation | R ² |
|--------------------------------------|---------|--------|-------|------------|----------------|
| Behavioural expectations change | .23 | 3.11** | | | |
| Perceived behavioural control change | .17 | 2.08* | | | |
| Anticipated regret change | -.00 | -.05 | | | |
| Attitudes change | .18 | 2.66** | | | |
| General-intentions change | .07 | 1.15 | | | |
| | | | 5,252 | 19.01*** | .27 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 5.

Analysis of covariance of condom use with a high risk sexual partner at time 3, after adjustment for prior condom use with an affair at time 1.

| Source of variance | df | MS | F | Partial Eta ² | R ² | Adjusted R ² |
|------------------------------|----|--------|----------|--------------------------|----------------|-------------------------|
| Prior condom use with affair | 1 | 16.736 | 9.18** | .09 | | |
| Sensation seeking | 1 | 3.313 | 1.82 | .03 | | |
| Type of poster | 1 | 73.913 | 40.54*** | .30 | | |
| Elaboration | 1 | 10.585 | 5.81* | .06 | | |
| SSeek X poster | 1 | 3.628 | 1.99 | .02 | | |
| SSeek X elaboration | 1 | 7.818 | 4.29* | .04 | | |
| Poster X elaboration | 1 | 7.892 | 4.33* | .04 | | |
| SSeek X poster X elaboration | 1 | 4.176 | 2.29 | .02 | | |
| Error | 93 | 1.823 | | | .54 | .50 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: Report to Figures 4 and 5 for Plots. See Table 3, appendix 8, for Means.

Simple effect tests of the 2-way interaction of sensation seeking with elaboration resulted on the following: [df= 1,93 LSS X elaboration $F = 7.34^{**}$, Partial Eta² = .07, HSS X elaboration $F = .09$, Partial Eta² = .00, low elaboration X sensation seeking $F = 5.03^{*}$, Partial Eta² = .05, high elaboration X sensation seeking $F = .31$, Partial Eta² = .00] [Means LSS low elaboration = 3.81 high elaboration = 5.19, Means HSS low elaboration = 4.86 high elaboration = 4.97].

Simple effect tests of the almost significant 2-way interaction of type of poster with elaboration resulted on the following: [df= 1,93 low elaboration X poster $F = 30.20^{***}$, Partial Eta² = .24, high elaboration X poster $F = 11.11^{***}$, Partial Eta² = .12, low poster X elaboration $F = 11.62^{***}$, Partial Eta² = .11, high poster X elaboration $F = .04$, Partial Eta² = .00] [Means low elaboration: low poster = 3.02 high poster = 5.66, Means high elaboration: low poster = 4.42 high poster = 5.75].

Figure 4.

Plot of the 2-way interaction interaction predicting condom use with a high risk sexual partner at time 3 from sensation seeking and elaboration conditions, with prior behaviour as a covariate.

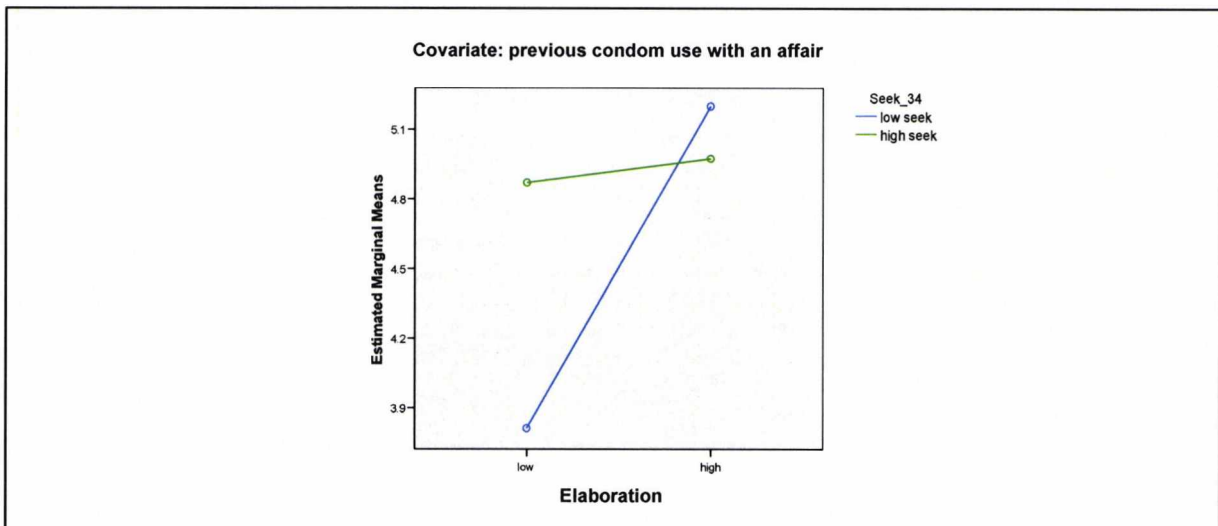


Table 6.

Analysis of covariance of condom use with a high risk sexual partner at time 3, after adjustment for change in behavioural expectations from time 1 to time 2.

| Source of variance | df | MS | F | Partial Eta ² | R ² | Adjusted R ² |
|------------------------------|-----|---------|----------|--------------------------|----------------|-------------------------|
| Behavioural expectat. change | 1 | 19.290 | 9.30** | .04 | | |
| Sensation seeking | 1 | 3.992 | 1.92 | .01 | | |
| Type of poster | 1 | 171.823 | 82.83*** | .25 | | |
| Elaboration | 1 | 21.155 | 10.19** | .04 | | |
| SSeek X poster | 1 | 7.844 | 3.78 | .02 | | |
| SSeek X elaboration | 1 | .525 | .25 | .00 | | |
| Poster X elaboration | 1 | 30.636 | 14.77*** | .05 | | |
| SSeek X poster X elaboration | 1 | .085 | .04 | .00 | | |
| Error | 253 | 2.074 | | | .47 | .45 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: Report to Figures 5 for Plot. See Table 4, appendix 8, for Means.

Simple effect tests of the significant 2-way interaction of type of poster with elaboration resulted on the following: [df= 1,253 low elaboration X poster $F = 73.90^{***}$, Partial Eta² = .22 high elaboration X poster $F = 23.76^{***}$, Partial Eta² = .09, low poster X elaboration $F = 27.44^{***}$, Partial Eta² = .10, high poster X elaboration $F = .19$, Partial Eta² = .00] [Means low elaboration: low poster = 2.83 high poster = 5.70, Means high elaboration: low poster = 4.24 high poster = 5.57].

Table 7.

Analysis of covariance of condom use with a high risk sexual partner at time 3, after adjustment for change in behavioural control from time 1 to time 2.

| Source of variance | df | MS | F | Partial Eta ² | R ² | Adjusted R ² |
|------------------------------|-----|---------|----------|--------------------------|----------------|-------------------------|
| Behavioural control change | 1 | 6.711 | 3.15* | .01 | | |
| Sensation seeking | 1 | 4.373 | 2.05 | .01 | | |
| Type of poster | 1 | 148.259 | 69.53*** | .21 | | |
| Elaboration | 1 | 24.761 | 11.61*** | .04 | | |
| SSeek X poster | 1 | 5.089 | 2.39 | .01 | | |
| SSeek X elaboration | 1 | .112 | .05 | .00 | | |
| Poster X elaboration | 1 | 29.650 | 13.91*** | .05 | | |
| SSeek X poster X elaboration | 1 | .003 | .00 | .00 | | |
| Error | 252 | 2.132 | | | .46 | .44 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: Report to Figure 5 for Plot. See Table 5, appendix 8, for Means.

Simple effect tests of the significant 2-way interaction of type of poster with elaboration resulted on the following: [df= 1,252 low elaboration X poster $F = 64.91^{***}$, Partial Eta² = .20 high elaboration X poster $F = 22.81^{***}$, Partial Eta² = .08, low poster X elaboration $F = 28.47^{***}$, Partial Eta² = .10, high poster X elaboration $F = .05$, Partial Eta² = .00] [Means low elaboration: low poster = 2.75 high poster = 5.67, Means high elaboration: low poster = 4.21 high poster = 5.61].

Table 8.

Analysis of covariance of condom use with a high risk sexual partner at time 3, after adjustment for change in attitudes from time 1 to time 2.

| Source of variance | df | MS | F | Partial Eta ² | R ² | Adjusted R ² |
|------------------------------|-----|---------|----------|--------------------------|----------------|-------------------------|
| Attitude change | 1 | 8.225 | 3.86* | .02 | | |
| Sensation seeking | 1 | 3.382 | 1.59 | .01 | | |
| Type of poster | 1 | 194.797 | 91.41*** | .26 | | |
| Elaboration | 1 | 25.736 | 12.07*** | .05 | | |
| SSeek X poster | 1 | 7.100 | 3.33 | .01 | | |
| SSeek X elaboration | 1 | .699 | .33 | .00 | | |
| Poster X elaboration | 1 | 33.754 | 15.84*** | .06 | | |
| SSeek X poster X elaboration | 1 | .015 | .01 | .00 | | |
| Error | 253 | 2.131 | | | .46 | .44 |

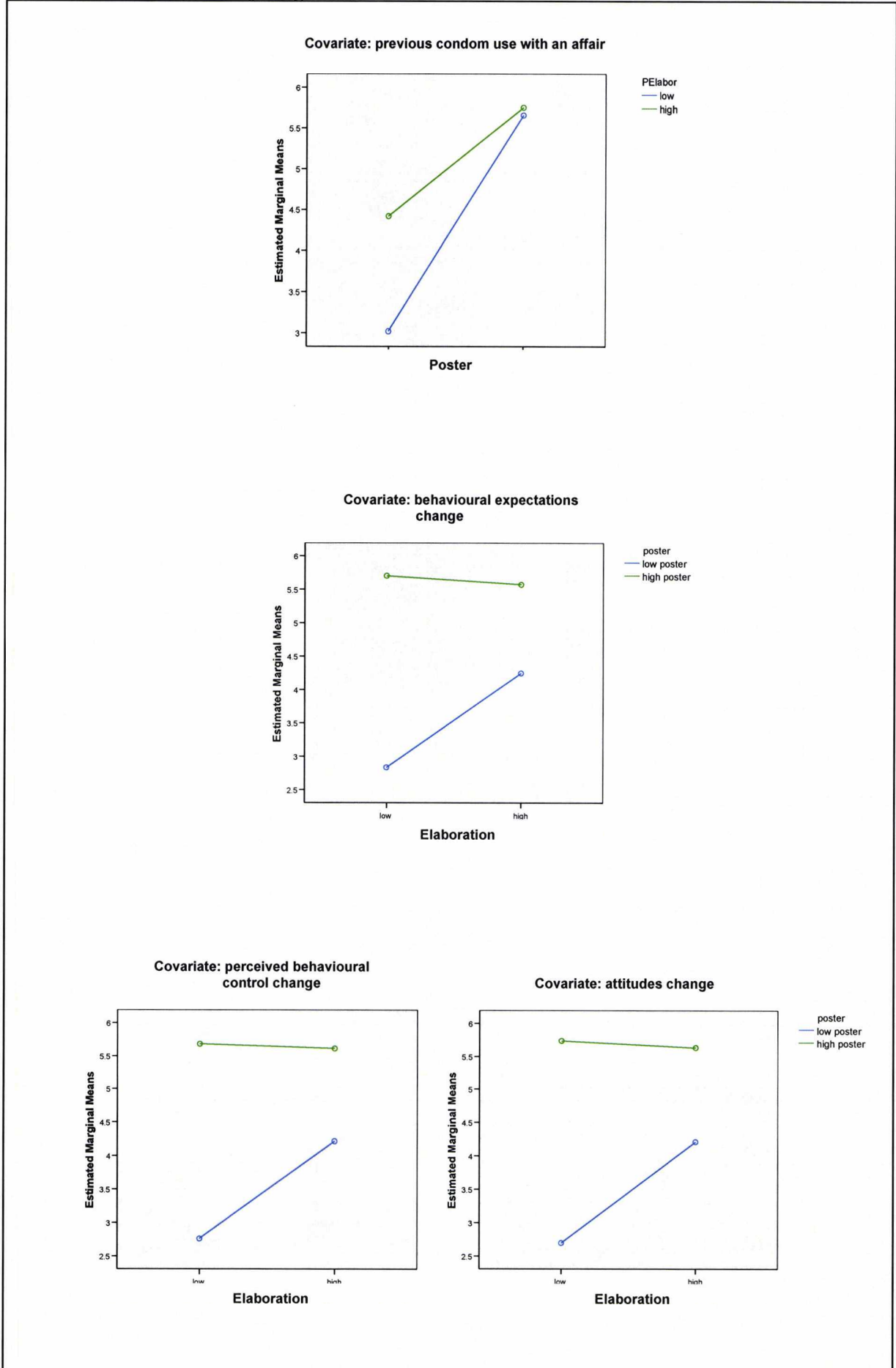
* $p < .05$; ** $p < .01$; *** $p < .001$.

Obs: Report to Figure 5 for Plot. See Table 6, appendix 8, for Means.

Simple effect tests of the significant 2-way interaction of type of poster with elaboration resulted on the following: [df= 1,253 low elaboration X poster $F = 81.80^{***}$, Partial Eta² = .24 high elaboration X poster $F = 25.79^{***}$, Partial Eta² = .09, low poster X elaboration $F = 31.10^{***}$, Partial Eta² = .11, high poster X elaboration $F = .11$, Partial Eta² = .00] [Means low elaboration: low poster = 2.69 high poster = 5.73, Means high elaboration: low poster = 4.21 high poster = 5.63].

Figure 5.

Plot of the 2-way interactions predicting condom use with a high risk sexual partner at time 3 from poster and elaboration conditions, after adjusting for covariates.



Change was computed by taking away time 1 from time 2.

CONCLUSION

This study has provided information about the effects of exposure to posters, reflection about messages and the sensation seeking personality on to condom use. It has also shown that, in order to understand condom use, it is most relevant to discriminate between its use with different partners. Two distinct behaviours were investigated in relation to the last 3 months: one was overall condom use and the other was condom use with high risk sexual partner. The changes, from time 1 to time 2, on variables based on the theory of planned behaviour were irrelevant to overall condom use. However, the same changes on behavioural expectations, attitudes and perceived behavioural control were statistically significant to condom use with high risk partner. That is, students seemed aware that a new partner and a non-boyfriend/non-girlfriend were high risk sexual partners and were more likely to act according to their attitudes, behavioural expectations and perceived behavioural control to ensure condom use.

Furthermore, it is important to note that prior behaviour was, as expected, the strongest predictor of future behaviour concerning overall condom use, but it was unexpectedly the second best predictor of condom use with high risk sexual partner, less predictive than high posters. It is a fact that, the second prior behaviour referred to condom use when in a stable relationship and having sex with another, whilst the predicted behaviour referred to having sex with a high risk partner, without necessarily being unfaithful. Nonetheless, it was a form of prior behaviour. Perhaps, to start with, students were already motivated to use condoms with high risk sexual partners and the pictures in the high posters helped them to remember the threat of AIDS and the need to have 'safe sex'. This is because one of the high posters had the word AIDS written using several photographs of faces in the middle of several other faces, a condom below it and some young internationally known top models standing by the condom. The message written on the poster was "Everybody thinks that it is ok to use condoms. And what about you?" None of the low posters had pictures of condoms, the word AIDS or famous people in them; they just had drawings, all very simple and similar.

It must be said that those posters which were low in sensationality were in general not persuasive, except when people were asked to consider their personal relevance, but even then they did not affect condom use as much as high posters did. Besides, the reflection about the personal relevance of the posters was influential for LSS, only, and made them use condoms as frequently as HSS did without reflecting about the personal relevance. In fact, the elaboration condition did not change HSS behaviour.

It was expected to find a 3-way interaction between sensation seeking, poster and elaboration both in the prediction of overall condom use as well as in condom use with high risk sexual partner. However, there was found an interaction only in relation to the overall condom use.

Two hypotheses were tested. First, it was hypothesized that, when not motivated to consider the personal relevance of a message HSS would be persuaded to use condoms by posters with high sensationality pictures, whilst LSS would be persuaded by low sensationality pictures. Yet, only HSS were persuaded by the high pictures.

The second hypotheses was that, when motivated to consider the personal relevance of the messages contained in the posters, both LSS and HSS' condom use would be influenced by the messages rather than by the pictures contained in the posters. Yet, the reflection about the personal relevance affected LSS who had seen high posters only. HSS who saw high posters used condoms more, regardless of elaboration, which suggests that they were persuaded by conditioning and engaged in little cognitive effort to process the messages advertised. Also, as HSS carry condoms more (Chapter 5), they might have taken both the posters and the free condoms given at the end of the poster intervention as a reminder to go on and use the condoms that they were carrying.

The hypotheses were very partially confirmed probably because during the pre-test people were not categorized into HSS and LSS, neither the pictures were categorized as those which appealed only to LSS and to HSS. It was a mistake to assume that the pictures called most sensational, a word which also means liking something in Brazil, were high in sensationality and the other ones were low in sensationality.

Nonetheless, HSS were persuaded by the pictures high in sensationality, whilst LSS were persuaded by the same pictures only when they reflected about the personal relevance of the messages. Thus, this study has showed that posters can persuade people to use condoms. The low posters had been used by Durex condoms in the UK, but were ineffective. It was unforeseen that high posters would be, as they were, influential for both LSS and HSS. Perhaps, the high posters were attractive, fun, slightly scary and colourful enough to capture the attention of HSS but not too high in sensationality for LSS. As they had photographs of (famous) people they might have felt more "real". Also, these photographs might have elicited more favourable thoughts towards the high posters than towards the low posters, making them become more persuasive through classical conditioning.

Future studies involving posters should look at "content analysis" by asking students to list all thoughts that came to their mind about both the pictures in the posters. According to the elaboration likelihood model (Petty and Cacioppo, 1986), when there are substantially more favourable than unfavourable thoughts, persuasion is likely to occur in the direction advocated. Messages are persuasive when they generate favourable thoughts and not when they generate unfavourable thoughts. For messages to generate favourable thoughts they must be processed using either a central route (more rational) or a peripheral route (less rational). If

processed via the central route they are more predictive of behaviour (Krosnick and Petty, 1995; Petty, Cacioppo, Strathman, and Priester, 1994; Petty, Haugtvedt, and Smith, 1995).

Further studies need to investigate what type of posters can persuade people to use condoms, and whether the results hold across different cultures. Also, one limitation of the present study is that it was carried out with university students. Future research should include more diverse samples to establish whether similar patterns of findings would hold across cultures. In particular, it should focus on those most at risk of catching the HIV virus, such as sex workers and their clients. Data could be also collected in sexual health clinics that assure anonymity to their clients.

Chapter 9: Summary of findings and conclusions.

The HIV virus, which causes AIDS, is transmitted via body fluids, mainly by the exchange of used syringes and through sexual intercourse without condoms. Five media of transmission are the body fluids that carry the disease from one person to another: sperm, pre-seminal male secretions, vaginal secretions, blood and mother's milk. Since the transmission of the virus is a consequence of one's behaviour, prevention requires changes in such behaviour. That is, to prevent the sexual transmission of HIV/AIDS it is indispensable to adopt condom use.

However, consistent condom use is a problem worldwide and the situation is much worst in some countries (Eisenberg, 2001; Thato *et al.* 2003). For instance, South Koreans are so unlikely to use condoms that they have a large number of unplanned pregnancies (Cha, Kim and Doswell, 2007); this is due to cultural values that place great importance in sexual innocence until marriage (Youn, 1996) and expect good children to not humiliate their parents (Uba, 2003) by overtly buying condoms.

Clearly, it is crucial to tailor messages which succeed in implementing condom use worldwide. A key conclusion from this thesis is that aiming at altering the variables based on the TPB in order to change people's condom use is likely to be only partially successful. That is the present evidence shows that changes from time 1 to time 2, on attitudes, perceived behavioural control and behavioural expectations, but not subjective norms (see Chapter 8) affected condom use with high risk partner at time 3. There seems to be a way forward, though, by targeting people according to their sensation seeking personalities. Sensation seeking influences sexual behaviour such as that HSS (high sensation seekers) are more prone to risky sexual practices (see Chapter 5) and incarcerated HSS teenage males use condoms less frequently than LSS (low sensation seekers) (Zimmerman *et al.*, 2003). Sensation seeking overwhelms the influence of prior sexual behaviour, and the effects of gender can be accounted for by differences in sensations seeking, too (Chapter 6). In addition, sensation seeking acts as a moderator in the prediction of intentions and condom use (see Chapter 6) as follows. For LSS anticipated regret is more strongly associated with intentions to use condoms, whilst for HSS behavioural principles are more strongly associated with intentions to use condoms. Intentions to use condoms in risky sexual encounters are more strongly predictive of condom use with affairs among LSS than HSS individuals. Furthermore, sensation seeking moderates the impact of persuasive messages encouraging condom use (Chapter 8), such as HSS appear to be mainly persuaded to use condoms by the peripheral route and LSS by the central route of message processing. Therefore, it is advisable to consider personality differences in sensation seeking in the promotion of condom use.

Overview of theoretical framework

The research conducted in the thesis is based on a number of theories and they all aim to predict behaviour. The first one is social projection, a highly automatic process which allows people to make quick self-generated predictions about others and which boosts attitude

certainty (Holtz, 2003). Social projection also increases satisfaction with interpersonal relationships because people generalize their thoughts, behaviours and feelings primarily to their ingroup (Murray, Holmes and Griffin, 1996).

An important model directed specifically at health behaviours is the health belief model (HBM), but, this has had limited power in predicting behaviour. Thus, this thesis has focused more on the theory of reasoned action (TRA); Fishbein and Ajzen, 1975) and its development, the theory of planned behaviour (TPB); Ajzen, 1985; 1991). A great deal of research examining the psychological causes of risk taking has employed these theories, which hold that behaviour is directly determined by intentions, (and for the TPB it is also directly influenced by the perception that performing such behaviour is not difficult --perceived behavioural control). Just like attitudes and subjective norms, perceived behavioural control also influences the formation of intentions.

Sometimes studies based on the TPB measure self-efficacy (I can use condoms) rather than perceived behavioural control because of the similarities between both constructs. For instance, a study found that self-efficacy predicts intentions more strongly among South Africans than among Americans (Heeren *et al.*, 2007), which illustrates the difficulty in generalizing findings across countries and different cultures. Moreover, the link between intentions and condom use is not always straight forward. For instance, although women have more intention to use condoms, they report using them less frequently than men (Munoz-Silva, Sanchez-Garcia, Nunes and Martins, 2007), probably because condom use involves social interactions in which the partner's collaboration is required. As a consequence, the belief that one has high control over condom use does not always predict behaviour (for eg., in Spain and in Portugal, Munoz *et al.*, 2007), although it is often related to, and successfully predicts behavioural expectations and different types of intentions, as well as condom use (for e.g., in Brazil, Chapters 6 and 8, respectively). Maybe the Brazilian university students analyzed had greater perceptions of actual (that is, more realistic perceptions of) control.

Next, this thesis made use of a model that looks at how messages are processed, thus how they should be put across. The elaboration likelihood model (ELM) was formulated in 1979 (Petty and Cacioppo, 1979 a, b) and, since 1983 has been widely applied to explain how advertising information is processed and how it influences consumer's behaviour. Some examples of studies applying the ELM are people's responses to online advertising (Karson and Fisher, 2005), trust in online purchases (Yang, Hung and Sung, 2006) and satisfaction (Rodgers, Negash and Suk, 2005). For the ELM, it is not enough to know how positive or negative someone's attitude is as the extent of message elaboration that formed such an attitude also matters. The processing of the messages can occur through two possible routes (central or

peripheral) which are placed in an elaboration continuum. The route chosen depends on a person's ability and motivation to think about the issue under consideration. Attitudes changed as a result of a thoughtful consideration about a specific issue, as compared to reliance on simple cues, tend to come to mind more easily, be more resistant at attempts to change, last longer over time and be more predictive of behaviour (Petty, Cacioppo, Strathman and Priester, 2005). In this manner, the number and valence of thoughts in response to a message influence attitude change (Petty and Wegener, 1998).

Persuasion happens through low effort peripheral processes when classical conditioning takes place (Staats and Staats, 1958) as well as under the influence of emotions, such as I feel good, so I like it (Chaiken, 1987), thus I don't need to think much about the message (Mackie and Worth, 1989b). Certainty emotions, such as contentment and anger, compared to uncertainty, such as worry and surprise, also lead people to think less (Tiedens and Linton, 2001). By contrast, if I feel sad I am uncertain and need to think more (Tiedens and Linton, 2001). Yet, emotions also influence the process of messages under high elaboration because they facilitate the retrieval of emotionally congruent information by biasing the thoughts that come to mind about a given message (Petty et al., 1993).

Nonetheless, when emotions follow people's thoughts about a given message, they also affect persuasion by impacting on people's confidence. In this case, after high elaboration, happiness increases confidence on one's thoughts, regardless of the type or nature of those thoughts; in turn, such confidence influences attitudes and behavioural intentions (Brinol, Petty and Barden, 2007).

In summary, happy people are less influenced by argument quality, unless their mood is induced after, instead of before, message processing (Bless et al., 1992; Brinol et al., 2007). This means that, for people with low motivation to think, emotions have a direct impact on attitudes regardless of argument quality; whilst for those who engage in thoughtful processes the impact of emotions on attitudes is mediated by thought confidence (Brinol et al., 2007). Therefore, in addition to number and valence of thoughts, confidence also affects persuasion under high elaboration.

The final major element in this thesis is the construct of sensation seeking. It is worth highlighting that for the ELM, people respond to messages using the same cognitive schema for making decisions and choosing behaviours. However, high sensation seekers (HSS) and low sensations seekers (LSS) have different needs for stimulation and are likely to attend to and be persuaded by different messages (Donohew *et al.*, 1997; Zimmerman *et al.*, 1997) and may tend to use different routes for message processing as well (see Chapter 8). Thus, interventions may

need to be emotionally intense, novel, unconventional, exciting and physically arousing in order to heighten attention and promote condom use. Also, emotionally intense messages are likely to work especially for HSS because they may activate the same neural rewarding network of drugs and relate to individual differences in the mesolimbic dopamine system of the brain (Bardo *et al.*, 1993, 2001; Zuckerman, 1979, 1983a, 1994). As well as being biologically explained, the sensation seeking personality also varies across countries due to the influences of different kinds of socialization (for eg., American women are higher sensation seekers than English women; Zuckerman, Eysenck and Eysenck, 1978).

Thus, for this thesis it was anticipated that inclusion of sensation seeking as a predictor of condom use would fill some of the gaps left by the previous theories. Sensation seeking is a fairly stable personality trait, discovered by Kalichman *et al.* (1994) and defined as a need to look for varied, novel, complex, intense sensations and experiences, with the readiness to undergo risks to experiment these (Zuckerman, 1994). Sensation seeking is biologically explained as a need to reward the mesolimbic dopamine part of the brain and attain a similar reward of that achieved by the use of drugs (Bardo *et al.*, 1996).

It was expected that sensation seeking would influence behavioural expectations and intentions to use condoms, as well as condom use, as all these can meet a need to increase or reduce sensations. Also, HSS are less likely to be in stable sexual relationships. There are several differences between HSS and LSS. HSS have a higher number of sexual partners and have sex with a new partner sooner (Seto *et al.*, 1995). Furthermore, compared to LSS, those who are HSS search for a variety of stimuli (Zuckerman *et al.*, 1978; 1983; 1988), are attracted to people with dissimilar attitudes (Thornton *et al.*, 1981; Williams *et al.*, 1982), have higher self-control (Lubin *et al.*, 1992), have more stress management skills (Smith *et al.*, 1992), are more domineering and oblige less (Pilkington *et al.*, 1988), are willing to act impulsively to experience new situations (Franken, 1993), are more into gambling (Wolfgang, 1988), are more risk takers (Wong and Carducci, 1991), accumulate more traffic violations (Wilson, 1990), use more alcohol before sex (Donohew *et al.*, 2000) and the consumption of alcohol is associated to non-condom use (eg. Addullah *et al.*, 2006).

Above all, any prediction of sexual behaviour must understand that one's sexual fantasies and practices are the expression of one's personality. HSS volunteer more to participate in sexual research (Bogaert, 1996; Gaither *et al.*, 2003) because they are more into sex. Thus, when research refers to women who choose watching sexually explicit images on TV on a regular basis, it needs to acknowledge that most of these viewers are HSS (Vanwesenbeek, 2001). It must do so, too, when it decides that habituation to the same stimuli, but not to different stimuli, influences male sexual arousal (O'Donohue and Plaud, 1991; Plaud *et al.*, 1997). Also, HSS

require daily physical pleasure as a form of feeling daily life satisfaction (Oishi *et al.*, 2001) to the extent that they seek for the thrill and intensity of sexual contact. In their search for intensity HSS are more likely to engage in risky behaviour (Donohew *et al.*, 2000; Rolison and Scherman, 2003). Because of these strong motivational differences associated with sensation seeking it seems likely to be centrally relevant to young people's decisions about condom use.

Summary of the main findings

In Chapters 3 and 4 the evidence revealed that perceived social norms for condom use are self generated and they are associated with past and current condom use. These findings are in line with previous research which concluded that, as a consequence of social projection, men and women who have a greater desire for casual sex are by default more likely to perceive sexual intent in others (Lenton, Bryan, Hastie and Fisher, 2007). There might be many reasons why these norms are projected, one being that the topic is not one that it is always easy to gain accurate information about from others.

Yet, social projection is not always associated with condom use and the studies in Chapters 3 and 4 show that social projection is more strongly related to men's than to women's condom use. Men who believe that other men think their sexual partners are not carrying the AIDS virus had used condoms more, both in Portugal and in Brazil. In addition, Portuguese students who held sexually risky beliefs, but thought that their ingroup held cautious beliefs about self and partner's invulnerability used condoms more frequently. Likewise, Brazilian students who did not ask a partner about his/her sexual adventures, but believed others did, had used condoms more frequently. These findings widen the applicability of the health belief model by suggesting that people may follow cautious ingroup norms rather than their own self risky beliefs.

Also, messages aiming at promoting condom use may benefit from advocating that condom use is the social norm. According to Cialdini *et al.*'s (1989; 1990) people tend to guide their behaviour either by following injunctive norms (what others approve of) or descriptive norms (what others do). Applying this to the findings of Chapters 3 and 4, there were designed the following 2 messages for a poster intervention planned for Chapter 8: "Everybody thinks that it is ok to use condoms. What about you?"; "Modern women protect their body and have condoms". These messages were tailored having in mind the evidence from Chapters 3 and 4 that condom use might be associated with the perception that one's risky beliefs are not socially supported.

A surprising but important finding was that while evidence from Chapters 3, 4 and 5 suggested gender is an important variable in condom use, subsequent evidence (Chapter 6) revealed that

once the effects of sensation seeking had been accounted for, the influence of gender on behavioural expectations and intentions was much reduced. Most surprisingly, sensation seeking even overwhelmed the influence of sexual behaviour in the last 12 months on behavioural expectations!

In line with theory, HSS had lower intentions to use condoms in risky sexual encounters (that is, the next penetrative sex with different people, early in a relationship and when highly sexually aroused) than LSS. Conversely, HSS used condoms more with affairs than did LSS (Chapter 5), probably because HSS are better equipped for these encounters since they are more used to having sex with different people, look forward to having unpredictable sexual situations and carry condoms more than LSS (Chapter 5). Their lower intentions may simply reflect that they know the difficulties in assuring safe sex in new situations. It may also be that HSS do have stronger intentions to use condoms with affairs, but this is unknown as the intentions that were measured did not refer to affairs specifically. In any case, the link between intentions to use condoms in risky sexual encounters and condom use with affairs is stronger for LSS (moderating effects, Chapter 6). This suggests that LSS condom use with affairs is guided by reasoning.

There are also moderating effects of sensation seeking on intentions (Chapter 6), such that, for LSS it is anticipated regret, but for HSS it is safe sex behavioural principles that are more strongly associated with intentions. That is, for LSS, the relationship between anticipated regret on failure to use condoms and intentions to carry, suggest and use condoms in the next penetrative sex is stronger than for HSS. For HSS, the relationship between behavioural principles supporting condom use and intentions to use condoms in risky sexual encounters is stronger than for LSS.

Chapter 8 showed that HSS may be more likely to process persuasive messages encouraging condom use via the peripheral route whilst LSS may tend to do so using the central route. This is not to say that HSS are not guided by reasoning as well since they intend to use condoms more than LSS when they have safe sex principles and end up using condoms more, while LSS do not, with affairs. In other words, HSS affective need for novelty and intensity gets them into new sexual situations and may prepare them for these.

Perhaps disappointingly, for rational decision making theories, it was found that changes in variables based on the TPB may not strongly affect condom use. Only changes, from time 1 to time 2, in attitudes, behavioural expectations and perceived behavioural control significantly predicted condom use with a high risk partner at time 3 (Chapter 8). The TPB would have expected that intentions and subjective norms should also have played a role. Moreover,

although prior behaviour was the strongest predictor of overall condom use, it was surprisingly the second strongest predictor of condom use with a high risk sexual partner.

Importantly, and more optimistically, the strongest predictor of high risk condom use was the type of poster that participants were exposed to (Chapter 8). Prior behaviour referred to condom use with an affair and the predicted behaviour referred to condom use when having sex with a high risk sexual partner, without necessarily being unfaithful. Perhaps, the pictures of the posters high in sensationality helped students to remember the threat of AIDS and the need to have safe sex. Note that one of the successful posters had the word AIDS written using tiny facial portraits of people, a condom below it and some young internationally known top models standing by the condom. The written message was “Everybody thinks that it is ok to use condoms. What about you?” None of the posters low in sensationality had photos of condoms, the word AIDS or famous people in them. Instead, they had drawings, all very simple and similar. Perhaps, part of the success of the posters high in sensationality comes from these having photos, which might have made them feel more “real”. Whatever the mechanisms were, it is highly encouraging that the poster had a significant impact on condom use.

Practical implication of the findings

Several of the results obtained in the studies of the thesis have implications for HIV risk reduction interventions. To begin with, great strides have been made in the development of HIV risk reduction interventions (Manhart and Holmes, 2005; Robin *et al.*, 2004), but the efficacy of such interventions among university students has not been well established prior to this thesis. Such information is relevant because 53% of university students may have sex with a new sexual partner in the last 12 months (Chapter 5). Besides, this population is typically below 24 years old and those who are 15 to 24 years old comprise half of all new HIV infections worldwide, with over six thousand people of this age contracting HIV daily (Joint United Nations Programme on HIV/AIDS, 2004).

What's more, the infidelity rate is known to range from 20% to 25% of all marriages (Greeley, 1994; Laumann, Gagnon, Michael and Michaels, 1994; Wiederman, 1997). The present thesis showed that infidelity rates among sexually active university students during the previous 12 months were 25%, but only 55% of these students used condoms with their affairs (see Chapter 5). Evidence in Chapter 4 from male students also showed a declared infidelity rate in the last 12 months of 44%, and lower condom use (40% of the time). These findings are consistent with previous research which concluded that social expectations encourage men to appear to be more promiscuous than women. Most importantly, without condom use partners can be unknowingly placed at risk, which means that not even those in stable relationships can be sure to be safe from catching sexually transmitted infections, including HIV/AIDS.

Up until now, messages encouraging condom use often concentrate on gender differences, instead of attempting to reach the most adequate population by focusing on sensation seeking (a fairly stable personality characteristic). It is a fact that men tend to be socialized to be preoccupied with sex (Mosher and Tomkins, 1988), whilst women tend to be thought to not acknowledge interest or experience with sex in order to not appear promiscuous (Muehlenhard, 1988), but the reality is that they are equally promiscuous (Schopper *et al.*, 1993) and don't report so in surveys (Einon, 1994; Smith, 1992). That is, both men and women are likely to have similar needs to satisfy through sex. Besides, the present thesis shows that, once the effects of sensation seeking are accounted for, the relationship between gender on behavioural expectations and intentions to use condoms is substantially lower (Chapter 6). Such personality even overwhelms the influence of recent (referring to the last 12 months) sexual behaviour on behavioural expectations. Consequently, it appears to be advisable to encourage condom use by targeting people according to sensation seeking.

One way to consider differences between HSS and LSS is that, compared to HSS, LSS appear to be consistent with the gender-stereotypical portrait of traditional roles. HSS women are less satisfied with marital life, independent of their husband's level of sensation seeking (Gibson *et al.*, 1989), perhaps because these women are more domineering, oblige less (Pilkington *et al.*, 1988), have higher education and tend to have higher educational status (Magaro *et al.*, 1979). Such traits may be incompatible with the limitations that marriage and having children have historically placed on women. Also, HSS women have more positive attitudes towards sex, greater sexual desire and arousability (Apt and Hurlbert, 1992) and are more sexually assertive. They know more what they want in sex, do not find it hard to state clearly what they would like in sex, and (therefore) feel they have a lot of influence on what happens (Vanwesenbeek *et al.*, 1998). Female HSS without a SP (stable partner) include condoms more in foreplay than male HSS with a SP and without a SP (Chapter 5). But, by way of contrast, female LSS without a SP include condoms less than male LSS with a SP and without a SP (Chapter 5). Among LSS without a SP it is men's responsibility to include condoms in the foreplay and they do so even more than female HSS without a SP (Chapter 5).

There are further reasons to design messages having sensation seeking rather than gender in mind. For example, all HSS have a much greater number (almost the double) of sexual partners than all men (Chapter 5), despite existing social expectations pushing men to report high sexual promiscuity. Compared to LSS, HSS also experience a larger variety of sexual activities (Seto *et al.*, 1995), have an earlier sexual debut and experiment with anal sex more (Chapter 5). They are less likely to plan their future (Franken, 1992), are likely to engage in more risky sexual practices (Jeffrey *et al.*, 1990) and if homosexual, prefer anal pleasure over touching (Mulry *et*

al., 1997). Thus, HSS desire to have more sexual partners (Seto *et al.*, 1995), swap these more frequently (Chapter 5) and have a greater number of them (Chapter 5; Fisher and Misovich, 1990; Seto *et al.*, 1995). They also have sex sooner with a partner (Seto *et al.*, 1995) and more affairs (Chapter 5; Wiederman and Hurd, 1999), and HSS prefer to keep their sexual options open in order to have unplanned and unexpected sexual encounters, are less likely to be in stable sexual relationships, are likely to have sex without having a stable sexual partner, tend to discuss condom use immediately before sex, and intend less to use condoms with different people, early in a relationship, and when highly sexually aroused (Chapter 5).

Given this picture, HSS hold lower intentions to use condoms because they might be aware of the difficulties involved in assuring safe sex in completely new situations. That might be why previous research has concluded that intentions to use condoms are associated with having fewer sexual partners (Campbell *et al.*, 1992). However, HSS tend to carry condoms more than LSS, and they use these more frequently (LSS do not) when they are unfaithful (Chapter 5). So a plausible interpretation is that HSS are more prepared for having affairs and at the same time are aware of their sexually risky tendencies. This finding is particularly relevant as 35% of HSS and 18% of LSS report having had an affair in the last 12 months. HSS prefer condoms with different colours and shapes while LSS prefer transparent ones (Chapter 5). More intriguingly, it is potentially the LSS who might place themselves more at risk by being proportionally less willing to use condoms.

Unfortunately, the analyses of this thesis did not examine the monthly frequency of sexual intercourse among HSS and LSS men with stable sexual partners. Previous research (Apt and Hulbert, 1992) suggested that HSS and LSS do not differ in the frequency (per month) of sexual intercourse when they are both in stable sexual relationships. This finding is a little difficult to make sense of, given that HSS are more into sex (Donohew *et al.*, 2000) and that HSS men and their partners refer to sex as pleasurable, but LSS men and their partners as tolerable (Fisher *et al.*, 1988). May be among those who are in stable relationships, HSS men have sex more frequently with their partners than LSS men. It seems reasonable to expect that the level of men's sensation seeking would greatly affect the frequency of sexual intercourse more than women's level of sensation seeking. This is because HSS (men and women) depend on daily physical contact to have daily life satisfaction (Oishi, 2001) and are more likely to use their charm to influence their sexual partners to do what they want in a pleasant manner (Vanwesenbeek *et al.*, 1998). It might be less easy for women to keep behaving in a seductive manner because they will have less control over men's penile erection and motivation to maintain the erection.

Additionally, and of particular importance given the findings in Chapter 8, sensation seeking

appears to affect the processing of messages, such that HSS may be more likely to process persuasive messages via the peripheral route. It is known that HSS are more confident (Lubin *et al.*, 1992), that confidence is associated with happiness and that certainty emotions (for eg. contentment and anger) lead people to process messages less (Tiedens and Linton, 2001). This is not to say that HSS could not process messages via the central route or that they would score low in need for cognition. In fact, even those unlikely to think about a message (usually those low in need for cognition) can behave similarly to those likely to think about a message (usually those in need for cognition) when a message is of high personal relevance (Axsom, Yates and Chaiken, 1987), and condom use should be of high personal relevance for both HSS and LSS.

According to the literature, HSS may attend to messages that are higher and LSS to messages that are lower in sensation value (Donohew *et al.*, 1991; Palmgreen *et al.*, 1995). In line with this, the last study (Chapter 8) consisted of a longitudinal experiment in which students were exposed to one of two sets of posters encouraging condom use; both sets contained the same messages but differed in visual content. It was expected to persuade LSS through the less sensational set of posters and HSS with the more sensational set. Yet, only the more sensational type of poster was persuasive and it was so for both HSS and LSS. For HSS it was persuasive via the peripheral route whereas for LSS it was persuasive via the central route. It is unknown whether this set of posters engendered feelings of humour, warmth or excitement. This type of emotional advertising (Aaker, Stayman and Hagerty, 1986) can become associated with the product without the perceiver being aware of it. Obviously, affective responses induce both the amount of critical thought (Martin and Clore, 2001) and the direction of critical thought (Pelham, Mirenberg and Jones, 2002). In general, persuasion that follows the peripheral route of processing is weaker and less likely to last than persuasion that follows the central route of message processing (Cialdini, Petty and Cacioppo, 1981; Petty and Wegener, 1998 a). So, perhaps HSS shift in condom use may last less long than LSS.

It is possible that HSS would have liked the posters by which they were persuaded to use condoms and by extension the message. HSS are known to be more inclined to use condoms when a partner instigates condom use with fear, threat and health calls than LSS, and above all they want pleasure appeals (Sheer and Cline, 1995). By contrast, LSS are more positive about caring and responsibility appeals (Sheer, 1995). This suggests that HSS are more likely to be persuaded by messages that elicit immediate intense and pleasant emotions, but LSS by messages that elicit deliberative emotions (see Giner-Sorolla, 1997, for the difference between deliberative and immediate emotions). Besides, HSS volunteer more to participate on sexual research (Bogaert, 1996; Gaither, 2000; Gaither *et al.*, 2003; Wiederman, 1999) and to view sexually explicit images (Gaither *et al.*, 2003). These volunteers have greater arousability (Plaud *et al.*, 1999; Wolchik *et al.*, 1985) and pay attention to messages that are revolting or

stomach turning (Rawlings, 2003). Indeed, one of the posters had a picture of a man, whose bloodied chest implied that the heart in the hand had just been removed. Perhaps, LSS did not dislike all these posters, but they may have been less positive about them, needing the factor of reasoning to be persuaded to follow the message encouraging condom use. Or it might be that LSS tend to be persuaded by reasoning and HSS by emotions.

It would be premature to assume that LSS would not have been persuaded by the peripheral route of message processing, as well, had the unsuccessful set of posters contained other types of visual stimuli. It may be that the visual stimuli of the posters supposed to appeal to LSS was simply of bad quality and, as such, could not persuade anyone. These posters had been based on posters used to advertise condoms by a well known British brand. Also, it is noteworthy to acknowledge that the level of sensationality of posters was pre-tested only among 10 Brazilians (5 males and 5 females); it was the last measure pre-tested late in the evening and the only one that it was pre-tested verbally rather than in writing, but this was so at request of the group. Thus, it might be that what the 10 Brazilians classified as low in sensationality was what they believed to be unconvincing.

It is unknown whether the posters low in sensationality would have become persuasive had they been repeatedly presented. Higher frequency in exposure (for example, up to 10 times) tends to yield stronger conditioning (De Houwer *et al.*, 2001). It is also possible that the posters high in sensationality, which persuaded LSS through the central route of processing by prompting them to deliberately evaluate the messages, would not have been persuasive in real world situation. This is because in real life people are exposed to several ads in a single day and such overload of information will dictate that much of the messages will be processed based on the peripheral route. In other words, in practice, people tend to rely on their first responses rather than on deliberative evaluations about the product being advertised (Chartrand, 2005; Dijksterhuis, Smith, Van Baaren and Wigboldus, 2005).

The successful set of posters, high in sensationality, relied on a number of peripheral cues to encourage condom use. This set of posters was more colourful, had the word AIDS presented in a subliminal manner, a picture of a heart just removed from a bleeding chest, photos of both well known models and of famous people. The last poster included humour, which elicited smiles in people's faces. Subliminal advertising is expected to elicit conditioning without people's awareness that they have given any attention to the stimuli (Aarts, Custers and Holland, 2007). Humour is known to enhance attention paid to an ad (Madden and Weinberger, 1985) and increase motivation to process an ad (Zhang and Zinkhan, 2006). It positively influences elaboration (Allen and Madden, 1985) by evoking responses which enhance product evaluations and product choice by mere association (Gawronski and Bodenhausen, 2006). This

happens in a way that is dissociated from the accessibility of the product in memory (Strick, van Baaren, Holland and van Knippenberg, 2009), suggesting that even when humour distracts attention from the product advertised, it may still enhance advertising effectiveness (Kellaris and Cline, 2007).

Humour is processed in 2 phases, according to the incongruity-resolution theory (Alden, Mukherjee and Hoyer, 2000; Woltman-Elpers, Mukherjee and Hoyer, 2004). First, in order to understand the joke, the incongruity is cognitively resolved. Afterwards, when the joke is perceived as funny it activates emotions which are associated to the product advertised in a classical conditioning way. This type of classical conditioning, it is sometimes called evaluative conditioning in advertising (Gawronski and Bodenhausen, 2006). Such conditioning tends to be automatic (Walther, 2002), occurs without awareness (Fulcher and Hammerl, 2001; Olson and Fazio, 2001), when people are distracted (Fulcher and Hammerl, 2001; Walther, 2002) and result in attitudes that are automatically activated and highly accessible (Fazio, 2001), and relatively stable over time (Gawronski and Bodenhausen, 2006).

Therefore, both HSS and LSS benefit from visual emotional advertising, but for LSS to be persuaded they may need to engage in thoughtful processing over the messages. That is, just like HSS sexual practices are highly guided by emotions so seems to be their processing of messages promoting condom use. HSS and LSS seem persuaded to use condoms by different routes of message elaboration.

The TPB is a rational model of decision making, which presumes that people carefully weigh their choices and outcomes before choosing to act. Nevertheless, this thesis shows that people's choices are not always rational as some people may tend to act on the basis of affect and, as the ELM would say, people do not always have the time or motivation to weigh their decisions. For instance, rational decision makers use beliefs about consequences of their actions to guide behaviour whilst impulsive decision makers use affective and physiological cues to make decisions (Zimmerman and Donohew, 1996). Although not highly correlated as Zuckerman (1994) expected it to be, sensation seeking and impulsive decision making are moderately correlated (Zimmerman and Donohew, 1996). Yet, it might be worth noting that, having sex under pressure relates to impulsive decision making, but it does not to sensation seeking (Donohew *et al.*, 2000). Of course, those who are impulsive and HSS engage in riskier behaviour and those who are low in both are the least likely to engage in risky behaviour (Donohew *et al.*, 2000).

Theoretical implication of the findings

Although the models examined provide useful information for the promotion of condom use,

they fail to acknowledge the strong impact that sensation seeking and visual images play in persuasion. Whereas research based on social projection, the HBM, the TRA and the TPB suggest that messages should instill beliefs supporting condom use, it is clear that beliefs alone are not sufficient to make young people use condoms (Jemmott, Jemmott, Braverman and Fong, 2005). The simple change, from time 1 to time 2 and associations among some variables based on the TPB may be largely irrelevant to overall condom use whereas, the role sensation seeking plays in sexuality and message processing is crucial in condom use.

Similarly, the ELM highlights the importance of argument quality in persuasion, but the findings in Chapter 8 show that the quality of the arguments is not enough for persuasion; otherwise, posters low in sensationality would have been as persuasive as posters high in sensationality. Thus, adequate affective impact is needed (through emotional visual stimuli in the present research) to help persuasive messages encourage condom use, probably in a classical conditioning way. Visual stimuli appear to motivate LSS to recall the merits of the messages encouraging condom use and to make HSS associate condom use to part of the pleasure, the excitement and the fun they seek in sex. Inadequate visual stimuli appear to discourage recall of given messages, despite people being encouraged to consider the message. In this manner, it could be said that the impact of visual stimuli in persuasion can be as relevant as which route (peripheral or central) is used for message processing.

Some variables were related to the key variables based on the TPB (for eg, attitudes were related to reason to use condoms: to have pleasure); hence, these variables may explain partially the relationships observed between the TPB predictors and outcomes. However, there was a wealth of significant findings and it was prioritized to focus on the most theoretically relevant.

Ideally, when the posters were pre-tested, people should have been categorized into LSS and HSS so that the pictures could be categorized into those that appealed for LSS and those who appealed for HSS. It was possibly a weakness in the design to presuppose that the posters named most sensational, a word that in colloquial language also means liking something in Brazil, were high in sensationality and the other others low in sensationality. It may be that the posters less liked were simply made with bad quality pictures and would not have persuaded anyone. Also, these posters were the last measures pre-tested, late in an evening. Nonetheless, the posters certainly differed in visual impact and the assumption that one set had higher sensationality than the other seems reasonable.

All empirical work of the thesis relied in self-reported behaviour. Naturally it is recognised that self-reports may have limited validity. However, in the present research only much more

intensive and intrusive methods (such as time sampling electronic diaries) would have yielded more accurate data. But there could have been low compliance rates that might have offset this benefit. In addition, results were obtained studying university students and, as such, they cannot be said to represent all other populations. Future research needs to consider different populations to establish whether the results hold across countries. As the level of sensation seeking in personalities is known to vary across countries, it is necessary to find out whether such differences affect condom use at a national and cultural level. Investigation should also vary visual stimuli to better understand how the rhetoric of visual stimuli becomes important.

Conclusions and limitations

The work carried out throughout the thesis has tested ways of promoting condom use. All the theories which have been discussed and tested during the course of the thesis have proved to help understand young people's sexual behaviour. The results obtained are encouraging and suggest sensation seeking as the way forward. Variables based on the TPB and on the ELM may provide the path for the development of effective interventions, as long as differences in sensation seeking personalities are addressed at the same time.

Future research could further explore why is it that for LSS and HSS anticipated regret, safe behavioural principles and intentions are not equally important for the prediction of intentions and condom use. It should also search for further differences in sensation seeking which may affect condom use, particularly with high risk sexual partners. Moreover, it could investigate differences in the way HSS and LSS process persuasive messages, using content analysis. For example, HSS might be more likely to accept message arguments and list positive thoughts when they like a message than LSS. This is because HSS are more optimistic (Cicognani and Zani, 1999; Sheer and Cline, 1994), more self-confident and have higher self-control (Lubin *et al.*, 1992).

There are interesting and important differences among the effects of the two sets of posters. These differences account for variance independently of the adjustment for change in 3 psychological factors (behavioural expectations, behavioural control and attitude) and also moderate the relationships between elaboration, sensation seeking and condom use with a high risk sexual partner. The most important finding is that HSS appear to be persuaded by the peripheral route and LSS by the central route of message processing.

In conclusion the research in this thesis has shown that while condom use among high risk populations can be predicted by intentions, and associated attitudes, norms and sense of control, individual differences in sensation seeking create a powerful force that needs to be understood when designing interventions to encourage safer sex. Taken together different social

psychological theories and approaches therefore offer constructive and effective means of promoting safer behaviour in this domain.

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APPENDICES

Table 1Principal components loadings for **behaviour principles**.

| Suppose that you are very sexually aroused, ask your sexual partner(s) to use a condom and your partner(s) refuses. Items | Factor loadings | |
|--|-----------------|------------|
| | Eigenvalue | % Variance |
| How much would you insist on condom use? | | .73 |
| What would you do? | | .73 |
| Tell partner everybody uses a condom | | .57 |
| Tell your partner condoms are reliable and the only way of having sex | | .71 |
| Condom: Without it I won't do it, you won't do it. | | .80 |

Only one factor was extracted, thus the solution could be rotated.

Table 2

Principal components loadings for **perceived behaviour control**.

| Items | Factor loadings | |
|---|-----------------|------|
| | Eigenvalue | 2.75 |
| | % of Variance | 55% |
| for me having a condom available | | .71 |
| for me forgetting to use a condom | | .79 |
| for me to ensure the use of a condom | | .84 |
| I have complete control over whether my partner(s) and I use a condom. | | .64 |
| Think about the difficulties in condom use. How likely is it that you have penetrative sex next time with a condom? | | .71 |

Only one factor was extracted, thus the solution could not be rotated.

Table 3Rotated factor loadings for **regret** (Oblimin analyses).

| Items | Factor 1 | Factor 2 |
|--|-------------------|----------|
| | Eigenvalue 2.94 | 1.17 |
| | % of Variance 49% | 20% |
| used a condom and feel about it unhappy/happy | .06 | .73 |
| anxious/calm | -.09 | .83 |
| regret/no regret | .08 | .78 |
| did not use a condom and feel about it happy/unhappy | .82 | .07 |
| calm/anxious | .91 | -.12 |
| no regret/regret | .82 | .12 |

All items loaded above .57 on factor 1 of the principal components matrix. Correlation between factors is .39 (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Table 4

Rotated factor loadings for condom preference (oblimin analysis).

| Items | Factor 1 | | Factor 2 |
|---|------------|------------|------------|
| | Eigenvalue | 2.80 | 1.03 |
| | % Variance | 56% | 21% |
| Using sweet and flavoured condoms | | .81 | -.11 |
| Using coloured condoms | | .89 | -.14 |
| Using luminous condoms in the dark or twilight | | .86 | .03 |
| Using transparent, non coloured condoms with spermicide | | -.02 | .98 |
| Using condoms with different shapes | | .79 | .15 |

Item four was excluded from the scale. Correlation between factors is $r = -.02$ taken from factor correlation matrix.

Table 5

Principal component loadings for open options.

| Items | Factor loadings | |
|---|-----------------|------------|
| | Eigenvalue | % Variance |
| ...change the places I have sex. | | .67 |
| ...unpredictable sexual situations. | | .72 |
| ...sexual fantasies in completely new environments... | | .80 |

Only one factor was extracted, thus the solution could not be rotated.

Table 6a.

Rotated factor loadings for sensation seeking (Oblimin analyses).

| Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 |
|--|--------------------------|-------------|-------------|------------|-------------|------------|
| | Eigenvalue % Variance | 5.42 24% | 2.39 10% | 1.86 8% | 1.27 6% | 1.13 5% |
| ...pleasures around the world with exciting people. | .06 | .18 | .16 | .02 | -.46 | .09 |
| ...like to do parachuting. | -.15 | .10 | .77 | .02 | .09 | -.03 |
| ...like doing things that are a little dangerous. | -.02 | .07 | .82 | -.02 | .67 | -.03 |
| ...like the sensation of driving at high speed. | .14 | -.20 | .59 | -.00 | -.22 | -.17 |
| ...not like films or theatre plays in which I can anticipate the final | .04 | -.05 | -.02 | .03 | -.04 | .92 |
| ...I am a person that likes living dangerously. | .07 | .00 | .67 | .01 | -.01 | .26 |
| My sexual appetite has driven my emotional relationships. | .30 | .00 | .12 | .17 | -.26 | .16 |
| My sexual thoughts and my behaviour have been causing problems. | .03 | .05 | -.02 | .87 | .04 | .01 |
| My sexual desires have disturbed my life. | .08 | .03 | -.01 | .86 | .10 | .03 |
| ...I do not keep the commitments I have made because of my sexual behaviour. | .50 | -.02 | .05 | .20 | -.09 | -.01 |
| ...I get so excited that I can loose my self-control | .82 | .01 | -.01 | -.09 | .12 | .11 |
| I think about sex while I am working. | .51 | .06 | -.11 | -.04 | -.38 | -.02 |
| ...my sexual feelings and thoughts are stronger than I am. | .77 | .08 | .03 | .13 | .13 | -.08 |
| I have to make a great effort to control my sexual feelings and behaviour. | .67 | .05 | -.05 | .23 | -.03 | -.05 |
| I think about sex more than I would like to. | .10 | -.05 | .06 | .51 | -.19 | -.06 |
| ...difficult for me to find sexual partners who have the same intense sexual desire... | .02 | .10 | .05 | .32 | -.42 | .13 |
| I like wild and relaxed sexual encounters. | .37 | .14 | .12 | -.28 | -.43 | -.02 |
| I made promises... in order to have someone have sex with me. | .06 | -.21 | .07 | .12 | -.61 | -.06 |
| I like the company of sensual people. | -.12 | .20 | -.00 | -.12 | -.65 | .11 |
| I like to watch erotic and pornographic films. | .05 | .19 | -.10 | .15 | -.50 | -.24 |
| I want to try new sexual experiences. | -.10 | .75 | .02 | .11 | -.23 | .02 |
| I want to explore more my sexuality. | .08 | .84 | .02 | .05 | .10 | -.05 |
| I like new sexual experiences and sensations. | .13 | .81 | .06 | -.10 | -.00 | -.02 |

Except the items 'like to do parachuting' and 'not like films or theatre plays in which I can anticipate the final', which loaded on factors 1 of the principal components matrix with .21 and .08 respectively, all other items loaded above .30. Therefore, one factor solution is valid. Correlation between factors is the following (continues in the next page):

Correlation between factors is the following: \continued

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|----------|----------|----------|----------|----------|----------|
| Factor 1 | 1.00 | | | | |
| Factor 2 | .16 | 1.00 | | | |
| Factor 3 | .16 | .11 | 1.00 | | |
| Factor 4 | .33 | .03 | .06 | 1.00 | |
| Factor 5 | -.34 | -.27 | -.23 | -.19 | 1.00 |
| Factor 6 | .00 | .06 | .11 | -.04 | -.00 |

Table 6b.

Principal components loadings for sensation seeking.

| Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 |
|---|-------------------------------------|---------------|--------------|---------------|--------------|--------------|
| | Eigenvalue 5.42 % Variance 23.6% | 2.39 10.4% | 1.86 8.1% | 1.27 .5.5% | 1.13 4.9% | 1.03 4.5% |
| I can imagine myself searching for pleasures around the world with exciting people. | .54 | | | | | |
| I would like to do parachuting. | | .46 | .49 | | | |
| Sometimes I like doing things that are a little dangerous. | | .46 | .54 | | | |
| I like the sensation of driving at high speed. | .40 | | .48 | | | |
| I usually do not like films or theatre in which I can anticipate the final. | | | | | .39 | .79 |
| My friends believe I am a person that likes living dangerously. | .36 | .37 | .52 | | | |
| My sexual appetite has driven my emotional relationships. | .57 | | | | | |
| My sexual thoughts and my behaviour have been causing problems in my life. | .48 | -.53 | | .49 | | |
| My sexual desires have disturbed my life. | .46 | -.55 | | .48 | | |
| Sometimes I do not keep the commitments I have made because of my sexual behaviour. | .56 | | | | | |
| Sometimes I get so excited that I can lose my self-control. | .50 | | | -.37 | .40 | |
| I think about sex while I am working. | .63 | | | | | |
| I feel that my sexual feelings and thoughts are stronger than I am. | .61 | | | | | |
| I have to make a great effort to control my sexual feelings and behaviour. | .66 | -.36 | | | | |
| I think about sex more than I would like to. | .49 | | | | | |
| It has been difficult for me to find sexual partners who have the same intense sexual desire that I have. | .57 | | | | | |
| I like wild and relaxed sexual encounters. | .55 | | | -.35 | | |
| I made promises... in order to have someone have sex with me. | .47 | | | | -.42 | |
| I like the company of sensual people. | .40 | .36 | | | | |
| I like to watch erotic and pornographic films. | .51 | | | | -.36 | |
| I want to try new sexual experiences. | .52 | .41 | -.42 | | | |
| I want to explore more my sexuality. | .44 | .35 | -.47 | | | |
| I like new sexual experiences and sensations. | .46 | .46 | -.45 | | | |

Obs: Only loadings above .32 are printed.

Table 7Principal component loadings for **nonsexual**.

| Items | Factor loadings | |
|---|-----------------|------|
| | Eigenvalue | 2.27 |
| | % Variance | 38% |
| I can imagine myself searching for pleasures around the world with exciting people. | | .50 |
| I would like to do parachuting | | .67 |
| Sometimes I like doing things that are a little dangerous. | | .78 |
| I like the sensation of driving at high speed. | | .62 |
| I usually do not like films or theatre in which I can anticipate the final. | | .20 |
| My friends believe I am a person that likes living dangerously. | | .73 |

Only one factor was extracted, thus the solution could not be rotated.

Table 8Rotated factor loadings for **compulsivity** (Oblimin analyses).

| Items | Factor 1 | Factor 2 |
|---|-----------------------------------|-------------|
| | Eigenvalue 3.93 % variance 39% | 1.26 13% |
| My sexual appetite has driven my emotional relationships. | .57 | -.01 |
| My sexual thoughts and my behaviour have been causing problems in my life. | -.04 | -.91 |
| My sexual desires have disturbed my life. | -.02 | -.90 |
| Sometimes I do not keep the commitments I have made because of my sexual behaviour. | .53 | -.20 |
| Sometimes I get so excited that I can lose my self-control. | .77 | .16 |
| I think about sex while I am working. | .74 | .12 |
| I feel that my sexual feelings and thoughts are stronger than I am. | .72 | -.09 |
| I have to make a great effort to control my sexual feelings and behaviour. | .67 | -.20 |
| I think about sex more than I would like to. | .19 | -.52 |
| It has been difficult for me to find sexual partners who have the same intense sexual desire that I have. | .42 | -.19 |

All items loaded positively and above .53 on factor 1 in the principal components matrix. Correlation between factors is $r = -.43$ (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Table 9

Rotated factor loadings for **sexual sensation seeking** (Oblimin analyses).

| Items | Factor 1 | | Factor 2 |
|--|------------|------|----------|
| | Eigenvalue | 2.76 | 1.12 |
| | % variance | 39% | 16% |
| I like wild and relaxed sexual encounters. | | .16 | .60 |
| I made promises that I did not plan to keep in order to make someone have sex with me. | | -.27 | .79 |
| I like the company of sensual people. | | .20 | .54 |
| I like to watch erotic and pornographic films. | | .14 | .57 |
| I want to try new sexual experiences. | | .75 | .17 |
| I want to explore more my sexuality. | | .85 | -.07 |
| I like new sexual experiences and sensations. | | .83 | .05 |

All items loaded positively and above .33 on factor 1 in the principal components matrix. Correlation between factors is $r = .32$ (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Table 10

Rotated factor loadings for **normative beliefs, motivation to comply** and **subjective norms** (Oblimiin analyses).

| Composite scales and items | Factor 1 | Factor 2 |
|-------------------------------------|-----------------|------------|
| | Eigenvalue 3.87 | 1.24 |
| normative beliefs | % Variance 55% | 18% |
| steady partners | -.07 | .90 |
| close friends | .14 | .84 |
| casual sexual partners | .50 | .26 |
| mother | .97 | -.14 |
| father | .98 | -.16 |
| brothers/sisters | .80 | .14 |
| doctors | .74 | .15 |
| | Eigenvalue 3.22 | 1.34 |
| motivation to comply | % Variance 46% | 19% |
| steady partners | -.05 | .66 |
| close friends | .11 | .80 |
| casual sexual partners | .00 | .71 |
| mother | .96 | -.14 |
| father | .92 | -.10 |
| brothers/sisters | .77 | .21 |
| doctors | .63 | .13 |
| | Eigenvalue 3.47 | 1.30 |
| subjective norms | % Variance 50% | 19% |
| intimates steady partners | -.08 | .74 |
| close friends | .06 | .84 |
| casual sexual partners | .06 | .67 |
| family - doctor mother | .98 | -.11 |
| father | .97 | -.11 |
| brothers/sisters | .78 | .18 |
| doctors | .57 | .28 |

Normative beliefs: Except 'steady partners', which loaded with .48 on factor 1 of the principal components matrix, all other items loaded above .64. Correlation between factors is $r = .38$ (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Motivation to comply:

Except the items 'steady partners' and 'casual sexual partners', which loaded with .34 and .43 respectively on factor 1 of the principal components matrix, all other items loaded above .57. Correlation between factors is $r = .31$ (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Subjective norms: All items loaded positively and above .44 on factor 1 in the principle components matrix. Correlation between factors is $r = .37$ (taken from the factor correlation matrix). Therefore, one factor solution is also valid.

Table 11Rotated factor loadings for **attitudes** about using a condom (Oblimin analyses).

| Items | Factor 1 | Factor 2 |
|---|-----------------|----------|
| | Eigenvalue 3.96 | 1.45 |
| | % Variance 40% | 15% |
| general evaluation about condom use | .31 | -.44 |
| reduces intimacy/enhances intimacy | .19 | -.62 |
| shows warm emotions/shows cold emotions | .59 | -.15 |
| interrupts sex/is part of sex | .46 | -.27 |
| enhances sexual performance/impairs sexual performance | .30 | -.55 |
| reduces sexual pleasure/does not reduce sexual pleasure | -.11 | -.93 |
| reduces sensation/does not reduce sensation | -.18 | -.92 |
| shows love/shows lovelessness | .75 | .04 |
| shows distrust/shows trust | .74 | .04 |
| offends the partner/pleases the partner | .77 | .10 |

All items loaded positively and above .54 on factor 1 in the principal components matrix. Correlation between factors is $r = -.39$ (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Table 12

Rotated factor loadings for **embarrassment to buy condoms** and **embarrassment to talk about condoms** (Oblimin analyses).

| | Factor 1 | Factor 2 |
|---|-----------------------------------|-------------|
| Composite scales and items | Eigenvalue 3.37 % Variance 42% | 1.91 24% |
| embarrassment to buy It is very embarrassing to buy condoms for me. | .88 | .00 |
| ...I often dread having to get them | .87 | -.00 |
| ...buying condoms is awkward. | .62 | .07 |
| ...to be seen buying condoms in a store. | .79 | -.03 |
| ...sexual life is exposed when I buy condoms. | .81 | -.06 |
| embarrassment to talk ...embarrassed suggesting condom use... | -.03 | .72 |
| ...bring up the issue...would be really hard | .02 | .88 |
| ...talking about ...is very easy. | .02 | .87 |

Correlation between factors is $r = .17$ (taken from the factor correlation matrix), confirming the two factors solution.

Table 13

Rotated factor loadings and principal components loadings for **general and current intentions** to use condoms.

| Composite scales and items. | Factor 1 | Factor 2 |
|--|-----------------|----------|
| | Eigenvalue 5.68 | 2.80 |
| Both general and current intentions. | % Variance 41% | 20% |
| With an ex-boyfriend/ex-girlfriend. | .69 | .00 |
| With someone that is a one night stand. | .66 | .13 |
| When highly sexually aroused. | .68 | -.16 |
| With a close friend. | .76 | -.00 |
| With someone who looks clean and beautiful and you have just met. | .82 | .09 |
| The first time you have penetrative sex with your partner(s). | .72 | .05 |
| A month. | .71 | -.11 |
| Two or three months. | .63 | -.23 |
| I am going to include a condom into the foreplay before the penetration. | .03 | -.51 |
| I plan to use a condom. | .06 | -.91 |
| I intend to use a condom. | .01 | -.91 |
| I will use a condom. | .04 | -.94 |
| I am going to suggest a condom. | .05 | -.90 |
| I am going to carry a condom. | -.11 | -.74 |
| | Eigenvalue 4.19 | 1.02 |
| General intention (relationship and onset scales joined) | % Variance 52% | 13% |
| With an ex-boyfriend/ex-girlfriend. | .62 | .16 |
| With someone that is a one night stand. | -.13 | .87 |
| When highly sexually aroused. | .43 | .43 |
| With a close friend. | .63 | .24 |
| With someone who looks clean and beautiful and you have just met. | .12 | .81 |
| The first time you have penetrative sex with your partner(s). | .14 | .69 |
| A month or less. | .85 | -.00 |
| Two or three months. | .97 | -.18 |
| | Eigenvalue 4.23 | |
| Current intentions. | % Variance 70% | |
| I am going to include a condom into the foreplay before the penetration. | .54 | -- |
| I plan to use a condom. | .93 | -- |
| I intend to use a condom. | .92 | -- |
| I will use a condom. | .95 | -- |
| I am going to suggest a condom. | .92 | -- |
| I am going to carry a condom. | .70 | -- |

-- = Factor not existent.

General intention: All items loaded as above .61 on factor 1 of the principal components matrix. Correlation between factors is .51 (taken from the factor correlation matrix). Therefore, one factor solution is valid.

Current intention: Only one factor was extracted, thus the solution could not be rotated.

General and current intentions: All items loaded similarly on both Factor 1 and Factor 2 of the principal components matrix. Correlation between factors is -.29 (taken from the factor correlation matrix).

Table 1.

Means for main and interaction effects for age (21 and below/22 and above) and gender (male/female).

| Composite scales and individual items | Age | | Gender | | Age x Gender | | | |
|---|-------|---------|--------|--------|--------------|--------|---------|--------|
| | Older | Younger | Male | Female | Older | | Younger | |
| | | | | | Male | Female | Male | Female |
| Behavioural expectations | 3.95 | 4.03 | 3.88 | 4.16 | 3.86 | 4.10 | 3.89 | 4.20 |
| Behavioural principles | 4.57 | 4.50 | 4.42 | 4.70 | 4.49 | 4.72 | 4.35 | 4.69 |
| Perceived behaviour control | 4.49 | 4.55 | 4.64 | 4.36 | 4.56 | 4.38 | 4.71 | 4.34 |
| Regret | 5.14 | 5.21 | 5.10 | 5.30 | 5.11 | 5.20 | 5.09 | 5.36 |
| Stigma | 4.76 | 4.75 | 4.57 | 5.02 | 4.61 | 5.03 | 4.53 | 5.02 |
| Condom preference | 3.91 | 3.91 | 3.89 | 3.94 | 3.87 | 3.99 | 3.90 | 3.91 |
| Sensation seeking | 3.32 | 3.28 | 3.54 | 2.95 | 3.55 | 2.93 | 3.54 | 2.97 |
| Nonsexual | 3.82 | 3.89 | 4.01 | 3.65 | 3.95 | 3.60 | 4.06 | 3.67 |
| Compulsivity | 2.62 | 2.50 | 2.86 | 2.12 | 2.92 | 2.10 | 2.81 | 2.13 |
| Sexual sensation seeking | 3.90 | 3.88 | 4.13 | 3.55 | 4.10 | 3.54 | 4.16 | 3.56 |
| Intimates | 3.62 | 3.87 | 3.87 | 3.61 | 3.72 | 3.44 | 3.99 | 3.71 |
| Family-doctor | 3.65 | 3.91 | 3.86 | 3.70 | 3.74 | 3.49 | 3.97 | 3.83 |
| Attitudes | 4.00 | 4.15 | 3.91 | 4.33 | 3.88 | 4.21 | 3.95 | 4.40 |
| Embarrassment to buy | 4.21 | 3.82 | 4.39 | 3.41 | 4.47 | 3.74 | 4.31 | 3.19 |
| Embarrassment to talk | 5.23 | 5.08 | 5.06 | 5.27 | 5.13 | 5.41 | 5.00 | 5.18 |
| General-intention | 5.24 | 5.30 | 5.12 | 5.48 | 5.08 | 5.52 | 5.16 | 5.45 |
| Current-intention | 4.07 | 4.17 | 4.15 | 4.10 | 4.14 | 3.96 | 4.17 | 4.18 |
| When discuss condom use: a few hours or days before sex | 3.47 | 3.32 | 3.12 | 3.77 | 3.35 | 3.70 | 2.92 | 3.80 |
| When discuss condom use: immediately before sex | 4.23 | 4.20 | 4.46 | 3.83 | 4.38 | 3.94 | 4.54 | 3.78 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.20 | 2.23 | 2.22 | 2.21 | 2.19 | 2.21 | 2.25 | 2.21 |
| Transparent, non-coloured condoms with spermicide | 3.83 | 3.89 | 3.90 | 3.82 | 3.87 | 3.77 | 3.92 | 3.85 |
| Reasons to use a condom: avoid pregnancy | 5.39 | 5.47 | 5.43 | 5.43 | 5.34 | 5.48 | 5.52 | 5.40 |
| Reasons to use a condom: avoid infections | 5.37 | 5.41 | 5.37 | 5.43 | 5.44 | 5.26 | 5.31 | 5.53 |
| Reasons to use a condom: to have pleasure | 2.20 | 2.03 | 1.97 | 2.28 | 2.09 | 2.39 | 1.88 | 2.21 |
| Reasons to use a condom: partner(s) wants to | 3.60 | 3.47 | 3.60 | 3.42 | 3.63 | 3.54 | 3.56 | 3.35 |
| When put a condom on (before ejaculation/before penetration) | 4.83 | 5.24 | 5.24 | 4.78 | 4.96 | 4.56 | 5.51 | 4.91 |
| How often include condoms into the foreplay | 4.39 | 4.64 | 4.39 | 4.70 | 4.25 | 4.63 | 4.53 | 4.75 |
| Frequency of partner(s) participation on putting a condom on | 3.30 | 3.54 | 3.06 | 3.99 | 3.00 | 3.85 | 3.12 | 4.08 |
| Frequency of condom use with the non-stable partner | 3.99 | 3.85 | 4.05 | 3.43 | 4.08 | 3.47 | 4.01 | 3.41 |
| Frequency of condom use: vaginal or anal sex | 3.46 | 3.73 | 3.79 | 3.30 | 3.57 | 3.26 | 4.01 | 3.33 |

Table 2.

ANOVA's F statistics for main and interaction effects for age (21 and below/22 and above) and gender (male/female).

| Composite scales and individual items | | Age | Gender | Age x Gender | MSe |
|--|-------------|----------|-----------|--------------|------|
| Behavioural expectations | (df=1, 756) | .36 | 6.67** | .08 | 2.04 |
| Behavioural principles | (df=1, 767) | 1.14 | 12.19*** | .48 | 1.21 |
| Perceived behaviour control | (df=1, 756) | .65 | 12.91*** | 1.59 | 1.04 |
| Regret | (df=1, 735) | 1.01 | 6.45** | 1.45 | .88 |
| Stigma | (df=1, 767) | .26 | 23.42*** | .11 | 1.61 |
| Condom preference | (df=1, 766) | .05 | .44 | .33 | 1.78 |
| Sensation seeking | (df=1, 767) | .07 | 150.03*** | .18 | .42 |
| Nonsexual | (df=1, 767) | 2.01 | 31.14*** | .11 | .79 |
| Compulsivity | (df=1, 767) | .53 | 151.88*** | 1.28 | .67 |
| Sexual sensation seeking | (df=1, 751) | .25 | 74.54*** | .09 | .80 |
| Intimates | (df=1, 725) | 13.86*** | 15.40*** | .00 | .88 |
| Family-doctor | (df=1, 720) | 12.71*** | 5.89** | .47 | 1.13 |
| Attitudes | (df=1, 753) | 2.57 | 24.65*** | .49 | 1.13 |
| Embarrassment to buy | (df=1, 746) | 13.34*** | 88.71*** | 3.88* | 1.68 |
| Embarrassment to talk | (df=1, 755) | 5.86** | 8.95** | .39 | 1.03 |
| General-intention | (df=1, 760) | .01 | 27.03*** | 1.18 | .89 |
| Current-intention | (df=1, 765) | 1.45 | .61 | .91 | 1.96 |
| When discuss condom use: a few hours or days before sex | (df=1, 590) | 1.16 | 15.84*** | 2.95 | 3.19 |
| When discuss condom use: immediately before sex | (df=1, 591) | .00 | 15.45*** | 1.11 | 3.07 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 740) | .51 | .07 | .66 | .28 |
| Transparent, non-coloured condoms with spermicide | (df=1, 761) | .36 | .67 | .01 | 2.08 |
| Reasons to use a condom: avoid pregnancy | (df=1, 749) | .37 | .03 | 2.39 | 1.25 |
| Reasons to use a condom: avoid infections | (df=1, 744) | .65 | .04 | 4.56* | 1.53 |
| Reasons to use a condom: to have pleasure | (df=1, 736) | 3.62 | 9.81** | .04 | 1.76 |
| Reasons to use a condom: partner(s) wants to | (df=1, 739) | .96 | 1.32 | .20 | 3.14 |
| When put a condom on (before ejaculation/before penetration | (df=1, 645) | 10.49*** | 13.46*** | .52 | 2.78 |
| How often include condoms into the foreplay | (df=1, 290) | 1.27 | 2.63 | .18 | 2.31 |
| Frequency of partner(s) participation on putting a condom on | (df=1, 733) | 1.88 | 53.83*** | .16 | 2.62 |
| Frequency of condom use with the non-stable partner | (df=1, 195) | .04 | 3.21 | .00 | 3.61 |
| Frequency of condom use: vaginal or anal sex | (df=1, 686) | 3.53 | 12.85*** | 1.80 | 3.02 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 3.

Means for main and interaction effects for age (21 and below/22 and above) and frequency of condom use (user/non-user).

| Composite scales and individual items | Age | | C-use | | Age x C-use | | | |
|---|-------|---------|-------|----------|-------------|----------|---------|----------|
| | Older | Younger | User | Non-user | Older | | Younger | |
| | | | User | Non-user | User | Non-user | User | Non-user |
| Behavioural expectations | 3.92 | 3.90 | 4.63 | 3.37 | 4.72 | 3.42 | 4.57 | 3.33 |
| Behavioural principles | 4.57 | 4.41 | 4.96 | 4.14 | 5.18 | 4.19 | 4.80 | 4.08 |
| Perceived behaviour control | 4.49 | 4.55 | 5.18 | 4.03 | 5.21 | 4.04 | 5.15 | 4.02 |
| Regret | 5.12 | 5.20 | 5.43 | 4.96 | 5.51 | 4.87 | 5.37 | 5.05 |
| Stigma | 4.76 | 4.74 | 4.82 | 4.70 | 4.88 | 4.69 | 4.77 | 4.71 |
| Condom preference | 3.93 | 3.94 | 3.81 | 4.02 | 3.88 | 3.96 | 3.76 | 4.09 |
| Sensation seeking | 3.35 | 3.34 | 3.34 | 3.34 | 3.37 | 3.34 | 3.33 | 3.35 |
| Nonsexual | 3.84 | 3.93 | 3.86 | 3.91 | 3.81 | 3.86 | 3.91 | 3.95 |
| Compulsivity | 2.65 | 2.56 | 2.57 | 2.62 | 2.64 | 2.65 | 2.52 | 2.59 |
| Sexual sensation seeking | 3.92 | 3.95 | 4.00 | 3.89 | 4.02 | 3.86 | 3.99 | 3.92 |
| Intimates | 3.61 | 3.87 | 3.90 | 3.63 | 3.72 | 3.54 | 4.03 | 3.73 |
| Family-doctor | 3.63 | 3.88 | 3.87 | 3.69 | 3.71 | 3.58 | 3.98 | 3.80 |
| Attitudes | 3.97 | 4.03 | 4.39 | 3.72 | 4.38 | 3.72 | 4.40 | 3.71 |
| Embarrassment to buy | 4.24 | 3.96 | 4.23 | 3.99 | 4.34 | 4.19 | 4.15 | 3.79 |
| Embarrassment to talk | 5.24 | 5.12 | 5.36 | 5.05 | 5.50 | 5.08 | 5.25 | 5.02 |
| General-intention | 5.22 | 5.24 | 5.66 | 4.91 | 5.66 | 4.95 | 5.67 | 4.87 |
| Current-intention | 4.05 | 4.11 | 4.73 | 3.60 | 4.74 | 3.62 | 4.72 | 3.58 |
| When discuss condom use: a few hours or days before sex | 3.45 | 3.29 | 3.63 | 3.14 | 3.72 | 3.25 | 3.56 | 3.05 |
| When discuss condom use: immediately before sex | 4.25 | 4.31 | 4.39 | 4.20 | 4.56 | 4.02 | 4.26 | 4.35 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.20 | 2.25 | 2.30 | 2.17 | 2.27 | 2.15 | 2.32 | 2.19 |
| Transparent, non-coloured condoms with spermicide | 3.86 | 3.93 | 4.07 | 3.77 | 4.11 | 3.71 | 4.05 | 3.83 |
| Reasons to use a condom: avoid pregnancy | 5.39 | 5.42 | 5.55 | 5.29 | 5.53 | 5.30 | 5.57 | 5.29 |
| Reasons to use a condom: avoid infections | 5.42 | 5.39 | 5.57 | 5.27 | 5.65 | 5.27 | 5.52 | 5.27 |
| Reasons to use a condom: to have pleasure | 2.18 | 1.98 | 2.37 | 1.85 | 2.59 | 1.92 | 2.22 | 1.78 |
| Reasons to use a condom: partner(s) wants to | 3.60 | 3.53 | 3.33 | 3.73 | 3.46 | 3.68 | 3.24 | 3.77 |
| When put a condom on (before ejaculation/before penetration) | 4.86 | 5.22 | 5.31 | 4.84 | 5.19 | 4.61 | 5.39 | 5.06 |
| How often include condoms into the foreplay | 4.37 | 4.61 | 4.80 | 4.17 | 4.66 | 4.08 | 4.91 | 4.26 |
| Frequency of partner(s) participation on putting a condom on | 3.35 | 3.57 | 3.54 | 3.41 | 3.41 | 3.32 | 3.63 | 3.51 |
| Frequency of condom use with the non-stable partner | 3.99 | 3.85 | 5.05 | 3.13 | 5.19 | 3.26 | 4.93 | 2.98 |

Table 4.

ANOVA's F statistics for main and interaction effects for age (21 and below/22 and above) and frequency of condom use (user/non-user).

| Composite scales and individual items | | Age | C-use | Age x C-use | MSe |
|--|-------------|----------|-----------|-------------|------|
| Behavioural expectations | (df=1, 675) | 1.52 | 161.97*** | .11 | 1.64 |
| Behavioural principles | (df=1, 686) | 9.46** | 115.61*** | 3.02 | 1.05 |
| Perceived behaviour control | (df=1, 675) | .32 | 271.64*** | .08 | .79 |
| Regret | (df=1, 657) | .10 | 43.89*** | 4.80* | .84 |
| Stigma | (df=1, 686) | .18 | 1.52 | .40 | 1.65 |
| Condom preference | (df=1, 685) | .01 | 3.85* | 1.44 | 1.76 |
| Sensation seeking | (df=1, 686) | .06 | .01 | .25 | .49 |
| Nonsexual | (df=1, 686) | 1.78 | .56 | .01 | .80 |
| Compulsivity | (df=1, 686) | .175 | .41 | .21 | .78 |
| Sexual sensation seeking | (df=1, 675) | .02 | 2.45 | .41 | .85 |
| Intimates | (df=1, 653) | 11.30*** | 11.12*** | .63 | .87 |
| Family-doctor | (df=1, 648) | 8.26** | 3.54 | .10 | 1.10 |
| Attitudes | (df=1, 675) | .01 | 68.54*** | .03 | 1.09 |
| Embarrassment to buy | (df=1, 670) | 7.69** | 5.61** | .98 | 1.85 |
| Embarrassment to talk | (df=1, 675) | 4.34* | 18.21*** | 1.59 | .96 |
| General-intention | (df=1, 679) | .19 | 115.01*** | .44 | .81 |
| Current-intention | (df=1, 684) | .10 | 123.71*** | .02 | 1.71 |
| When discuss condom use: a few hours or days before sex | (df=1, 544) | 1.32 | 9.60** | .01 | 3.29 |
| When discuss condom use: immediately before sex | (df=1, 549) | .01 | 2.17 | 4.36* | 3.05 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 668) | 1.14 | 9.42** | .02 | .29 |
| Transparent, non-coloured condoms with spermicide | (df=1, 680) | .08 | 7.36 | .65 | 2.09 |
| Reasons to use a condom: avoid pregnancy | (df=1, 668) | .04 | 8.19** | .10 | 1.30 |
| Reasons to use a condom: avoid infections | (df=1, 663) | .47 | 10.89*** | .53 | 1.46 |
| Reasons to use a condom: to have pleasure | (df=1, 655) | 5.83** | 27.81*** | 1.27 | 1.75 |
| Reasons to use a condom: partner(s) wants to | (df=1, 658) | .25 | 7.41** | 1.24 | 3.01 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 614) | 5.49** | 11.08*** | .87 | 2.84 |
| How often include condoms into the foreplay | (df=1, 274) | 1.45 | 11.40*** | .03 | 2.30 |
| Frequency of partner(s) participation on putting a condom on | (df=1, 664) | 2.53 | .71 | .02 | 2.75 |
| Frequency of condom use with the non-stable partner | (df=1, 195) | 1.25 | 65.62*** | .00 | 2.75 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 5.

Means for main and interaction effects for frequency of condom use (C-use) and sexual orientation (homosexual-bisexual/heterosexual).

| Composite scales and individual items | C-use | | Sexual Orientation | | C-use x Sexual Orientation | | | |
|---|-------|----------|--------------------|------|----------------------------|------|----------|------|
| | User | Non-user | Hom-Bis | Het | User | | Non-user | |
| | | | | | Hom-Bis | Het | Hom-Bis | Het |
| Behavioural expectations | 4.61 | 3.35 | 3.95 | 3.89 | 4.59 | 4.61 | 3.06 | 3.35 |
| Behavioural principles | 4.94 | 4.14 | 4.47 | 4.48 | 5.00 | 4.94 | 3.75 | 4.15 |
| Perceived behaviour control | 5.17 | 4.01 | 4.46 | 4.51 | 5.27 | 5.17 | 3.35 | 4.03 |
| Regret | 5.41 | 4.94 | 5.05 | 5.15 | 5.47 | 5.41 | 4.48 | 4.95 |
| Stigma | 4.81 | 4.70 | 4.18 | 4.77 | 4.09 | 4.84 | 4.31 | 4.71 |
| Condom preference | 3.86 | 4.02 | 4.28 | 3.94 | 4.68 | 3.83 | 3.72 | 4.02 |
| Sensation seeking | 3.34 | 3.35 | 3.66 | 3.34 | 3.79 | 3.32 | 3.48 | 3.34 |
| Nonsexual | 3.87 | 3.91 | 4.13 | 3.88 | 4.40 | 3.85 | 3.75 | 3.91 |
| Compulsivity | 2.56 | 2.62 | 2.81 | 2.59 | 2.76 | 2.56 | 2.88 | 2.62 |
| Sexual sensation seeking | 4.00 | 3.91 | 4.47 | 3.93 | 4.74 | 3.97 | 4.11 | 3.90 |
| Intimates | 3.91 | 3.63 | 3.84 | 3.75 | 4.39 | 3.89 | 3.08 | 3.64 |
| Family-doctor | 3.89 | 3.70 | 4.04 | 3.77 | 4.09 | 3.89 | 3.97 | 3.69 |
| Attitudes | 4.41 | 3.67 | 4.30 | 3.98 | 4.80 | 4.39 | 3.61 | 3.67 |
| Embarrassment to buy | 4.22 | 3.99 | 4.16 | 4.09 | 4.42 | 4.21 | 3.74 | 4.00 |
| Embarrassment to talk | 5.35 | 5.07 | 5.39 | 5.18 | 5.61 | 5.34 | 5.08 | 5.07 |
| General-intention | 5.66 | 4.88 | 5.04 | 5.22 | 5.93 | 5.65 | 3.81 | 4.90 |
| Current-intention | 4.74 | 3.57 | 3.95 | 4.07 | 4.60 | 4.75 | 3.06 | 3.58 |
| When discuss condom use: a few hours or days before sex | 3.64 | 3.09 | 3.53 | 3.33 | 3.10 | 3.66 | 4.40 | 3.07 |
| When discuss condom use: immediately before sex | 4.32 | 4.26 | 4.63 | 4.28 | 4.40 | 4.31 | 5.00 | 4.25 |
| Who usually suggest s condoms: 1 (Other) 2 (Both) 3 (Self) | 2.29 | 2.16 | 1.89 | 2.23 | 2.18 | 2.30 | 1.50 | 2.18 |
| Transparent, non-coloured condoms with spermicide | 4.05 | 3.77 | 3.74 | 3.89 | 4.55 | 4.03 | 2.63 | 3.79 |
| Reasons to use a condom: avoid pregnancy | 5.57 | 5.28 | 4.94 | 5.42 | 5.73 | 5.56 | 3.71 | 5.31 |
| Reasons to use a condom: avoid infections | 5.58 | 5.27 | 5.56 | 5.40 | 5.27 | 5.59 | 6.00 | 5.25 |
| Reasons to use a condom: to have pleasure | 2.38 | 1.83 | 1.95 | 2.07 | 2.00 | 2.40 | 1.88 | 1.83 |
| Reasons to use a condom: partner(s) wants to | 3.37 | 3.70 | 4.06 | 3.54 | 3.55 | 3.37 | 4.86 | 3.67 |
| When put a condom on (before ejaculation/before penetration) | 5.28 | 4.83 | 5.00 | 5.03 | 5.18 | 5.29 | 4.71 | 4.83 |
| How often include condoms into the foreplay | 4.84 | 4.15 | 5.17 | 4.49 | 5.50 | 4.83 | 5.00 | 4.12 |
| Frequency of partner(s) participation on putting a condom on | 3.57 | 3.43 | 4.11 | 3.47 | 4.09 | 3.55 | 4.13 | 3.41 |
| Frequency of condom use with the non-stable partner | 5.04 | 3.15 | 3.00 | 3.96 | 4.33 | 5.08 | 1.67 | 3.19 |

Table 6.

ANOVA's F statistics for main and interaction effects for frequency of condom use (user/non-user) and sexual orientation (homosexual-bisexual/heterosexual).

| Composite scales and individual items | | C-use | Sex-Orient | C-use x Sex-Ori | MSe |
|--|-------------|----------|------------|-----------------|------|
| Behavioural expectations | (df=1, 668) | 21.27*** | .27 | .20 | 1.65 |
| Behavioural principles | (df=1, 678) | 17.73*** | .48 | .89 | 1.06 |
| Perceived behaviour control | (df=1, 668) | 53.53*** | 1.90 | 3.48 | .79 |
| Regret | (df=1, 650) | 10.77*** | .89 | 1.45 | .88 |
| Stigma | (df=1, 679) | .02 | 3.58 | .34 | 1.66 |
| Condom preference | (df=1, 678) | 1.55 | .80 | 3.53 | 1.71 |
| Sensation seeking | (df=1, 679) | .80 | 3.37 | 1.03 | .48 |
| Nonsexual | (df=1, 679) | 2.00 | .88 | 2.89 | .79 |
| Compulsivity | (df=1, 679) | .17 | 1.27 | .02 | .78 |
| Sexual sensation seeking | (df=1, 668) | 2.63 | 5.19* | 1.77 | .83 |
| Intimates | (df=1, 646) | 12.36*** | .02 | 5.86** | .87 |
| Family - doctor | (df=1, 641) | .36 | .85 | .02 | 1.13 |
| Attitudes | (df=1, 668) | 15.17*** | .50 | .91 | 1.08 |
| Embarrassment to buy | (df=1, 663) | 1.79 | .01 | .48 | 1.84 |
| Embarrassment to talk | (df=1, 668) | 3.01 | .37 | .28 | .96 |
| General-intention | (df=1, 672) | 46.38*** | 3.70* | 10.66*** | .80 |
| Current-intention | (df=1, 677) | 19.48*** | 1.19 | .36 | 1.69 |
| When discuss condom use: a few hours or days before sex | (df=1, 544) | .50 | .59 | 3.58 | 3.25 |
| When discuss condom use: immediately before sex | (df=1, 545) | .33 | .83 | .53 | 3.09 |
| Who usually suggest s condoms: 1 (Other) 2 (Both) 1 (Self) | (df=1, 660) | 10.04** | 9.85** | 4.98* | .29 |
| Transparent, non-coloured condoms with spermicide | (df=1, 673) | 10.28*** | .93 | 6.19** | 2.05 |
| Reasons to use a condom: avoid pregnancy | (df=1, 661) | 16.87*** | 6.76** | 10.20*** | 1.27 |
| Reasons to use a condom: avoid infections | (df=1, 656) | .43 | .52 | 3.23 | 1.47 |
| Reasons to use a condom: to have pleasure | (df=1, 648) | 1.23 | .31 | .50 | 1.76 |
| Reasons to use a condom: partner(s) wants to | (df=1, 651) | 3.59 | 2.54 | 1.39 | 3.03 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 617) | 1.20 | .07 | .00 | 2.93 |
| How often include condoms into the foreplay | (df=1, 273) | .84 | 1.38 | .03 | 2.26 |
| Frequency of partner(s) participation on putting a condom on | (df=1, 659) | .02 | 2.59 | .05 | 2.74 |
| Frequency of condom use with the non-stable partner | (df=1, 196) | 10.96*** | 2.72 | .32 | 2.75 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 7.

Appendix 2

Means for main and interaction effects for type of relationship (with/without stable or main sexual partner) and gender (male/female).

| Composite scales and individual items | Type Relationship | | Gender | | Type Relationship x Gender | | | |
|---|-------------------|---------|--------|--------|----------------------------|--------|---------|--------|
| | With | Without | Male | Female | With | | Without | |
| | | | | | Male | Female | Male | Female |
| Behavioural expectations | 3.82 | 4.27 | 3.87 | 4.15 | 3.75 | 3.91 | 4.04 | 4.73 |
| Behavioural principles | 4.44 | 4.68 | 4.41 | 4.70 | 4.34 | 4.56 | 4.52 | 5.03 |
| Perceived behaviour control | 4.43 | 4.69 | 4.64 | 4.36 | 4.53 | 4.32 | 4.79 | 4.47 |
| Regret | 5.12 | 5.25 | 5.10 | 5.28 | 5.08 | 5.18 | 5.12 | 5.52 |
| Stigma | 4.81 | 4.66 | 4.57 | 5.02 | 4.59 | 5.06 | 4.53 | 4.92 |
| Condom preference | 3.98 | 3.80 | 3.89 | 3.96 | 3.94 | 4.04 | 3.82 | 3.77 |
| Sensation seeking | 3.27 | 3.36 | 3.55 | 2.96 | 3.53 | 2.98 | 3.58 | 2.92 |
| Nonsexual | 3.85 | 3.88 | 4.00 | 3.66 | 4.00 | 3.68 | 4.00 | 3.62 |
| Compulsivity | 2.52 | 2.63 | 2.87 | 2.12 | 2.84 | 2.16 | 2.92 | 2.03 |
| Sexual sensation seeking | 3.85 | 3.99 | 4.14 | 3.56 | 4.12 | 3.54 | 4.17 | 3.60 |
| Intimates | 3.70 | 3.85 | 3.86 | 3.61 | 3.82 | 3.56 | 3.90 | 3.73 |
| Family-doctor | 3.75 | 3.89 | 3.86 | 3.70 | 3.86 | 3.62 | 3.86 | 3.94 |
| Attitudes | 3.95 | 4.28 | 3.90 | 4.32 | 3.74 | 4.21 | 4.13 | 4.59 |
| Embarrassment to buy | 4.03 | 3.97 | 4.40 | 3.42 | 4.43 | 3.54 | 4.35 | 3.13 |
| Embarrassment to talk | 5.29 | 4.90 | 5.07 | 5.25 | 5.18 | 5.41 | 4.92 | 4.85 |
| General-intention | 5.27 | 5.26 | 5.12 | 5.47 | 5.07 | 5.49 | 5.18 | 5.42 |
| Current-intention | 3.84 | 4.62 | 4.14 | 4.10 | 3.81 | 3.88 | 4.61 | 4.64 |
| When discuss condom use: a few hours or days before sex | 3.36 | 3.43 | 3.13 | 3.75 | 3.00 | 3.81 | 3.35 | 3.60 |
| When discuss condom use: immediately before sex | 4.18 | 4.28 | 4.44 | 3.87 | 4.47 | 3.81 | 4.39 | 4.03 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.19 | 2.26 | 2.22 | 2.21 | 2.15 | 2.23 | 2.31 | 2.16 |
| Transparent, non-coloured condoms with spermicide | 3.84 | 3.89 | 3.90 | 3.81 | 3.86 | 3.83 | 3.95 | 3.77 |
| Reasons to use a condom: avoid pregnancy | 5.45 | 5.39 | 5.43 | 5.43 | 5.42 | 5.49 | 5.45 | 5.27 |
| Reasons to use a condom: avoid infections | 5.28 | 5.57 | 5.36 | 5.43 | 5.28 | 5.27 | 5.46 | 5.80 |
| Reasons to use a condom: to have pleasure | 2.09 | 2.11 | 1.98 | 2.27 | 1.91 | 2.31 | 2.07 | 2.17 |
| Reasons to use a condom: partner(s) wants to | 3.63 | 3.35 | 3.59 | 3.43 | 3.72 | 3.53 | 3.42 | 3.19 |
| When put a condom on (before ejaculation/before penetration) | 4.94 | 5.26 | 5.22 | 4.77 | 5.17 | 4.65 | 5.29 | 5.17 |
| How often include condoms into the foreplay | 4.39 | 4.68 | 4.36 | 4.69 | 3.96 | 4.85 | 4.87 | 4.24 |
| Frequency of partner(s) participation on putting a condom on | 3.53 | 3.25 | 3.06 | 3.99 | 3.09 | 4.07 | 3.02 | 3.79 |
| Frequency of condom use with the non-stable partner | 3.93 | ---- | 4.05 | 3.43 | 4.10 | 3.43 | ---- | ---- |
| Frequency of condom use: vaginal or anal sex | 3.34 | 4.17 | 3.77 | 3.31 | 3.46 | 3.19 | 4.26 | 3.84 |

Table 8.

Appendix 2

ANOVA's F statistics for main and interaction effects for type of relationship (with/without stable or main sexual partner) and gender (male/female).

| Composite scales and individual items | Type R | Gender | Type R x Gender | MSe |
|--|----------|-----------|-----------------|------|
| Behavioural expectations (df=1, 775) | 25.42*** | 15.17*** | 5.54** | 1.98 |
| Behavioural principles (df=1, 785) | 14.75*** | 19.24*** | 2.87 | 1.17 |
| Perceived behaviour control (df=1, 775) | 6.89** | 11.69*** | .51 | 1.03 |
| Regret (df=1, 754) | 6.42** | 11.10*** | 4.05* | .90 |
| Stigma (df=1, 786) | 1.06 | 19.35*** | .15 | 1.61 |
| Condom preference (df=1, 785) | 3.65* | .06 | .55 | 1.74 |
| Sensation seeking (df=1, 786) | .01 | 142.77*** | 1.11 | .43 |
| Nonsexual (df=1, 786) | .15 | 26.39*** | .25 | .81 |
| Compulsivity (df=1, 786) | .15 | 154.51*** | 2.93 | .67 |
| Sexual sensation seeking (df=1, 770) | .62 | 66.34*** | .00 | .80 |
| Intimates (df=1, 744) | 2.59 | 8.19** | .31 | .89 |
| Family - doctor (df=1, 738) | 3.53 | .97 | 3.51 | 1.15 |
| Attitudes (df=1, 772) | 22.10*** | 32.06*** | .00 | 1.11 |
| Embarrassment to buy (df=1, 765) | 5.57** | 108.69*** | 2.65 | 1.66 |
| Embarrassment to talk (df=1, 774) | 27.22*** | .97 | 3.73* | 1.01 |
| General-intention (df=1, 779) | .07 | 20.05*** | 1.62 | .89 |
| Current-intention (df=1, 784) | 56.10*** | .24 | .03 | 1.82 |
| When discuss condom use: a few hours or days before sex (df=1, 605) | .17 | 10.32*** | 2.90 | 3.20 |
| When discuss condom use: immediately before sex (df=1, 608) | .20 | 10.05** | .87 | 3.10 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) (df=1, 758) | 1.15 | .86 | 7.11** | .28 |
| Transparent, non-coloured condoms with spermicide (df=1, 780) | .03 | .90 | .43 | 2.06 |
| Reasons to use a condom: avoid pregnancy (df=1, 768) | 1.14 | .36 | 2.07 | 1.28 |
| Reasons to use a condom: avoid infections (df=1, 763) | 13.55*** | 2.84 | 3.13 | 1.52 |
| Reasons to use a condom: to have pleasure (df=1, 755) | .02 | 5.78** | 2.12 | 1.79 |
| Reasons to use a condom: partner(s) wants to (df=1, 758) | 5.25* | 2.37 | .01 | 3.11 |
| When put a condom on (before ejaculation/before penetration) (df=1, 664) | 4.45* | 4.66* | 1.72 | 2.84 |
| How often include condoms into the foreplay (df=1, 297) | .65 | .48 | 16.13*** | 2.22 |
| Frequency of partner(s) participation on putting a condom on (df=1, 753) | 1.78 | 45.55*** | .63 | 2.61 |
| Frequency of condom use with the non-stable partner (df=1, 197) | ---- | 1.54 | ---- | 3.57 |
| Frequency of condom use: vaginal or anal sex (df=1, 707) | 20.91*** | 4.78* | .24 | 2.93 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 9.

Appendix 2

Means for main and interaction effects for frequency of condom use (user/non-user) and type of relationship (with/without stable or main sexual partner).

| Composite scales and individual items | C-use | | Type Relationship | | C-use x Type Relationship | | | |
|---|-------|----------|-------------------|---------|---------------------------|---------|----------|---------|
| | User | Non-user | With | Without | User | | Non-user | |
| | | | | | With | Without | With | Without |
| Behavioural expectations | 4.63 | 3.37 | 3.82 | 4.10 | 4.77 | 4.41 | 3.26 | 3.72 |
| Behavioural principles | 4.96 | 4.14 | 4.44 | 4.59 | 4.95 | 4.96 | 4.14 | 4.14 |
| Perceived behaviour control | 5.17 | 4.05 | 4.44 | 4.71 | 5.21 | 5.11 | 3.98 | 4.24 |
| Regret | 5.42 | 4.95 | 5.12 | 5.22 | 5.50 | 5.31 | 4.89 | 5.11 |
| Stigma | 4.83 | 4.70 | 4.81 | 4.64 | 4.96 | 4.63 | 4.72 | 4.64 |
| Condom preference | 3.81 | 4.02 | 3.98 | 3.82 | 3.93 | 3.64 | 4.01 | 4.04 |
| Sensation seeking | 3.35 | 3.34 | 3.28 | 3.49 | 3.28 | 2.47 | 3.29 | 3.52 |
| Nonsexual | 3.87 | 3.90 | 3.86 | 3.97 | 3.89 | 3.84 | 3.84 | 4.11 |
| Compulsivity | 2.58 | 2.62 | 2.53 | 2.77 | 2.44 | 2.78 | 2.58 | 2.76 |
| Sexual sensation seeking | 4.01 | 3.90 | 3.86 | 4.12 | 3.94 | 4.12 | 3.82 | 4.14 |
| Intimates | 3.90 | 3.63 | 3.71 | 3.83 | 3.93 | 3.86 | 3.58 | 3.80 |
| Family-doctor | 3.87 | 3.70 | 3.74 | 3.85 | 3.89 | 3.85 | 3.65 | 3.84 |
| Attitudes | 4.39 | 3.70 | 3.93 | 4.14 | 4.41 | 4.37 | 3.65 | 3.86 |
| Embarrassment to buy | 4.23 | 4.00 | 4.07 | 4.16 | 4.14 | 4.35 | 4.02 | 3.94 |
| Embarrassment to talk | 5.35 | 5.05 | 5.29 | 4.93 | 5.52 | 5.11 | 5.16 | 4.72 |
| General-intention | 5.66 | 4.90 | 5.26 | 5.14 | 5.71 | 5.59 | 5.00 | 4.60 |
| Current-intention | 4.71 | 3.61 | 3.83 | 4.62 | 4.66 | 4.79 | 3.34 | 4.42 |
| When discuss condom use: a few hours or days before sex | 3.61 | 3.16 | 3.35 | 3.38 | 3.73 | 3.42 | 3.11 | 3.32 |
| When discuss condom use: immediately before sex | 4.37 | 4.21 | 4.22 | 4.43 | 4.23 | 4.60 | 4.21 | 4.22 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.29 | 2.17 | 2.19 | 2.29 | 2.21 | 2.43 | 2.18 | 2.13 |
| Transparent, non-coloured condoms with spermicide | 4.06 | 3.77 | 3.85 | 3.98 | 4.07 | 4.05 | 3.73 | 3.90 |
| Reasons to use a condom: avoid pregnancy | 5.56 | 5.27 | 5.44 | 5.29 | 5.58 | 5.53 | 5.37 | 5.00 |
| Reasons to use a condom: avoid infections | 5.58 | 5.25 | 5.28 | 5.62 | 5.47 | 5.74 | 5.17 | 5.49 |
| Reasons to use a condom: to have pleasure | 2.37 | 1.85 | 2.09 | 2.03 | 2.52 | 2.16 | 1.83 | 1.88 |
| Reasons to use a condom: partner(s) wants to | 3.36 | 3.71 | 3.64 | 3.40 | 3.57 | 3.07 | 3.68 | 3.80 |
| When put a condom on (before ejaculation/before penetration) | 5.27 | 4.85 | 4.94 | 5.25 | 5.20 | 5.36 | 4.77 | 5.10 |
| How often include condoms into the foreplay | 4.77 | 4.15 | 4.39 | 4.62 | 4.70 | 4.89 | 4.11 | 4.24 |
| Frequency of partner(s) participation in putting on a condom | 3.55 | 3.40 | 3.54 | 3.31 | 3.60 | 3.49 | 3.51 | 3.09 |
| Frequency of condom use with the non-stable partner | 5.05 | 3.14 | 3.93 | ---- | 5.12 | ---- | 3.21 | ---- |

Tabela 10.

Appendix 2

ANOVA's F statistics for main and interaction effects for frequency of condom use (user/non-user) and type of relationship (with/without stable or main sexual partner).

| Composite scales and individual items | | C-use | Type Rel | C-use x Type R | MSe |
|--|-------------|-----------|----------|----------------|------|
| Behavioural expectations | (df=1, 696) | 111.60*** | .24 | 15.89*** | 1.60 |
| Behavioural principles | (df=1, 706) | 94.22*** | .01 | .00 | 1.05 |
| Perceived behaviour control | (df=1, 696) | 204.93*** | 1.12 | 5.97** | .79 |
| Regret | (df=1, 678) | 27.13*** | .03 | 6.89** | .87 |
| Stigma | (df=1, 707) | 1.15 | 3.67 | 1.47 | 1.64 |
| Condom preference | (df=1, 706) | 4.94* | 1.57 | 2.15 | 1.73 |
| Sensation seeking | (df=1, 707) | .32 | 13.75*** | .21 | .49 |
| Nonsexual | (df=1, 696) | 2.07 | 2.35 | 4.76* | .81 |
| Compulsivity | (df=1, 707) | .62 | 12.42*** | 1.28 | .78 |
| Sexual sensation seeking | (df=1, 696) | .46 | 10.29*** | .94 | .84 |
| Intimates | (df=1, 674) | 6.86** | .96 | 3.30 | .87 |
| Family - doctor | (df=1, 668) | 1.87 | .72 | 1.58 | 1.13 |
| Attitudes | (df=1, 696) | 54.40*** | 1.00 | 2.28 | 1.08 |
| Embarrassment to buy | (df=1, 691) | 5.43* | .29 | 1.62 | 1.85 |
| Embarrassment to talk | (df=1, 696) | 22.02*** | 28.05*** | .04 | .95 |
| General-intention | (df=1, 700) | 133.56*** | 12.60*** | 3.77* | .79 |
| Current-intention | (df=1, 705) | 66.44*** | 33.65*** | 20.69*** | 1.60 |
| When discuss condom use: a few hours or days before sex | (df=1, 559) | 4.34* | .08 | 2.32 | 3.28 |
| When discuss condom use: immediately before sex | (df=1, 566) | 1.49 | 1.38 | 1.30 | 3.07 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 687) | 13.34*** | 3.66 | 9.35** | .29 |
| Transparent, non-coloured condoms with spermicide | (df=1, 701) | 4.25* | .45 | .64 | 2.08 |
| Reasons to use a condom: avoid pregnancy | (df=1, 689) | 15.53*** | 4.74* | 2.94 | 1.30 |
| Reasons to use a condom: avoid infections | (df=1, 684) | 7.60** | 8.72** | .04 | 1.46 |
| Reasons to use a condom: to have pleasure | (df=1, 676) | 19.26*** | 2.06 | 3.52 | 1.77 |
| Reasons to use a condom: partner(s) wants to | (df=1, 679) | 8.61** | 1.73 | 4.81* | 2.99 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 633) | 5.47* | 2.61 | .35 | 2.89 |
| How often include condoms into the foreplay | (df=1, 281) | 10.35*** | .70 | .04 | 2.36 |
| Frequency of partner(s) participation in putting on a condom | (df=1, 685) | 3.15 | 3.65 | 1.31 | 2.74 |
| Frequency of condom use with the non-stable partner | (df=1, 197) | 51.07*** | ---- | ---- | 2.76 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 11.

Appendix 2

Means for main and interaction effects for sexual activity (those without stable or main sexual partners that had/did not have sex in the twelve months) and gender (male/female).

| Composite scales and individual items | Sexual Activity | | Gender | | Sexual Activity x Gender | | | |
|---|-----------------|---------|--------|--------|--------------------------|--------|---------|--------|
| | Had | Did Not | Male | Female | Had | | Did Not | |
| | | | | | Male | Female | Male | Female |
| Behavioural expectations | 4.07 | 4.73 | 4.05 | 4.73 | 4.02 | 4.23 | 4.14 | 5.15 |
| Behavioural principles | 4.56 | 4.96 | 4.51 | 5.03 | 4.50 | 4.78 | 4.56 | 5.24 |
| Perceived behaviour control | 4.70 | 4.66 | 4.80 | 4.47 | 4.86 | 4.15 | 4.55 | 4.74 |
| Regret | 5.20 | 5.40 | 5.13 | 5.52 | 5.12 | 5.47 | 5.18 | 5.56 |
| Stigma | 4.63 | 4.77 | 4.55 | 4.92 | 4.50 | 5.08 | 4.74 | 4.79 |
| Condom preference | 3.86 | 3.66 | 3.82 | 3.77 | 3.83 | 3.99 | 3.78 | 3.58 |
| Sensation seeking | 3.50 | 3.00 | 3.56 | 2.92 | 3.60 | 3.18 | 3.41 | 2.70 |
| Nonsexual | 3.99 | 3.61 | 4.01 | 3.62 | 4.04 | 3.82 | 3.85 | 3.44 |
| Compulsivity | 2.73 | 2.31 | 2.89 | 2.03 | 2.87 | 2.27 | 3.00 | 1.82 |
| Sexual sensation seeking | 4.19 | 3.49 | 4.16 | 3.60 | 4.27 | 3.88 | 3.68 | 3.36 |
| Intimates | 3.88 | 3.76 | 3.89 | 3.73 | 3.91 | 3.75 | 3.82 | 3.71 |
| Family-doctor | 3.89 | 3.94 | 3.89 | 3.94 | 3.93 | 3.73 | 3.70 | 4.11 |
| Attitudes | 4.17 | 4.63 | 4.16 | 4.59 | 4.15 | 4.22 | 4.23 | 4.92 |
| Embarrassment to buy | 4.11 | 3.59 | 4.34 | 3.13 | 4.39 | 3.09 | 4.12 | 3.17 |
| Embarrassment to talk | 4.95 | 4.75 | 4.91 | 4.85 | 4.97 | 4.87 | 4.63 | 4.83 |
| General-intention | 5.10 | 5.63 | 5.19 | 5.42 | 5.13 | 5.00 | 5.42 | 5.78 |
| Current-intention | 4.61 | 4.71 | 4.64 | 4.64 | 4.65 | 4.45 | 4.58 | 4.81 |
| When discuss condom use: a few hours or days before sex | 3.28 | 3.91 | 3.35 | 3.60 | 3.31 | 3.18 | 3.67 | 4.07 |
| When discuss condom use: immediately before sex | 4.54 | 3.39 | 4.37 | 4.03 | 4.50 | 4.69 | 3.68 | 3.15 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.28 | 2.23 | 2.32 | 2.16 | 2.31 | 2.16 | 2.32 | 2.16 |
| Transparent, non-coloured condoms with spermicide | 3.98 | 3.70 | 3.96 | 3.77 | 4.05 | 3.74 | 3.56 | 3.80 |
| Reasons to use a condom: avoid pregnancy | 5.37 | 5.43 | 5.45 | 5.27 | 5.49 | 4.95 | 5.28 | 5.54 |
| Reasons to use a condom: avoid infections | 5.65 | 5.41 | 5.47 | 5.80 | 5.56 | 5.95 | 5.06 | 5.66 |
| Reasons to use a condom: to have pleasure | 2.10 | 2.15 | 2.09 | 2.17 | 2.18 | 1.84 | 1.72 | 2.46 |
| Reasons to use a condom: partner(s) wants to | 3.44 | 3.17 | 3.44 | 3.19 | 3.41 | 3.56 | 3.58 | 2.88 |
| When put a condom on (before ejaculation/before penetration) | 5.31 | 5.24 | 5.34 | 5.17 | 5.28 | 5.38 | 5.88 | 4.67 |
| How often include condoms into the foreplay | 4.63 | 4.90 | 4.87 | 4.24 | 4.97 | 3.65 | 4.27 | 5.60 |
| Frequency of partner(s) participation on putting a condom on | 3.40 | 2.92 | 3.04 | 3.79 | 3.16 | 4.26 | 2.53 | 3.28 |
| Frequency of condom use: vaginal or anal sex | 4.28 | 3.13 | 4.25 | 3.84 | 4.43 | 3.77 | 2.71 | 4.33 |

Table 12.

Appendix 2

ANOVA's F statistics for main and interaction effects for sexual activity (those without stable or main sexual partners that had/did not have sex in the last twelve months) and gender (male/female).

| Composite scales and individual items | S Activity | Gender | S Activity x Gend | MSe |
|--|------------|----------|-------------------|------|
| Behavioural expectations (df=1, 278) | 9.06** | 12.65*** | 5.45* | 1.52 |
| Behavioural principles (df=1, 278) | 3.67 | 12.33*** | 2.24 | .97 |
| Perceived behaviour control (df=1, 277) | 1.47 | 4.80* | 14.47*** | .72 |
| Regret (df=1, 273) | .32 | 8.53** | .02 | .80 |
| Stigma (df=1, 278) | .03 | 3.12 | 2.14 | 1.65 |
| Condom preference (df=1, 278) | 1.57 | .02 | 1.05 | 1.70 |
| Sensation seeking (df=1, 278) | 13.00*** | 37.39*** | 2.38 | .44 |
| Nonsexual (df=1, 278) | 4.47* | 5.56** | .50 | .92 |
| Compulsivity (df=1, 278) | 2.01 | 59.75*** | 6.52** | .68 |
| Sexual sensation seeking (df=1, 268) | 21.80*** | 8.76** | .09 | .70 |
| Intimates (df=1, 260) | .24 | .99 | .05 | .81 |
| Family-doctor (df=1, 260) | .27 | .47 | 4.24* | 1.05 |
| Attitudes (df=1, 272) | 9.69** | 9.36** | 6.04** | .79 |
| Embarrassment to buy (df=1, 274) | .26 | 38.61*** | .97 | 1.66 |
| Embarrassment to talk (df=1, 278) | 1.59 | .11 | 1.06 | 1.17 |
| General-intention (df=1, 275) | 16.06*** | .70 | 3.32 | .91 |
| Current-intention (df=1, 277) | .91 | .01 | 2.11 | 1.17 |
| When discuss condom use: a few hours or days before sex (df=1, 194) | 4.15* | .21 | .74 | 2.92 |
| When discuss condom use: immediately before sex (df=1, 200) | 16.78*** | .34 | 1.62 | 2.80 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) (df=1, 270) | .00 | 3.81* | .01 | .32 |
| Transparent, non-coloured condoms with spermicide (df=1, 277) | 1.42 | 0.03 | 2.23 | 1.76 |
| Reasons to use a condom: avoid pregnancy (df=1, 278) | 1.35 | .73 | 6.15** | 1.34 |
| Reasons to use a condom: avoid infections (df=1, 278) | 9.38** | 14.53*** | .67 | .88 |
| Reasons to use a condom: to have pleasure (df=1, 278) | .22 | 1.22 | 8.89** | 1.68 |
| Reasons to use a condom: partner(s) wants to (df=1, 278) | 1.03 | 1.25 | 2.91 | 3.20 |
| When put a condom on (before ejaculation/before penetration) (df=1, 216) | .05 | 3.93* | 5.41* | 2.12 |
| How often include condoms into the foreplay (df=1, 106) | 3.43 | .00 | 15.34*** | 1.83 |
| Frequency of partner(s) participation on putting a condom on (df=1, 267) | 13.40*** | 17.91*** | .62 | 2.31 |
| Frequency of condom use: vaginal or anal sex (df=1, 214) | 2.11 | 1.48 | 8.25** | 2.49 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 13.

Means for main and interaction effects for frequency of condom use (user/non-user) and sexual activity (those without stable or main sexual partners that had/did not have sex in the last twelve months).

| Composite scales and individual items | C-use | | Sexual Activity | | C-use x S Activity | | | |
|---|-------|----------|-----------------|---------|--------------------|---------|----------|---------|
| | User | Non-user | Had | Did not | User | | Non-user | |
| | | | Had | Did not | Had | Did not | Had | Did not |
| Behavioural expectations | 4.42 | 3.72 | 4.07 | 4.33 | 4.36 | 5.06 | 3.70 | 3.86 |
| Behavioural principles | 4.94 | 4.15 | 4.56 | 4.75 | 4.89 | 5.60 | 4.14 | 4.21 |
| Perceived behaviour control | 5.11 | 4.24 | 4.70 | 4.83 | 5.10 | 5.27 | 4.19 | 4.54 |
| Regret | 5.31 | 5.13 | 5.20 | 5.46 | 5.28 | 5.72 | 5.11 | 5.29 |
| Stigma | 4.65 | 4.66 | 4.63 | 4.87 | 4.64 | 4.78 | 4.61 | 4.93 |
| Condom preference | 3.63 | 4.05 | 3.85 | 3.58 | 3.74 | 2.36 | 3.99 | 4.36 |
| Sensation seeking | 3.44 | 3.52 | 3.50 | 3.24 | 3.47 | 3.10 | 3.55 | 3.34 |
| Nonsexual | 3.83 | 4.12 | 3.99 | 3.70 | 3.87 | 3.41 | 4.15 | 3.89 |
| Compulsivity | 2.74 | 2.74 | 2.74 | 2.76 | 2.76 | 2.46 | 2.71 | 2.96 |
| Sexual sensation seeking | 4.11 | 4.13 | 4.19 | 3.54 | 4.14 | 3.76 | 4.25 | 3.40 |
| Intimates | 3.83 | 3.80 | 3.87 | 3.44 | 3.89 | 3.21 | 3.84 | 3.58 |
| Family-doctor | 3.88 | 3.86 | 3.89 | 3.71 | 3.93 | 3.29 | 3.84 | 3.98 |
| Attitudes | 4.41 | 3.88 | 4.16 | 4.22 | 4.44 | 4.07 | 3.80 | 4.31 |
| Embarrassment to buy | 4.33 | 3.93 | 4.12 | 4.38 | 4.30 | 4.76 | 3.90 | 4.14 |
| Embarrassment to talk | 5.09 | 4.71 | 4.96 | 4.54 | 5.10 | 5.00 | 4.78 | 4.24 |
| General-intention | 5.60 | 4.60 | 5.10 | 5.53 | 5.58 | 5.81 | 4.47 | 5.35 |
| Current-intention | 4.82 | 4.43 | 4.61 | 4.92 | 4.81 | 5.06 | 4.36 | 4.83 |
| When discuss condom use: a few hours or days before sex | 3.42 | 3.33 | 3.28 | 4.67 | 3.31 | 5.00 | 3.23 | 4.33 |
| When discuss condom use: immediately before sex | 4.57 | 4.22 | 4.54 | 3.24 | 4.63 | 3.86 | 4.43 | 2.80 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.43 | 2.13 | 2.28 | 2.39 | 2.42 | 2.56 | 2.10 | 2.29 |
| Transparent, non-coloured condoms with spermicide | 4.05 | 3.91 | 4.00 | 3.87 | 3.99 | 4.78 | 4.01 | 3.29 |
| Reasons to use a condom: avoid pregnancy | 5.54 | 4.99 | 5.37 | 4.61 | 5.63 | 4.44 | 5.03 | 4.71 |
| Reasons to use a condom: avoid infections | 5.75 | 5.48 | 5.65 | 5.48 | 5.75 | 5.78 | 5.51 | 5.29 |
| Reasons to use a condom: to have pleasure | 2.18 | 1.89 | 2.10 | 1.57 | 2.25 | 1.33 | 1.92 | 1.71 |
| Reasons to use a condom: partner(s) wants to | 3.10 | 3.80 | 3.46 | 3.13 | 3.19 | 2.00 | 3.79 | 3.86 |
| When put a condom on (before ejaculation/before penetration) | 5.43 | 5.09 | 5.30 | 5.08 | 5.49 | 4.63 | 5.04 | 6.00 |
| How often include condoms into the foreplay | 4.89 | 4.24 | 4.63 | 4.50 | 4.86 | 5.17 | 4.32 | 3.50 |
| Frequency of partner(s) participation in putting on a condom | 3.52 | 3.10 | 3.41 | 2.62 | 3.52 | 3.44 | 3.26 | 2.00 |

Table 14.

ANOVA's F statistics for main and interaction effects for frequency of condom use (user/non-user) and sexual activity (those without a stable or main sexual partners that had/did not have sex in the last twelve months).

| Composite scales and individual items | | C-use | S Activity | C-use x S Activity | MSe |
|--|-------------|----------|------------|--------------------|------|
| Behavioural expectations | (df=1, 214) | 12.24*** | 2.56 | 1.00 | 1.40 |
| Behavioural principles | (df=1, 214) | 26.66*** | 3.48 | 2.44 | .84 |
| Perceived behaviour control | (df=1, 213) | 22.07*** | 2.23 | .29 | .59 |
| Regret | (df=1, 212) | 2.24 | 2.38 | .44 | .80 |
| Stigma | (df=1, 214) | .05 | .64 | .10 | 1.61 |
| Condom preference | (df=1, 214) | 16.48*** | 3.33 | 9.81** | 1.51 |
| Sensation seeking | (df=1, 214) | 1.03 | 3.61 | .27 | .46 |
| Nonsexual | (df=1, 214) | 3.32 | 2.87 | .22 | .89 |
| Compulsivity | (df=1, 214) | 1.30 | .02 | 2.00 | .76 |
| Sexual sensation seeking | (df=1, 209) | .48 | 11.14*** | 1.66 | .66 |
| Intimates | (df=1, 203) | .67 | 5.63* | 1.19 | .76 |
| Family-doctor | (df=1, 203) | 1.83 | 1.23 | 3.05 | .98 |
| Attitudes | (df=1, 211) | .97 | .11 | 4.60* | .81 |
| Embarrassment to buy | (df=1, 214) | 2.72 | 1.32 | .12 | 1.86 |
| Embarrassment to talk | (df=1, 214) | 5.77** | 2.06 | .98 | .99 |
| General-intention | (df=1, 211) | 17.23*** | 8.42** | 2.84 | .71 |
| Current-intention | (df=1, 213) | 2.10 | 2.29 | .21 | 1.10 |
| When discuss condom use: a few hours or days before sex | (df=1, 159) | .53 | 7.43** | .33 | 2.90 |
| When discuss condom use: immediately before sex | (df=1, 168) | 2.20 | 8.11** | 1.05 | 2.64 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 214) | 4.92* | 1.41 | .03 | .35 |
| Transparent, non-coloured condoms with spermicide | (df=1, 213) | 6.02** | .01 | 6.37** | 1.77 |
| Reasons to use a condom: avoid pregnancy | (df=1, 214) | .36 | 7.65** | 2.53 | 1.46 |
| Reasons to use a condom: avoid infections | (df=1, 214) | 4.41* | .33 | .52 | .60 |
| Reasons to use a condom: to have pleasure | (df=1, 214) | .01 | 3.58 | 1.44 | 1.72 |
| Reasons to use a condom: partner(s) wants to | (df=1, 214) | 10.52*** | 2.21 | 2.77 | 2.82 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 193) | 1.04 | .01 | 4.08* | 2.06 |
| How often include condoms into the foreplay | (df=1, 95) | 4.75* | .25 | 1.21 | 2.23 |
| Frequency of partner(s) participation in putting on a condom | (df=1, 212) | 6.33** | 3.85* | 3.00 | 2.15 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 1.

ANOVA's F statistics for main and interaction effects for activity type (with/without a stable or main sexual partner and had sex in the last twelve months) and gender (male/female).

| Composite scales and individual items | Act Type | Gender | Act Type x Gender | MSe |
|--|----------|----------|-------------------|------|
| Behavioural expectations (df=1, 665) | 4.79* | 1.63 | .05 | 2.02 |
| Behavioural principles (df=1, 675) | 5.75* | 3.23 | .04 | 1.19 |
| Perceived behaviour control (df=1, 665) | .68 | 20.17*** | 5.99** | 1.08 |
| Regret (df=1, 647) | 3.62 | 4.90* | 2.13 | .93 |
| Stigma (df=1, 676) | .12 | 17.64*** | .21 | 1.62 |
| Condom preference (df=1, 675) | .35 | .84 | .12 | 1.73 |
| Sensation seeking (df=1, 676) | 5.25* | 61.93*** | 1.12 | .40 |
| Nonsexual (df=1, 676) | 1.37 | 10.38*** | .43 | .78 |
| Compulsivity (df=1, 676) | .98 | 65.55*** | .27 | .65 |
| Sexual sensation seeking (df=1, 665) | 9.25** | 31.69*** | 1.15 | .74 |
| Intimates (df=1, 643) | 1.98 | 4.52* | .23 | .87 |
| Family-doctor (df=1, 637) | .96 | 4.83* | .10 | 1.11 |
| Attitudes (df=1, 665) | 5.40* | 5.84** | 2.89 | 1.15 |
| Embarrassment to buy (df=1, 660) | 4.15* | 76.48*** | 3.06 | 1.61 |
| Embarrassment to talk (df=1, 665) | 15.89*** | .52 | 3.35 | .95 |
| General-intention (df=1, 669) | 4.78* | 2.35 | 8.46** | .94 |
| Current-intention (df=1, 674) | 29.52*** | .52 | .60 | 1.90 |
| When discuss condom use: a few hours or days before sex (df=1, 540) | .73 | 2.73 | 5.17* | 3.22 |
| When discuss condom use: immediately before sex (df=1, 540) | 4.99* | .79 | 3.83* | 2.97 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) (df=1, 658) | .92 | .40 | 4.91* | .29 |
| Transparent, non-coloured condoms with spermicide (df=1, 672) | .15 | 1.35 | 1.01 | 2.12 |
| Reasons to use a condom: avoid pregnancy (df=1, 658) | 3.91* | 4.43* | 7.48** | 1.28 |
| Reasons to use a condom: avoid infections (df=1, 653) | 16.32*** | 2.73 | 2.56 | 1.50 |
| Reasons to use a condom: to have pleasure (df=1, 645) | .60 | .12 | 8.38** | 1.84 |
| Reasons to use a condom: partner(s) wants to (df=1, 648) | .54 | .04 | 1.09 | 3.05 |
| When put a condom on (before ejaculation/before penetration) (df=1, 615) | 6.42** | 1.89 | 3.78* | 2.83 |
| How often include condoms into the foreplay (df=1, 269) | .29 | 1.35 | 25.94*** | 2.21 |
| Frequency of partner(s) participation on putting a condom on (df=1, 658) | .33 | 45.93*** | .08 | 2.52 |
| Frequency of condom use with the non-stable partner (df=1, 199) | ----a | 3.59 | ----a | 3.58 |
| Frequency of condom use: vaginal or anal sex (df=1, 675) | 21.99*** | 7.81** | 1.47 | 2.84 |

*P < 0.05; **P < 0.01; ***P < 0.001.

----a = not applicable because one level of activity type implies not having a stable partner.

Table 2.

ANOVA's F statistics for main and interaction effects for sensation seeking (high/low) and gender (male/female).

| Composite scales and individual items | | SS | Gender | SS x Gender | MSe |
|--|-------------|----------|-----------|-------------|------|
| Behavioural expectations | (df=1, 781) | 6.63** | 3.21 | .72 | 2.02 |
| Behavioural principles | (df=1, 791) | .22 | 10.02*** | .04 | 1.19 |
| Perceived behaviour control | (df=1, 781) | 1.37 | 10.62*** | 2.11 | 1.04 |
| Regret | (df=1, 760) | .47 | 2.60 | 5.69* | .90 |
| Stigma | (df=1, 792) | .06 | 23.47*** | 3.92* | 1.60 |
| Condom preference | (df=1, 791) | 15.45*** | 4.09* | .11 | 1.73 |
| Sensation seeking | (df=1, 794) | ----a | 159.07*** | ----a | .43 |
| Nonsexual | (df=1, 794) | ----a | 30.16*** | ----a | .81 |
| Compulsivity | (df=1, 794) | ----a | 161.83*** | ----a | .67 |
| Sexual sensation seeking | (df=1, 778) | ----a | 81.64*** | ----a | .80 |
| Intimates | (df=1, 750) | 10.25*** | 3.28 | .85 | .88 |
| Family-doctor | (df=1, 744) | 1.02 | 2.22 | .01 | 1.16 |
| Attitudes | (df=1, 778) | 10.11** | 17.09*** | 1.16 | 1.12 |
| Embarrassment to buy | (df=1, 771) | .05 | 73.40*** | 5.67* | 1.66 |
| Embarrassment to talk | (df=1, 780) | .54 | 5.77* | 3.53 | 1.04 |
| General-intention | (df=1, 785) | 15.52*** | 12.50*** | .01 | .88 |
| Current-intention | (df=1, 790) | 1.70 | .58 | .40 | 1.96 |
| When discuss condom use: a few hours or days before sex | (df=1, 608) | .06 | 13.35*** | .38 | 3.23 |
| When discuss condom use: immediately before sex | (df=1, 611) | 7.88** | 7.99** | .00 | 3.09 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 763) | .88 | .18 | .53 | .28 |
| Transparent, non-coloured condoms with spermicide | (df=1, 786) | .32 | 1.31 | .50 | 2.06 |
| Reasons to use a condom: avoid pregnancy | (df=1, 774) | 2.50 | 1.97 | 16.79*** | 1.27 |
| Reasons to use a condom: avoid infections | (df=1, 769) | 4.26* | 1.31 | 1.08 | 1.53 |
| Reasons to use a condom: to have pleasure | (df=1, 761) | 4.22* | 5.15* | 2.58 | 1.76 |
| Reasons to use a condom: partner(s) wants to | (df=1, 764) | 2.78 | .22 | .01 | 3.12 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 668) | .64 | 9.97** | .31 | 2.85 |
| How often include condoms into the foreplay | (df=1, 301) | .15 | 4.89* | 5.12* | 2.30 |
| Frequency of partner(s) participation on putting a condom on | (df=1, 758) | 9.29** | 71.84*** | 6.80** | 2.58 |
| Frequency of condom use with the non-stable partner | (df=1, 197) | 6.36** | .71 | 5.95* | 3.48 |
| Frequency of condom use: vaginal or anal sex | (df=1, 711) | .23 | 10.04** | .01 | 3.04 |

*P < 0.05; **P < 0.01; ***P < 0.001.

----a = not applicable because the factor sensation seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity and sexual sensation seeking were subscales of sensation seeking.

Table 3.

ANOVA's F statistics for main and interaction effects for frequency of condom use (user/non-user) and gender (male/female).

| Composite scales and individual items | | C-use | Gender | C-use x Gender | MSe |
|--|-------------|-----------|-----------|----------------|------|
| Behavioural expectations | (df=1, 700) | 166.15*** | 11.50*** | 2.95 | 1.63 |
| Behavioural principles | (df=1, 710) | 106.24*** | 15.69*** | .42 | 1.03 |
| Perceived behaviour control | (df=1, 700) | 249.72*** | 4.78* | 1.67 | .79 |
| Regret | (df=1, 682) | 51.49*** | 9.89** | 3.46 | .86 |
| Stigma | (df=1, 711) | 2.84 | 23.92*** | .73 | 1.59 |
| Condom preference | (df=1, 710) | .99 | 1.33 | 1.73 | 1.73 |
| Sensation seeking | (df=1, 711) | 1.39 | 123.20*** | .33 | .42 |
| Nonsexual | (df=1, 711) | .64 | 22.08*** | 1.94 | .79 |
| Compulsivity | (df=1, 711) | 5.58** | 129.50*** | .57 | .67 |
| Sexual sensation seeking | (df=1, 700) | .36 | 62.24*** | .54 | .78 |
| Intimates | (df=1, 678) | 9.41** | 9.33** | .00 | .86 |
| Family - doctor | (df=1, 672) | 1.04 | 11.26*** | 3.82* | 1.11 |
| Attitudes | (df=1, 700) | 96.68*** | 31.51*** | 6.68** | 1.04 |
| Embarrassment to buy | (df=1, 695) | 1.40 | 72.33*** | .67 | 1.66 |
| Embarrassment to talk | (df=1, 700) | 17.39*** | 10.81*** | .51 | .96 |
| General-intention | (df=1, 704) | 124.00*** | 33.00*** | 4.22* | .76 |
| Current-intention | (df=1, 709) | 121.10*** | .07 | 1.43 | 1.72 |
| When discuss condom use: a few hours or days before sex | (df=1, 562) | 13.08*** | 20.90*** | .23 | 3.19 |
| When discuss condom use: immediately before sex | (df=1, 569) | .87 | 7.60** | 2.27 | 3.07 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 691) | 5.06* | .00 | 4.07* | .29 |
| Transparent, non-coloured condoms with spermicide | (df=1, 705) | 5.88** | .12 | .05 | 2.08 |
| Reasons to use a condom: avoid pregnancy | (df=1, 693) | 12.26*** | .02 | .96 | 1.34 |
| Reasons to use a condom: avoid infections | (df=1, 688) | 10.43*** | .50 | .57 | 1.47 |
| Reasons to use a condom: to have pleasure | (df=1, 680) | 29.27*** | 9.74** | .10 | 1.75 |
| Reasons to use a condom: partner(s) wants to | (df=1, 683) | 3.63 | .52 | 2.90 | 3.00 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 637) | 4.80* | 9.75** | 2.27 | 2.84 |
| How often include condoms into the foreplay | (df=1, 285) | 14.87*** | 4.01* | .69 | 2.31 |
| Frequency of partner(s) participation in putting on a condom | (df=1, 689) | 5.80** | 76.06*** | .39 | 2.48 |
| Frequency of condom use with the non-stable partner | (df=1, 197) | 25.38*** | .27 | .18 | 2.78 |

*P < 0.05; **P < 0.01; ***P < 0.001.

Table 4.

ANOVA's F statistics for main and interaction effects for activity type (with/without a stable or main sexual partner and had sex in the last twelve months) and frequency of condom use (user/non-user).

| Composite scales and individual items | Act Type | C-use | Act Type x C-use | MSe |
|--|----------|-----------|------------------|------|
| Behavioural expectations (df=1, 664) | .03 | 98.76*** | 15.02*** | 1.61 |
| Behavioural principles (df=1, 674) | .06 | 76.10*** | .10 | 1.06 |
| Perceived behaviour control (df=1, 664) | .57 | 190.49*** | 4.29* | .80 |
| Regret (df=1, 646) | .00 | 22.66*** | 7.24** | .87 |
| Stigma (df=1, 675) | 3.73* | 1.20 | .72 | 1.66 |
| Condom preference (df=1, 674) | .86 | 2.05 | .71 | 1.72 |
| Sensation seeking (df=1, 675) | 15.97*** | .41 | .42 | .46 |
| Nonsexual (df=1, 675) | 4.03* | 2.23 | 5.07* | .79 |
| Compulsivity (df=1, 675) | 9.28** | .29 | 1.60 | .74 |
| Sexual sensation seeking (df=1, 664) | 17.83*** | .03 | 2.54 | .80 |
| Intimates (df=1, 642) | 1.90 | 5.91* | 3.16 | .86 |
| Family-doctor (df=1, 636) | 1.49 | 3.32 | .78 | 1.11 |
| Attitudes (df=1, 664) | 1.42 | 62.52*** | .58 | 1.05 |
| Embarrassment to buy (df=1, 659) | .04 | 5.48* | 1.22 | 1.81 |
| Embarrassment to talk (df=1, 664) | 22.71*** | 17.22*** | .11 | .93 |
| General-intention (df=1, 668) | 17.19*** | 137.89*** | 6.65** | .80 |
| Current-intention (df=1, 673) | 29.47*** | 66.43*** | 16.64*** | 1.60 |
| When discuss condom use: a few hours or days before sex (df=1, 540) | .72 | 3.88* | 2.36 | 3.26 |
| When discuss condom use: immediately before sex (df=1, 540) | 3.41 | .30 | .36 | 3.02 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) (df=1, 657) | 2.86 | 13.54*** | 10.13** | .29 |
| Transparent, non-coloured condoms with spermicide (df=1, 671) | .84 | 1.51 | 1.95 | 2.09 |
| Reasons to use a condom: avoid pregnancy (df=1, 657) | 1.82 | 17.40*** | 3.90* | 1.26 |
| Reasons to use a condom: avoid infections (df=1, 652) | 9.28** | 6.52** | .08 | 1.49 |
| Reasons to use a condom: to have pleasure (df=1, 644) | .56 | 19.37*** | 2.47 | 1.79 |
| Reasons to use a condom: partner(s) wants to (df=1, 647) | .62 | 5.22* | 2.80 | 3.03 |
| When put a condom on (before ejaculation/before penetration) (df=1, 614) | 3.38 | 8.72** | .00 | 2.84 |
| How often include condoms into the foreplay (df=1, 269) | .73 | 8.43** | .03 | 2.35 |
| Frequency of partner(s) participation on putting a condom on (df=1, 657) | 1.54 | 1.59 | .36 | 2.75 |
| Frequency of condom use with the non-stable partner (df=1, 193) | ----a | 51.11*** | ----a | 2.74 |
| Frequency of condom use: vaginal or anal sex (df=1, 677) | 43.11*** | ----b | ----b | 2.87 |

*P < 0.05; **P < 0.01; ***P < 0.001.

----a = not applicable because one level of activity type implies not having a stable partner.

----b = not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use.

Table 5.

ANOVA's F statistics for main and interaction effects for sensation seeking (high/low) and frequency of condom use (user/non-user).

| Composite scales and individual items | | SS | C-use | SS x C-use | MSe |
|--|-------------|----------|-----------|------------|------|
| Behavioural expectations | (df=1, 703) | 9.61** | 149.84*** | .54 | 1.64 |
| Behavioural principles | (df=1, 713) | 1.50 | 107.85*** | .71 | 1.05 |
| Perceived behaviour control | (df=1, 703) | .05 | 257.26*** | 1.73 | .79 |
| Regret | (df=1, 685) | .63 | 43.11*** | .38 | .87 |
| Stigma | (df=1, 714) | 7.38** | 2.27 | .75 | 1.63 |
| Condom preference | (df=1, 713) | 8.03** | 3.23 | .03 | 1.74 |
| Sensation seeking | (df=1, 716) | ----a | .00 | ----a | .49 |
| Nonsexual | (df=1, 716) | ----a | .43 | ----a | .82 |
| Compulsivity | (df=1, 716) | ----a | .56 | ----a | .79 |
| Sexual sensation seeking | (df=1, 705) | ----a | 2.24 | ----a | .85 |
| Intimates | (df=1, 681) | 11.75*** | 13.55*** | .07 | .86 |
| Family-doctor | (df=1, 675) | 2.61 | 3.12 | 7.84** | 1.12 |
| Attitudes | (df=1, 703) | 19.93*** | 70.87*** | .35 | 1.06 |
| Embarrassment to buy | (df=1, 698) | 4.68* | 4.40* | .09 | 1.84 |
| Embarrassment to talk | (df=1, 703) | 5.80* | 17.23*** | .42 | .97 |
| General-intention | (df=1, 707) | 29.03*** | 129.20*** | .62 | .77 |
| Current-intention | (df=1, 712) | .18 | 116.37*** | .84 | 1.73 |
| When discuss condom use: a few hours or days before sex | (df=1, 564) | 2.18 | 10.70*** | 1.89 | 3.29 |
| When discuss condom use: immediately before sex | (df=1, 571) | 13.09*** | .81 | .18 | 3.06 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | (df=1, 694) | .54 | 9.90** | 4.74* | .29 |
| Transparent, non-coloured condoms with spermicide | (df=1, 708) | .06 | 6.53** | .01 | 2.09 |
| Reasons to use a condom: avoid pregnancy | (df=1, 696) | .01 | 10.84*** | .05 | 1.33 |
| Reasons to use a condom: avoid infections | (df=1, 691) | 3.77* | 12.43*** | .02 | 1.46 |
| Reasons to use a condom: to have pleasure | (df=1, 683) | 10.11** | 25.05*** | .07 | 1.77 |
| Reasons to use a condom: partner(s) wants to | (df=1,686) | 1.65 | 5.78* | 1.63 | 3.02 |
| When put a condom on (before ejaculation/before penetration) | (df=1, 639) | .00 | 9.98** | .60 | 2.88 |
| How often include condoms into the foreplay | (df=1, 287) | 3.32 | 7.85** | 10.84*** | 2.23 |
| Frequency of partner(s) participation on putting a condom on | (df=1, 692) | 1.76 | 1.31 | .31 | 2.75 |
| Frequency of condom use with the non-stable partner | (df=1, 197) | 1.29 | 66.34*** | 3.38 | 2.71 |
| Frequency of condom use: vaginal or anal sex | (df=1, 716) | .16 | ----b | ----b | 3.09 |

*P < 0.05; **P < 0.01; ***P < 0.001.

----a = not applicable because the factor sensation seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity and sexual sensation seeking were subscales of sensation seeking.

----b = not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use.

Table 6.

ANOVA's F statistics for main and interaction effects for activity type (with/without a stable or main sexual partner and had sex in the last twelve months) and sensation seeking (high/low).

| Composite scales and individual items | Act Type | SS | Act Type x SS | MSe |
|--|----------|----------|---------------|------|
| Behavioural expectations (df=1, 665) | 6.36** | 13.60*** | 1.75 | 1.98 |
| Behavioural principles (df=1, 675) | 2.29 | 6.29** | 5.12* | 1.19 |
| Perceived behaviour control (df=1, 665) | 9.30** | .44 | .11 | 1.11 |
| Regret (df=1, 647) | .81 | .00 | 2.55 | .93 |
| Stigma (df=1, 676) | 1.83 | 7.46** | 1.80 | 1.65 |
| Condom preference (df=1, 675) | 2.20 | 5.95* | .31 | 1.71 |
| Sensation seeking (df=1, 678) | 15.99*** | ----a | ----a | .46 |
| Nonsexual (df=1, 678) | 3.68 | ----a | ----a | .80 |
| Compulsivity (df=1, 678) | 8.15** | ----a | ----a | .74 |
| Sexual sensation seeking (df=1, 667) | 20.27*** | ----a | ----a | .80 |
| Intimates (df=1, 643) | 2.76 | 6.84** | .09 | .87 |
| Family-doctor (df=1, 637) | 1.72 | 3.62 | .62 | 1.11 |
| Attitudes (df=1, 665) | 10.68*** | 22.34*** | .84 | 1.14 |
| Embarrassment to buy (df=1, 660) | .05 | 1.99 | .12 | 1.82 |
| Embarrassment to talk (df=1, 665) | 14.08*** | 3.17 | .00 | .96 |
| General-intention (df=1, 669) | 1.20 | 20.03*** | .04 | .94 |
| Current-intention (df=1, 674) | 47.08*** | 2.03 | .09 | 1.90 |
| When discuss condom use: a few hours or days before sex (df=1, 540) | .09 | 1.35 | .00 | 3.32 |
| When discuss condom use: immediately before sex (df=1, 540) | 2.47 | 12.11*** | 1.80 | 2.95 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) (df=1, 658) | 5.44* | 3.74* | .45 | .29 |
| Transparent, non-coloured condoms with spermicide (df=1, 672) | 1.31 | .84 | 1.29 | 2.12 |
| Reasons to use a condom: avoid pregnancy (df=1, 658) | .46 | .01 | .00 | 1.30 |
| Reasons to use a condom: avoid infections (df=1, 653) | 10.98*** | 1.87 | .29 | 1.50 |
| Reasons to use a condom: to have pleasure (df=1, 645) | .33 | 18.59*** | 5.16* | 1.82 |
| Reasons to use a condom: partner(s) wants to (df=1, 648) | 2.01 | 3.26 | .17 | 3.05 |
| When put a condom on (before ejaculation/before penetration) (df=1, 615) | 6.26* | 1.50 | 3.08 | 2.87 |
| How often include condoms into the foreplay (df=1, 269) | 2.20 | 1.05 | 1.52 | 2.40 |
| Frequency of partner(s) participation on putting a condom on (df=1, 658) | 1.18 | .99 | 1.69 | 2.75 |
| Frequency of condom use with the non-stable partner (df=1, 193) | ----b | .00 | ----b | 3.56 |
| Frequency of condom use: vaginal or anal sex (df=1, 675) | 42.37*** | .01 | 2.88 | .01 |

*P < 0.05; **P < 0.01; ***P < 0.001.

----a = not applicable because the factor sensation seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity and sexual sensation seeking were subscales of sensation seeking.

----b = not applicable because one level of activity type implies not having a stable partner.

Table 1.

Means for main and interaction effects for activity type (with/without a stable or main sexual partner and had sex in the last twelve months) and gender (male/female).

| Composite scales and individual items | Activity Type | | Gender | | Activity Type x Gender | | | |
|--|---------------|---------|--------|--------|------------------------|--------|---------|--------|
| | With | Without | Male | Female | With | | Without | |
| | | | | | Male | Female | Male | Female |
| Behavioural expectations | 3.82 | 4.07 | 3.85 | 3.95 | 3.75 | 3.90 | 4.02 | 4.23 |
| Behavioural principles | 4.43 | 4.56 | 4.39 | 4.60 | 4.33 | 4.57 | 4.50 | 4.78 |
| Perceived behaviour control | 4.43 | 4.70 | 4.64 | 4.29 | 4.52 | 4.31 | 4.86 | 4.15 |
| Regret | 5.11 | 5.20 | 5.10 | 5.21 | 5.08 | 5.15 | 5.12 | 5.47 |
| Stigma | 4.81 | 4.63 | 4.57 | 5.07 | 4.60 | 5.07 | 4.50 | 5.08 |
| Condom preference | 3.98 | 3.86 | 3.90 | 4.01 | 3.95 | 4.02 | 3.83 | 3.99 |
| Sensation seeking | 3.27 | 3.50 | 3.55 | 3.00 | 3.52 | 2.97 | 3.60 | 3.18 |
| Nonsexual | 3.85 | 3.99 | 4.01 | 3.69 | 4.00 | 3.66 | 4.04 | 3.82 |
| Compulsivity | 2.53 | 2.73 | 2.84 | 2.17 | 2.83 | 2.15 | 2.87 | 2.27 |
| Sexual sensation seeking | 3.85 | 4.19 | 4.17 | 3.58 | 4.10 | 3.53 | 4.27 | 3.88 |
| Intimates | 3.70 | 3.88 | 3.85 | 3.59 | 3.82 | 3.57 | 3.91 | 3.75 |
| Family-doctor | 3.74 | 3.89 | 3.89 | 3.61 | 3.86 | 3.59 | 3.93 | 3.73 |
| Attitudes | 3.92 | 4.17 | 3.88 | 4.17 | 3.73 | 4.16 | 4.15 | 4.22 |
| Embarrassment to buy | 4.05 | 4.11 | 4.42 | 3.48 | 4.43 | 3.56 | 4.39 | 3.09 |
| Embarrassment to talk | 5.29 | 4.95 | 5.10 | 5.33 | 5.18 | 5.42 | 4.97 | 4.87 |
| General-intention | 5.25 | 5.10 | 5.09 | 5.40 | 5.06 | 5.48 | 5.13 | 5.00 |
| Current-intention | 3.82 | 4.61 | 4.12 | 3.92 | 3.81 | 3.82 | 4.65 | 4.45 |
| When discuss condom use: a few hours or days before sex | 3.36 | 3.28 | 3.12 | 3.70 | 3.02 | 3.80 | 3.31 | 3.18 |
| When discuss condom use: immediately before sex | 4.22 | 4.54 | 4.46 | 4.06 | 4.44 | 3.91 | 4.50 | 4.69 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.18 | 2.28 | 2.21 | 2.22 | 2.15 | 2.23 | 2.31 | 2.16 |
| Transparent, non-coloured condoms with spermicide | 3.84 | 3.98 | 3.93 | 3.82 | 3.85 | 3.83 | 4.05 | 3.74 |
| Reasons to use a condom: avoid pregnancy | 5.44 | 5.37 | 5.44 | 5.39 | 5.41 | 5.48 | 5.49 | 4.95 |
| Reasons to use a condom: avoid infections | 5.27 | 5.65 | 5.38 | 5.39 | 5.27 | 5.27 | 5.56 | 5.95 |
| Reasons to use a condom: to have pleasure | 2.08 | 2.10 | 2.00 | 2.24 | 1.89 | 2.33 | 2.18 | 1.84 |
| Reasons to use a condom: partner(s) wants to | 3.62 | 3.44 | 3.60 | 3.51 | 3.72 | 3.51 | 3.41 | 3.56 |
| When put a condom on (before ejaculation/before penetration) | 4.94 | 5.31 | 5.22 | 4.76 | 5.19 | 4.63 | 5.28 | 5.38 |
| How often include condoms into the foreplay | 4.40 | 4.63 | 4.40 | 4.59 | 4.01 | 4.84 | 4.97 | 3.65 |
| Frequency of partner(s) participation on putting a condom on | 3.56 | 3.40 | 3.13 | 4.15 | 3.11 | 4.12 | 3.16 | 4.26 |
| Frequency of condom use with the non-stable partner | 3.91 | ---- | 4.01 | 3.43 | 4.06 | 3.43 | ---- | ---- |
| Frequency of condom use: vaginal or anal sex | 3.34 | 4.28 | 3.81 | 3.29 | 3.46 | 3.19 | 4.43 | 3.77 |

----= not applicable because one level of activity type implies not having a stable partner.

Table 2.

Means for main and interaction effects for sensation seeking (high/low) and gender (male/female).

| Composite scales and individual items | SS | | Gender | | SS x Gender | | | |
|--|------|------|--------|--------|-------------|--------|------|--------|
| | Low | High | Male | Female | Low | | High | |
| | | | | | Male | Female | Male | Female |
| Behavioural expectations | 4.14 | 3.75 | 3.87 | 4.15 | 4.08 | 4.19 | 3.69 | 3.99 |
| Behavioural principles | 4.59 | 4.45 | 4.41 | 4.70 | 4.44 | 4.71 | 4.39 | 4.68 |
| Perceived behaviour control | 4.54 | 4.50 | 4.64 | 4.37 | 4.75 | 4.36 | 4.54 | 4.38 |
| Regret | 5.20 | 5.15 | 5.10 | 5.29 | 5.03 | 5.34 | 5.16 | 5.10 |
| Stigma | 4.85 | 4.62 | 4.57 | 5.03 | 4.69 | 4.99 | 4.47 | 5.17 |
| Condom preference | 3.77 | 4.12 | 3.88 | 3.96 | 3.68 | 3.86 | 4.06 | 4.31 |
| Sensation seeking | ---- | ---- | 3.55 | 2.96 | ---- | ---- | ---- | ---- |
| Nonsexual | ---- | ---- | 4.01 | 3.66 | ---- | ---- | ---- | ---- |
| Compulsivity | ---- | ---- | 2.87 | 2.12 | ---- | ---- | ---- | ---- |
| Sexual sensation seeking | ---- | ---- | 4.14 | 3.55 | ---- | ---- | ---- | ---- |
| Intimates | 3.64 | 3.92 | 3.85 | 3.61 | 3.76 | 3.54 | 3.94 | 3.87 |
| Family-doctor | 3.74 | 3.88 | 3.87 | 3.70 | 3.81 | 3.69 | 3.91 | 3.77 |
| Attitudes | 4.24 | 3.84 | 3.91 | 4.32 | 4.10 | 4.36 | 3.73 | 4.18 |
| Embarrassment to buy | 3.91 | 4.15 | 4.40 | 3.42 | 4.52 | 3.35 | 4.29 | 3.63 |
| Embarrassment to talk | 5.21 | 5.05 | 5.07 | 5.25 | 5.19 | 5.23 | 4.97 | 5.33 |
| General-intention | 5.42 | 5.03 | 5.11 | 5.47 | 5.28 | 5.54 | 4.97 | 5.24 |
| Current-intention | 4.17 | 4.06 | 4.14 | 4.11 | 4.18 | 4.16 | 4.10 | 3.94 |
| When discuss condom use: a few hours or days before sex | 3.47 | 3.28 | 3.14 | 3.77 | 3.11 | 3.81 | 3.17 | 3.67 |
| When discuss condom use: immediately before sex | 3.95 | 4.52 | 4.43 | 3.85 | 4.18 | 3.73 | 4.63 | 4.18 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.23 | 2.19 | 2.22 | 2.21 | 2.26 | 2.21 | 2.19 | 2.20 |
| Transparent, non-coloured condoms with spermicide | 3.87 | 3.86 | 3.90 | 3.81 | 3.89 | 3.84 | 3.91 | 3.69 |
| Reasons to use a condom: avoid pregnancy | 5.43 | 5.41 | 5.42 | 5.43 | 5.29 | 5.54 | 5.53 | 5.01 |
| Reasons to use a condom: avoid infections | 5.31 | 5.51 | 5.36 | 5.43 | 5.19 | 5.41 | 5.50 | 5.51 |
| Reasons to use a condom: to have pleasure | 2.24 | 1.89 | 1.98 | 2.26 | 2.20 | 2.27 | 1.79 | 2.22 |
| Reasons to use a condom: partner(s) wants to | 3.42 | 3.69 | 3.59 | 3.44 | 3.45 | 3.40 | 3.71 | 3.63 |
| When put a condom on (before ejaculation/before penetration) | 5.06 | 5.05 | 5.23 | 4.78 | 5.34 | 4.79 | 5.14 | 4.75 |
| How often include condoms into the foreplay | 4.62 | 4.28 | 4.35 | 4.69 | 4.63 | 4.62 | 4.09 | 5.00 |
| Frequency of partner(s) participation on putting a condom on | 3.46 | 3.41 | 3.07 | 4.00 | 3.04 | 3.84 | 3.10 | 4.60 |
| Frequency of condom use with the non-stable partner | 3.67 | 4.13 | 4.05 | 3.43 | 4.03 | 2.90 | 4.06 | 4.62 |
| Frequency of condom use: vaginal or anal sex | 3.57 | 3.64 | 3.77 | 3.32 | 3.80 | 3.34 | 3.74 | 3.25 |

----= not applicable because the factor Sensation Seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity, and sexual sensation seeking were subscales of sensation seeking.

Table 3.

Means for main and interaction effects for frequency of condom use (user/non-user) and gender (male/female).

| Composite scales and individual items | C-use | | Gender | | C-use x Gender | | | |
|--|-------|----------|--------|--------|----------------|--------|----------|--------|
| | User | Non-user | Male | Female | User | | Non-user | |
| | | | | | Male | Female | Male | Female |
| Behavioural expectations | 4.61 | 3.38 | 3.85 | 3.99 | 4.45 | 4.97 | 3.31 | 3.48 |
| Behavioural principles | 4.95 | 4.14 | 4.40 | 4.62 | 4.87 | 5.14 | 3.98 | 4.36 |
| Perceived behaviour control | 5.17 | 4.05 | 4.65 | 4.33 | 5.19 | 5.12 | 4.16 | 3.91 |
| Regret | 5.42 | 4.95 | 5.10 | 5.24 | 5.31 | 5.69 | 4.91 | 5.01 |
| Stigma | 4.83 | 4.70 | 4.57 | 5.06 | 4.71 | 5.11 | 4.45 | 5.03 |
| Condom preference | 3.83 | 4.01 | 3.90 | 3.99 | 3.71 | 4.09 | 4.07 | 3.94 |
| Sensation seeking | 3.35 | 3.34 | 3.56 | 2.99 | 3.51 | 2.97 | 3.60 | 3.00 |
| Nonsexual | 3.87 | 3.91 | 4.02 | 3.68 | 3.94 | 3.71 | 4.10 | 3.66 |
| Compulsivity | 2.58 | 2.62 | 2.87 | 2.16 | 2.82 | 2.03 | 2.92 | 2.23 |
| Sexual sensation seeking | 4.00 | 3.90 | 4.16 | 3.58 | 4.16 | 3.65 | 4.17 | 3.55 |
| Intimates | 3.90 | 3.63 | 3.84 | 3.57 | 3.96 | 3.73 | 3.73 | 3.50 |
| Family-doctor | 3.87 | 3.70 | 3.87 | 3.60 | 4.01 | 3.54 | 3.75 | 3.63 |
| Attitudes | 4.40 | 3.71 | 3.88 | 4.20 | 4.19 | 4.86 | 3.60 | 3.85 |
| Embarrassment to buy | 4.22 | 4.01 | 4.44 | 3.51 | 4.46 | 3.65 | 4.42 | 3.44 |
| Embarrassment to talk | 5.36 | 5.05 | 5.10 | 5.32 | 5.30 | 5.50 | 4.91 | 5.23 |
| General-intention | 5.66 | 4.90 | 5.10 | 5.42 | 5.58 | 5.84 | 4.66 | 5.21 |
| Current-intention | 4.72 | 3.61 | 4.13 | 3.99 | 4.67 | 4.83 | 3.65 | 3.55 |
| When discuss condom use: a few hours or days before sex | 3.64 | 3.16 | 3.13 | 3.79 | 3.39 | 4.19 | 2.89 | 3.54 |
| When discuss condom use: immediately before sex | 4.33 | 4.21 | 4.44 | 3.97 | 4.39 | 4.20 | 4.48 | 3.82 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.29 | 2.17 | 2.22 | 2.22 | 2.32 | 2.23 | 2.13 | 2.22 |
| Transparent, non-coloured condoms with spermicide | 4.07 | 3.78 | 3.93 | 3.85 | 4.09 | 4.02 | 3.78 | 3.77 |
| Reasons to use a condom: avoid pregnancy | 5.56 | 5.26 | 5.41 | 5.36 | 5.53 | 5.64 | 5.30 | 5.22 |
| Reasons to use a condom: avoid infections | 5.58 | 5.25 | 5.38 | 5.42 | 5.58 | 5.58 | 5.19 | 5.34 |
| Reasons to use a condom: to have pleasure | 2.38 | 1.84 | 1.98 | 2.23 | 2.27 | 2.64 | 1.71 | 2.02 |
| Reasons to use a condom: partner(s) wants to | 3.38 | 3.70 | 3.60 | 3.50 | 3.34 | 3.48 | 3.85 | 3.51 |
| When put a condom on (before ejaculation/before penetration) | 5.27 | 4.85 | 5.21 | 4.76 | 5.47 | 4.82 | 4.95 | 4.72 |
| How often include condoms into the foreplay | 4.78 | 4.14 | 4.35 | 4.65 | 4.59 | 5.11 | 4.04 | 4.25 |
| Frequency of partner(s) participation in putting on a condom | 3.57 | 3.41 | 3.09 | 4.15 | 3.21 | 4.40 | 2.98 | 4.01 |
| Frequency of condom use with the non-stable partner | 5.05 | 3.14 | 4.05 | 3.43 | 5.08 | 4.75 | 3.15 | 3.12 |
| Frequency of condom use: vaginal or anal | ---- | ---- | 3.77 | 3.32 | ---- | ---- | ---- | ---- |

----= not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use in vaginal or anal sex.

Table 4.

Means for main and interaction effects for activity type (with/without stable or main sexual partner and had sex in the last twelve months) and frequency of condom use (user/non-user).

| Composite scales and individual items | Activity Type | | C_Use | | Activity Type x C_Use | | | |
|--|---------------|---------|-------|----------|-----------------------|----------|---------|----------|
| | With | Without | User | Non-user | With | | Without | |
| | | | User | Non-user | User | Non-user | User | Non-user |
| Behavioural expectations | 3.82 | 4.07 | 4.61 | 3.35 | 4.77 | 3.25 | 4.36 | 3.70 |
| Behavioural principles | 4.43 | 4.56 | 4.92 | 4.14 | 4.94 | 4.14 | 4.89 | 4.14 |
| Perceived behaviour control | 4.43 | 4.70 | 5.16 | 4.02 | 5.20 | 3.97 | 5.10 | 4.19 |
| Regret | 5.11 | 5.20 | 5.41 | 4.94 | 5.49 | 4.89 | 5.28 | 5.11 |
| Stigma | 4.81 | 4.63 | 4.83 | 4.70 | 4.95 | 4.73 | 4.64 | 4.61 |
| Condom preference | 3.98 | 3.85 | 3.86 | 4.00 | 3.94 | 4.00 | 3.74 | 3.99 |
| Sensation seeking | 3.27 | 3.50 | 3.35 | 3.33 | 3.27 | 3.27 | 3.47 | 3.55 |
| Nonsexual | 3.85 | 3.99 | 3.88 | 3.90 | 3.88 | 3.83 | 3.87 | 4.15 |
| Compulsivity | 2.53 | 2.74 | 2.56 | 2.61 | 2.44 | 2.58 | 2.76 | 2.71 |
| Sexual sensation seeking | 3.85 | 4.19 | 4.01 | 3.89 | 3.93 | 3.80 | 4.14 | 4.25 |
| Intimates | 3.70 | 3.87 | 3.91 | 3.63 | 3.92 | 3.58 | 3.89 | 3.84 |
| Family-doctor | 3.74 | 3.89 | 3.91 | 3.69 | 3.90 | 3.64 | 3.93 | 3.84 |
| Attitudes | 3.92 | 4.16 | 4.42 | 3.67 | 4.40 | 3.63 | 4.44 | 3.80 |
| Embarrassment to buy | 4.05 | 4.12 | 4.20 | 3.98 | 4.15 | 4.00 | 4.30 | 3.90 |
| Embarrassment to talk | 5.29 | 4.96 | 5.36 | 5.07 | 5.52 | 5.15 | 5.10 | 4.78 |
| General-intention | 5.25 | 5.10 | 5.66 | 4.88 | 5.71 | 4.99 | 5.58 | 4.47 |
| Current-intention | 3.82 | 4.61 | 4.71 | 3.55 | 4.66 | 3.33 | 4.81 | 4.36 |
| When discuss condom use: a few hours or days before sex | 3.36 | 3.28 | 3.58 | 3.14 | 3.73 | 3.11 | 3.31 | 3.23 |
| When discuss condom use: immediately before sex | 4.22 | 4.54 | 4.37 | 4.27 | 4.22 | 4.22 | 4.63 | 4.43 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.18 | 2.28 | 2.28 | 2.16 | 2.20 | 2.17 | 2.42 | 2.10 |
| Transparent, non-coloured condoms with spermicide | 3.84 | 4.00 | 4.03 | 3.79 | 4.05 | 3.72 | 3.99 | 4.01 |
| Reasons to use a condom: avoid pregnancy | 5.44 | 5.37 | 5.60 | 5.29 | 5.57 | 5.36 | 5.63 | 5.03 |
| Reasons to use a condom: avoid infections | 5.27 | 5.65 | 5.57 | 5.24 | 5.46 | 5.16 | 5.75 | 5.51 |
| Reasons to use a condom: to have pleasure | 2.08 | 2.10 | 2.41 | 1.85 | 2.52 | 1.82 | 2.25 | 1.92 |
| Reasons to use a condom: partner(s) wants to | 3.62 | 3.46 | 3.42 | 3.69 | 3.56 | 3.66 | 3.19 | 3.79 |
| When put a condom on (before ejaculation/before penetration) | 4.94 | 5.30 | 5.32 | 4.83 | 5.21 | 4.77 | 5.49 | 5.04 |
| How often include condoms into the foreplay | 4.40 | 4.63 | 4.78 | 4.17 | 4.72 | 4.11 | 4.86 | 4.32 |
| Frequency of partner(s) participation on putting a condom on | 3.56 | 3.41 | 3.58 | 3.46 | 3.61 | 3.52 | 3.52 | 3.26 |
| Frequency of condom use with the non-stable partner | 3.91 | ----a | 5.05 | 3.09 | 5.12 | 3.15 | ----a | ----a |
| Frequency of condom use: vaginal or anal sex | 3.34 | 4.28 | ----b | ----b | ----b | ----b | ----b | ----b |

----a= not applicable because one level of activity type implies not having a stable partner.

----b= not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use in vaginal or anal sex.

Table 5.

Means for main and interaction effects for sensation seeking (high/low) and frequency of condom use (user/non-user).

| Composite scales and individual items | SS | | C_Use | | SS x C_Use | | | |
|--|-------|-------|-------|----------|------------|----------|-------|----------|
| | High | Low | User | Non-User | High | | Low | |
| | | | | | User | Non-User | User | Non-User |
| Behavioural expectations | 3.72 | 4.04 | 4.61 | 3.38 | 4.39 | 3.25 | 4.77 | 3.48 |
| Behavioural principles | 4.42 | 4.53 | 4.95 | 4.14 | 4.93 | 4.05 | 4.96 | 4.21 |
| Perceived behaviour control | 4.51 | 4.53 | 5.17 | 4.05 | 5.11 | 4.09 | 5.21 | 4.02 |
| Regret | 5.18 | 5.14 | 5.42 | 4.95 | 5.48 | 4.96 | 5.38 | 4.95 |
| Stigma | 4.59 | 4.87 | 4.83 | 4.70 | 4.73 | 4.49 | 4.91 | 4.84 |
| Condom preference | 4.10 | 3.81 | 3.83 | 4.01 | 4.00 | 4.17 | 3.70 | 3.90 |
| Sensation seeking | ----a | ----a | 3.35 | 3.35 | ----a | ----a | ----a | ----a |
| Nonsexual | ----a | ----a | 3.87 | 3.91 | ----a | ----a | ----a | ----a |
| Compulsivity | ----a | ----a | 2.58 | 2.63 | ----a | ----a | ----a | ----a |
| Sexual sensation seeking | ----a | ----a | 4.00 | 3.90 | ----a | ----a | ----a | ----a |
| Intimates | 3.88 | 3.64 | 3.90 | 3.63 | 4.03 | 3.78 | 3.80 | 3.52 |
| Family-doctor | 3.86 | 3.70 | 3.87 | 3.69 | 3.81 | 3.90 | 3.91 | 3.53 |
| Attitudes | 3.80 | 4.16 | 4.40 | 3.72 | 4.16 | 3.54 | 4.56 | 3.85 |
| Embarrassment to buy | 4.23 | 4.01 | 4.22 | 4.01 | 4.37 | 4.12 | 4.11 | 3.93 |
| Embarrassment to talk | 5.06 | 5.26 | 5.36 | 5.05 | 5.28 | 4.91 | 5.41 | 5.15 |
| General-intention | 5.00 | 5.38 | 5.66 | 4.90 | 5.48 | 4.66 | 5.79 | 5.08 |
| Current-intention | 4.06 | 4.10 | 4.72 | 3.62 | 4.64 | 3.65 | 4.78 | 3.60 |
| When discuss condom use: a few hours or days before sex | 3.21 | 3.49 | 3.64 | 3.15 | 3.63 | 2.91 | 3.65 | 3.35 |
| When discuss condom use: immediately before sex | 4.55 | 4.03 | 4.33 | 4.23 | 4.67 | 4.47 | 4.07 | 4.00 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.20 | 2.24 | 2.29 | 2.17 | 2.33 | 2.10 | 2.27 | 2.23 |
| Transparent, non-coloured condoms with spermicide | 3.88 | 3.92 | 4.07 | 3.78 | 4.06 | 3.76 | 4.07 | 3.80 |
| Reasons to use a condom: avoid pregnancy | 5.40 | 5.39 | 5.56 | 5.27 | 5.56 | 5.28 | 5.57 | 5.25 |
| Reasons to use a condom: avoid infections | 5.49 | 5.32 | 5.58 | 5.26 | 5.70 | 5.35 | 5.50 | 5.18 |
| Reasons to use a condom: to have pleasure | 1.88 | 2.23 | 2.38 | 1.85 | 2.20 | 1.65 | 2.50 | 2.01 |
| Reasons to use a condom: partner(s) wants to | 3.67 | 3.46 | 3.38 | 3.68 | 3.38 | 3.88 | 3.38 | 3.53 |
| When put a condom on (before ejaculation/before penetration) | 5.02 | 5.06 | 5.27 | 4.86 | 5.33 | 4.80 | 5.23 | 4.91 |
| How often include condoms into the foreplay | 4.25 | 4.60 | 4.78 | 4.13 | 4.20 | 4.29 | 5.12 | 4.02 |
| Frequency of partner(s) participation on putting a condom on | 3.38 | 3.54 | 3.57 | 3.40 | 3.42 | 3.35 | 3.66 | 3.45 |
| Frequency of condom use with the non-stable partner | 4.13 | 3.67 | 5.05 | 3.14 | 4.98 | 3.48 | 5.15 | 2.77 |
| Frequency of condom use: vaginal or anal sex | 3.62 | 3.57 | ----b | ----b | ----b | ----b | ----b | ----b |

----a= not applicable because the factor Sensation Seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity, and sexual sensation seeking were subscales of sensation seeking.

----b= not applicable because the factor C-use was composed by scores on the dependent variable frequency of condom use in vaginal or anal sex.

Table 6.

Means for main and interaction effects for activity type (with/without stable or main sexual partner and had sex in the last twelve months) and sensation seeking (high/low).

| Composite scales and individual items | Activity Type | | SS | | Activity Type x SS | | | |
|--|---------------|---------|-------|-------|--------------------|-------|---------|-------|
| | With | Without | High | Low | With | | Without | |
| | | | | | High | Low | High | Low |
| Behavioural expectations | 3.82 | 4.07 | 3.69 | 4.03 | 3.64 | 3.92 | 3.78 | 4.39 |
| Behavioural principles | 4.43 | 4.56 | 4.39 | 4.53 | 4.42 | 4.44 | 4.35 | 4.80 |
| Perceived behaviour control | 4.43 | 4.70 | 4.50 | 4.51 | 4.41 | 4.44 | 4.66 | 4.75 |
| Regret | 5.11 | 5.20 | 5.17 | 5.12 | 5.19 | 5.07 | 5.14 | 5.27 |
| Stigma | 4.81 | 4.63 | 4.61 | 4.87 | 4.71 | 4.87 | 4.42 | 4.87 |
| Condom preference | 3.98 | 3.86 | 4.11 | 3.83 | 4.19 | 3.85 | 3.96 | 3.75 |
| Sensation seeking | 3.27 | 3.50 | ----a | ----a | ----a | ----a | ----a | ----a |
| Nonsexual | 3.85 | 3.99 | ----a | ----a | ----a | ----a | ----a | ----a |
| Compulsivity | 2.53 | 2.73 | ----a | ----a | ----a | ----a | ----a | ----a |
| Sexual sensation seeking | 3.85 | 4.19 | ----a | ----a | ----a | ----a | ----a | ----a |
| Intimates | 3.70 | 3.88 | 3.90 | 3.65 | 3.86 | 3.62 | 3.97 | 3.78 |
| Family-doctor | 3.74 | 3.89 | 3.91 | 3.69 | 3.89 | 3.64 | 3.94 | 3.84 |
| Attitudes | 3.92 | 4.17 | 3.78 | 4.14 | 3.70 | 4.05 | 3.92 | 4.43 |
| Embarrassment to buy | 4.05 | 4.11 | 4.18 | 3.99 | 4.18 | 3.98 | 4.17 | 4.04 |
| Embarrassment to talk | 5.29 | 4.95 | 5.08 | 5.27 | 5.19 | 5.35 | 4.88 | 5.03 |
| General-intention | 5.25 | 5.10 | 4.99 | 5.37 | 5.03 | 5.38 | 4.92 | 5.31 |
| Current-intention | 3.82 | 4.61 | 4.01 | 4.06 | 3.73 | 3.87 | 4.51 | 4.71 |
| When discuss condom use: a few hours or days before sex | 3.36 | 3.28 | 3.21 | 3.43 | 3.23 | 3.44 | 3.19 | 3.38 |
| When discuss condom use: immediately before sex | 4.22 | 4.54 | 4.59 | 4.08 | 4.43 | 4.07 | 4.90 | 4.11 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.18 | 2.28 | 2.17 | 2.24 | 2.15 | 2.20 | 2.22 | 2.34 |
| Transparent, non-coloured condoms with spermicide | 3.84 | 3.98 | 3.86 | 3.90 | 3.86 | 3.83 | 3.86 | 4.12 |
| Reasons to use a condom: avoid pregnancy | 5.44 | 5.37 | 5.42 | 5.42 | 5.44 | 5.44 | 5.38 | 5.37 |
| Reasons to use a condom: avoid infections | 5.27 | 5.65 | 5.51 | 5.29 | 5.40 | 5.20 | 5.69 | 5.60 |
| Reasons to use a condom: to have pleasure | 2.08 | 2.10 | 1.86 | 2.26 | 1.94 | 2.17 | 1.74 | 2.51 |
| Reasons to use a condom: partner(s) wants to | 3.62 | 3.44 | 3.70 | 3.48 | 3.75 | 3.54 | 3.60 | 3.27 |
| When put a condom on (before ejaculation/before penetration) | 4.94 | 5.31 | 5.03 | 5.07 | 4.99 | 4.91 | 5.10 | 5.55 |
| How often include condoms into the foreplay | 4.40 | 4.63 | 4.32 | 4.57 | 4.10 | 4.56 | 4.65 | 4.61 |
| Frequency of partner(s) participation on putting a condom on | 3.56 | 3.40 | 3.46 | 3.55 | 3.58 | 3.54 | 3.24 | 3.57 |
| Frequency of condom use with the non-stable partner | 3.91 | ---- | 4.07 | 3.67 | 4.28 | 3.53 | ----b | ----b |
| Frequency of condom use: vaginal or anal sex | 3.34 | 4.28 | 3.67 | 3.57 | 3.32 | 3.35 | 4.28 | 4.28 |

----a= not applicable because the factor Sensation Seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity, and sexual sensation seeking were subscales of sensation seeking.

----b= not applicable because one level of activity type implies not having a stable partner.

Table 7.

Means for 3-way interaction effects for gender (male/female), activity type (with/without stable or main sexual partner that had sex in the last twelve months) and sensation seeking (high/low).

| Composite scales and individual items | Activity Type x Gender x Sensation Seeking | | | | | | | |
|--|--|------|--------|------|---------|------|--------|------|
| | With | | | | Without | | | |
| | Male | | Female | | Male | | Female | |
| | High | Low | High | Low | High | Low | High | Low |
| Behavioural expectations | 3.55 | 3.95 | 3.87 | 3.90 | 3.79 | 4.35 | 3.69 | 4.47 |
| Behavioural principles | 4.36 | 4.30 | 4.58 | 4.56 | 4.32 | 4.76 | 4.54 | 4.88 |
| Perceived behaviour control | 4.42 | 4.63 | 4.39 | 4.29 | 4.72 | 5.04 | 4.20 | 4.13 |
| Regret | 5.21 | 4.95 | 5.14 | 5.16 | 5.13 | 5.12 | 5.19 | 5.59 |
| Stigma | 4.52 | 4.69 | 5.26 | 5.01 | 4.29 | 4.81 | 5.31 | 4.98 |
| Condom preference | 4.17 | 3.73 | 4.25 | 3.95 | 3.99 | 3.59 | 3.77 | 4.08 |
| Sensation seeking | ---a | ---a | ---a | ---a | ---a | ---a | ---a | ---a |
| Nonsexual | ---a | ---a | ---a | ---a | ---a | ---a | ---a | ---a |
| Compulsivity | ---a | ---a | ---a | ---a | ---a | ---a | ---a | ---a |
| Sexual sensation seeking | ---a | ---a | ---a | ---a | ---a | ---a | ---a | ---a |
| Intimates | 3.90 | 3.74 | 3.74 | 3.52 | 3.94 | 3.86 | 4.18 | 3.58 |
| Family-doctor | 4.01 | 3.71 | 3.58 | 3.59 | 3.86 | 4.03 | 4.62 | 3.38 |
| Attitudes | 3.62 | 3.83 | 3.92 | 4.23 | 3.85 | 4.56 | 4.37 | 4.16 |
| Embarrassment to buy | 4.30 | 4.56 | 3.84 | 3.48 | 4.28 | 4.55 | 3.35 | 2.97 |
| Embarrassment to talk | 5.11 | 5.24 | 5.42 | 5.42 | 4.87 | 5.12 | 4.92 | 4.84 |
| General-intention | 4.95 | 5.17 | 5.23 | 5.56 | 4.93 | 5.44 | 4.87 | 5.06 |
| Current-intention | 3.80 | 3.82 | 3.54 | 3.90 | 4.47 | 4.90 | 4.78 | 4.31 |
| When discuss condom use: a few hours or days before sex | 3.10 | 2.94 | 3.59 | 3.87 | 3.23 | 3.42 | 2.90 | 3.30 |
| When discuss condom use: immediately before sex | 4.51 | 4.37 | 4.20 | 3.81 | 4.90 | 3.85 | 4.91 | 4.60 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.11 | 2.18 | 2.25 | 2.22 | 2.23 | 2.43 | 2.15 | 2.17 |
| Transparent, non-coloured condoms with spermicide | 3.92 | 3.79 | 3.71 | 3.87 | 3.92 | 4.24 | 3.46 | 3.87 |
| Reasons to use a condom: avoid pregnancy | 5.63 | 5.19 | 4.91 | 5.63 | 5.49 | 5.49 | 4.62 | 5.10 |
| Reasons to use a condom: avoid infections | 5.45 | 5.09 | 5.25 | 5.28 | 5.64 | 5.44 | 6.00 | 5.93 |
| Reasons to use a condom: to have pleasure | 1.84 | 1.94 | 2.21 | 2.36 | 1.74 | 2.79 | 1.69 | 1.90 |
| Reasons to use a condom: partner(s) wants to | 3.87 | 3.56 | 3.42 | 3.53 | 3.58 | 3.17 | 3.77 | 3.47 |
| When put a condom on (before ejaculation/before penetration) | 5.10 | 5.27 | 4.67 | 4.61 | 5.20 | 5.42 | 4.46 | 5.79 |
| How often include condoms into the foreplay | 3.77 | 4.21 | 4.89 | 4.83 | 4.55 | 5.54 | 5.40 | 3.17 |
| Frequency of partner(s) participation on putting a condom on | 3.25 | 2.97 | 4.53 | 4.01 | 3.07 | 3.29 | 4.46 | 4.17 |
| Frequency of condom use with the non-stable partner | 4.24 | 3.84 | 4.50 | 2.92 | ---b | ---b | ---b | ---b |
| Frequency of condom use: vaginal or anal sex | 3.41 | 3.50 | 3.08 | 3.23 | 4.29 | 4.62 | 4.23 | 3.57 |

---a= not applicable because the factor Sensation Seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity, and sexual sensation seeking were subscales of sensation seeking.

---b= not applicable because one level of activity type implies not having a stable partner.

Table 8.

Means for 3-way interaction effects for gender (male/female), activity type (with/without stable or main sexual partner and had sex in the last twelve months) and frequency of condom use (user/non-user).

| Composite scales and individual items | Activity Type x Gender x Condom Use | | | | | | | |
|--|-------------------------------------|----------|--------|----------|---------|----------|--------|----------|
| | With | | | | Without | | | |
| | Male | | Female | | Male | | Female | |
| | User | Non-user | User | Non-user | User | Non-user | User | Non-user |
| Behavioural expectations | 4.61 | 3.14 | 5.01 | 3.37 | 4.30 | 3.60 | 4.71 | 3.92 |
| Behavioural principles | 4.86 | 3.96 | 5.08 | 4.33 | 4.84 | 3.99 | 5.19 | 4.51 |
| Perceived behaviour control | 5.22 | 4.03 | 5.17 | 3.91 | 5.17 | 4.37 | 4.73 | 3.77 |
| Regret | 5.37 | 4.88 | 5.70 | 4.90 | 5.23 | 4.97 | 5.55 | 5.42 |
| Stigma | 4.92 | 4.38 | 4.99 | 5.10 | 4.47 | 4.53 | 5.53 | 4.79 |
| Condom preference | 3.72 | 4.10 | 4.28 | 3.90 | 3.74 | 3.93 | 3.74 | 4.15 |
| Sensation seeking | 3.47 | 3.56 | 2.96 | 2.97 | 3.53 | 3.70 | 3.14 | 3.20 |
| Nonsexual | 3.98 | 4.01 | 3.73 | 3.63 | 3.91 | 4.24 | 3.62 | 3.95 |
| Compulsivity | 2.72 | 2.90 | 1.99 | 2.23 | 2.85 | 2.90 | 2.29 | 2.26 |
| Sexual sensation seeking | 4.11 | 4.10 | 3.63 | 3.48 | 4.20 | 4.38 | 3.81 | 3.93 |
| Intimates | 3.98 | 3.71 | 3.83 | 3.44 | 3.94 | 3.82 | 3.49 | 3.88 |
| Family-doctor | 4.08 | 3.71 | 3.61 | 3.57 | 3.99 | 3.82 | 3.42 | 3.88 |
| Attitudes | 4.14 | 3.44 | 4.83 | 3.84 | 4.36 | 3.81 | 4.89 | 3.79 |
| Embarrassment to buy | 4.43 | 4.43 | 3.65 | 3.52 | 4.49 | 4.29 | 3.25 | 2.98 |
| Embarrassment to talk | 5.40 | 5.02 | 5.72 | 5.29 | 5.15 | 4.74 | 4.84 | 4.88 |
| General-intention | 5.60 | 4.70 | 5.88 | 5.30 | 5.56 | 4.44 | 5.69 | 4.55 |
| Current-intention | 4.55 | 3.30 | 4.84 | 3.35 | 4.87 | 4.33 | 4.46 | 4.44 |
| When discuss condom use: a few hours or days before sex | 3.37 | 2.76 | 4.33 | 3.53 | 3.40 | 3.15 | 2.87 | 3.44 |
| When discuss condom use: immediately before sex | 4.24 | 4.59 | 4.17 | 3.77 | 4.51 | 4.47 | 5.13 | 4.35 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.20 | 2.11 | 2.19 | 2.25 | 2.45 | 2.12 | 2.29 | 2.08 |
| Transparent, non-coloured condoms with spermicide | 4.11 | 3.68 | 3.96 | 3.77 | 4.00 | 4.18 | 3.94 | 3.62 |
| Reasons to use a condom: avoid pregnancy | 5.44 | 5.38 | 5.78 | 5.34 | 5.64 | 5.25 | 5.59 | 4.54 |
| Reasons to use a condom: avoid infections | 5.48 | 5.11 | 5.42 | 5.21 | 5.71 | 5.33 | 6.00 | 5.92 |
| Reasons to use a condom: to have pleasure | 2.34 | 1.57 | 2.81 | 2.10 | 2.22 | 2.12 | 2.41 | 1.46 |
| Reasons to use a condom: partner(s) wants to | 3.56 | 3.83 | 3.58 | 3.47 | 3.14 | 3.87 | 3.47 | 3.62 |
| When put a condom on (before ejaculation/before penetration) | 5.54 | 4.92 | 4.68 | 4.60 | 5.49 | 4.90 | 5.50 | 5.31 |
| How often include condoms into the foreplay | 4.27 | 3.76 | 5.28 | 4.48 | 5.05 | 4.83 | 3.88 | 3.53 |
| Frequency of partner(s) participation on putting a condom on | 3.18 | 3.07 | 4.33 | 4.02 | 3.30 | 2.95 | 4.71 | 3.96 |
| Frequency of condom use with the non-stable partner | 5.20 | 3.15 | 4.57 | 3.17 | ---- | ---- | ---- | ---- |

----= not applicable because one level of activity type implies not having a stable partner.

Table 9.

Means for 3-way interaction effects for gender (male/female), sensation seeking (high/low) and frequency of condom use (user/non-user).

| Composite scales and individual items | Sensation Seeking x Gender x Condom Use | | | | | | | |
|--|---|----------|--------|----------|------|----------|--------|----------|
| | Low | | | | High | | | |
| | Male | | Female | | Male | | Female | |
| | User | Non-user | User | Non-user | User | Non-user | User | Non-user |
| Behavioural expectations | 4.61 | 3.46 | 4.97 | 3.50 | 4.29 | 3.18 | 4.97 | 3.40 |
| Behavioural principles | 4.88 | 3.98 | 5.07 | 4.40 | 4.85 | 3.99 | 5.44 | 4.22 |
| Perceived behaviour control | 5.26 | 4.24 | 5.14 | 3.85 | 5.11 | 4.09 | 5.06 | 4.09 |
| Regret | 5.14 | 4.90 | 5.73 | 4.99 | 5.48 | 4.92 | 5.52 | 5.05 |
| Stigma | 4.85 | 4.63 | 4.98 | 5.02 | 4.57 | 4.30 | 5.71 | 5.08 |
| Condom preference | 3.45 | 3.94 | 4.04 | 3.86 | 3.96 | 4.17 | 4.30 | 4.15 |
| Sensation seeking | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| Nonsexual | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| Compulsivity | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| Sexual sensation seeking | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| Intimates | 3.87 | 3.66 | 3.71 | 3.40 | 4.05 | 3.78 | 3.87 | 3.75 |
| Family-doctor | 4.12 | 3.54 | 3.62 | 3.52 | 3.89 | 3.91 | 3.11 | 3.91 |
| Attitudes | 4.35 | 3.80 | 4.86 | 3.89 | 4.05 | 3.43 | 4.89 | 3.74 |
| Embarrassment to buy | 4.46 | 4.65 | 3.61 | 3.33 | 4.46 | 4.24 | 3.81 | 3.78 |
| Embarrassment to talk | 5.32 | 5.07 | 5.54 | 5.20 | 5.27 | 4.78 | 5.33 | 5.29 |
| General-intention | 5.74 | 4.81 | 5.86 | 5.29 | 5.44 | 4.54 | 5.75 | 4.97 |
| Current-intention | 4.72 | 3.66 | 4.85 | 3.55 | 4.63 | 3.64 | 4.71 | 3.56 |
| When discuss condom use: a few hours or days before sex | 3.20 | 3.01 | 4.21 | 3.64 | 3.56 | 2.80 | 4.07 | 3.31 |
| When discuss condom use: immediately before sex | 4.14 | 4.24 | 3.98 | 3.78 | 4.60 | 4.65 | 5.06 | 3.90 |
| Who usually suggests condoms: 1 (Other) 2 (Both) 3 (Self) | 2.30 | 2.23 | 2.21 | 2.22 | 2.33 | 2.06 | 2.29 | 2.20 |
| Transparent, non-coloured condoms with spermicide | 4.07 | 3.78 | 4.08 | 3.82 | 4.10 | 3.78 | 3.76 | 3.63 |
| Reasons to use a condom: avoid pregnancy | 5.47 | 5.08 | 5.71 | 5.39 | 5.59 | 5.47 | 5.31 | 4.73 |
| Reasons to use a condom: avoid infections | 5.44 | 5.02 | 5.59 | 5.31 | 5.72 | 5.32 | 5.53 | 5.41 |
| Reasons to use a condom: to have pleasure | 2.41 | 1.98 | 2.63 | 2.03 | 2.13 | 1.51 | 2.67 | 1.98 |
| Reasons to use a condom: partner(s) wants to | 3.25 | 3.66 | 3.56 | 3.43 | 3.42 | 3.99 | 3.07 | 3.72 |
| When put a condom on (before ejaculation/before penetration) | 5.47 | 5.15 | 4.90 | 4.73 | 5.47 | 4.81 | 4.44 | 4.70 |
| How often include condoms into the foreplay | 5.15 | 4.05 | 5.08 | 4.00 | 4.08 | 4.03 | 5.40 | 4.89 |
| Frequency of partner(s) participation on putting a condom on | 3.15 | 2.97 | 4.38 | 3.84 | 3.26 | 2.98 | 4.50 | 4.52 |
| Frequency of condom use with the non-stable partner | 5.34 | 2.84 | 4.00 | 2.67 | 4.91 | 3.34 | 6.00 | 4.20 |

----= not applicable because the factor Sensation Seeking (high/low) was composed by a media split of scores on the dependent variable sensation seeking. Nonsexual, compulsivity, and sexual sensation seeking were subscales of sensation seeking.

Table 1a.

Sensation seeking sub-scales predicting behavioural expectations, current and general-intentions to use condoms.

| Variables | current-intentions | | general-intentions | | behavioural expectations | |
|--------------------------|--|-------|--|----------|---|----------|
| | Beta | T | Beta | T | Beta | T |
| Nonsexual | .05 | 1.19 | -.10 | -2.46** | .06 | 1.54 |
| Compulsivity | -.04 | -.89 | -.16 | -3.88*** | -.19 | -4.55*** |
| Sexual sensation seeking | -.05 | -1.20 | -.04 | -.98 | -.01 | -.24 |
| | F(3,747)= 1.35 R ² = .01 Adjusted R= .00 Multiple R= .07 | | F(3,743)= 14.26*** R ² = .05 Adjusted R= .05 Multiple R= .23 | | F(3,748)= 8.82*** R ² = .03 Adjusted R= .03 Multiple R= .18 | |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 1.
First regressions predicting behavioural expectations about condom use.

| Variables | β | β | T | df | F equation | F change | R ² | R ² change |
|--|-------------|---------|-----------|--------|------------|----------|----------------|-----------------------|
| Perceived behavioural control | <i>.59</i> | -.80 | -15.66*** | | | | | |
| Intimates | <i>-.06</i> | .10 | 1.82 | | | | | |
| Family-doctor | <i>-.02</i> | .02 | .50 | | | | | |
| Attitudes | <i>.15</i> | -.20 | -4.13*** | | | | | |
| Embarrassment to buy | <i>-.07</i> | .07 | 2.12* | | | | | |
| Embarrassment to talk | <i>-.01</i> | .02 | .34 | 6,594 | 68.94*** | | .41 | |
| Anticipated regret | <i>.18</i> | -.27 | -5.30*** | 7,593 | 65.80*** | 28.10*** | .43 | .02 |
| Behavioural principles | <i>.20</i> | -.27 | -5.63*** | 8,592 | 64.53*** | 31.73*** | .46 | .03 |
| Type-activity | <i>-.01</i> | .03 | .33 | 9,591 | 57.28*** | .11 | .46 | .00 |
| Sensation seeking | <i>-.09</i> | .20 | 2.86** | 10,590 | 53.00*** | 8.15** | .47 | .01 |
| Gender | <i>.04</i> | -.11 | -.99 | 11,589 | 48.26*** | .98 | .47 | .00 |
| Type-activity × perceived behaviour. control | | -.11 | -.84 | | | | | |
| Type-activity × intimates | | .27 | 2.34* | | | | | |
| Type-activity × family- doctor | | .05 | .49 | | | | | |
| Type-activity × attitudes | | .01 | .13 | | | | | |
| Type-activity × embarrassment to buy | | -.18 | -2.28* | | | | | |
| Type-activity × embarrassment to talk | | -.01 | -.14 | | | | | |
| Type-activity × anticipated regret | | -.14 | -1.29 | | | | | |
| Type-activity × behavioural principles | | .14 | 1.27 | 19,581 | 29.10*** | 1.92* | .48 | .01 |
| Sensation seeking × perceived behav. control | | -.00 | .02 | | | | | |
| Sensation seeking × intimates | | -.03 | -.33 | | | | | |
| Sensation seeking × family-doctor | | -.10 | -1.38 | | | | | |
| Sensation seeking × attitudes | | .12 | 1.60 | | | | | |
| Sensation seeking × embarrassment to buy | | .04 | .67 | | | | | |
| Sensation seeking × embarrassment to talk | | -.03 | -.45 | | | | | |
| Sensation seeking × anticipated regret | | .11 | 1.43 | | | | | |
| Sensation seeking × behavioural principles | | .00 | .07 | | | | | |
| Sensation seeking × type-activity | | -.21 | -1.24 | | | | | |
| Sensation seeking × gender | | .08 | .47 | 29,571 | 19.59*** | 1.27 | .49 | .01 |
| Gender × perceived behavioural control | | -.20 | -1.53 | | | | | |
| Gender × intimates | | -.31 | -2.64** | | | | | |
| Gender × family-doctor | | .08 | .75 | | | | | |
| Gender × attitudes | | .18 | 1.51 | | | | | |
| Gender × embarrassment to buy | | -.11 | -1.36 | | | | | |
| Gender × embarrassment to talk | | .08 | .64 | | | | | |
| Gender × anticipated regret | | .30 | 2.58** | | | | | |
| Gender × behavioural principles | | -.07 | -.62 | | | | | |
| Gender × type-activity | | .25 | .89 | 38,562 | 15.74*** | 2.16* | .52 | .02 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: In italics are the betas before the independent variables had been centred. All variables have been centred, except the dependent variable behavioural expectations.

Most variables that were significant at alpha levels of .01 and .001 in the present hierarchical regression remained significant at alpha levels of .01 or .001 in the standard regression, except attitudes.

Table 2.

First regressions predicting intentions to carry, suggest, include condoms in foreplay and use them next time in penetrative sex (current-intentions).

| Variables | β | β | T | df | F equation | F change | R ² | R ² change |
|---|-------------|---------|-----------|--------|------------|----------|----------------|-----------------------|
| Perceived behavioural control | <i>.47</i> | -.63 | -12.35*** | | | | | |
| Intimates | <i>-.00</i> | .00 | .08 | | | | | |
| Family-doctor | <i>.08</i> | -.11 | -2.19* | | | | | |
| Attitudes | <i>.23</i> | -.31 | -6.48*** | | | | | |
| Embarrassment to buy | <i>.02</i> | -.02 | -.62 | | | | | |
| Embarrassment to talk | <i>-.00</i> | .00 | .08 | 6,594 | 69.11*** | | .41 | |
| Anticipated regret | <i>.05</i> | -.07 | -1.32 | 7,593 | 59.56*** | 1.75 | .41 | .00 |
| Behavioural principles | <i>.03</i> | -.05 | -.91 | 8,592 | 52.21*** | .84 | .41 | .00 |
| Type-activity | <i>.17</i> | -.52 | -5.23*** | 9,591 | 51.52*** | 27.38*** | .44 | .03 |
| Sensation seeking | <i>-.04</i> | .08 | 1.18 | 10,590 | 46.53*** | 1.38 | .44 | .00 |
| Gender | <i>.01</i> | -.02 | -.16 | 11,489 | 42.23*** | .03 | .44 | .00 |
| Type-activity × perceived behaviour control | | -.29 | -2.24* | | | | | |
| Type-activity × intimates | | .30 | 2.47** | | | | | |
| Type-activity × family- doctor | | -.10 | -.98 | | | | | |
| Type-activity × attitudes | | -.17 | -1.38 | | | | | |
| Type-activity × embarrassment to buy | | .02 | .19 | | | | | |
| Type-activity × embarrassment to talk | | -.05 | -.43 | | | | | |
| Type-activity × anticipated regret | | .13 | 1.11 | | | | | |
| Type-activity × behavioural principles | | .11 | .93 | 19,581 | 25.63*** | 2.00* | .45 | .01 |
| Sensation seeking × perceived behav. contrl | | -.14 | -1.72 | | | | | |
| Sensation seeking × intimates | | .21 | 2.35* | | | | | |
| Sensation seeking × family-doctor | | -.22 | -2.84** | | | | | |
| Sensation seeking × attitudes | | -.09 | -1.16 | | | | | |
| Sensation seeking × embarrassment to buy | | .07 | 1.15 | | | | | |
| Sensation seeking × embarrassment to talk | | -.09 | -1.24 | | | | | |
| Sensation seeking × anticipated regret | | .23 | 2.90** | | | | | |
| Sensation seeking × behavioural principles | | .14 | 2.01* | | | | | |
| Sensation seeking × type-activity | | .07 | .37 | | | | | |
| Sensation seeking × gender | | .22 | 1.27 | 29,571 | 18.26*** | 2.78** | .48 | .03 |
| Gender × perceived behavioural control | | -.20 | -2.19* | | | | | |
| Gender × intimates | | .15 | 1.22 | | | | | |
| Gender × family-doctor | | .05 | .44 | | | | | |
| Gender × attitudes | | .35 | 2.92** | | | | | |
| Gender × embarrassment to buy | | .12 | 1.48 | | | | | |
| Gender × embarrassment to talk | | .05 | .39 | | | | | |
| Gender × anticipated regret | | -.13 | -1.10 | | | | | |
| Gender × behavioural principles | | .01 | .13 | | | | | |
| Gender × type-activity | | .35 | 1.21 | 38,562 | 14.65*** | 2.04* | .50 | .02 |

* p < .05; ** p < .01; *** p < .001.

Note: In italics are the betas before the independent variables had been centred. All variables have been centred, except the dependent variable current-intentions.

Most variables that were significant at alpha levels of .01 and .001 in the present hierarchical regression remained significant at alpha levels of .01 or .001 in the standard regression, except type-activity × intimates.

Table 3.

First regressions predicting intentions to use condoms next time in penetrative sex with different people, early in a relationship, and when highly sexually aroused (general-intentions).

| Variables | β | β | T | df | F equation | F change | R ² | R ² change |
|---|-------------|---------|----------|--------|------------|----------|----------------|-----------------------|
| Perceived behavioural control | <i>.34</i> | -.32 | -8.06*** | | | | | |
| Intimates | <i>.02</i> | -.02 | -.52 | | | | | |
| Family-doctor | <i>-.05</i> | .05 | 1.37 | | | | | |
| Attitudes | <i>.22</i> | -.20 | -5.31*** | | | | | |
| Embarrassment to buy | <i>-.10</i> | .07 | 1.65 | | | | | |
| Embarrassment to talk | <i>.14</i> | -.14 | -3.85*** | 6,590 | 35.24*** | | .26 | |
| Anticipated regret | <i>.11</i> | -.11 | -2.79** | 7,589 | 31.66*** | 7.77** | .27 | .01 |
| Behavioural principles | <i>.29</i> | -.26 | -7.20*** | 8,588 | 36.57*** | 51.83*** | .33 | .06 |
| Type-activity | <i>-.12</i> | .26 | 3.50*** | 9,587 | 34.49*** | 12.25*** | .34 | .01 |
| Sensation seeking | <i>-.18</i> | .27 | 5.20*** | 10,586 | 35.12*** | 27.06*** | .37 | .03 |
| Gender | <i>.01</i> | -.03 | -.36 | 11,585 | 31.90*** | .13 | .37 | .00 |
| Type-activity × perceived behaviour control | | .28 | 3.08** | | | | | |
| Type-activity × intimates | | .18 | 2.13* | | | | | |
| Type-activity × family- doctor | | -.11 | -1.50 | | | | | |
| Type-activity × attitudes | | .34 | 4.01*** | | | | | |
| Type-activity × embarrassment to buy | | .04 | .80 | | | | | |
| Type-activity × embarrassment to talk | | -.07 | -.98 | | | | | |
| Type-activity × anticipated regret | | -.11 | -1.32 | | | | | |
| Type-activity × behavioural principles | | -.05 | -.65 | 19,577 | 22.64*** | 6.57*** | .43 | .05 |
| Sensation seeking × perceived behav. contrl | | .06 | 1.02 | | | | | |
| Sensation seeking × intimates | | .01 | .15 | | | | | |
| Sensation seeking × family-doctor | | -.04 | -.76 | | | | | |
| Sensation seeking × attitudes | | -.04 | -.65 | | | | | |
| Sensation seeking × embarrassment to buy | | -.04 | -1.07 | | | | | |
| Sensation seeking × embarrassment to talk | | -.04 | -.88 | | | | | |
| Sensation seeking × anticipated regret | | .10 | 1.80 | | | | | |
| Sensation seeking × behavioural principles | | .13 | 2.76** | | | | | |
| Sensation seeking × type-activity | | .04 | .32 | | | | | |
| Sensation seeking × gender | | -.18 | -1.49 | 29,567 | 16.16*** | 2.63** | .45 | .02 |
| Gender × perceived behavioural control | | -.19 | -2.12* | | | | | |
| Gender × intimates | | -.13 | -1.48 | | | | | |
| Gender × family-doctor | | -.05 | -.65 | | | | | |
| Gender × attitudes | | .11 | 1.36 | | | | | |
| Gender × embarrassment to buy | | .13 | 2.30* | | | | | |
| Gender × embarrassment to talk | | .05 | .53 | | | | | |
| Gender × anticipated regret | | -.16 | -1.92 | | | | | |
| Gender × behavioural principles | | -.05 | -.58 | | | | | |
| Gender × type-activity | | -.01 | -.04 | 38,558 | 13.41*** | 2.94** | .48 | .02 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: In italics are the betas before the independent variables had been centred. All variables have been centred, except the dependent variable general-intentions.

Most variables that were significant at alpha levels of .01 and .001 in the present hierarchical regression remained significant at alpha levels of .01 or .001 in the standard regression, except embarrassment to talk about condoms.

Table 4a.

First standard regression predicting behavioural expectations with the additional measures.

| Variables | β | T | df | F equation | R ² |
|--|---------|----------|--------|------------|----------------|
| When discuss condom use: a few hours or days before sex | .02 | .74 | | | |
| When discuss condom use: immediately before sex | -.01 | -.21 | | | |
| Who usually suggests condoms: Other, Both, Self | -.02 | -.74 | | | |
| Transparent, non-colored condoms with spermicide | .02 | .62 | | | |
| Reasons to use a condom: avoid pregnancy | .03 | .85 | | | |
| Reasons to use a condom: avoid infections | .20 | 6.28*** | | | |
| Reasons to use a condom: to have pleasure | .21 | 6.66*** | | | |
| Reasons to use a condom: partner wants to | -.09 | -2.86** | | | |
| When put a condom on: before ejaculation/before penetration | .05 | 1.48 | | | |
| How often include condoms into the foreplay | .03 | .88 | | | |
| Frequency of partner(s) participating in putting a condom on | -.06 | -1.75 | | | |
| Frequency of condom use with the non-stable partner | -.00 | -.08 | | | |
| Frequency of condom use: vaginal or anal sex | .34 | 10.11*** | | | |
| Stigma against condom carriers | .10 | 3.09** | | | |
| Condom preference | -.03 | -.82 | | | |
| Open options | -.04 | -1.31 | 16,782 | 19.73*** | .29 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Analyses performed with mean substitution of missing data.

Table 4b.

Second standard regression predicting behavioural expectations with the additional measures.

| Variables | β | T | df | F equation | R ² |
|--|---------|----------|-------|------------|----------------|
| Reasons to use a condom: avoid infections | .20 | 6.21*** | | | |
| Reasons to use a condom: to have pleasure | .21 | 6.95*** | | | |
| Reasons to use a condom: partner(s) wants to | -.09 | -2.80** | | | |
| Frequency of condom use: vaginal or anal sex | .35 | 11.27*** | | | |
| Stigma against condom carriers | .09 | 2.86** | 5,793 | 60.88*** | .28 |

* p < .05; ** p < .01; *** p < .001.

Note: Reasons to use a condom: 'partner(s) wants to' was excluded from further analyses because this variable was not correlated with behavioural expectations in the correlation matrix.

Analyses were done with mean substitution of missing data.

Table 4c.

Regression analyses to verify whether the additional measures explained additional variance to the diagram shown on figure 1, into behavioural expectations.

| Variables | Hierarchical regression | | | | | | | Standard regression | |
|--|-------------------------|----------|-------|------------|----------|----------------|-----------------------|---------------------|----------|
| | β | T | df | F equation | F change | R ² | R ² change | β | T |
| Perceived behavioural contrl | -.58 | .19*** | | | | | | -.52 | -9.91*** |
| Attitudes | -.07 | -1.61 | | | | | | -.00 | -.11 |
| Anticipated regret | -.22 | -4.54*** | | | | | | -.20 | -4.07*** |
| Behavioural principles | -.28 | -6.27*** | | | | | | -.25 | -5.54*** |
| Sensation seeking | .20 | 3.31*** | | | | | | .22 | 3.73*** |
| | | | 5,657 | 116.23*** | | .47 | | | |
| Reasons to use a condom: avoid infections | -.11 | -3.19*** | | | | | | -.11 | -3.19*** |
| Reasons to use a condom: to have pleasure | -.09 | -2.64** | | | | | | -.09 | -2.64** |
| Stigma against condom carriers | .00 | .09 | | | | | | .00 | .09 |
| Frequency of condom use: vaginal or anal sex | -.07 | -2.48** | | | | | | -.07 | -2.48** |
| | | | 9,653 | 69.04*** | 5.80*** | .49 | .02 | | |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Analyses were performed with listwise deletion of missing data.

Table 5a.

First standard regression predicting current-intentions with the additional measures.

| Variables | β | T | df | F equation | R ² |
|--|---------|---------|--------|------------|----------------|
| When discuss condom use: a few hours or days before sex | .04 | 1.44 | | | |
| When discuss condom use: immediately before sex | .03 | .88 | | | |
| Who usually suggests condoms: Other, Both, Self | .06 | 1.82 | | | |
| Transparent, non-colored condoms with spermicide | .08 | 2.77** | | | |
| Reasons to use a condom: avoid pregnancy | .07 | 2.29* | | | |
| Reasons to use a condom: avoid infections | .14 | 4.67*** | | | |
| Reasons to use a condom: to have pleasure | .17 | 5.55*** | | | |
| Reasons to use a condom: partner wants to | -.02 | -.62 | | | |
| When put a condom on: before ejaculation/before penetration | .12 | 3.87*** | | | |
| How often include condoms into the foreplay | .19 | 6.18*** | | | |
| Frequency of partner(s) participating in putting a condom on | -.06 | -1.83 | | | |
| Frequency of condom use with the non-stable partner | .05 | 1.74 | | | |
| Frequency of condom use: vaginal or anal sex | .28 | 8.72*** | | | |
| Stigma against condom carriers | .10 | 3.26*** | | | |
| Condom preference | .00 | .13 | | | |
| Open options | -.04 | -1.33 | 16,782 | 24.03*** | .33 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Analyses performed with mean substitution of missing data.

Table 5b.

Second standard regression predicting current-intentions with the additional measures.

| Variables | β | T | df | F equation | R ² |
|---|---------|---------|-------|------------|----------------|
| Transparent, non-colored condoms with spermicide | .09 | 2.98** | | | |
| Reasons to use a condom: avoid pregnancy | .06 | 1.97* | | | |
| Reasons to use a condom: avoid infections | .14 | 4.58*** | | | |
| Reasons to use a condom: to have pleasure | .18 | 5.82*** | | | |
| When put a condom on: before ejaculation/before penetration | .11 | 3.55*** | | | |
| How often include condoms into the foreplay | .19 | 6.16*** | | | |
| Frequency of condom use: vaginal or anal sex | .31 | 9.95*** | | | |
| Stigma against condom carriers | .09 | 2.99** | 8,790 | 45.60*** | .32 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Transparent, non-coloured condoms with spermicide was excluded from further analyses because it was not correlated with current-intentions in the correlation matrix.

Analyses were done with mean substitution of missing data.

Table 5c.

Regression analyses to verify whether the additional measures explained additional variance to the diagram shown on figure 2, into current-intentions.

| Variables | Hierarchical regression | | | | | | | Standard regression | |
|---|-------------------------|----------|--------|------------|----------|----------------|-----------------------|---------------------|----------|
| | β | T | df | F equation | F change | R ² | R ² change | β | T |
| Perceived behavioural control | -.66 | -9.05*** | | | | | | -.54 | -7.19*** |
| Attitudes | -.19 | -2.82** | | | | | | -.07 | -1.04 |
| Anticipated regret | -.01 | -.12 | | | | | | .07 | .91 |
| Type-activity | -.73 | -5.51*** | | | | | | -.66 | -5.27*** |
| Sensation seeking | .06 | .62 | | | | | | .09 | 1.00 |
| Sensation seeking \times anticipated regret | .08 | .88 | 6,247 | 25.73*** | | .38 | | .06 | .83 |
| Reasons to use a condom: avoid infections | -.20 | -3.48*** | | | | | | -.20 | -3.48*** |
| Reasons to use a condom: to have pleasure | -.04 | -.82 | | | | | | -.04 | -.82 |
| When put a condom on | -.06 | -1.54 | | | | | | -.06 | -1.54 |
| How often include condoms into the foreplay | -.23 | -5.92*** | | | | | | -.23 | -5.92*** |
| Frequency of condom use: vaginal or anal sex | -.01 | -.16 | | | | | | -.01 | -.16 |
| Stigma against condom carriers | -.11 | -2.28* | 12,241 | 21.25*** | 10.70*** | .51 | .13 | -.11 | -2.28* |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Analyses were performed with listwise deletion of missing data.

Table 6a.

First standard regression predicting general-intentions with the additional measures.

| Variables | β | T | df | F equation | R ² |
|--|---------|---------|--------|------------|----------------|
| When discuss condom use: a few hours or days before sex | .08 | 2.67** | | | |
| When discuss condom use: immediately before sex | -.03 | -1.11 | | | |
| Who usually suggests condoms: Other, Both, Self | .08 | 2.57** | | | |
| Transparent, non-colored condoms with spermicide | -.02 | -.71 | | | |
| Reasons to use a condom: avoid pregnancy | .19 | 5.99*** | | | |
| Reasons to use a condom: avoid infections | -.01 | -.27 | | | |
| Reasons to use a condom: to have pleasure | .17 | 5.38*** | | | |
| Reasons to use a condom: partner wants to | .02 | .71 | | | |
| When put a condom on: before ejaculation/before penetration | .04 | 1.28 | | | |
| How often include condoms into the foreplay | .05 | 1.43 | | | |
| Frequency of partner(s) participating in putting a condom on | .03 | 1.02 | | | |
| Frequency of condom use with the non-stable partner | .13 | 4.06*** | | | |
| Frequency of condom use: vaginal or anal sex | .24 | 7.07*** | | | |
| Stigma against condom carriers | .16 | 4.99*** | | | |
| Condom preference | .04 | 1.27 | | | |
| Open options | -.10 | -3.15** | 16,782 | 18.97*** | .28 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Note: Analyses performed with mean substitution of missing data.

Table 6b.

Second standard regression predicting general-intentions with the additional measures.

| Variables | β | T | df | F equation | R ² |
|---|---------|---------|-------|------------|----------------|
| When discuss condom use: a few hours or days before sex | .10 | 3.19*** | | | |
| Who usually suggests condoms: Other, Both, Self | .07 | 2.32* | | | |
| Reasons to use a condom: avoid pregnancy | .18 | 5.96*** | | | |
| Reasons to use a condom: to have pleasure | .18 | 5.83*** | | | |
| Frequency of condom use with the non-stable partner | .12 | 3.92*** | | | |
| Frequency of condom use: vaginal or anal sex | .24 | 7.50*** | | | |
| Stigma against condom carriers | .16 | 5.21*** | | | |
| Open options | -.09 | -2.97** | | | |
| | | | 8,790 | 36.77*** | .27 |

* p < .05; ** p < .01; *** p < .001.

Note: Analyses were done with mean substitution of missing data.

Table 6c.

Regression analyses to verify whether the additional measures explained additional variance to the diagram shown on figure 3, into general-intentions.

| Variables | Hierarchical regression | | | | | | | Standard regression | |
|---|-------------------------|----------|--------|------------|----------|----------------|-----------------------|---------------------|----------|
| | β | T | df | F equation | F change | R ² | R ² change | β | T |
| Perceived behavioural control | -.21 | -5.40*** | | | | | | -.13 | -3.09** |
| Attitudes | -.08 | -2.30* | | | | | | -.01 | -.27 |
| Anticipated regret | -.15 | -3.54*** | | | | | | -.15 | -3.55*** |
| Behavioural principles | -.21 | -5.95*** | | | | | | -.18 | -5.30*** |
| Type-activity | .21 | 2.85** | | | | | | .23 | 3.20*** |
| Sensation seeking | .31 | 6.41*** | | | | | | .25 | 5.01*** |
| Type-activity × perceived beh. control | .31 | 3.64*** | | | | | | .30 | 3.50*** |
| Type-activity × attitudes | .23 | 2.83** | | | | | | .18 | 2.38* |
| Sensation seeking × behavioural principles | .15 | 3.75*** | | | | | | .14 | 3.70*** |
| | | | 9,484 | 40.35*** | | .43 | | | |
| When discuss condom use: a few hours or days before sex | -.04 | -2.24* | | | | | | -.04 | -2.24* |
| Reasons to use a condom: avoid pregnancy | -.09 | -2.78** | | | | | | -.09 | -2.78** |
| Reasons to use a condom: to have pleasure | -.05 | -2.19* | | | | | | -.05 | -2.19* |
| Frequency of condom use: vaginal or anal sex | -.09 | -3.69*** | | | | | | -.09 | -3.69*** |
| Stigma against condom carriers | -.06 | -2.39* | | | | | | -.06 | -2.39* |
| Open options | .25 | 2.37* | | | | | | .25 | 2.37* |
| | | | 15,478 | 29.18*** | 7.53*** | .48 | .05 | | |

* p < .05; ** p < .01; *** p < .001.

Note: Frequency of condom use with the non-stable partner was excluded from these analyses because otherwise the sample would be reduced to 140 subjects. This is because not many people had a stable partner and an affair in the last 12 months.

Analyses were performed with listwise deletion of missing data.

Table 1.

Regression predicting overall condom use at time 3 from the change, from time 1 to time 2, in the variables based on the theory of planned behaviour.

| Variables | β | T | df | F equation | R ² |
|--------------------------------------|---------|-----|-------|------------|----------------|
| Behavioural expectations change | .05 | .53 | | | |
| Perceived behavioural control change | .08 | .90 | | | |
| Anticipated regret change | .03 | .45 | | | |
| Attitudes change | .00 | .03 | | | |
| General-intentions change | .06 | .82 | | | |
| | | | 5,244 | 1.27 | .03 |

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 2a.

Means of overall condom use at time 3, after adjustment for prior overall condom use at time 1.

| SSeek | Type poster | Elaborat | Mean | SD | N |
|-------|-------------|----------|------|------|-----|
| LSS | low poster | low | 2.90 | 2.26 | 51 |
| | | high | 3.56 | 2.32 | 36 |
| | | Total | 3.17 | 2.29 | 87 |
| | high poster | low | 3.03 | 2.27 | 36 |
| | | high | 5.48 | .89 | 50 |
| | | Total | 4.45 | 2.02 | 86 |
| | Total | low | 2.95 | 2.25 | 87 |
| | | high | 4.67 | 1.89 | 86 |
| | | Total | 3.81 | 2.25 | 173 |
| HSS | low poster | low | 3.00 | 2.32 | 11 |
| | | high | 3.76 | 2.33 | 17 |
| | | Total | 3.46 | 2.32 | 28 |
| | high poster | low | 4.08 | 2.12 | 25 |
| | | high | 4.84 | 1.70 | 25 |
| | | Total | 4.46 | 1.94 | 50 |
| | Total | low | 3.75 | 2.20 | 36 |
| | | high | 4.40 | 2.02 | 42 |
| | | Total | 4.10 | 2.12 | 78 |
| Total | low poster | low | 2.92 | 2.25 | 62 |
| | | high | 3.62 | 2.30 | 53 |
| | | Total | 3.24 | 2.29 | 115 |
| | high poster | low | 3.46 | 2.25 | 61 |
| | | high | 5.27 | 1.24 | 75 |
| | | Total | 4.46 | 1.98 | 136 |
| | Total | low | 3.19 | 2.26 | 123 |
| | | high | 4.59 | 1.93 | 128 |
| | | Total | 3.90 | 2.21 | 251 |

Table 2b.

Means of overall condom use at time 3 used for the 3-way Interaction of sensation seeking, poster and elaboration, after adjustment for prior overall condom use at time 1.

| Sensation seeking | Type of poster | Elaboration | 95% Confidence Interval | | | |
|-------------------|----------------|-------------|-------------------------|------------|-------------|-------------|
| | | | Mean | Std. Error | Lower Bound | Upper Bound |
| LSS | low poster | low | 3.045(a) | .194 | 2.662 | 3.428 |
| | | high | 3.401(a) | .231 | 2.945 | 3.857 |
| | high poster | low | 3.277(a) | .232 | 2.820 | 3.733 |
| | | high | 5.140(a) | .197 | 4.752 | 5.529 |
| HSS | low poster | low | 3.421(a) | .419 | 2.596 | 4.246 |
| | | high | 3.405(a) | .337 | 2.741 | 4.069 |
| | high poster | low | 4.663(a) | .280 | 4.112 | 5.214 |
| | | high | 4.569(a) | .278 | 4.021 | 5.116 |

Covariate appearing in the model is evaluated at the following value: Overall time 1 condom use = 3.40.

Table 3.

Means of condom use with new sexual partner at time 3, after adjustment for prior condom use with an affair at time 1.

| SSeek | Type poster | Elaborat | Mean | SD | N |
|-------|-------------|----------|------|------|-----|
| LSS | low poster | low | 1.86 | 1.83 | 14 |
| | | high | 4.63 | 2.26 | 8 |
| | | Total | 2.86 | 2.37 | 22 |
| | high poster | low | 6.00 | .00 | 4 |
| | | high | 5.75 | .46 | 8 |
| | | Total | 5.83 | .39 | 12 |
| | Total | low | 2.78 | 2.39 | 18 |
| | | high | 5.19 | 1.68 | 16 |
| | | Total | 3.91 | 2.39 | 34 |
| HSS | low poster | low | 4.00 | 2.29 | 9 |
| | | high | 4.24 | 1.85 | 17 |
| | | Total | 4.15 | 1.97 | 26 |
| | high poster | low | 5.74 | .45 | 19 |
| | | high | 5.74 | .45 | 23 |
| | | Total | 5.74 | .45 | 42 |
| | Total | low | 5.18 | 1.54 | 28 |
| | | high | 5.10 | 1.45 | 40 |
| | | Total | 5.13 | 1.47 | 68 |
| Total | low poster | low | 2.70 | 2.25 | 23 |
| | | high | 4.36 | 1.96 | 25 |
| | | Total | 3.56 | 2.24 | 48 |
| | high poster | low | 5.78 | .42 | 23 |
| | | high | 5.74 | .45 | 31 |
| | | Total | 5.76 | .43 | 54 |
| | Total | low | 4.24 | 2.23 | 46 |
| | | high | 5.13 | 1.50 | 56 |
| | | Total | 4.73 | 1.91 | 102 |

Table 4.

Means of condom use with new sexual partner at time 3, after adjustment for change in behavioural expectations from time 1 to time 2.

| SSeek | Type poster | Elaborat | Mean | SD | N |
|-------|-------------|----------|------|------|-----|
| LSS | low poster | low | 2.34 | 2.15 | 29 |
| | | high | 3.72 | 2.35 | 25 |
| | | Total | 2.98 | 2.33 | 54 |
| | high poster | low | 5.90 | .32 | 10 |
| | | high | 5.71 | .46 | 31 |
| | | Total | 5.76 | .45 | 41 |
| | Total | low | 3.26 | 2.44 | 39 |
| | | high | 4.82 | 1.88 | 56 |
| | | Total | 4.18 | 2.25 | 95 |
| HSS | low poster | low | 2.86 | 2.14 | 28 |
| | | high | 4.41 | 1.94 | 34 |
| | | Total | 3.71 | 2.16 | 62 |
| | high poster | low | 5.76 | .56 | 49 |
| | | high | 5.75 | .44 | 56 |
| | | Total | 5.75 | .50 | 105 |
| | Total | low | 4.70 | 1.95 | 77 |
| | | high | 5.24 | 1.39 | 90 |
| | | Total | 4.99 | 1.69 | 167 |
| Total | low poster | low | 2.60 | 2.14 | 57 |
| | | high | 4.12 | 2.13 | 59 |
| | | Total | 3.37 | 2.26 | 116 |
| | high poster | low | 5.78 | .53 | 59 |
| | | high | 5.74 | .44 | 87 |
| | | Total | 5.75 | .48 | 146 |
| | Total | low | 4.22 | 2.22 | 116 |
| | | high | 5.08 | 1.60 | 146 |
| | | Total | 4.70 | 1.95 | 262 |

Table 5.

Means of condom use with new sexual partner at time 3, after adjustment for change in behavioural control from time 1 to time 2.

| SSeek | Type poster | Elaborat | Mean | SD | N |
|-------|-------------|----------|------|------|-----|
| LSS | low poster | low | 2.34 | 2.15 | 29 |
| | | high | 3.72 | 2.35 | 25 |
| | | Total | 2.98 | 2.34 | 54 |
| | high poster | low | 5.90 | .32 | 10 |
| | | high | 5.71 | .46 | 31 |
| | | Total | 5.76 | .44 | 41 |
| | Total | low | 3.26 | 2.44 | 39 |
| | | high | 4.82 | 1.88 | 56 |
| | | Total | 4.18 | 2.25 | 95 |
| HSS | low poster | low | 2.86 | 2.14 | 28 |
| | | high | 4.41 | 1.94 | 34 |
| | | Total | 3.71 | 2.16 | 62 |
| | high poster | low | 5.75 | .57 | 48 |
| | | high | 5.75 | .44 | 56 |
| | | Total | 5.75 | .50 | 104 |
| | Total | low | 4.68 | 1.95 | 76 |
| | | high | 5.24 | 1.39 | 90 |
| | | Total | 4.99 | 1.69 | 166 |
| Total | low poster | low | 2.60 | 2.14 | 57 |
| | | high | 4.12 | 2.13 | 59 |
| | | Total | 3.37 | 2.26 | 116 |
| | high poster | low | 5.78 | .53 | 58 |
| | | high | 5.74 | .44 | 87 |
| | | Total | 5.75 | .48 | 145 |
| | Total | low | 4.20 | 2.23 | 115 |
| | | high | 5.08 | 1.60 | 146 |
| | | Total | 4.69 | 1.95 | 261 |

Table 6.

Means of condom use with new sexual partner at time 3, after adjustment for change in attitudes from time 1 to time 2.

| SSeek | Type poster | Elaborat | Mean | SD | N |
|-------|-------------|----------|------|------|-----|
| LSS | low poster | low | 2.34 | 2.15 | 29 |
| | | high | 3.72 | 2.35 | 25 |
| | | Total | 2.98 | 2.33 | 54 |
| | high poster | low | 5.90 | .32 | 10 |
| | | high | 5.70 | .47 | 30 |
| | | Total | 5.75 | .44 | 40 |
| | Total | low | 3.26 | 2.44 | 39 |
| | | high | 4.80 | 1.89 | 55 |
| | | Total | 4.16 | 2.25 | 94 |
| HSS | low poster | low | 2.79 | 2.13 | 29 |
| | | high | 4.41 | 1.94 | 34 |
| | | Total | 3.67 | 2.17 | 63 |
| | high poster | low | 5.76 | .56 | 49 |
| | | high | 5.75 | .44 | 56 |
| | | Total | 5.75 | .50 | 105 |
| | Total | low | 4.65 | 1.98 | 78 |
| | | high | 5.24 | 1.39 | 90 |
| | | Total | 4.97 | 1.71 | 168 |
| Total | low poster | low | 2.57 | 2.14 | 58 |
| | | high | 4.12 | 2.13 | 59 |
| | | Total | 3.35 | 2.26 | 117 |
| | high poster | low | 5.78 | .53 | 59 |
| | | high | 5.73 | .45 | 86 |
| | | Total | 5.75 | .48 | 145 |
| | Total | low | 4.19 | 2.23 | 117 |
| | | high | 5.08 | 1.61 | 145 |
| | | Total | 4.68 | 1.96 | 262 |