The Applied Psychology of Addictive Orientations:

studies in a 12-step treatment context.

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Abstract

The clinical data for the studies was collected at The PROMIS Recovery Centre, a Minnesota Model treatment centre for addictions, which encourages the membership and use of the 12 step Anonymous Fellowships, and is abstinence based. The area of addiction is contextualised in a review chapter which focuses on research relating to the phenomenon of cross addiction. A study examining the concept of "addictive orientations" in male and female addicts is described, which develops a study conducted by Stephenson, Maggi, Lefever, & Morojele (1995). This present study found a four factor solution which appeared to be subdivisions of the previously found Hedonism and Nurturance factors. *Self orientated nurturance* (both food dimensions, shopping and caffeine), *Other orientated nurturance* (both compulsive helping dimensions and work), *Sensation seeking hedonism* (Drugs, prescription drugs, nicotine and marginally alcohol),and *Power related hedonism* (Both relationship dimensions, sex and gambling. This concept of "addictive orientations" is further explored in a non-clinical population, where again a four factor solution was found, very similar to that in the clinical population. This was thought to indicate that in terms of addictive orientation a pattern already exists in this non-clinical population, and that consideration should be given to why this is the case. These orientations are examined in terms of gender differences. It is suggested that the differences between genders reflect power-related role relationships between the sexes. In order to further elaborate the significance and meaning behind these orientations the next two chapters look at the contribution of personality variables and how addictive orientations relate to psychiatric symptomatology. Personality variables were differentially, and to a considerable extent predictably involved with the four factors for both males and females. Conscientiousness was positively associated with "Other orientated Nurturance" and negatively associated with "Sensation seeking hedonism" (particularly for men). Neuroticism had a particularly strong association with the "Self orientated Nurturance" factor in the female population. More than twice the symptomatology variance was explained by the factor scores for females than it was for males. The most important factorial predictors for psychiatric symptomatology were the "Power related hedonism" factor for males, and "Self oriented nurturance" for females. The results are discussed from theoretical and treatment perspectives

In loving memory of my Grandparents

Harry and Winifred Reynolds

Memorandum

The research for this thesis was conducted whilst the author was a postgraduate research student on a studentship from The PROMIS Recovery Centre (October 1996 – February 2001), at the University of Kent at Canterbury.

All work in this thesis is the independent work of the author. Intellectual acknowledgements are made in the text.

The author has not been awarded a degree by this or any other University for the work included in this thesis.

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Preface

During the period of the studentship at PROMIS, I continued the routine collection of questionnaire and personality data used in the empirical studies reported in this thesis. The general approach to the thesis was, in part, determined by the nature of the clinical context within which the work was to be conducted. One primary aspect of the clinical context was the interpretation of what was to be considered as addictive behaviour at the treatment centre where the work was conducted. So, an initial starting point was the exploration of literature which was relevant to the clinical setting of the PROMIS Recovery Centre, and its philosophy of treatment, and the contextualisation and exploration of these parameters within formal psychological theory.

A further determinant, which was to serve as a starting point, was a piece of work conducted by Stephenson, Maggi, Lefever, & Morojele, (1995) that had suggested a two factor solution of the behaviours considered by PROMIS as addictive. These results needed to be replicated and verified, and so the first study constitutes this replication and formed the foundational work from which further studies of the thesis emanate.

In addition to the work contained in the thesis two further studies to which I contributed were conducted whilst at PROMIS. The validation of the Shorter PROMIS Questionnaire appears in appendix 1 and is discussed in chapter four of the thesis. This paper has now been accepted for publication in *Addictive Behaviours.* The second study of a quasi experimental treatment intervention appears in appendix 6 as published in *The Journal of Constructivist Psychology.*

Chapter One

The origins of Twelve step methodology, Anonymous Fellowships and the Minnesota method

1.1. Historical background of Twelve step methodology

The origins of the Alcoholic Anonymous (AA) movement can be traced back to a few seminal groups of middle class white alcoholics in Ohio and New York in the 30's led by its founders Bill W. and Dr. Bob S (White, 1988). A member of an evangelical religious group (the Oxford group) convinced Bill W that "release" from his alcoholism was possible through religious discipline. After having a religious experience referred to as his "hot flash", and achieving sobriety he went on single handedly to help other alcoholics though, it was after his meeting with Dr Bob and several years of experimentation that Alcoholics Anonymous was really set in motion (op cit).

The Twelve Steps (Table 1) were first published in 1939 and contain the original concepts and inspiration of Alcoholics Anonymous based on six principles of recovery (Table 2). The book is now often referred to as the "The Big Book" revealing its pivotal importance in the AA philosophy. The Twelve Steps were attributed to three sources (Hopson, 1996), the Oxford group, Dr. William Silkworth (this being Bill W's doctor who had also helped him achieve sobriety) and William James's book "Varieties of Religious Experience" (James, 1902). This provided the conceptual basis for the necessity of the subjugation of the self and the acknowledgement of powerlessness, which became known as the first step of AA (op cit).

One dominant underlying principle that has its roots firmly placed in the original experiences of these founding members, is that the alcoholic is unable to exercise choice with regard to drinking, and that the power to live without drinking must come from a source other than, and greater than the self. This is well illustrated by a quotation from AA literature:

"Lack of power, that was our dilemma. We had to find a power by which we could live and it had to be a Power greater than ourselves. *The abuse of alcohol is a sign of an underlying spiritual disorder which can only be addressed through surrender to a higher (spiritual) power: Our liquor was but a symptom.* So we had to get down to causes and conditions" (AA, 1976, p.64 italics added).

Table 1.1: The Twelve Steps of Alcoholics Anonymous

"1. We admitted we were powerless over alcohol – that our lives had become unmanageable.
2. Came to believe that a Power greater than ourselves could restore us to sanity.
3. Made a decision to turn our will and our lives over to the care of God *as we understood Him.*
4. Made a searching and fearless moral inventory of ourselves.
5. Admitted to God, to ourselves and to another human being the exact nature of our wrongs.
6. Were entirely ready to have God remove all these defects of character.
7. Humbly asked Him to remove our shortcomings.
8. Made a list of all persons we had harmed, and became willing to make amends to them all.
9. Made direct amends to such people wherever possible, except when to do so would injure them or others.
10. Continued to take personal inventory, and when we were wrong, promptly admitted it.
11. Sought through prayer and meditation to improve our conscious contact with *God as we understood Him*, praying only for knowledge of his will for us and the power to carry that out.
12. Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics, and to practice these principles in all our affairs". (Alcoholics Anonymous, 1976).

Table 1.2: The 6 principles of recovery

We admitted we were powerless over alcohol.
We got honest with ourselves.
We got honest with another person, in confidence.
We made amends for harm done to others.
We worked with other alcoholics without demand for prestige or money.
We prayed to God to help us to do these things as best we could.

In 1952, *Twelve Steps and Twelve Traditions* was published (Hopson, 1996) and here the philosophy of the original Twelve Steps was further elaborated. The Twelve Traditions were first formulated to establish principles to guide the group life of AA groups and bring under control those circumstances, such as competition for leadership and individuals searching for prestige, that had destroyed other alcoholic mutual-aid efforts. Subsequently other Twelve-Step Fellowships have emerged, with their own published equivalents of Alcoholics Anonymous, such as the Twelve Steps of Overeaters Anonymous. Such publications have adapted the Twelve-step philosophy from AA so as to encompass other addictive behaviours.

From humble beginnings and a membership of 100 in 1939 (White, 1988), AA itself has grown into an international, multinational fellowship and has given rise to similar fellowships for other addictions with an estimated 1.7 million members (McCrady and Miller, 1993). At its most basic AA may be considered to be a method of helping those who have declared their wish to stop drinking, that being the only criterion for

membership. However, it may also be seen as much more, as it does not just involve itself with the removal of the offending behaviour and in helping with relapse prevention. With the utilisation of the Twelve Steps profound changes in behaviour, cognitions, values and relationships are expected longer term, so this process of therapy can be seen as having aims of grand and deep personal transformation.

1.2. The Minnesota Model and AA

Attending fellowship meetings is one way of gaining access to the Twelve Steps. A further way is attending one of the Minnesota Method treatment centres, now commonly called Twelve-Step Chemical Dependency centres. The method originated in the USA where the first program was opened in the 50's at the Minnesota State Hospital. The founders of the original Minnesota method centres were AA members in recovery and introduced AA's principles to the treatment of alcoholism. Thus the central feature of this method is the Twelve-step philosophy of the Anonymous Fellowships which is used as a pivotal vehicle for therapeutic change. Its principal treatment goals are abstinence from mood altering substances and an improved quality of life (Cook, 1988a). Published outcome studies from these programs are rare but are important to consider. This is because today it is quite a common treatment approach for alcoholism and drug addiction in both group and one to one therapy contexts and is utilised widely throughout the USA and in other parts of the world (Nowinski, 1996).

1.3. Some assumptions of MM and the Fellowships

In the next section the Fellowship's and the Minnesota Method's key assumptions and

common goals are looked at. Due to its religious overtones and integration of the disease concept of addiction the "philosophy" has attracted criticism and it is with these two features that the discussion will start.

1.3.i. Disease concept

According to AA tradition, alcoholism and drug addiction are chronic and progressive "illnesses" of unknown aetiology that affect the body, mind, and spirit, and they are characterised by a person's inability to reliably control his or her use of alcohol and or drugs and so it is thought the only effective remedy is abstinence. AA and other Twelve Step programs assume that there is no cure for alcoholism or other addictions, and when speaking of recovery from addiction, they emphasise the concept of "recovery" as a permanent ongoing process as opposed to cure.

Viewing alcoholism as an illness has been traced back to 200 years ago (White, 1988) and although not adopted widely at this time the illness, or disease concept, was resurrected by the early members of Alcoholics Anonymous in the late 1930's. Alcoholism was recognised as a disease by the American Medical Association (AMA) and the World Health Organisation (WHO) in the mid 1950's. These set the stage for a medical interpretation of alcoholism often referred to as the American disease model (Rogers & McMillin, 1989).

The model posits that alcoholism is an irreversible disease process, it emphasises physical dependency, genetic predisposition, progressivity and specific stages of change.

The main features of this illness include the symptom of "loss of control", where control is lost over the amount the addict will consume or take once drinking has commenced, and craving, where the addict experiences an uncontrollable urge to drink.

This model is however not without its critics. Heather (1990) regards the model as outdated and criticises it for lack of evidence. Peele's (1990) criticisms lie with the wealth of evidence which questions the disease concept premises of loss of control, irreversibility and craving. Further problems with this model include its failure to explain how or why people overcome addictions without treatment or professional help, or indeed why individuals benefit from different treatment approaches.

Another area of criticism concerns the untoward effects of the sufferer's conceptualisation of addiction. It has been frequently argued that this conceptualisation of their condition can greatly influence clients' understanding of their problems, for instance when viewing alcoholism as a disease, this view may serve to absolve the individual from personal responsibility (Durand, 1994). It is also well established that factors such as motivation, commitment to change and "willpower" are instrumental in achieving sustained abstinence (Marlatt & Gordon, 1985), and it is possible that individuals who view their condition as biologically determined, either as a disease or genetic predisposition, or otherwise inflicted, may not believe they have the power to change. Indeed what has been proposed is that because of the self fulfilling prophecy effects that would result from adopting a biological explanation of one's behaviour, the addict may not attempt to moderate their behaviour. Instead, the addict may be inclined

to interpret any return to the behaviour or substance after a period of abstinence as constituting a full blown relapse to an unavoidable state, and so resume their previous high level of consumption (op cit)

Moreover, the disease concept cannot account for addicts who successfully abstain without treatment or for those who spontaneously go into remission. These are common occurrences (Waldorf & Biernacki, 1979). Research has indicated that quite a high proportion of people who become involved in addictive behaviour require no formal treatment intervention and that they moderate their behaviour independently (op cit.). McCartney (1996) states that the number vary considerably from study to study and across the addictions possibly up to 50-60 percent in alcohol and smoking addicts and up to as many as 80 percent of heroin addicts.

One of the problems here is that the majority of the studies examining outcome look solely at treatment populations and thus individuals included in them are almost certainly unrepresentative, as it is likely that many people never present for treatment and yet still recover. Data on their number, their attempts to abstain, successful or otherwise, as well as the degree of usage are not available because those who spontaneously recover are generally a hidden population. It may be the case that those users with the highest quantity of usage, or severity of problems, are the ones that present for treatment. In that case the findings from studies of treatment populations are only relevant to this particular group and cannot be applied to non-treatment populations. The differences between these two populations are likely to be critical, one of which is the "non-treatment" population's independence and self-reliance. In one study it was indicated that a "non-

treatment" population of alcoholics who were able to stop drinking on their own were proud that they were able to do this and in conjunction with this they didn't want the stigma of being labelled an alcoholic, which may have occurred if they had sought formal treatment options (Tuchfeld, 1981).

It has been argued that the concept of spontaneous recovery maybe a misnomer as there is nothing spontaneous about any recovery, and it might be more appropriate to refer to these individuals as self-treaters (Klingemann, 1994). This is because the recovery of self–treated individuals requires a high degree of personal motivation to change and is greatly enhanced by such factors as having an effective network of supportive family and friends, being in employment and/or being financially secure (Tuchfeld, 1981).

AA has often been criticised for its support of the disease concept (Riordan & Walsh, 1994) as the disease concept is negatively described as emphasising the pathological not the healthy. Further criticism stems from practitioners' adoption of an expert role. When the disease view is assumed, the likelihood is increased that clients will be seen as untrustworthy people in "denial", not responsible for their predicament, and for whom recovery goals are designed and directed solely by treatment staff (op cit). On the other hand the disease model has provided a means of expanding the diagnosis, treatment and the funding of such research of alcoholism and has done a great service in relieving the burden of guilt from both alcoholics and their family members (Burman, 1994). This may occur as with addiction being seen as a disease the individual need not blame themselves or others for their condition.

Other models of addiction, in contrast to the medical model, would also probably not view the addict as responsible for the condition, but would hold the individual responsible for changing their condition. This is because addiction is often understood to be a learned adaptive behaviour, a coping mechanism for a distressing environment. Nevertheless, addiction is now believed to have multiple determinants and is often described as a "biopsychosocial" problem (Marlatt, Baer, Donovan & Kilahan, 1988). This phrase is now in common usage, and its truth would not be contested by many working in the MM or 12-step traditions. Indeed, Wallace (1996) suggests an extension of the term to "biopsychosocialspiritual" to draw attention to the traditional AA emphasis on spiritual factors in the process of recovery from addiction. A consideration of spiritual issues in Twelve step methodology is the next topic to be considered.

1.3.ii. The religious nature of the Steps and Spirituality

It is in the context of AA's conceptualisation of alcoholism that professionals are most frequently faced with, and urged to address, spiritual issues in treatment (Alcoholics Anonymous, 1980). Although it is often the disease concept which is emphasised as a fundamental factor in Minnesota Model/AA view of addiction, the aetiology and treatment of addiction is also seen in fundamentally spiritual terms. Miller & Kurtz (1994) have posited that the essence of AA's program is not to be found in the disease model. Rather, it is discovered in the comprehension that an alcoholic's best hope for sobriety is through recognising the need for help, and accepting help from a transcendent higher power, referred to as God in AA's Twelve Steps.

From an AA perspective it is argued that it is not only the physical and mental aspects of addiction, such as detoxifying and recovering from the acute effects of dependence, that need to be addressed. It is crucial that the addict is encouraged to fully consider the spiritual issues that are fundamental in the expression of addiction (Alcoholics Anonymous, 1976). The treatment of the physical and mental, though necessary, are not sufficient to ensure a lasting recovery. Practitioners who accept the importance of the spiritual dimension view addiction as much more than a physical problem and acknowledge its aetiology as involving a three fold process involving not only body and mind but spirit as well. In this context, the term spirit is frequently understood to refer to the contribution to recovery made by a client's congruous relationship with the environment in which he or she lives (Chapman, 1996)

Spirituality in AA is often explained as a three-tiered concept comprised of an affinity with others, self and a higher power. Specifically, "Basic to these three dimensions is a sense of connection with self and other-than-self, and behaviours that reinforce this felt connection" (Alcoholics Anonymous, 1976, p.414). Without this fundamental sense of connectedness, spiritual symptoms of addiction include a sense of disharmony, disjointedness, isolation, a lack of sense of self and lack of self worth, and it is these characteristics that most proponents of the Twelve Step philosophy believe leads alcoholic individuals back to addiction even when they are successfully detoxified and have begun to return to normal drinking (Alcoholic Anonymous, 1976). It is thought that it is through the consideration and development of spiritual qualities such as relatedness to others and a sense of purpose in being that the key to providing ongoing stability is

found.

The Twelve Steps explicitly include gaining awareness of a higher power, turning one's will over, making amends to others, and prayer and meditation. Spiritual elements also include acceptance, this being the opposite of attempting to take control and full command. The research investigating the spiritual element of treatment is limited though there is some evidence to suggest that this feature of an accepting and open stance is an optimal coping style for managing the symptoms of addiction (Marlatt, 1995). Other central elements of a spiritual theme include humility and forgiveness both of which are thought to be involved in recovery process (Miller, 1998). In conjunction to this the practice of forgiveness, an important feature of the Twelve Steps has been found to be associated with higher life satisfaction in general (Poloma & Gallup, 1991 in Miller, 1998).

It is often alleged that the Twelve Steps represent a *religious* program of treatment rather than spiritual and a number of professionals see this approach as tantamount to a call to religious conversion (Warfield & Goldstein, 1996), and it is this element which has been seen as one of the more difficult aspects of the Anonymous Fellowships' approach (Buxton, Smith & Seymour, 1987). In the first writings of the movement there is a strong flavour of religion and frequent references to "God". The Twelve step organisation has over the years moved towards the use of the term "Higher power" and in general refinements have occurred as the first writings have been reviewed and debated. Chapman (1996) however puts the relationship between spirituality and religion in

perspective stating that, "Spirituality, then, is an aspect of alcoholism recovery that involves more than a consideration of religious principles. It encompasses the belief that individual human beings are but a part of a larger reality, and as such are charged with a participatory rather than dominating role in that existence, religion may be an important part of one's spiritual life, but it is at best one dimension of a seemingly far more complex aspect of the human condition" (Chapman, 1996, p.45)

One feature which distinguishes AA from organised religion is the lack of dogma, and the freedom to choose what the nature of their higher power may be. The emphasis is not on what kind of higher power is embraced, but rather an acceptance of the idea of human limitations and, "A power greater than ourselves". Instead of rigidity of interpretation within the framework of "higher power" there is great flexibility in how the individual conceptualises their personal definition of higher power. Initially it is quite often seen as the power within their own personal treatment group, or alternatively in nature. The concept of a higher power is central to the program and most though not all will come to believe in such a concept, to whom they can pray, look for guidance and turn over their conscious wills. In brief, the Twelve Steps has been described as a guide to a life-long spiritual journey that is "recovery" (Nowinski & Baker, 1992).

Considering addiction as having a spiritual dimension poses a distinct problem for empirically orientated practitioners and theoreticians as this additional feature of addiction is often viewed as non-scientific and mystical and as such should have no place in mainstream practices (Warfield & Goldstein, 1996). It is possible that it is this

connection to a higher power which poses the biggest problem for practitioners when considering Twelve Step methodology. This probably has at its roots the common view that spirituality should be a subject exclusively for religion. This perspective, it has been suggested, could also be a result of a bias created by the dominance of a Western view of health and healing present in the training of most therapists and counsellors (Pedersen, 1988). Such training is often dominated by Western values of self reliance, independence and cause and effect explanations. Professionals who have been taught to recognise such values may be too narrowly focused on addressing physical and mental needs alone and because of this they have no room or, indeed, framework within which they can incorporate spiritual ideas.

Chapman, (1996) argues that without looking at the spiritual dimension of addiction it is not possible to adequately ground the addict in his or her living environment or allow the opportunity for the addict to overcome his/her isolation which is so frequently reported. This perspective is being incorporated by the broader psychotherapeutic community, where the realm of the "transpersonal" is increasing in popularity (Clarkson, 1998).

When considering the criticisms for the incorporation of a spiritual dimension, room must be made for the strong evidence which suggests that spiritual involvement is associated with a decreased risk of alcohol/drug use and dependence (Miller, 1998). More than a dozen studies have found that alcohol/drug abuse is associated with a lack of sense of meaning in life, relative to normal samples (Crumbaugh & Maholick, (1969) & Black, (1991), in Miller, 1998) There is also some evidence which suggests that drug use

correlates, inversely, with reported importance of religious values (Khavari & Haron, (1982); Perkins (1985) in Cook, Goddard & Westall, (1997).

To move forward by embracing a broader consideration of spirituality which does not view it as solely a feature of organised religion may well enable practitioners to overcome their own and their clients' objections to the perceived religious orientation of AA.

1.3.iii. Recovery

Rather than "cure" being a goal within the philosophy of the Fellowships and the Minnesota Model, the emphasis is on the idea that one's addiction can be arrested through working the Twelve Step program and by the regular attendance of meetings. Since addiction is seen to be an incurable disease, abstinence is proposed to be the only way to keep the disease at bay. This condition is recognised as difficult to maintain but with the help of regular attendance of fellowships meetings it is a goal which is achievable and rewarding. It is thought that other addictive behaviours such as drug taking and gambling share features of alcoholism and so these behaviours amongst others have been incorporated into the Twelve step philosophy, and abstinence is a goal similarly applied across this whole range of addictive behaviours.

It is thought that once someone has become addicted, this addiction stays with them, and that maintaining sobriety and having order and balance requires life long vigilance, so the Twelve Steps of AA are seen not as a treatment program as such, but a suggested

pathway of ongoing recovery. With no cure as such, the solution for the problem of addiction is thought to involve the restoration of power and order to a dis-empowered and disordered life (Alcoholics Anonymous, 1980). The essence of recovery is thought to stem from a changed lifestyle (habits and attitudes), and a gradual spiritual renewal. This process is often said to be akin to a spiritual journey in-as-much as recovery encourages a progressive change not only in habits, but in values and attitudes. Relapse is thought to occur before the first drink is taken or drug is used as the *process* of relapse starts when ongoing, active recovery stops. This is thought to occur when an individual feels OK enough to stop going to meetings, and stops remembering the consequences of their active using days.

1.4. Usefulness of fellowships

Alcoholism and drug abuse are among the most pressing and expensive social concerns in the health care field today, and the potential numbers involved that need assistance are exceedingly high. It has been estimated that approximately 7 per cent of all persons who drink have some significant symptoms of dependency (Hilton, 1987). Many models of treatment exist, and though still under researched, probably the best known publicly is the Twelve Step philosophy as it so easily accessible, it is free and it is often recommended in conjunction with other therapeutic interventions. The program is recognised by many practitioners as one of the most effective and user-friendly resources for helping alcoholics (Riordin & Walsh, 1994). With the consideration of the constant pressure on time limited therapy, the free support available within the Twelve Step network is invaluable. Some researchers have been very positive about AA concluding that it is

without question that AA have helped very large numbers of people to remain abstinent over long periods of time (Emrick, Tonigan, Montgomery & Little, 1993).

According to Norwinski and Baker (1992) the flexible and pragmatic nature of the program indicates that it would be hard for anyone not to find something useful in it. The Twelve Step programmes have broken down complex psychological points and ways of living into easily understood simple phrases making it more accessible. For example, from a more orthodox perspective, the first three steps confront the denial and the loss of control around addictive use through the acknowledgement of powerlessness. These elements of denial and loss of control are also important aspects which would be worked on within other methods of treatment, but in the Twelve Steps are presented in a simple and easily digestible way. Phrases commonly used in the literature, such as "let it go" and "turn it over" emphasise the importance of simplicity.

Perhaps the most important aspect is the extensive support network and structure that the Twelve-step community offers. One of the greatest risks of relapse occurs in the transition from primary care and getting back to a normal way of life, without the dependency on substances or behaviours. The support offered by the Fellowships can greatly ease this transition and unlike other treatments provide ongoing, life long support, with meetings taking place in many locations nationally and internationally.

1.5. The spread of the philosophy to embrace other addictive behaviours

The Twelve-step programme of AA has provided a framework for the many forms of "Anonymous" groups. As a treatment for addicts the statistics on number of fellowships and chapters, membership and attendance are impressive and quite staggering. It has been estimated that one in 10 adults in the US has attended an AA meeting and that more than one in eight has attended a Twelve Step meeting of some kind (McCrady & Miller, 1993) In addition to this White (1988) reported on the existence of over eighty Twelve step related fellowships, some of the more well known include Narcotics Anonymous, Over eaters anonymous, Gamblers anonymous, and Sex and Love Addictions anonymous. There are also groups designed to support family and friends of people who are suffering from addiction, for example Al-Anon is a Twelve-step programme for the families of alcoholics.

The steps in relation to other addictions

A degree of interpretative modification has been necessary for the steps to address a large number of addictive behaviours. For instance an important element of re-framing the steps involves the target symptom of the first step (alcohol). Originally there was one target symptom, which was alcohol, and this was interpreted as a symptom of underlying spiritual disorder. As knowledge has grown in the field, the abuse of other substances and behaviours such as food (over and under eating), sex, relationships and gambling are also thought to be symptoms of this underlying spiritual disorder. Therefore the steps have needed to be adjusted and reinterpreted in order to encompass these other addictive behaviours.

Interestingly, Step One defines "the problem" as whatever the issue is around which the particular Twelve-step program is constructed e.g. alcohol or food. What happens in the following steps is that the target problem is not mentioned again until Step Twelve. Thus what is encouraged is a broad examination of the functioning of the person in terms of their way of life, values etc. instead of an exclusive focusing on the target problem. This in many ways is little different to the process involved in many, but not all, forms of psychotherapy, where the presenting problem is eventually seen in the context of the overall functioning of the individual's life.

One problem involved in the acknowledgement of other addictive behaviours is the concept and expectation of abstinence. It is clear that alcohol and drugs are non-essential to physical survival and therefore the idea of completely giving up these substances seems reasonable to many who have problems regarding any normal pattern of usage. On the other hand, when food is thought to be abused addictively and compulsively (under and over eating), there is no possibility of abstinence from the addictive substance. What occurs with behaviours where abstinence cannot be so clear cut is that a highly selective " abstinence" program of sorts is set up to modify the target symptom. For both the anorexic or overeater their particular program of "abstinence" involves the normalisation of their food intake, for the gambler the aim would be abstinence from all risk taking or gambling behaviour.

1.6. Research investigating the effectiveness of Twelve Steps

Research investigating the effectiveness of AA and other Twelve-step group has been

reported as inconclusive (Hopson, 1996) and opinion for some time has been mixed. It has been claimed that Twelve step methodology has not been effectively researched and that there is little independent objective evidence to support its effectiveness (Georgakis & Shepard, 1998). McCrady and Irvine (1989) reviewed studies of the effectiveness of AA and found only two methodologically sound studies, neither of which indicated that AA was more effective than alternative treatments. The difficulty in being able to conduct research into the effectiveness of AA or other Twelve step programmes with scientific rigour may be in part due to difficulty in obtaining hard data. A further criticism includes the large percentage of alcoholics who drop out of AA (Galaif & Sussman, 1995). A further difficulty involves the accessibility of the groups themselves as they are closed i.e. the groups are anonymous and do not allow non member entry. Another reason why the research into the effectiveness of the Twelve Steps is a little thin on the ground is that it is only quite recently that the treatment has really been embraced as a reasonable alternative to other more orthodox methods. As it is a self help organisation it has taken time for the medical and research establishment to accept what the method has to offer and also to take it as a serious option for treatment and therefore research. It is also the case that there are inherent problems in the scientific study of any form of treatment for addictions, for example in relation to random allocation and establishing valid measures of outcome.

In spite of methodological problems aggravated by the anonymous, voluntary, self-selection of AA membership, it is also claimed that there is evidence which indicates that AA is a very useful approach for alcoholics. Chappel (1993) states that there is evidence

which suggests that many alcoholics who become involved in AA find something they can use to improve their lives on a long-term basis. Emricks's (1987) review of survey and outcome evaluations of AA alone or AA as an adjunct to professional treatment indicated that 40- 50 percent of alcoholics who maintain longer, active membership in AA have several years of total abstinence while involved, 60–68 percent improve, drinking less or not at all during AA participation..

Historically there have been elements of the philosophy which have troubled traditional therapists. One primary objection is that the Twelve-step approach is superficial and does not address the deeper psychological issues of the patient, (Johnson and Taylor, 1997). It could be said that this is a rather harsh criticism that indeed could be used against many forms of therapies, for example cognitive behavioural work does not aim to address deep psychological material but still is effective in many forms of intervention. It may also be argued that what is encouraged to take place through the working of the steps is a re-authorship of one's life, and in many ways a complete turn around in attitude and assumptions. If this is the case then this form of treatment cannot be seen as superficial.

A further limitation concerns the lack of assessment involved in AA and other Twelve step programmes. In "the rooms" (i.e. the meetings) there isn't a mechanism whereby people can have a professional assessment to investigate the extent of their psychological difficulties. Self selection for treatment is determined by the expressed wish to stop their addictive behaviour, this providing the only condition for membership of the group. This

raises another problem, which is well illustrated by the figures from one study which claimed that between one half and a third of people with eating disorders have a biologically mediated mood disorder that would be helped by pharmacological intervention (Garfinkle & Garner 1987). If these people only attend fellowship meetings, and even if successful, they are missing out on further improved mental health if they do not have the possibility of a full medical assessment which may provide a basis for further interventions.

1.7. Positive impact of the fellowships

Researchers for some time did not seem particularly interested in self-help organisations in general, though currently it is thought that more individuals with alcohol related problems seek help from self-help groups than from any other source (Room & Greenfield, 1993). This indicates that the field of self help in relation to addiction could provide a fertile ground for comprehending a range of issues, such as factors that are attractive and effective in the change process.

Even though Twelve-Step fellowships have been under-researched and largely criticised there are those who support the movement. Chappel (1993) stated that AA is a highly successful treatment modality and should be recommended in conjunction with more traditional psychotherapy. In saying this, though, there are those who are wary of its effectiveness. Emrick (1987) claimed that AA had not been proven to be uniformly and uniquely effective in the treatment of alcoholism and questioned the prevailing practice of treatment professionals universally referring recovering persons to AA. This division

in opinion emphasises the need for research to continue in this field investigating the central features of the methodology.

Given the current financial and social burden that many addictions place on society, the disappointing relapse rates and obvious misery that it causes for both sufferers and those around them, it is clear that a continued interest should be directed towards the potential utility of the fellowships. More specifically, some of the reasons for this are as follows. Participation in the fellowships is free and individuals can make as much use of meetings as they see fit, thus reducing the burden on state provision. One longitudinal study has in part confirmed this in that AA participation may actually lower health care costs (Humphreys & Moos, 1996). It can be said that the fellowships already have a profound impact on how services are delivered, with many studies drawing upon the support of AA in relation to outcome data or relapse prevention.

In relation to the fellowships' impact, this isn't limited to financial or outcome considerations. Humphreys (1997) has argued that, "AA members have had a significant impact on the development of the disease concept of alcoholism, the portrayal of alcoholism in motion pictures, the creation of the National Council on Alcoholism and National Institute on Alcohol Abuse and Alcoholism (NIAAA), and the development of the professional alcohol treatment industry" (Humphreys, 1997 p. 2105). In conjunction with this a number of studies have evaluated how AA affects behaviour (McCrady & Miller, 1993) and some promising lines of inquiry include the effects of mutual help participation on spiritual development, friendships and marriage and psychological

functioning (Humphreys, 1997).

Project MATCH

Perhaps the most supportive study of Twelve-step methodology is that of Project MATCH, a national collaborative study of alcoholics treatment funded by the National Institute on Alcohol Abuse and Alcoholism. This study was initially designed to assess the effectiveness of matching the characteristics of clients to various popular treatments, these being Motivational Enhancement, Cognitive-Behavioural and Twelve Step Facilitation. The results revealed that there were actually few outcome differences between these treatment methodologies (Project MATCH, 97). This suggests that Twelve Step Facilitation is equally effective as more accepted methodologies. With this kind of support for a methodology which has typically been viewed with caution, further investigation of its theoretical underpinnings and key elements of treatment seems called for and appropriate.

One criticism which may be levied at this research may be that the actual working of the steps in a self help AA context may be somewhat different in comparison to how Twelve Step Facilitation therapy may be conducted in a "one to one" context. Though it must be said that the "one to one" was designed to get people into the fellowships and was not a "treatment" in itself, even so this is clearly a different situation when comparing it to a self help group. This criticism however cannot be assessed until more work has been conducted into this field, though what can be stated is that this methodology is becoming more acceptable and is up and running alongside the more orthodox and accepted

treatment methods, and will hopefully attract more research designed to discover what the factors are that are at the root of its success.

In the next chapter a detailed description is given of the philosophy and organisation of the centre where the data for the research studies was gathered, in order to further contextualise the investigations.

Chapter Two

Philosophy and organisation of the PROMIS Recovery Centre

2.1. PROMIS

The PROMIS Recovery Centre and the PROMIS Counselling Centre were established in 1986 to treat people suffering from depressive illness and any form of addictive or compulsive behaviour. The organisation treats all forms of addictive disease most frequently alcohol, drug and food problems but also other forms of addiction such gambling, sex and work. The centre in Kent is now an extensive 44-bed in-patient treatment facility, with East Kent Health Authority registered as a mental nursing home. The centre in London is an assessment centre which also operates on an out-patient basis. PROMIS aims to treat addictive behaviour within the traditions of the Minnesota method. The founder, Dr. Robert Lefever, has described the approach in a number of publications (e.g. Kick the habit, 1999). This approach is based on the "Twelve step" philosophy of the Anonymous fellowships and is now often referred to as Twelve Step facilitation therapy.

Interpretation of addiction

There are many definitions of addiction and many differing opinions on the nature of addiction. At PROMIS the Twelve Step Minnesota definition is used and incorporated into the programme's philosophy. This defines addiction as a disease and views all

expressions of addiction as having the same basis. As akin to other diseases it is seen as having symptoms, a notable progressive course and outcome. Addiction is also believed to be hereditary in part and that sufferers can experience multiple addictions. This is where an alcoholic may also use drugs or where an anorexic also uses exercise to compulsively mood alter. Though essentially incurable, addiction is taken to be a treatable and controllable illness. Depression and obsession are thought to be the core of the problem and this results in compulsive behaviour. Alcohol, recreational and prescription drugs, nicotine, over and under eating, work, compulsive helping, addictive relationships, gambling, and sex, are some of the behaviours which are seen as being addictive. (A more detailed look at these areas will be taken in the chapter four when the PROMIS questionnaire is examined). Formal diagnostic criteria such as the DSM are not strictly adhered to at the centre, as any use of these addictive behaviours which result in significant negative consequences for the patient is seen to be worthy of treatment.

One feature of addiction that is commonly emphasised in treatment is that of "denial". This is the constant inner urge to persuade themselves that they are not *really* an addict, and that the cause of the addiction stems not from inside oneself but from other factors such as current circumstances. By comparison, it is often the case that the cause of addiction is seen as lying with the individual and that it is a lack of intelligence, loss of will power or weakness of character that gives rise to the problem. At PROMIS these popular common knowledge assumptions are discouraged and it is emphasised that the individual is *not* responsible for the addiction itself, though has responsibility for the actions that the addiction may have invited. Emotional trauma is taken to be a potential

precursor and sensitising agent to a pre-existing genetic potential and when experienced in conjunction with exposure to something that affects the mood of the individual, such as alcohol or food, this can begin to trigger the addictive process.

Referrals and assessment

People come into PROMIS either through self- referral, employers, the patients' families or through General Practitioners or Psychiatrists. The initial assessment is typically conducted by the treatment director in London or Kent or one of the senior counselling staff. One task of the assessment is to try to rule out competing explanations for their problem behaviour. Elements such as the severity of their addictive use of a substance or behaviour is investigated in relation to any personal, legal and social consequences that the person is suffering due to that use. Modes of treatment are recommended and the following areas are typically discussed; group and family psychotherapy, detoxification medication and intensity of treatment intervention. When a person has been admitted for treatment a more in depth history is taken by the nursing staff and patients are also seen by the General Practitioner and the Consultant Psychiatrist.

One limitation which often concerns those working in the field is the lack of professional assessment involved in the self help Twelve-step community. This omission is thought to be a problem where people are suffering from further psychiatric disorders and would benefit from further intervention. At PROMIS, this problem is directly addressed. There is a team of professionals who are trained to investigate the intricacies of addictive behaviour, to look for competing explanations for the presenting problems and to

ascertain whether there are co-morbid factors which may necessitate a complementary approach such as additional pharmacological interventions.

"Patients"

At PROMIS those who enter are called patients, this is in part because they are viewed as suffering from an illness. PROMIS is also a registered nursing homel, making the term appropriate, if not necessary. The participants in the subsequent studies in the thesis are accordingly referred to as "patients".

Treatment

PROMIS aims to diagnose and treat all stages of addictive disease and is involved in the longer term commitment to a plan of continued recovery. All expressions of addictive illness are addressed: physical, social, emotional and spiritual. Cross addiction (the phenomenon of switching from one addictive behaviour into another or having concurrent addictions), is addressed in treatment, as is relapse prevention. In addition to this, social, financial, occupational and environmental matters are also considered where appropriate.

Family involvement

This is a key element in the treatment of the individual as it has been increasingly recognised at PROMIS that the whole family is often integral to the addictive process for the individual. This could be in terms of family members inadvertently "enabling" the addictive process by providing money, ostensibly looking after their family member, or

by protecting them from untoward consequences of their using. There is a degree of education and instructional work to be undertaken so that the family has a clear and informed idea of what addictive disease entails and means. On a different level their involvement can aid the process of recovery in learning how to assist in a genuinely supportive and healthy way. In addition to these aspects family members often require counselling themselves and are encouraged to attend anonymous fellowship meetings designed to help relatives or friends of addicts.

Many addicts have not achieved independence from their families and the family can function to maintain the user's addictive behaviour. Focusing on the substance or process abusing member of the family distracts attention away from the real problems within the family (Madanes, Duke & Harbin, 1980). The family may undermine the user's attempts to abstain as they have a vested interest in keeping the user dependent. Yandoli, Mulleadly and Robbins (1989) have termed these family situations as enmeshed, and in such cases the family needs to be involved in treatment and independence encouraged.

Staff

The staff who have direct therapeutic contact with the patients are the treatment director and other trained counsellors. At the present time all of the treatment staff are in recovery themselves and although many have various forms of formal counselling qualifications the bulk of their training though comes through a probationary learning period at PROMIS. On entry the counsellors are encouraged to take a certificate/diploma

in Addiction Counselling which is run by PROMIS in London, and validated by the Associated Examining board and to progress to an MSc. In addiction psychology from the University of Greenwich. In addition to the counselling team there is a team of registered psychiatric nurses, Consultant Psychiatrists and General Practitioners. The employment of recovered addicts as counsellors in this field is typical, as it is thought that counsellors that have successfully been through the same treatment process offer inspiration and a helpful source of identification to those who are currently being treated and cannot easily be fooled by strategies that they themselves have previously employed.

2.2. Treatment method (Twelve Step Facilitation, linked with Anonymous Fellowships)

The PROMIS treatment follows the main Minnesota model of the treatment of addicts and this has its methods rooted in the Twelve Step Anonymous Fellowship Programme of Alcoholics Anonymous and other variants of this group that have developed, for example Narcotics Anonymous, Overeaters Anonymous and Gamblers Anonymous.

The programme

The programme is highly structured and intensive and the individual's personal dedication and ultimate responsibility for his/her own recovery is emphasised. The key to the programme is abstinence from the mood altering substances or behaviours and long term commitment to the appropriate Anonymous Fellowship. Emphasis is placed on physical, social, emotional and spiritual aspects of addiction, dealing notably with problems of shame, guilt, anxiety, and depression. From the initial diagnosis the aim is

to detoxify, stabilise and treat, aid in rehabilitation and to encourage an ongoing and lasting recovery.

The programme can be interpreted as uncomplicated in essence as it is proposed that by simply adhering to the Twelve Steps and attending Anonymous fellowship meetings on a regular and continuing basis this will lead to a successful outcome. The programme in some way gains strength from this as the patients and their experiences are complex and diverse, and the philosophy with its simple roots is therefore applicable to all. Therefore within treatment common experiences are shared and from this mutual support is encouraged. Emphasis is mainly placed on "working the steps" and although the period of time in treatment may be seen to be an introduction, this prelude is the beginning of what, hopefully, will become a life long endeavour. During treatment this aim is further facilitated by requiring patients to attend outside Twelve step meetings in the local area. Although the focus of the problem is acknowledged whether this be drugs, alcohol etc., the programme offers a total lifestyle solution, in that it addresses the individual's values, attitudes and relationships. Instead of human functioning being broken down into component parts with addiction being just one element of their functioning a holistic approach is taken.

For each step patients are encouraged to think about its meaning and significance and to try to understand the various challenges that it implies. The patients' thoughts and feelings regarding each step are discussed with fellow peers and are written about in work-books. When a sufficient amount of work has been completed the step is presented

formally to fellow peers and a counsellor, and it is in this arena where peers can help, encourage and challenge points that the presenter is making, thus further aiding their recovery. Post treatment this process is encouraged to be carried on within the fellowship meetings with discussion occurring with their fellowship sponsor or with other members of the Fellowship. Ultimately what is encouraged is for the steps to be actively lived. In the patient's own time step studies, meditation and reading of AA's "Big book" are encouraged.

Treatment format

When patients enters treatment they are encouraged to participate and be active as quickly as possible. To facilitate this during their first week in treatment outside contact i.e. phone calls and visits are only permitted in exceptionable circumstances, this is to help patients concentrate their efforts on their recovery.

Life story

After being in treatment for a few days the new patient is asked to write about his/her life story. The following areas are considered: Progression of addiction, general life background, family details, relationships, important and painful events in life. The patient then presents this to all of their peers, giving them the opportunity to find out more about the new member and to ask questions about them. This life history group enables the group to get to know the new patient quickly, and it is also considered to be the first step in looking honestly and in detail at one's life.

Group therapy

The dominating medium of treatment is group therapy and this takes differing forms, such as gender groups or peer evaluation groups (these are discussed in the next section). Through a variety of activities and from constant support from staff and peers, new behaviours, coping strategies and cognitions are encouraged and so are used and developed. The patients are strongly encouraged to "trust, risk and share" feelings, thoughts and emotions, both positive and negative, in and out of the group setting and this encourages a constant flow of an ongoing process of therapy. Emphasis on the expression and awareness of feelings is paramount as it is thought that people's behaviour is predominately governed by their feelings and that actions can be better understood when the feelings associated with them are comprehended.

Most patients enter the centre believing that they are quite unique in that they alone have a certain set of concerns, problems and impulses centring not only around their addiction but also in other areas of life. Through the group interactions, peers share elements of their life and attract identification and guidance from others. The group's method of operation involve peers taking it in turns to voice a concern or worry and others identifying and offering alternative viewpoints or ways that they themselves have managed a particular problem. It is perhaps through the acknowledgement of a number of people's similar opinions that the power of the group therapy lies. Many find a powerful sense of relief in this process as common factors between the individuals are quickly found, and this ongoing process of identification often acts as a powerful cathartic tool. Through the revealing of their deepest concerns and problems that are

broad in spectrum such as unresolved childhood experiences, marital problems and of course their struggle with their addiction, there is often an increasing realisation that they are not alone in their experience. With this there comes a greater sense of self awareness and an acceptance of the illness. It is, perhaps, the process of verbalising a concern in front of a group and having that concern identified in others that decreases its significance and increases the likelihood of change. The counsellor in these settings acts predominately as a facilitator, managing the group process and steering the direction of the discussion when and where deemed necessary.

Process group

There is usually at least one process group a day where all the patients and the majority of the counsellors attend, it is in this arena where any issue can be raised. At the start of the session patients can ask for time if they have something which they would like to discuss. After someone has raised their concern peers are invited to identify with the comment and it is from this that further discussion, illumination and insight can be drawn. This group also provides an opportunity for the counsellors' concerns about specific individuals or the group in general to be voiced. Process group is closed by the Serenity Prayer, which is a Twelve Step Tradition.

Table 2.1: The Serenity Prayer

God grant me the serenity
To accept the things I can not change,
courage to change the things I can
and the wisdom to know the difference.

Gender group

This occurs on a weekly basis and is when the patients are split into separate gender groups for a session of group therapy. It offers those patients who have issues that they would find awkward discussing in a mixed setting an opportunity to do so with members of their own sex. Unlike other groups, topics raised in gender groups are not discussed outside of that setting, so this allocated time allows for sensitive issues to be raised and discussed in a more private setting.

Peer evaluation

This is where the peers assess how the individual is progressing, highlighting potential "blocks" to recovery; these being areas that are seen to be causing an arrested or retarded progress through treatment and that may cause later relapse. Peers affirm areas where the person is coping well, and it is stated whether they believe the person has accepted the powerlessness and unmanageability of his/her addiction.

Collage

This is where a patient assembles pictures from newspapers and magazines to aid the depiction of a certain aspect of his/her addiction or life that the counsellors see as needing particular attention and focus. The title is chosen by a counsellor, and the collection and arrangement of the picture for the presentation aids the patient in confronting the areas that the counsellors have highlighted in a different format. The collage is presented to the group and involves the individual discussing the chosen pictures' significance and relevance in relation to the title, an example being, " The cost and the consequences of

my relationships". The pictures may aid the patient in revealing the progression of a period of time or, perhaps, in depicting certain characters in the patients' life. The collage offers a further opportunity to address difficult areas utilising an expressive medium.

Psychodrama

This is a therapeutic model originated by Moreno (1889-1974) which originated from his early experiences in spontaneous theatre and community therapy (Marineau, 1989). It is a therapeutic method where exploration of painful and often traumatic events are re-enacted or projected therapeutically rather than talking about them as occurs in other therapies. It aims to uncover the genuineness of the individual in relation to other people in their lives (op cit).

Lectures and videos

These are used to impart knowledge about a variety of topics which is valuable in understanding addiction. Both lectures and videos are useful for sparking off provocative and useful debate as it is a different medium and in turn provides a further way for patients to comprehend their condition. There is a sophisticated body of information which, in conjunction with the steps, forms an important part of the programme. For instance side effects of chronic dieting, cognitive changes in semi-starvation, socio-cultural attitudes dealing with women's attitudes about shape and weight.

The Feelings Diaries

Each patient is required to complete a daily feelings diary at the end of each day. Here they are asked to write about their most important feelings generated by the events of the day. In general this medium encourages an exploration of the ideas presented in treatment and permits an alternative way for patients to reflect on how they are doing by looking at their most pressing concerns. The diaries are read by the counselling and nursing staff the morning after they are written and thus are not only an exercise in self exploration but a medium where thoughts can be communicated to the staff.

Free time and evenings

The patients may spend their free time and evenings working on various written tasks that are associated with working through the steps and other group therapy related tasks, however the majority of their free time is occupied by on going discussions with peers. Evening attendance of the local outside Anonymous Fellowship meetings is also required. There are allotted times for patients to watch the television on rare special occasions, and at the end of the day newspapers are made available.

2.3. The Twelve Steps

The co-founders of Alcoholics Anonymous produced the "steps" as a guide for others seeking recovery using the simple principles that they had found worked for themselves. The Twelve Steps are often summarised in AA programs in the following way: Steps 1-3: Give up, Steps 4-7: Own up, Steps 8-9: Make up, Steps 10-12: Grow up. An even more simple summary is, "Trust God, clean house, and help others". At PROMIS the

therapeutic programme involves a preliminary examination of all twelve steps, whereas in other Minnesota method centres it is customary to examine only the first three or five.

Step one

"We admitted we were powerless over...(our addiction/compulsion/obsession)... and that our lives had become unmanageable."

The first step is seen as a crucial part of the programme as it assists the patient in seeing the need for treatment and long-term recovery through the unveiling of a realistic and honest picture of himself/herself. The major emphasis of this step is the confrontation of denial, in that this step requires the addict to accept their loss of control and the personal and social unmanageability that is associated with their use of alcohol/drugs/food etc. This is an important step as acceptance of the loss of control that the addict experiences is now recognised as a key factor in the establishment of motivation to change which is necessary for the recovery process to begin (Prochaska, DiClemente, & Norcross, 1992) Interestingly after this step the actual naming the manifest problem isn't again seen until the final step where the member is encouraged to carry the message to others struggling with the same problem.

Step two

"Came to believe that a power greater than ourselves could restore us to sanity"

The work on this step revolves around the realisation that long term recovery is dependent upon asking for help, that it is not possible for this to be achieved independently, and that there must be a belief that change is possible. In essence it is the

step where hope and faith is established. It involves the further acceptance of the limited power that an individual holds, and the development of a belief that there is a greater source of power that can be used as a source of strength. Initially this source of power is commonly experienced through the strength of the peer group and the fellowship meetings.

Step three

"Made a decision to turn our will and our lives over to the care of God as we understood Him"

This is an active step that involves "letting go" to permit a shift of focus from the self to occur and having an open mind about the possibility of a force greater than the individual. Initially, whatever or whoever is most important to the individual is said to define the main focus of a person's spirituality. It does not insist that individuals accept a specific definition of God though there is a specific encouragement on the focusing on issues of spirituality. This is due to the fact that God is only one of many spiritual focuses and there is much variety and flexibility in the way individuals relate to an understanding of their "higher power".

This step confronts the addict's grandiosity/omnipotence and attempts to establish the emphasis on dependency away from substances and behaviours into a more relational sphere. A person's spirituality can be seen as closely related to their values, priorities, goals, preoccupations and commitment. When spirituality is viewed in this light, addiction can be viewed as a destructive process. Spirituality has to do with the quality of

relationship to whatever or whoever is most important in life, and in the case of those who are in active addiction their drug of choice has become the main focus of their lives. It is this step which is most often linked to the concept of "hitting rock bottom". Though controversial, in the fellowship this is thought to make the addict recognise where the addiction had taken them and thus give them motivation to change.

In these first three steps there is a paradox, on the one hand the inability to control the self is acknowledged though at the same time the necessity for the addict to surrender their control to another, the higher power, is called for. "The step embraces this paradox by acknowledging the reality of volition in the midst of the loss of volition" (Hopson, 1996) This element of self agency is thought to occur through the growing relationship and surrender to a power greater than themselves.

Step four

"Made a searching and fearless moral inventory of ourselves"

This step is where the process of introspection continues the process of self-analysis. It requires the addict to look at his/her character defects and admit the wrongs and injustices that he/she may have committed. It involves taking full responsibility for himself/herself, and encourages the individual to look at events in the past that may have been blamed on others or justified incorrectly due to their addictive use.

Step five

"Admitted to God, to ourselves and to another human being the exact nature of our

wrongs."

Step five encourages the addict to share and discuss his/her inner most secrets and feelings and is the step where confession and catharsis starts. This process is continued in steps 6 and 7 and 10. This in part is seen as a cleansing and healing step as with the act of admitting the most pernicious aspects of themselves there comes with this a great sense of relief. Psychotherapeutic insights regarding the cost of repression are addressed here as contained in these steps are clear messages and encouragement to uncover, acknowledge and finally to let go of shortcomings and mistakes of the past.

Steps six and seven

"Were entirely ready to have God remove all these defects of character" and "Humbly asked Him to remove our shortcomings"

The first stage in the process of letting go is covered by steps four and five in that these are the steps where the past is brought into consciousness and is acknowledged. These steps continue with the confession of the exact nature of past wrongs but also contain the message of "letting go".

Steps eight and nine

"Made a list of all persons we had harmed and become willing to make amends to them all." and "Made direct amends to such people wherever possible, except when to do so would injure them or others."

These steps address penance and undoing and look at the possibility of reparation. Hopson, (1996) maintains that psychotherapeutic thought emphasises the importance of

reparation as a crucial element in the development of the ability to hope and feel concern for one's self and others. A further element which is tackled by these steps is that of lack of efficacy that is characteristic of the addictive experience. These steps achieve this through the offering of a possibility of viewing themselves as having the power to be an effective agent in the world thus addressing inter and intra personal alienation.

Steps ten, eleven and twelve

"Continued to take personal inventory, and when we were wrong, promptly admitted it.", "Sought through prayer and meditation to improve our conscious contact with God, as we understood Him, praying only for knowledge of His will for us and the power to carry that out" and "Having had a spiritual awakening as the result of these Steps, we tried to carry this message to (other addicts) who still suffer, and to practice these principles in all our affairs"

These final steps, known as the "maintenance steps", aim to maximise the addict's conscious contact with themselves through giving back through helping others and the redirection of energy through altruism and sublimation. These activities are thought to be beneficial as it is thought that the process of recovery is a life long pursuit that involves constant acknowledgement of one's shortcomings and limitations. In the "reaching out to others" the addict is reminded of the path to recovery and therefore complacency is avoided. There is also emphasis on the embodiment of the steps into the whole life of the addict as they are called to practice these principles in all their affairs.

End of treatment

There are three main ways that a patient can be discharged. The majority of patients are discharged, with staff approval this discharge indicates that they have fulfilled all the requirements of treatment to the satisfaction of the treatment staff. A further group of patients choose to leave the centre without staff approval, this method of discharge indicates that they are leaving before the treatment staff judge that they have completed the programme. The last group of patients are discharged at staff request. This occurs when it is felt that their continued stay at the treatment centre isn't beneficial for the patient, this may be where there is continued reluctance to participate, or where their presence is thought of as too disruptive for the other patients. When an individual completes the programme a leaving ceremony is held for the patient where a medallion with the center's logo is presented and a group photograph is taken.

From the previous two chapters a number of assumptions have been made regarding the status of addiction for instance, the idea that all addictions are fundamentally the same and that there is a phenomenon of "cross" addiction. These issues amongst others will be explored in the next chapter. It starts by addressing the concept of "behavioural inclusion", and looks at the persuasiveness of the current evidence and theoretical rationale for the inclusion of other behaviours in the addiction remit. In conjunction to this an exploration of the pattern of cross addiction in relation to a diverse range of substances and behaviours will be explored.

Chapter Three

Addiction, behavioural inclusion and co-variation in addictive behaviours:

3.1 Introduction

The quest to "mood alter" is not a new phenomenon, though in the present day it often seems that the availability of mood altering substances or behaviours is greater than heretofore. As in every epoch there seems to be an ever- increasing concern about the use of substances and the potential for deleterious consequences of substance use.

As addiction is not a new concept it is surprising, given its long history, that the definition of addiction is still in dispute. Gilbert (1995) has posited that "addiction" as a scientific concept in fact has little meaning as it employed in different ways by different writers, and there has been no agreement on its interpretation or underlying theory. This in part is due to the fact that the term is being applied to an ever increasing range of substances and behaviours. Indeed it was seen in the previous two chapters that Twelve Step philosophy has embraced a large number of addictive behaviours and advocates the same treatment for all. This process of applying the concept of addiction to more and more behaviours is also partially supported from research that seems to suggest that there may be a common addictive tendency (be it psychological, biological or behavioural) which is manifested in a variety of addictive areas. A further problem lies in the increasing number of research findings which link and find co-occurrences between many of the addictive behaviours that at one time were thought to occur quite separately.

This phenomenon is often termed "cross-addiction" or, "co-variation" of addictive behaviours.

One primary aim of this chapter is to investigate, describe and define the co-variation of addictive behaviours in order to evaluate the importance of this emerging phenomenon. With this aim in mind, the chapter aims to describe first the development of the concept of addiction and then to explore its central features as applied more or less uncontroversially to substance abuse in order to provide a basis for inferring whether or not it is justified to include behaviours not commonly regarded as "addictive", such as gambling, sex, food starvation or shopping. This will lead to the questioning of the common assumption that the term addiction implies only the use of substances such as heroin or alcohol.

The importance of the concept of "cross addiction" will be examined in the second section in a review of studies that suggest differing views of its occurrence. Biological, pharmacological, and psychological evidence will be considered, as these different levels of interpretation may all throw light on the investigation of "cross addiction".

Finally, acknowledging the importance of conducting research on a wide range of addictive behaviours, it will be maintained that it is on the psychological level that some of the more fruitful research may be found in unifying the range of potentially addictive areas. The chapter concludes with a discussion of Stephenson, Maggi, Lefever & Morojele's (1995) factor analytic study of a wide range of addictive behaviours. The

need to replicate that study using revised scales, and employing a control group will be highlighted.

3.2 The development of the concept of addiction

Intuitively, the term addiction does not pose definitional problems for most people, as any behaviour engaged in to great excess, in an apparently irrational way, is usually perceived as being abnormal and meriting treatment of some kind, especially if it is likely to have an adverse effect upon the lives of both the individual concerned and those with whom that person lives and works. In contrast, clinically, the field of addiction has been in flux for some time and is characterised by a variety of perceptions about the nature of addiction and the requirements of rehabilitation. For example, the term addiction is often used in a pejorative sense in suggesting that the behaviour in question is a form of disease requiring some form of medical intervention (Eysenck, 1997). Others have suggested, however that it would be prudent to avoid completely a comprehensive definition of the term addiction as the exercise has already defeated several WHO committees in the past (Berridge, 1985). Nonetheless, where a large number of behaviours are to be considered together theoretically and clinically, as in the present study, the definition of addiction is an important issue, and investigating the development of the term and meaning has much relevance.

The history of the concept of addiction indicates that the definitions of abuse and dependence on substances have changed dramatically over time. These changes in attitude can also be linked with not only medical and scientific knowledge but also moral

grounds and public belief. The historic, "moral" view of addiction will be briefly considered followed by the current medical disease model of addiction. Following this introduction the definitions provided by DSM IV, and concepts of the dependence syndrome (Edwards and Gross 1976; Edwards, Arif and Hodgeson, 1981) will be examined.

3.2.i. Historical and moral approaches

Addiction is commonly held to be detrimental to character, and to health, so the importance of a cultural and historic interpretation of what can be considered to be addictive and hence dangerous is paramount. For instance at one time both opium and cocaine were used extensively in medical practice, and opium in the eighteenth and nineteenth century was so widely acceptable that a little over a century ago it could be bought in most grocery shops (White, 1988). Examples such as these indicate that throughout history there have been moves from general acceptance of certain substances to almost total rejection. A further example concerns tobacco, as this at one time was seen as a panacea for various ills and even as having medically valuable properties (Berridge, 1985). This is not to say that there was no concern surrounding tobacco, as in 1908 legislation was passed prohibiting the sale of tobacco to those under sixteen years of age. This concern though concentrated on the moral degeneracy of cigarette addicts rather than constituting a medical worry (op cit), as in this particular epoch a moral view of addiction was in place.

The moral view is based on the notion of free will (McMurran, 1994), which postulates

that people are free to choose their behaviour in any situation. A person involving themselves in a behaviour that could be said to contravene social norms could, according to this perspective, be seen as weak and feckless, and the activity essentially as a bad habit. Interestingly, a study by Orford and McCartney (1990) indicated that excessive gambling is seen by the general public in more moral terms than other addictive behaviours such as substance use and excessive eating. Excessive gambling is now more readily seen in terms of vice or a lack of will power, in the same way that other substances, such as alcohol, have been seen in the past.

3.2.ii. Disease model

This next general trend was promoted by developments within the natural sciences and medicine. The idea of free will and individual responsibility gave way to the scientific presumption of determinism (McMurran, 1994). This proposes that events must have a cause, and that the cause must be able to be found using scientific inquiry and logic. This view encouraged the application of medical rather than moral concepts to addiction. It can be argued that it is in this way that undesirable behaviours came to be viewed as the symptoms of physical malfunction and, where no physical cause was apparent, the notion of "mental illness" was applied. Research over the past 20 years or so has been dominated by the disease model of addiction which suggests that addiction, and drug addiction in particular, is a chronic and relapsing disease that results from the prolonged effects of drugs on the brain.

A central tenet of the disease model of addiction is that of "loss of control" (Edwards and

Gross, 1976). This refers to the individual's experience of an overwhelming desire to engage in heavy and repetitive drug/alcohol taking behaviours, and a sense of powerlessness over the behaviour that he/she may be engaged in. In *The Disease Concept of Alcoholism,* Jellinek (1960) describes an alcohol addict as an individual who experiences problem drinking in conjunction with tolerance, withdrawal symptoms, and either loss of control or inability to abstain. The "loss of control" concept in general contains three core components that are frequently utilised in the discussion of addiction. The first is "tolerance". Tolerance is said to be evident when after exposure and repeated use an increase in the amount of the drug is needed to produce the same effect. On a pharmacological level this behaviour can be translated into a brain adaptation to repeated exposure to a drug such that the pharmacological response is diminished. The second assumption is that of "withdrawal" symptoms. These are experienced when the effects of the drug wear off, and they vary according to the substance taken. Common withdrawal symptoms include tremor, hot flushes, and nausea, and these are typically relieved by another dose of the drug. The third factor that appears along side withdrawal is that of "craving" and this refers to the addict's experience of an overwhelming desire to take the particular drug of choice, even in the light of persistent problems caused by the substance use.

Earlier definitions of addiction concentrated on the role of tolerance, and withdrawal. Unfortunately the picture is more complex than this, as if tolerance and withdrawal were the only problems in addiction then a simple detoxification program, where the body is allowed to cleanse itself while the individual receives medication to block the withdrawal

symptoms, would be effective treatment and there would be no return to the drug taking behaviour. In the case of someone who is "addicted", detoxification is at best only the first step of treatment, and the prevention of relapse is the more difficult goal once the individual has reached a drug free state.

3.2.iii. Dependence

More recent definitions of addiction have emphasised the role played by psychological components of dependence, this being prompted by a now classic paper of Edwards and Gross (1976). Dependence is primarily a measure of compulsive use, and is an important factor when considering other behaviours, such as gambling and overeating, with less defined withdrawal responses that, none-the-less, have other shared features of addiction such as craving, and a relapse response.

The alcohol dependence syndrome (Edwards and Gross, 1976) provided a different perspective on alcoholism and de-emphasised the idea that alcohol consumption was a bimodal entity, with alcoholics forming the second mode with a distinctly higher consumption level than non-addicts (Davies, 1997) . It aimed to consider a wide variety of variables such as the pharmacological, and environmental, and was therefore more inclusive and wide ranging than traditional concepts of alcoholism. The three lines of argument centred around the possibility of (i) a return to normal drinking, (ii) people being able to move in and out of periods of troubled drinking and (iii) alcohol consumption statistics which indicated that within the population of all drinkers the distribution of consumption was uni-modal. Importantly, this conception of addiction, it

has been pointed out, could also be said to apply to other forms of addictive behaviour (Davies, 1997)

As early as 1964 the World Health Organisation suggested that the term addiction be replaced by dependence, pointing out that addiction was no longer a scientific term (Kaplan, Husch & Bieleman, 1994) . The WHO's resistance to the term addiction was an attempt to restrict the widespread use of disease formulations, in which individuals who were psychologically dependent were portrayed as being the helpless victims of some physical process (Marks, 1990). Interestingly, Marks (1990) argues that hypersexuality is best conceptualised as a dependence syndrome rather than an addiction. The WHO defies psychic dependence as:

1. Repeated urges to engage in a particular behavioural sequence that is harmful.
2. Mounting tension until the sequence is completed.
3. Rapid but temporary reduction in tension by completing the sequence.
4. Gradual return of the urge over hours, days or weeks.
5. External cues for the urge unique to the particular addictive syndrome.
6. Secondary conditioning of the urge to both environmental and internal cues (Marks, 1990, p.1391)

3.3. DSM IV (Diagnostic and Statistical Manual of Mental Disorders, 1994)

It is important to look at the standard definitions of addiction to see how decisions are currently made by professionals dealing with addiction and the DSM IV is a widely cited

authority. Pathological use of substances that affect the central nervous system are said to fall into two categories, Substance Abuse, and Substance Dependence. Together these constitute the major DSM IV Category "Substance Related Disorders". In substance abuse a person uses drugs to such an extent that he or she is often intoxicated throughout the day and fails in important obligations and in attempts to abstain, but there is *no* physiological dependence. Substance dependence is a more severe abuse of a drug often accompanied by a physiological dependence on it made evident by tolerance and withdrawal symptoms.

The criteria for substance dependence are the presence of at least three of the following; 1. Tolerance develops, indicated by (a) larger doses of the substance being needed to produce the desired psychological effect, and (b) the effects of the drug becoming markedly less observable if only the usual amount is taken. 2. Withdrawal symptoms develop when the person stops taking the substance or reduces the amount normally taken. The person may also use the substance to relieve or avoid withdrawal symptoms. 3. The person uses more of the substance or uses it for a longer time than intended. 4. The person recognises excessive use of the substance, may have tried to reduce it but has been unable to do so. 5. Much of the person's time is spent in efforts to obtain the substance or recover from its effects. 6. Substance use continues despite psychological or physical problems caused or made worse by the drug. 7. Many of the activities (work, recreation, socialising) are given up or reduced in frequency because of the use of the substance. Substance dependence can be diagnosed as either with or without physical dependence. For the diagnosis of substance abuse the person must have one of the

following problems due to recurrent drug use: 1. Failure to fulfil major obligations, e.g., absences from work or neglect of children. 2. Exposure to physical dangers such as operating machinery or driving while intoxicated. 3. Legal problems such as arrests for disorderly conduct or traffic offences, and 4. Persistent social or interpersonal problems, such as arguments with their partner.

Interestingly Jaffe (1980) has noted that physical dependence and addiction are not necessarily synonymous, as physical dependence may exist without addiction and in some circumstances addiction may exist without physical dependence. This is particularly important when considering other addictive behaviours such as shopping, work or exercise as with these behaviours there may not be clear and identifiable physical dimensions, such as withdrawal tremors and sweats that are associated with withdrawal from alcohol. Though with these other non-substance based behaviours, the addictive characteristics which are more psychological, such as recognition of the need to reduce the addictive behaviour but being unable to do so, are none-the-less apparent.

It can be seen that the definition of addiction has evolved, and now addiction is seen a syndrome characterised by, typically, compulsive drug-seeking behaviour that results in an impairment in social and psychological function or damage to health. Even after detoxification and long periods of abstinence relapse may occur frequently and the common behaviour pattern is manifested by repeated return to drug-taking behaviour that is often patently self destructive.

3.4 Other behaviours being considered

Core ideas about addiction have begun to change radically over the past 20 years or so. At the centre of these changes involves the belief that the pharmaceutical properties of an addictive drug may play only a minor role in addiction. This has opened wide the definitional door, and definitions of addiction that refer to repeated ingestion of a drug have been replaced by definitions that refer to compulsive repetition of behaviour. The broad characteristics of drug addiction have been identified in a range of behaviour patterns that do not involve drugs or alcohol. Many contemporary definitions of addiction, coming mainly from psychologists, therefore include addictive behaviours as well as addiction to substances. For example; McMurran (1994, p.6) states:

"Addiction may be defined as a degree of involvement in a behaviour that can function both to produce pleasure and to provide relief from discomfort, to the point that the costs appear to outweigh the benefits. Heavy involvement in an addictive behaviour is often accompanied by the recognition on the part of the 'addict' of the physical, social or psychological harm he or she incurs and an expressed desire to reduce or cease the addictive behaviour, yet, despite this, change is no easy matter".

The term addiction has been used mainly for problems caused by the use of alcohol and illegal drugs and tobacco, with a number of good reasons. Alcohol has been described as, "Our favourite drug" (Royal College of Psychiatrists, 1987) and it is known that heavy drinking is associated with morbidity and premature mortality. In terms of the numbers that are affected by alcoholism the estimates vary, an American study undertaken by

NIAA in 1985 noted not only an alarmingly high incidence but an interesting gender distinction. With 2.5 million women being found to be alcohol abusers and more than 3.3 million were alcohol dependent, which represents approximately 6 million women, or 6 percent of the adult female population. In comparison, it was estimated that 12.1 million alcoholics are men, representing 14 percent of the adult male population, hence it is assumed that there are approximately two males for every female alcoholic.

A further cause for the emphasis on drugs is the increase in registered addicts. The total number of narcotic addicts known to the Home office in 1970 was 1,426 and by 1995 this had risen to 37,164 (Royal College of Psychiatrists, 1987). Another way of investigating the increasing involvement with drugs is crime statistics and these show a similar pattern of increase. In 1960 there were 235 cannabis convictions and by 1985 this had risen to 17,559 (op cit). Another area which is being increasingly recognised is the dependence on prescribed medication. Even though it is clear that medication involves the use of a pharmacological agent it is easy to overlook the addictive potential of such medication and the negative consequences which may occur. For instance dependence upon psychotropic medication is often found together with alcohol abuse in women entering treatment programs, for example in one study tranquillisers and sedatives were used by 43 percent of female patient's compared to 20 percent of men (Celentano & McQueen, 1984) Another issue being raised involves the questioning of the figure that estimates that two thirds of all psychotropic medication is prescribed for women (Prather, 1990).

Nicotine, however, is probably the most widespread addiction, though it attracts different

"treatments" and though declining in acceptability is still seen as more normal in comparison to other addictive substances, save alcohol. The trend in smoking seems to be one of increase especially in particular age ranges. A survey conducted by National Opinion Poll indicated that 42 per cent of 18-24 years olds smoked in 1984 in comparison to 37 per cent in 1981. There is no doubt that smoking has severe consequences as it has been reported that it is the main cause of disease leading to early death in England and it is estimated that it caused over 120,000 deaths in the UK in 1995 (Callum, 1998). However, in terms of addictive acceptability, smoking is socially, and legally far more acceptable than heroin, though in terms of annual fatality rates nicotine causes far more deaths than heroin and other Class A drugs put together (op cit)

However, other behaviours are now being considered as addictive and at first glance the major difference to be noted is that a number of them have no obvious relationship to a noxious substance i.e. anorexia and gambling. Addictive characteristics and similarities are seen to be apparent in a wide range of behaviours. Some of these behaviours where a case is being made for "addictive status" will be considered next.

Caffeine

This substance currently has a benign public image being most often viewed as a harmless substance in tea, coffee and cola drinks, and used by approximately 80 percent of the world's population (James, 1997). With its consumption so high, and caffeine being a mood altering substance, this world wide level of usage makes caffeine the most commonly used psychoactive substance (Op cit). Its appeal possibly reflects its

reinforcing properties of taste, its beneficial psychoactive effects and the desire to avoid withdrawal. However, its inclusion in innocuous drinks means it is not 'naturally' classifiable with other substances of dependence. However, as it is psychoactive and has an associated withdrawal syndrome characterised by lethargy, fatigue and headaches, it is now included in the Diagnostic and Statistical Manual of Mental Disorders IV (1994) as a drug of dependence.

Eating disorders

It has been argued that eating disorders share characteristics, such as craving, with other addictive disorders (e.g. Hetherington & Macdiarmid, 1993), though this idea has been challenged on the basis that the characteristics that they are thought to share are superficial (Wilson, 1993). It can be seen though that an overwhelming compulsion to overeat may be similar to the overwhelming drive to drink or to take drugs, despite a wish to do otherwise. Even though other explanations may be found, such as obesity may also be caused by sedentary lifestyle, and high fat consumption, the addictive qualities of overeating, and its high incidence, cannot be overlooked. In terms of incidence of obesity the proportion of men and women who are clinically obese was found to be 1 in 6 men and 1 in 5 women in 1997 (Health survey for England, 1997) Of further interest is that in the same way as with alcoholism being reported as affecting more men than women (NIAAA, 1985) men are reported as representing only 10 percent of eating disorder (anorexia and bulimia) cases (Andersen and Holman, 1997).

Sex addiction

In the 1980's hyper-sexuality re-emerged under the label "sexual addiction", being conceptualised as a behavioural addictive disorder similar to chemical addictions. According to Goodman (1992), sex, alcohol and drug addiction are better described not as varieties of addiction, but as manifestations of a basic underlying addictive disease process. The phenomenon of "sex addiction" has certainly started to receive attention (e.g. Carnes, 1983;1991), though it can be said that this is still with a degree of reservation. For instance research by Travin (1995) suggests four possible models for compulsive sexual behaviour, with only one being a classification that incorporates "sex" as a bona fide addiction.

Co-dependency or Compulsive helping

The term co-dependency at one time was used to refer to a dysfunctional relationship between an alcoholic and a committed, supportive partner. Initial conceptualisations of this dependency included features such as attempts to control an alcoholic's drinking by repeatedly seeking to protect, control and change the alcoholic despite low success rate of these efforts. The term has now been expanded and has become more frequently recognised as a unique disorder, not necessarily involving a relationship with an alcoholic or drug disordered individual. (O'Gorman, 1991).

Cermak (1986) outlines five major characteristics of co-dependency. First, co-dependents make a continual investment of self esteem in the ability to influence or control feelings and behaviour in the self and others despite painful consequences.

Second, co-dependents assume responsibility for meeting the needs of others to the exclusion of his or her own needs. Third, co-dependents suffer anxiety in periods of intimacy or separation because of poor personal boundaries. The fourth characteristic is that the co-dependent often becomes emotionally involved in relationships with personality disordered drug dependent and other compulsive people. Cermak (op cit) finally states that co-dependents can exhibit constriction of emotions, depression, hyper vigilance, compulsions, and anxiety. A succinct definition defines co-dependency as, "Any suffering and or dysfunction that is associated with or results from focusing on the needs and behaviours of others" (p. op cit). This definition comes very close to PROMIS's definition of compulsive helping as an addictive behaviour in its own right.

Technological addictions such as **computer playing** (Griffiths, 1995), and the possibility of **exercise** as an addiction (de le Torre, 1994) have also been mooted, with more or less theoretical conviction. The benefits of exercise are apparent enough, but like other beneficial behaviours, including, it now seems, alcohol, abuse is a real enough possibility, as in exercising whilst injured and consequently making the injury worse.

There is a potential theoretical and practical benefit from including other behaviours in the discussion of addiction. Previously unforeseen similarities may throw a more general light on the characteristics of addictive behaviours. The description of similarities and differences may promote theoretical advances and have implications for appropriate treatment. Much may thereby be learnt from the sharing of information from these quite disparate behaviours. This in turn may create a more unified approach to the

understanding of excessive behaviours, and perhaps lessen a one-sided emphasis on the more male and 'aggressive' forms of addiction.

The addictions considered thus far do not include all the possible substances and behaviours that can be addictive. Craving for more of an activity, tolerance of increased amount of the activity, and withdrawal effects when the activity is discontinued have been documented for a number of different behaviours. Other "excessive appetites" which appear to fulfil certain addictive criteria include gambling (Wray & Dickerson, 1981), repeated pathological love relationships (Peele, 1985), and overeating (Orford 1985). The theme that seems to run concurrently though all of the possible behaviours and which is possibly rather underplayed, is that what is attained through engaging in these behaviours is some type of change in state or mood, which tends to be satisfying or pleasurable.

It can be argued that attitudes, fashions and morality change towards addictive behaviour, especially when evidence come to light about the harmful consequences of a substance. For instance at one time it was regarded quite chic to smoke but with the growing awareness of the number of smoking related disorders and deaths it is now a top priority of government to encourage smokers to stop. Today's Casanovas may object and claim that their appetite for sex is normal enough to them, and possibly it won't be until enough evidence comes to light regarding what the behaviour may signify personally and socially that attitudes will change. Ultimately though what is considered to be an addiction to some is clearly not to others.

The established view tends to resist extension of the concept of addiction to include an increasing variety of behaviours. A number of objections are often raised: mainly it is said that an addiction must be a result of "taking" i.e. ingesting drugs (Griffiths, 1994), so this view rules out the possibility of an eating disorder or work(aholism) being classified as bona fide candidates for the addiction label.

3.5. Criteria for further behavioural inclusion

Such diverse inclusions in the addiction remit as considered above can be seen to fit with a number of definitions of addiction, which emphasise generic psychological processes and social consequences, without reference to pharmacological concomitants.

Marlatt et al. (1988, p.224) considers addiction to be, "...a repetitive habit pattern that increases the risk of disease and/or associated personal and social problems. Addictive behaviours are often experienced subjectively as "loss of control"- the behaviour contrives to occur despite volitional attempts to abstain or moderate use. These habit patterns are typically characterised by immediate gratification (short term reward), often coupled with delayed deleterious effects (long term costs). Attempts to change an addictive behaviour (via treatment or self initiation) are typically marked with high relapse rates."

Given this definition, only culturally and medically determined criteria can serve to restrict application of the concept to alcohol and drugs. For some time there has been

increasing interest in the examination of common dynamics that appear to be common across various compulsive behaviours (e.g. Miller, 1980; Levinson, Gerstein & Maloff 1983; Orford, 1985 and Stephenson et al 1995) And phenomena such as alcoholism, drug addiction, gambling and work addiction have been conceptualised as similar conditions that share a common addictive syndrome (Keller, 1972; Leon, Kolotkin & Korgeski, 1979; Mule, 1981, Platt, 1975; Scott, 1983).

The theoretical ambition to unify addictive behaviours appears repeatedly (e.g. Donegan, Rodin, O'Brien & Solomon, 1983, Marks, 1990). It must be said that this still attracts criticism, as it is claimed in particular that terming both repetitive behaviour and repetitive drug use as addictive may trivialise the concept of addiction (Jaffe, 1990). For instance, it has been suggested that those who exercise well beyond the healthy level of three to five workouts per week are probably doing so for reasons other than to maintain fitness, and it has accordingly been proposed that excessive exercising may be addictive (Veale, 1987). Even though vigorous exercise can elevate mood and produce a euphoric state of well being, this being linked to the production of endorphins, it could be argued that to compare "addiction to exercise" to addiction to drugs or alcohol is facile. Nevertheless it is the case that various "bona fide" characteristics of addiction, like withdrawal symptoms, do apply to the newly proposed addictions. For example, there is evidence of withdrawal symptoms such as anxiety, depression, irritability and insomnia after stopping regular exercise (op cit).

These current views posit that there may be a common addictive process which can

appropriate many different activities, a number of which may not normally be thought as being potentially addictive. Some levels of analysis mentioned to date include the biological, cognitive, and psychological; and addiction may be analysed at all these levels. Psychological approaches in particular have tended emphasise the common features of addictive behaviours, whether they involve drugs or not (e.g. Orford, 1985). However, others such as the biological have also emphasised the similarities in brain reward systems across a range of behaviours and substances. Moreover, it is also claimed that the self-starvation in anorexia and excessive exercise can in some ways perform a similar function to alcohol, in that they can induce certain psychotropic effects, or altered states of consciousness that can be experienced as a sense of well-being. Just as a few drinks can give a person "courage" to face a difficult or uncomfortable situation, so the starvation high can create a sense of well-being and prevent awareness of those aspects of the person's life that are difficult (Slade and Duker, 1988)

We have seen that the main way of evaluating whether any number of behavioural excesses are indeed addictions is to compare them against clinical criteria for other established addictions, and this section concludes with two further attempts to unify a number of conventionally different addictive behaviours.

Donegan et al (1983) outlined six properties which addictive substances and behaviours like gambling, have in common. These properties comprised (1) Ability of the substance to act as an instrumental reinforcer. (2) Acquired tolerance, in that repeated use of either substance or behaviour can result in reduced effectiveness. (3) Development of

dependence with repeated use where repeated use produces withdrawal effects that motivate further use. (4) Affective contrast, this is where the substance or behaviour tends to produce an initial affective state (euphoria) which is then followed by an opposing state (dysphoria). (5) Ability of the substance or behaviour to act as an effective Pavlovian unconditioned stimulus. (6) Ability of various states (general arousal, stress, pain) to influence substance or behavioural use.

Marks (1990) argues that one factor which is common to the areas seen as behavioural addictions is that they consist of repetitive sequences of behaviours which are maladaptive and counterproductive. Many of Marks's (1990) unifying features of addictive substances and behaviours are similar to Donegan et al's (1983) e.g. the behaviours act as operant reinforcers and as Pavlovian unconditioned stimuli, and an initial positive mood is followed by dysphoria. In conjunction with gambling, hyper-sexuality, overeating and overspending he includes, perhaps more controversially, behavioural areas such as kleptomania and obsessive compulsive disorders. His claim is based on shared patho-physiologies and he argues that all are, "Disorders of impulse control and self regulation" (Marks, 1990 p. 1389).

Marks argues that in common across dependence syndromes, substance abusers become both behavioural and chemical addicts. As they become conditioned to cues connected with their drug taking, they become aroused not only by using their drug of choice but also by the routine of preparing and administering it, and to other external cues such as places and things associated with it. From this central argument of essential similarity he

suggests that there may be common treatment approaches for both chemical and behavioural addictions (Marks, 1990)

Additional problems when investigating a wide range of addictive behaviours: Inconsistencies in the attention paid to different addictions

Commenting on Marks (1990), Jaffe (1990) said, "...seeing these behaviours as members of a super-category suggests that they are all amenable to behavioural intervention, inspiration, or changes in values and beliefs. We risk the trivialisation of some of the commonest and most destructive of human problems" (p.1427)

When looking at the inclusion of other substances and behaviours the above statement made in response to Mark's (1990) is an important but essentially misguided comment. Marks calls into question the common belief that illegal substances like heroin or cocaine cause the most severe problems in society, pointing out that it is the legal drugs such as nicotine and alcohol that cause the most devastating problems in society in terms of health costs and life lost. Certainly it seems strange that there is continuing advertising from the tobacco industry when its product kills more than 100,000 people each year (Royal College of Psychiatrists, 1987). Identifying what constitutes the most destructive of human problems isn't so straightforward. It can also be argued that it isn't just consequences such as disease and death that need to be considered, but severe psychological anguish and anxiety that is often produced when in a cycle of addiction, for example in the case of compulsive gambling.

One of the areas of imbalance is the attention given to drugs which are prescribed, such as sleeping tablets, tranquillisers, and certain over-the-counter medicines, on the one hand, and illicit drugs on the other. In the 1980's over 4 million pounds was spent on anti-heroin publicity (Royal College of Psychiatrists, 1987), with little attention being paid to the problems of legally prescribed medicines. In addition to this it has been noted that it is predominately women who often turn to the addictive use of prescribed drugs (Downing, 1991). A clinical study which provides support for this position found that tranquillisers and sedatives were used by 43 percent of female patients compared to 20 percent of men (Clentano & McQueen, 1984). One argument which has been put forward to explain this discrepancy is that the use of prescribed medication by women is more acceptable than illegal drug taking and therefore a socially sanctioned way to mood alter (Downing, 1991)

From this evidence it can be seen that there are currently serious inconsistencies in attitudes towards the harmful effects of different substances, and similarities between so called illicit drugs and prescribed drugs have been overlooked in terms of their addictive potential. Even though the idea of caffeine addiction may seem peculiar, the fact is that whilst it has been indicated that most people can consume caffeine in a controlled manner, there are those who use caffeine compulsively (Kendler & Prescott, 1999). This type of evidence surely increases the possibility that this may be the case with other addictive behaviours, and if so searching for general explanations for these phenomena is an intriguing and worthwhile pursuit.

However, Satel (1993) has argued that the inclusion of any and all compulsive and self-destructive behaviour under the term addiction, risks premature stereotyping of the identified problem, thus preventing the detection of potential coexisting or underlying conditions. Others continue to argue that addiction should be restricted to the use of substances which cause a physiological change to take place in the body (Rinehart & McCabe, 1997).

3.6. Addiction and its association with crime

It is very clear that illegal drug taking is associated with numerous negative health, psychological and social problems (e.g. accidents, social functioning and criminal activity). For instance, opiate users have consistently reported disproportionately high levels of involvement in criminal behaviours such as prostitution, burglary and street robbery (Dembo, Williams, Fagan, & Schmeidler, 1993). It has been suggested that these crimes are committed largely to fund their drug habits (Biron, Brochu, & Desjardins, 1995). For example, heroin addicts who use cocaine show a higher risk profile for HIV, engage in a wider variety of criminal activities, and report more alcohol use (Grella, Anglin, & Wugalter, 1995: Leukefeld, Gallego, & Farabee, 1997). However, it is also important to remember that some substance misuse, particularly of alcohol, cocaine and heroin, is intrinsically associated with higher levels of risk taking, aggression, and criminality (Dembo, 1996)

Interestingly there a number of researchers who argue that criminal behaviour and a variety of addictive behaviours are all part of a "hedonistic" lifestyle (Stephenson, Maggi,

& Lefever, 1997) or one in which offending and substance abuse are part of a lifestyle of "conspicuous consumption" (Parker, 1996). However, any associations between substance abuse and criminality are far from simple. As an alternative to the "lifestyle" hypothesis, crime itself has been characterised as a behaviour that can become addictive. It has been argued that committing criminal acts is as strongly addictive as is the craving for illicit substances or alcohol (Hodge, 1991). This is an interesting point and is perhaps a further argument for treating chemical and other addictions as examples of essentially the same process.

It can be gathered from this brief review of additional viewpoints that it is important to identify the processes underlying different addictive behaviours rather than emphasising the destructive characteristics of addiction to illegal substances. This approach facilitates an informed debate not only on appropriate treatment for addictive behaviours, but also on the wider social and political issues raised by the debate.

3.7. "Cross addiction"

"Cross addiction" is a term that is becoming fashionable, but it is as yet characterised by a number of disparate ideas and does not have a generally accepted definition. It sometimes refers merely to addictions exhibited simultaneously by one individual, but it may also refer to those who switch from addiction to another over time by way of substitution of one for another. Such confusions require clarification.

Let us try to delineate the different interpretation placed upon the term cross-addiction in

order to facilitate the development of a systematic operational terminology.

For a number of years now it has been noted that an addict often displays a number of addictive tendencies. For instance, links between drug addiction and alcoholism have frequently been thought worthy of analysis and is now where this elusive concept of cross addiction is tolerated. With alcoholics for instance, one of the most consistently documented co-occurring disorders is other substance use, others being mood, anxiety and schizophrenic disorders (Kessler, Crum, Warner, Nelson, Schulenberg & Anthony, 1997). The underlying process is frequently seen to be similar for alcoholism and drug addiction, and it is assumed the majority of factors that apply to addiction to alcohol can also apply to drug addiction, regardless of which drug is used.

Interestingly, it has been reported that across a wide range of the addictive behaviours there is evidence of "spontaneous change" (McCartney, 1996). This is said to occur when addictive behaviour is modified without the use of formal treatment. This evidence goes against the commonly held belief that addiction is difficult to change. What could be happening here is that when one substance is given up, another has been taken up. Indeed in McCartney (1996) argues that substitution behaviour may be important, when initially giving up an addiction, though it should not be assumed that use of substitutes necessarily constitutes a problem.

The relationship between eating disorders and substance abuse disorders has received a lot of attention in recent years, and even though the estimates of the extent of their co-

morbidity vary depending on the subtype of eating disorder, it seems that co-occurrence is still substantial (Davis & Claridge, 1998). In addition to this the presence of other addictive behaviours occurring alongside sex addiction has been noted. Carnes (1991) when considering factors that increase the probability of someone suffering from sex addiction, has recognised that the presence of other addictive behaviours such as gambling, alcoholism or chemical dependency, increases this likelihood.

Despite a growing recognition that a whole range of behaviours has the potential for addiction, there has been little research that has attempted to investigate the relationships across a wide range of addictive behaviours and substances. However, multiple drug use is well documented, and the traditional distinction made between illegal and prescribed medication is seen to be less than useful, because recreational drug addicts frequently abuse prescribed medication, and it is known that prescription drugs in their own right are often addictive. Relationships between drug addiction and other chemical and behavioural addictions have also been observed, and such relationships have been attributed to a variety of mechanisms that are relevant to the explanation of cross-addiction. We shall now examine some of these.

It can be argued that when a number of behaviours are used addictively, these may represent different manifestations of an underlying predisposition to addictive behaviour. This may be due to a genetic vulnerability, or because of a common addictive personality style, which itself may have an genetically based biological component (Holderness, Brooks, Gunn & Warren 1994). Another possibility is that individuals may start to use or

abuse substances or start to use other behaviours to cope with problems arising from their existing addiction. A further hypothesis is that an addiction to one substance creates psychological and behavioural coping patterns that leave the individual vulnerable to developing another coping mechanism or addiction.

3.8. Mechanisms relevant to the explanation of cross addiction

Triggers

A number of addictive behaviours may be related on a behavioural level in that the use of one substance acts as a trigger for the use of another substance. For instance, the immediate effects of smoking on drinking behaviour have been examined and it has been suggested that rate of smoking increases as a function of alcohol intake (Griffiths, Begelow, and Liesbson, 1976) It seems that the use of a substance is triggering the use of another, although the explanation of the triggering effect remains unclear.

Substitution

Substitution occurs when one substance is reduced or stopped and an associated increased use of, or substitution by another substance occurs. This phenomenon of switching addictions has been observed in clinical practice for some time (Blume, 1994), and in non-clinical situations the phenomenon of gaining weight after stopping smoking is well known. Few controlled studies have been conducted which investigate the relationships between addictive problems in terms of trigger and replacement, though it is recognised that replacement does occur. For instance it is increasingly recognised that the frequency of substance abuse in anorexia is such that the introduction of appetite suppressants such

as fenfluramine are best avoided because of their addictive potential (Slade and Duker 1988). It has been suggested that when an anorexic's or bulimic's control system slips, other behaviour may be engaged in, "Then she may resort to drink, drugs, become promiscuous in her sexual relationships, be totally spendthrift" (Op cit 1988, p.47). It has also been argued that alcohol and food are used interchangeably as addictive substances (Yeary, 1987), and that one of these disorders often readily takes the place of the other (Taylor, Peveler, Hibbert, & Fairburn, 1993)

Implications of substitution

It has already been said that addictive disorders are chronic and long term, though there has been a tendency for doctors and the general pubic to view addictions as acute disorders that with detoxification leads to treatment and cure. So the simplistic assumption is that when an individual relapses (i.e. uses the substance again) treatment has failed, and if the individual doesn't use the substance then the treatment has been a success. Substitution suggests that even in the absence of relapse, addiction may continue, albeit to another substance or behaviour. If the underlying disorder persists, then the observation of cross addiction in terms of one drug or behaviour being replaced by another, is important in terms of treatment because it is implied that if the underlying disorder is not treated then the problems may persist, although manifested differently.

It would be interesting to investigate systematically the usage of other behaviours once treatment has been completed to see whether other addictive behaviours are being substituted. For instance, once an alcoholic stops drinking, is there an associated increase

in nicotine use, or do they work compulsively?

The importance of the phenomenon of concurrent usage

This phenomenon has received rather more research interest and is probably more frequently observed in clinical settings. For instance most alcoholics under the age of 30 are addicted to at least one other drug, often becoming addicted to alcohol first and then going on to develop other drug addictions (Miller, Gold & Belkin 1990). Some studies have indicated that the majority of alcoholics smoke, and that drug addicts also smoke early in their initiation, and use alcohol (e.g., Miller, 1991). Interestingly in a study by Von Knorring & Oreland (1985) male smokers from the general population were found to be more prone to abuse alcohol, glue, prescription and illicit drugs.

An increasing number of studies have highlighted the co-morbidity between eating disorders and alcohol abuse (for a review see Holderness, Brooks, Gunn, & Warren, 1996), though binge eating is a type of eating disorder that has been most often theoretically linked to alcoholism (e.g. Hudson, Pope, Jonas & Uurgelum-Todd 1983). This disorder is seen by some as sharing common signs or symptoms of addiction, with its characteristic factors such as preoccupation with food, loss of control over food intake and problematic eating behaviour in spite of negative consequences (Scott, 1983).

Theoretically, pathological gambling, eating disorders and substance use disorders have been linked due to common factors in their natural history and the phases of their treatment (Lesieur & Blume 1993). It has also been reported frequently that dieting and

bingeing co-occur (Heatherton & Polivy, 1990)

The coexistence of pathological gambling and alcohol/drug addiction has also been investigated (Griffiths, 1994, Blume, 1994). Work has also indicated an increased incidence of nicotine dependence with bulimia (Tordjman, Zittourn, Anderson and Flament, 1994). In another study links were found between anorexia and compulsive exercising (Long, Smith, Midgley and Cassidy, 1993). It can be seen from this brief review that investigation into "pairs" of addictive behaviours is common.

Implications of concurrent usage

It has been argued that the clinician must identify the nature and extent of concurrent drug use in alcoholic populations as this is an important step in both diagnostic evaluation and treatment planning (Miller & Mirin, 1989). This is because where addicts are using or abusing a combination of alcohol and or other drugs, the physical picture becomes even more complex and treatment priorities have to be established. Primarily this is because it treatment must be easier when there is only one "layer" of altered thinking to get through. For example, when treating an anorexic, treatment is hard enough when there are only the changes brought about by starvation and the psychological complexity of the disorder. Where substances are being abused as well, there is the possibility of unaccountable possible variations in mood and experience as a result of biochemical changes brought about by the additional impact of the ingestion of various kinds of substances.

In relation to relapse, it has been reported that continued drug use after treatment for alcoholism may be implicated as a potential relapse indicator, and that in general alcoholic substance users have greater dysfunction than alcohol only users (Sokolow, Welte, Hynes & Lyons, 1981). This seems reasonable, because if another substance is still being used post-treatment it would indicate that the central issues of addiction haven't been effectively dealt with. In addition to this, in a study investigating the use of nicotine and caffeine in alcohol dependent individuals it was found that the intake of both of these substances significantly increased following abstinence from alcohol (Aubin, Laureaux, Tilkete, & Barrucand, 1999) .

The high incidence of multiple drug addiction among alcoholics, with some studies putting the figure as over 85 percent (Miller, 1991), provides good evidence for a common process underlying alcohol and drug addiction and further reason to investigate systematically other behaviours which have been reported to co-exist with drug addiction and alcoholism. With such investigations it may then be possible to start to demystify these patterns and any similarities and differences in the experiences and events associated with addictive behaviour may be highlighted. For instance the high rates of relapse often reported may in part be linked to a continued use of another form of addictive behaviour which eventually leads the addict back to the original habit.

It is also important to establish whether or not there are systematic links between different addictions, in order to establish whether separate and different, treatments are, or are not, required. If systematic links are observed, these may be attributed to a

common process, or processes, which may be addressed in treatment. For instance it has been proposed that alcohol, food, and drugs may serve the same purpose as compensatory substances that minimise the impact of ego deficits (Brisman, & Seigel, 1984). In this case, the actual behaviour is not the crucial area to emphasise; the focus may be better placed on the *function* that alcohol, drugs or food serve.

A number of possible physiological and psychological factors have been identified that may "unify" a range of addictive behaviours, and these will be briefly reviewed here.

3.9 Different levels of analysis that may help unify diverse addictive modalities

Neurotransmitters

In general it is thought by neurologists that chemical addiction results from adaptations in specific brain neurones, caused by repeated exposure to a drug of abuse. It is these adaptations in combination that produce the complex behaviours that are features of an addicted state, and it is claimed that progress is being made in the identification of such adaptations and relating them to specific behavioural features of addiction. It is accepted that at its core addiction entails a biological process which involves the effects of repeated exposure to a biological agent (drugs, neurotransmitters) on a biological substrate (the brain) over time. The behaviours that are emphasised are predominately substance based, though it has been proposed that similar processes may be applicable to the full range of addictive behaviours (Koob & Le Moal, 1997), and that these will be uncovered in time. In a recent review it was concluded that the most likely biological candidates involved in the maintenance and progression of anorexia and bulimia are

dysfunctions in the serotonin and the endorphin regulatory systems. Interestingly, as disturbance in these two systems are not specific or unique to the eating disorders, it is possible that they represent a common pathway for many related disorders (Ericsson, Poston, Walker & Foreyt, 1996).

Thus, it has been suggested that there may be a common neurobiology of addiction covering a large number of behaviours. The underlying premise is centered around the possibility that various addictions, chemical, substance and behavioural (e.g. heroin, binge eating and gambling) have the same pattern of, "spiralling dysregulation of brain reward systems" (op cit p.53), which progressively increases and results in compulsive use and loss of control over the chemical, substance or behaviour. It is acknowledged that psychology has uncovered the idea of an addiction cycle where an initial lapse can lead to large-scale breakdown in self-regulation, and that this can lead to spiralling distress and eventually to addiction. The important point here is the contribution of neurobiology, in that it has started to identify neurobiological elements that may underlie this process.

The neurobiological mechanisms for the positive reinforcing effects of drugs include the mesocorticolimbic dopamine system and it thought that for cocaine, amphetamines and nicotine the facilitation of dopamine neurotransmission in these systems seems to be important for the acute reinforcing actions of these drugs (Koob & Le Moal, 1997). The picture is not clear for opioids, as these involve a dopamine independent and dependent system (op cit). Alcohol seems to interact with ethanol-sensitive elements in many

neurotransmitter receptor systems that are present in the mesocorticolimbic dopamine system and the system has also been implicated for tetrahydrocannabinol (THC) (Chen, Paredes, Lowinson & Gardner, 1991 in Koob & Le Moal, 1997). The psychological elements of failure to self-regulate may affect different parts of the addiction cycle and these components may be reflected in changes in different aspects of reward neurocircuitry. Studies have shown how stress-like stimuli activate the mesocortcolimbic system which in turn effects the rapid reinstatement of intravenous drug self administration that had been previously extinguished (Koob & Le Moal, 1997).

Non-substance related addictions may also be implicated in this neurological process. Homeostasis occurs when an organism maintains equilibrium in all of its systems including the brain reward system; that is, the organism uses physiological and cognitive or behavioural capabilities to maintain its state. Importantly, dysregulation of this homeostasis can also occur with compulsive use of non-drug reinforcers, as similar patterns of the spiralling addiction cycles have been observed with gambling, exercise, sex and other addictive behaviours. The same neurobiological dysregulations and breaches of homeostasis may be occurring within the same neurocircuitry implicated in drug dependence. Data in this area is already coming forward. For example Thoren, Floras, Hoffmann & Seals (1990) proposed that prolonged rhythmic exercise can activate central opioid systems which may account for the analgesic and behavioural effects of exercise and may eventually explain why it can be addictive.

The case for linking certain addictive disorders with eating disorders, especially craving

for carbohydrate, is supported by several plausible common etiological mechanisms. It has been proposed that some individuals utilise food to regulate mood via its rewarding or distracting properties (Morris & Reilly, 1987). In conjunction to this, dysfunction in the serotonin, dopamine and opiod systems have been implicated also in depression, anxiety, eating and addictive disorders. As feeding and preference for sweet foods may be mediated by dopamine (Hernandez & Hoebel, 1988), and serotonin metabolism both modulates and is modulated by dietary carbohydrate intake, it is conceivable that such dysfunctions in these systems also alter appetite.

It has also been proposed that self-starvation is itself a chemical dependence in that the auto-addiction opioid model proposes that a chronic eating disorder, whether anorexia or bulimia, is an addiction to the body's endogenous opioid system. This is thought to be almost identical to the behaviour and the psychology of substance abuse in general (Marrazzi & Luby 1987).

Interesting, with reference to the auto-opioid theory of eating disorders, is the fact that appetite dysfunction and strenuous activity stimulate endorphin activity and that a high percentage of anorexia and bulimia patients are hyperactive during the acute phase of these disorders (Slade & Duker, 1988).

The importance of genetic factors in use and dependence on psychoactive drugs has been investigated across a number of different areas such as smoking (Heath, Cates, Martin, Meyer, Hewitt, Neale & Eaves 1993), alcohol (McGue, 1994) and illicit drugs (Tsuang,

Lyons, Eisen, Goldberg, True, Meyer, & Eaves, 1996). Genetic risk factors could be operating at many levels including personality, vulnerability to psychopathology and metabolism. Recent research has found that similar to previous findings with other licit and illicit drugs, individual differences in caffeine use, intoxication, tolerance and withdrawal are substantially influenced by genetic factors (Kendler & Prescott,1999). These types of results have implications regarding the status of caffeine as a drug of dependence.

Personality

Addictive tendencies may be linked in a general way or ways, to differences in personality. There are inherent difficulties investigating this suggestion. It has been seen that drugs have pharmacological effects on the brain, some of which may result in long term changes, which may critically affect behaviour and any manifestation of personality functioning (Koob & Le Moal, 1997). One main problem with investigating personality is that personality may have been altered by addiction and it is a question of deciding whether personality characteristics contributed to addiction or whether addiction produced certain personality characteristics.

For instance it has been noted that anorexia/bulimia may belong to the same order of problems as drug addiction and alcoholism, and that like these other behaviours it is a condition in which the individual's actions produce physical and psychological changes. It has been reported that with the sustained and successful restriction of food intake in anorexia an individual's personality is changed often beyond recognition, as with

alcoholism and drug addiction (Slade and Duker, 1988).

It has been posited that a possible underling issue in those who are suffering from drug addiction is, "...that many substance abusers lack the capacity to cope with any extremely painful affective situation" (Jennings, 1991 p.221). If this is extrapolated to include other addictive disorders it could be a useful contribution to the comprehension of the use of a variety of substances and behaviours at a later date.

(Personality in relation to addiction is explored in more detail in chapter eight)

Sociological

One of the leading authorities in the field of exercise addiction is Yates (1991) and her research has been particularly concerned with the relationship between exercise addiction and eating disorders. She points out that it is not mere coincidence that both sets of behaviours occur in those societies where individuals are encouraged to achieve, to become "someone", and to develop their self worth. For those who experience extreme pressure from such coercion, intensive exercise and eating disordered behaviour are frequently the means adopted for taking greater control of their lives by setting specific goals, such as miles run or weight lost, and seeking to achieve them. If this hypothesis is extended the use of other behaviours such as illicit and licit drugs, and alcohol, may be an escape response to the mounting pressures of day to day living.

3.10. Studies that have attempted to look at a wider cross section of addictive behaviours

The development of the MacAndrew Scale (MAC) is one of the few pieces of research that has attempted to investigate addiction proneness more generally. The MAC is derived from the MMPI and has been demonstrated to be able to tap a common personality or behavioural dimension across at least 2 types of addiction problems: alcoholism and opiate addiction. A study by Leon, Kolotkin & Korgeski, (1979) investigated similarities in scores on the MAC across patients with obesity, anorexia and smoking problems. The study revealed that a proportion of male smokers indicated other habit problems such as excessive drug taking and scored within an additive range. Similarly, massively obese persons had MAC scores close to the addictive range, though the moderately obese, the anorexic and the female smoking groups did not score in the addictive range. This provides a degree of support for the idea that a more general addictive behavioural pattern exists, though only in a proportion of male smokers and the massively obese. Interestingly in this study it was found that a number of participants' scores did not differ significantly from control subjects. This may indicate that the general addictive process may only be apparent in a proportion of people engaging in addictive behaviours. Needless to say this does not exclude others from experiencing problems at a later stage, as there was no control for stage of addiction, which indeed may be an influential factor.

In another study by Griffin-Shelley, Sandler & Lees (1992) it was indicated that there was a presence of multiple addictions in a population of adolescents in treatment for

psychological problems coupled with chemical dependencies. Other compulsive problems that were being expressed included, sex, relationships, gambling and food. Symptoms of alcoholism were detected in more than 8 out of 10 of the participants.

Stephenson et al's (1995) Study

In the above study using the PROMIS questionnaire (Lefever 1988), a wide range of substances and behaviours in the addictive domain was investigated in a group of people who were undergoing treatment for addictive problems. A two factor solution was found and will be briefly described here. The first factor, Hedonism, comprised recreational drug use, prescription drug use, alcohol use, sex exploitation, relationship exploitation, gambling and nicotine use. The second factor Nurturance, comprised food bingeing, food starving, caffeine, shopping/spending stealing, compulsive helping, exercise and work. These findings go some way in the clarification of "cross-addiction" in that it is suggested that addictive behaviour co-varies in systematic ways in men and women. For example, from these results Stephenson et al (1995 p.259) point out that, "Nicotine consumption is more likely to occur together with gambling and sex than it is with overeating or caffeine consumption".

These are very interesting findings, as instead of all potentially addictive behaviours being seen as the same and used either singularly or together in a random fashion, there seems to be some significance in the selection of various behaviours. This offers a way to put into context some of the previously mentioned results regarding the findings of co-occurrences of paired behaviours (E.g. Miller & Mirin, 1989). It may be the case that at

some level all forms of addictive behaviour are linked or correlated thus explaining the great variation in reported levels of correlation across large number of behaviours. But possibly it is at a second-order level that general orientations occur.

It has been seen that Twelve Step methodology adheres to the assumption that "the Programme" is an appropriate treatment for *all* types of addiction. But if it were to be found that there is significant co-variation in addictive behaviours, this may lead to the generation of new ideas for the complex task of treating these disorders.

The prevailing opinions at the moment seem to recognise the similarities between addictive behaviours. The question which needs to be asked is to what extent these behaviours serve the same function. On the one hand we have the position that these behaviours are separate i.e. alcoholism is completely different from eating disorders. On the other hand there is strong case that functional similarities between these addictive behaviours are to be found. Is there room here for a middle ground which acknowledges the differences and at the same time takes into account the similarities? Further research into this area may elucidate this problem, and an interesting way to achieve this would be to replicate and pursue Stephenson et al's (1995) findings.

In the next chapter the development of the Shorter PROMIS Questionnaire is looked at in conjunction with methodological reasons why a replication is desirable.

Chapter Four

The development of the Shorter PROMIS Questionnaire

4.1. The phenomenon of cross addiction and the attempt to simultaneously assess a range of addictive behaviours

In the previous chapter evidence was examined regarding the incidence, implications and possible explanations of cross addiction. This material supports the argument in favour of the simultaneous assessment of multiple addictive behaviours. This is because of consistent findings suggesting that a large degree of co-occurrence exists. For example, in Miller, Gold and Belkin's (1990) investigation it was suggested that most alcoholics under the age of 30 are addicted to at least one other drug. Other studies have indicated the phenomenon of substitution in that once one addictive behaviour has been given up or reduced, there is often a corresponding increase in another (Gendall, Sullivan, Joyce, Fear, Bulik, 1997). One implication from these types of studies is that the investigation into the relationship between addictive behaviours is a pertinent quest in the treatment of addiction bearing in mind the possible interdependence of addictive disorders.

It was also noted in the previous chapter that a large number of studies have indicated links across a wide range of addictive behaviours. However, it appears that Stephenson et al's (1995) study, using the PROMIS Questionnaire, is the only study to date where a large and diverse number of addictive behaviours have been systematically linked, and

the interdependence of addictive behaviours explored in depth.

4.2. The Development of the PROMIS Questionnaire

The original version of the PROMIS Addiction Questionnaire (Lefever, 1988) was developed in order to assess cross addiction, with the aim of facilitating appropriate treatment of patients admitted to the PROMIS Recovery Centre. This questionnaire consisted of 16 scales, each assessing one addictive behaviour: the use of Nicotine, Recreational drugs, Prescription drugs, Gambling, Sex, Caffeine, Food bingeing, Food starving, Exercise, Shopping, Work, Relationships Dominant and Submissive, and Compulsive helping Dominant and Submissive. Each of the scales contained 30 items each contributing a score of "1" to its respective scale.

The scale items were designed to reflect the central features of addictive behaviour in a uniform and analogous way across the 16 scales. These parallel and characteristic areas applied to the 16 scales included the following: 1. Preoccupation, 2. Use alone, 3. Use for effect, 4. Use as a medicine, 5. Protection of supply, 6. Using more than planned, and 7. Increased capacity.

Preliminary evidence supporting the validity of the PROMIS Questionnaire scales was provided in an archival study conducted by Stephenson et al. (1995). In this study systematic questionnaire data were collected from 471 patients admitted consecutively to the centre between 1988 and 1993, and these were used in a factor analytical study. Stephenson et al. (1995) conducted separate factor analyses on the sixteen scales and

discovered that the scale scores had a reliability coefficient (Cochran's Q statistic) in the region of .9 for each scale. They also found a statistically significant relationship between diagnosis and mean scale scores. Based on the results of these and additional factor analyses the highest loading items were selected, and in some cases combined and rewritten, to produce a set of items that had equivalent scale reliability, and formed the basis of a shortened version of the questionnaire, the Shorter PROMIS Questionnaire (SPQ).

4.3. Results from Stephenson et al's 1995 Factor analytic study

The results from this study revealed two principal factors. One factor, termed Hedonism, comprised the following behaviours: Recreational drugs, Prescription drugs, Alcohol, Sex, Relationships, Gambling and Nicotine. Looking at the addictive behaviours making up the Hedonism factor it was thought that they reflect a concern with self indulgence, sensation seeking and excitement and pleasure through adventure. The second factor, termed Nurturance, comprised Food bingeing, Food starving, Caffeine, Shopping, Exercise and Work. The behaviours in this factor were thought to reflect a preference towards more home based, safe and socially acceptable behaviours that are more to do with the care of self and others. It may be noted at this point that factor one (Nurturance) accounted for 27.1 percent of the variance, factor two (Hedonism) accounted for 16.3 percent of the variance.

This pattern of co-variation indicated that patients with food problems are differentiated from others, being high on Nurturance and low on Hedonism. Patients with Alcohol

problems were high on Hedonism and low on Nurturance, but were not so clearly identified with Hedonism as those with Drug problems. These findings go some way in the clarification of the incidence of "cross addiction" in that the results suggest that addictive behaviours tend to co-vary in systematic ways. However, there were a number of limitations to this study.

4.4. Problems with Stephenson et al's (1995) study; the need for replication

Problems with this original study stem largely from the fact that the data were collected in the context of treatment rather than research. In this study this problem has been rectified in that each questionnaire was administered in a conventional psychometric testing context, with clear instructions being given by a trained psychologist.

The decision was also taken to employ a non-treatment control group who completed the same questionnaire. Comment has been elsewhere made about the lack of available evidence on the normal level of consumption, or behavioural engagement in addictive behaviours, in the normal population (Davies, 1997).

A further limitation concerned the construction of the first questionnaire. The 16 scales were completed sequentially so the 30 items for each scale were completed in one block e.g. all the alcohol items were answered together. It is possible that when questions were presented in this way respondents were able to look at the various sets of questions and decide that a particular set were not applicable to him/her, and hence tended to respond

accordingly, en bloc. In the present questionnaire items were presented randomly thereby reducing the probability of this occurring.

Perhaps because of these problems, a number of trends in the data could not be reliably explored in that study. For example, there were suggestions that a three or four factor solution might be appropriate, and there were interesting indications of gender differences in factor structure. A replication of this study needs to be conducted to develop further the suggested pattern of addictive orientations.

Identifying patterns in addictive behaviour is useful for a number of reasons. First it may help in the development of theory. For example, if gambling, recreational drugs and sex co-vary, this might be taken to suggest that a propensity for risk-taking is an underlying characteristic of individuals with an addictive problem in one of these areas. This in turn may have implications for treatment, helping counsellors to address appropriate and important motivations. Patterns of cross-addiction may also aid in the identification of those individuals who may be prone to addictive illness in related areas, which would be important in terms of prevention and treatment. It should also be noted that research generally could be better focused if patterns of co-variation are better identified and reliably assessed. For example, it will be seen that the significance of alcohol addiction is not fixed, but varies according to overall addictive orientation, in relation to gender.

Considering the possibility of a behavioural orientation in a normal population may also be beneficial, as the substances and activities engaged in addictively for some people are

to others part of a normal and harmless behavioural repertoire. If the pattern of co-variation is essentially similar in non-treatment groups, this would suggest the existence of an addictive continuum, with normal use of the behaviour or substance at one extreme and addiction at the other. If we could ascertain that the manifestation of addiction is an extension of normal and healthy behavioural patterns, this may help in the comprehension of the phenomenon. From this position it may then be possible to ascertain why certain individuals are attracted to different methods of mood alteration. If this proved to be possible, it would create a challenge to the idea that an addict's behaviour is somehow qualitatively different from non-addicts' engagement in such substances and behaviours.

4.5. The Shorter PROMIS Questionnaire

The original PROMIS questionnaire was constructed and administered in the context of treatment. The Shorter PROMIS Questionnaire (SPQ) was introduced as a replacement for clinical use with new patients, with its use in research in mind. Its development and validation is described in Appendix 1. This study used comparison and cut-off scores derived from the non-clinical community sample population. Convergent and divergent validity were demonstrated with subsets of the clinical sample who had completed other relevant validated scales. In brief a standardised clinical cut-off score was produced with the 90th percentile of scale scores derived from a normative group of 508 individuals. These cut-offs correctly identified 78 percent to 100 percent of cases within clinical criterion groups of specific disorders picked from 497 consecutive treatment admissions. The clinical sample also completed other validated scales assessing gambling, eating

alcohol and drug use; correlations were typically .7 with relevant SPQ scales. The SPQ food, drug and alcohol scales matched validated comparison scales in the strength of their relationship to relevant clinical criterion groups. Internal consistency was high for all scales and retest reliability was generally good. This work was conducted whilst at PROMIS in conjunction with others and the full results contained in the subsequent paper is presented in Appendix 1. The SPQ has provided the material for the present studies.

Instructions for completing the questionnaire

The 160 items were administered in a random order and the instructions regarding each of the behaviours were presented at the start of the questionnaire: A number of the addictive behaviours contained certain terms which have general meanings attached to them, so the following instructions were given for clarification.

"Tobacco" should be taken to mean either tobacco, cigarettes, cigars, snuff, tobacco bags and nicorette chewing gum.

"Drugs" should be taken to mean: cannabis, heroin, cocaine, LSD, magic mushrooms, 'designer drugs', amphetamines and other stimulants.

"Prescription drugs" or "Medication" refers to tranquillisers, anti-depressants, painkillers, cough mixtures and cold cures, sleeping tablets, slimming pills, antihistamines.

In this present study respondents were asked to read each question carefully before answering and to place a cross on the scale (between one and six) to indicate the extent to which the statement is 'like you' or 'not like you'. There were 10 items per scale and scores on each scale ranged from 0 to a maximum of 50.

4.6. The dimensions of the SPQ

In the next section behaviours contained in the SPQ are looked at more closely with items on the questionnaire being used to illustrate how (1) the central features of addictive behaviour are investigated in a uniform way and (2) which underlying construct the different items are designed to measure. Greater emphasis will be placed on the behaviours which are not commonly viewed as addictive such as compulsive helping and relationships.

4.6.i. Substances

We shall first look at the substances which are covered by the SPQ as these have traditionally been seen as areas which people become addicted to. After this section other behaviours can then be detailed and with this how the items are used in a congruent fashion across the different behavioural areas will be illustrated.

Alcohol

Alcoholism is one of the more accepted forms of addictive behaviour. Items included on this dimension include the following. Item (18) "I have found that having one drink tended not to satisfy me but made me want more" (**Preoccupation**). A positive response

to this item may reveal the difficulty of satisfying a craving for alcohol. Item (136) "I have deliberately had an alcoholic drink before going out to a place where alcohol may not be available" (**Protection of supply**). This item evaluates behaviour relating to maintaining a certain level of alcohol and regularity of supply, in that the person's coping strategy is to drink in order to manage being present in a situation where alcohol isn't available. Item (43) "I have used alcohol as both a comfort and a strength" (**Emotional support, protection of supply**). This reflects alcohol's use for emotional reasons.

Drugs

Drug addiction is another of the more readily accepted forms of addictive behaviour. Items included on this dimension include the following. Item (24) "I have had a sense of increased tension and excitement when I knew that I had the opportunity to get some drugs" (**Preoccupation**). This item reflects the preoccupation which is involved in the addictive process, in this situation prior to drug use. Item (76) "I have tended to use drugs as both a comfort and strength" (**Emotional support, protection of supply**). This in the same way as for the alcohol dimension reflects one of the drives behind the usage as an emotional one. Item (143) "I have tended to use more drugs if I have got more" (**Higher capacity**). This item is checking the tendency of an increased capacity and drive for more of the addictive substance.

Prescription drugs

The abuse of prescription drugs although acknowledged is not as prevalent in the literature as illegal drug abuse. The SPQ however aims to assess the behaviour in the

same way as other forms of addictive behaviour. For example Item (92) "If my prescription medicines supply was being strictly controlled I would hang onto some old tablets even if they were definitely beyond their expiry date." (**Protection of supply**). This item checks how difficult it is for the individual to leave some of the substance (here prescription drugs), and is therefore picking up on the preoccupation of having to have a supply readily available. Item (153) "I have been irritable and impatient if my prescribed medication is delayed for ten minutes" (**Preoccupation**). This item reflects the urgency which is linked to the individual receiving his/her drug of choice. Item (125) "If I had run out my prescribed medication I would take an alternative even if I was not sure of its effects". (**Using for effect**). This item looks at how the addict's drive for a change in mood state is driven to the extent that they may use an alternative even if unsure of the consequences.

Nicotine

Nicotine addiction is another well accepted form of addiction. Item (21) "I have tended to use nicotine as both a comfort and strength even when I feel that I didn't want any" (**Emotional support, protection of supply**). Again in the same was as with item (43, alcohol) the degree to which the substance is being used for emotional reasons is assessed. Item (47) "I have been afraid that I will put on excessive amounts of weight or become particularly irritable or depressed if I give up using nicotine altogether" (**Using more than planned**). This item is looking at fear of loss of control and reflects concern with other changes of behaviours if the substance is stopped. Item (83) "I have continued to use nicotine even when I have had a bad cold or even more serious

respiratory problem" (**Higher capacity than others**). This item looks pragmatically at the failure to control nicotine usage as it is assessing continued use despite detrimental effects.

Caffeine

Even though caffeine may not be a widely accepted substance of dependence and when viewed alongside alcohol and drugs may even seen to be a frivolous substance to include. However as was seen in chapter three it is included in the DSM IV (1994), and as it may be linked with other forms of addictive behaviour is worthy of consideration.

Item (28) "I have felt it would be more painful for me to give up caffeine than to give up a close friendship" (**Preoccupation**). This item looks at the intensity of the relationship or figural position that caffeine has in the individual's life. Item (52) "I have tended to time my intake of caffeine so that others are not really aware of my total intake" (**Protection of supply**). This item looks at the strategy taken when in front of others so the caffeine intake is deliberately hidden. This helps to reveal the sufferer's obsession with the behaviour. Item (60) "I have had a sense of increased tension and excitement when I buy caffeine substances or when I see advertisements for them" (**Preoccupation**). This item is checking the physical sense of increased tension which occurs when anticipating caffeine usage and reflects the preoccupation which is involved in the addictive process.

4.6.ii. Process related addictions (Relationships and Compulsive helping)

These behaviours are somewhat more controversial areas for addictive inclusion in spite of increasing numbers of publications (e.g. O'Gorman, 1991) aimed to help those suffering from these said addictions. Within treatment contexts however these behaviours are often seen as appearing in conjunction to other addictions

Relationships

Peele (1975) was one the first researchers to look at relationship addiction. He stated in his book that, " Many of us are addicts, only we don't know it. We turn to each other out of the same needs that drive some people to drink and others to heroin. Interpersonal addiction - love addiction - is just about the most common yet least recognised form of addiction we know" (p.1, (1975)

Relationships it can be argued may be an ideal vehicle for addiction as a relationship can exclusively claim a person's consciousness in a similar way as the obsession with a substance can. This is because when a person goes to another with the aim of filling an inner void or making themselves feel better the relationship may quickly become the centre of his or her life. The relationship is used primarily for their mood altering effect on the addict, irrespective of whether the relationship has any long term prospects and irrespective of the amount of damage that may come from that relationship.

A succinct way of understanding the more unconventional forms of addiction is to compare it to primary addiction to substances, as addictive behaviours or relationships

are driven by the general feeling, "I need you to fix me" (Lefever, 1988). The addict may turn to alcohol or drugs or nicotine or gambling or another human being or several other human beings and the relationship with these other people may be totally interchangeable with relationships with addictive substances of behaviours. Relationship addiction can be described as the pursuit of relationships in an attempt to relieve emotional pain, and for this behaviour to be considered to be addictive it needs to be compulsive, out of control and for it to continue in spite of adverse effects on the individual's life.

The behaviours of choice related to this form of addiction include, any repetitive, compulsive activity, either dominant or submissive, potentially damaging to others or potentially damaging to the individual, that leaves other people in the situation whereby, out of concern for the individual's action, they are led to focus much of their attention upon the individual's demands or needs. Thus, addictive relationships with other people may be used as a form of "drug" that is either dominant (stimulating) or submissive (tranquillising) in its effect (Lefever, 1988)

Relationship submissive (Tranquillising)

Item (6) "I have tended to be upset when someone close to me takes care of someone else" (**Use alone**). This item illustrates the preference for the relationship between the addict and his or her substance or behaviour (here relationships) to be primary in nature. Item (87) "I have felt an overwhelming sense of excitement when I find a new person to look after my needs or a new way in which an existing partner can look after them better"

(**Preoccupation**). In a similar way as with item 60 (caffeine) this item is looking at the mounting tension and excitement which occurs when anticipating the use of the behaviour of choice (here relationships). Item (124) "I have tended to get irritable and impatient when people look after themselves rather than me" (**Preoccupation**). This item corresponds to the items which ask whether a slight delay in either obtaining a drink or a coffee etc. would make them irritable, here however the situation which is linked to irritability is posited as "people looking after themselves rather than me".

Relationship dominant (stimulating)

Item (29), "I have found it difficult to take up a position of power or influence when it is available, even if I do not really need it and can seen no particular use for it" (**Protection of supply**). Here what is looked at is how the normal feelings of satisfaction are not relevant, as agreement with this item reflects an increased drive for more power over others. Item (118), "I have tended to use a position of power or influence as a comfort and strength regardless or whether there are particular problems needing in my attention in other aspects of my life" (**Emotional support, protection of supply**). Again in the same was as with item 43 (alcohol) the degree to which the behaviour is being used for emotional reasons is assessed. Item (160), "I have tended to neglect other aspects of my life when I have felt that my position of power or influence is under threat" (**Protection of supply**). This item illustrates the obsession with predictable regularity of supply, in this case for the need to have power or influence over others. This is because the unpredictable is very unsettling for the addict and therefore precautions to ensure the demand for power is met may lead to carelessness in other aspects of the individual's life.

Compulsive helping

The term compulsive helping stems from the idea of "co-dependence" which originated with the description of the impact of alcoholism on others, primarily the adult children of alcoholics. It has now become a movement unto itself and has been defined as any suffering and or dysfunction that is associated with or results from focusing on the needs and behaviours of others (Whitfield, 1989). O'Gorman and Oliver-Diaz, (1987) view co-dependency as a form of "learned helplessness" which consists of family traditions and rituals which are taught from one generation to the next concerning how the family teaches intimacy and bonding. It is still a relatively murky area it has been argued that its definitions still lack the precision which is needed for professional consensus, and that co-dependency has received little empirical support for the construct (Collins, 1993). An example of this confusion stems from a study by Rude & Burnham (1995) where it was demonstrated that questionnaires used to measure dependency tend to confuse healthy attachment needs with the extreme and generalised need to obtain other approval ("neediness).

Even though there is a background of literature being formed concerning co-dependency it is important to focus on PROMIS's conception of the term. Compulsive helping is thought to be the mirror image of primary addiction to mood altering substances behaviours and relationships and is based on the principle of "I need you to need me". Instead of the addict seeking something externally to make them feel better, the compulsive helper offers him or herself to other people to help them, and thereby to help him or herself to feel needed and valued. Compulsive helping is thought to be

psychologically destructive, as seeking one's self esteem from others is exhausting and does not lead to the development of healthy relationships. Compulsive helping is thought to be an addictive process, being progressive and destructive in just the same way as any other addictive or compulsive behaviour. The "drugs" of compulsive helping are care-taking (far beyond normal caring) and self-denial (far beyond normal kindness or selflessness and more akin to self-abasement) In the same way as for Relationship addiction compulsive helping can be sub-divided into different categories of emotional blackmail, dominant and therefore stimulating for the addict and submissive, tranquillising for the addict.

Compulsive helping dominant (stimulating)

Item (32) "I have preferred to look after other people on my own rather than as part of a team" (**Use alone**). This item illustrates the primary nature of the relationship between the helper and his or her helping activities in the sense that there is preference for the helping to be conducted on his/her own. Item (49) "I have found life rather empty when someone for whom I was caring gets better and I have felt resentful at times when I am no longer needed" (**Preoccupation**). This item in the same way as with Item 18 (alcohol) indicates that agreement with this item may reveal the difficulty of satisfying the need to help. Item (69) "I have tended to use my self-denial and care-taking for others as both a comfort and strength for myself" (**Emotional support, protection of supply**). Again in the same was as with items 43 (alcohol) and 21 (nicotine) the degree to which helping is being used for emotional reasons is assessed. Item (122) "I have found it difficult to leave any loose ends in a conversation in which I am trying to be helpful" (**Using more**

than planned) In a similar way to Item (92) (Prescription drugs) this item shows how normal feelings of satisfaction are not relevant and here there is an attempt to return to a situation to satisfy this craving for more, in this case helping.

Compulsive helping submissive (tranquillising)

Item (35) "Other people have tended to express concern that I am not doing enough for my own pleasure" (**Higher capacity than others**). This item uses the opinions of others in the individual life to assess how intrusive their helping is. Item (58) "I have tended to remain loyal and faithful regardless of what I may endure in a close relationship" (**Using more than planned**). This item illustrates that normal feelings of satisfaction i.e. having done enough, the need to be needed is so overwhelming that even when negative consequences to the self mount he/she remains in the relationship. Item (158) "I have felt most in control of my feelings when performing services of one kind or another for someone else" (**Using for effect**). This item looks at the extent to which their helping is being used to control their feelings.

4.6.iii. Food related addictions

Food bingeing and food starving though perhaps still controversially included in the addiction remit have increasing received attention as possible candidates for addictive behaviour (e.g. Hetherington & Macdiarmid, 1993).

Food bingeing

Item (85) "I have often preferred to eat alone rather than in company" (**Use alone**). This item looking at preference for use alone as the primary nature of the relationship between the addict is thought to be a key element of addictive behaviour. Item (116) "I have had three or more different sizes of clothes in my adult (non-pregnant if female), wardrobe" (**Using more than planned**). This item looks at repeated attempts to control the overeating behaviour which have failed, this being reflected in the need to have a variety of sizes in clothes to accommodate these fluctuations. Item (71) "Other people have expressed repeated serious concern about my excessive eating" (**Higher capacity than others**). This item aims to obtain some objectivity through the use of other people's opinions on the individual's excessive eating.

Food starving

Item (109) "When I have eaten in company I have tended to time my eating as a form of strategy so that others are not really aware of just how little I am eating" (**Protection of supply**). This item like with item 52 (caffeine) this item looks at the strategy taken when in front of others. Here the deliberately hidden under-eating reveals the sufferers obsession with the behaviour, and hence how protective they are around its possible detection. Item (139) "I have become irritable and impatient at meal times if someone has tried to persuade me to eat something" (**Preoccupation**). This item is related to items where which questions the response to a delay of their substance of choice. For the starver or anorexic instead of the threat of a substance being *withheld* and this causing irritability, the plight of these individuals is different as their behaviour of choice is that

of not eating or eating as little as possible. So this item assesses the degree of irritability attained they are threatened with having food forced upon them. Item (13) "In a restaurant or even at home I have often tried to persuade others to choose dishes that I knew I would like even though I would probably refuse to eat them". **(Preoccupation)** This item looks at the extent to which the individual is preoccupied, here with the idea of not eating favoured foods.

4.6.iv. Behavioural addictions

The SPQ assesses a wide range of behavioural addictions all of which have appeared in previous literature.

Work

Item (56) "When working with others I have tended to disguise the full amount of time and effort that I put into my work" **(Protection of supply)**. Again in the same way as item (109) (food starving), and item 52 (caffeine) this item looks at the strategy taken to deliberately hide the amount that the individual is engaged with their behaviour or substance, in this case working. Item (102) "Other people have expressed repeated serious concern over the amount of time I spend working" **(Higher capacity than others)**. Again in the same way as with item (71) food bingeing, this item aims to obtain some objectivity on the situation concerning work through the use of other people's opinions. Item (133) "I have found that once I start work in any day I find it difficult to get "out of the swing of it and relax" **(Using more than planned)**. This item is looking

at the extent to which the individual is becoming more engaged in working than perhaps intended, here with the essence of this is tapping "once started difficult to stop".

Shopping

Item (93) "I have bought things not so much as a means of providing necessities but more as a reward that I deserve for the stresses that I endure" (**Using for effect**). This item assesses the extent that the shopping is being used for its tranquillising effects and its use in response to stress rather than for the original generally understood purpose. Item (80) "I have often bought so many goods (groceries, sweets, household goods, books etc.) that it would take a month to get through them" (**Preoccupation**). This item illustrates the impossibility of satisfying a craving, in that there is an almost relentless search for more and more goods, in a similar way that a drug addict may be on an almost constant search for more drugs. Item (48) "I tend to use shopping as both a comfort and a strength even when I do not need anything" (**Emotional support, protection of supply**). Again in the same was as with item (43) (alcohol) the degree to which shopping is being used for emotional reasons is assessed.

Sex

Item (2) "I have found it difficult to pass over opportunities for casual or illicit sex" (**Using more than planned**). This item is looking at how normal feelings of satisfaction are not applicable here and continued "use" occurs. This is because the engagement with the addictive behaviour is compulsive, this item can be found in a similar form on the alcohol dimension where the question is posed is " I have found it strange to leave half a

glass of (alcoholic) drink". Item (75) "I have found that making a sexual conquest has caused me to lose interest in that partner and led me to begin, looking for another" (**Preoccupation**). This item illustrates the impossibility of satisfying a craving, and once satisfied there is a fast return to the search for more stimulation. Item (128) "I have had sex with someone that I dislike" (**Using for effect**). Again this item assesses the degree to which the desire for the behaviour (in this case for sex) is dominating to such an extent that the individual is willing to have sex with someone that they actually dislike. In this way the person who they dislike can be seen to be used as an "available alternative".

Gambling

Item (65) "I have stolen or embezzled to cover gambling losses or to cover my losses in risky ventures" (**Higher capacity than others**). This item looks at the failure to control the addictive behaviour, and how the gambling or risk taking continues even though negative consequences mount. Item (89) "Other people have expressed repeated serious concern over my gambling or risk taking" (**Higher capacity than others**). Again in the same way as with the item (71) on the food bingeing dimension this item aims to obtain some objectivity from the use of other people's opinions. Item (137) "When my favourite form of gambling or risk taking is unavailable I have gambled on something else I normally disliked" (**Using for effect**). This item aims to capture the strength of the drive that pushes the individual into the use of behaviours that may have a similar effect but would not be normally chosen (this item has also been illustrated in the prescription drugs and sex dimensions)

Exercise

Item (129) "I have often taken exercise just to tire myself sufficiently for sleep" (**Use as a medicine**). This item indicates the level of preoccupation that is part of the addictive process, and illustrates how the behaviour is being used for its tranquillising effects (for other substances or behaviours this may include any medicinal type effects). Item (19) "I have preferred to exercise alone rather than in company" (**Use alone**). This item looks at the primacy of the addict's relationship to his or her behaviour of choice (here exercise). Item (33) "I have often tried to take exercise several times a day" (**Protection of supply**) This item assesses the extent to which the individual needs to keep the altered state "topped up" throughout the day, in this case with the possibility of the individual's endorphin levels being maintained.

In the next chapter the factor analytic replication of Stephenson et al's (1995) study is conducted using the revised scales and a new clinical population.

Chapter Five

The Shorter PROMIS Questionnaire (SPQ) in an Addicted treatment population

5.1. Introduction

The review in chapter three indicated that the comprehension and treatment of all forms of addictive behaviour is an enormous challenge, because they are persistent, resilient and often reoccurring problem behaviours. Indeed, understanding the complexities underlying each unitary disorder has created independent fields of research with many associated specialised journals. It could be argued that with this approach, addiction professionals "hijacked" the term addiction by permitting only a narrow range of areas to be encompassed by the definition. Now, however, with factors such as the incidence of cross addiction and the noting of common dynamics between certain behaviours (e.g. Marks, 1990) an ever increasing number of behaviours seem to be gathering under the addictive umbrella. When considering such a range of potentially addictive behaviours and the cross-overs and relationships between them, addiction may be seen to be an even more serious problem, and the search for a better understanding of the processes involved in and between these relationships seems ever more pertinent.

It was seen in the review in chapter three that the identification of *patterns* of multiple use in a wide variety of addictive behaviours is in its infancy. To date it is only Stephenson et al's (1995) research which has attempted to do this. This study found two main factors, the first factor, Hedonism, comprising the following areas: Recreational drug use, Prescription drug use, Alcohol use, Sex exploitation, Relationship exploitation, Gambling and Nicotine use. The second factor Nurturance,

was comprised of Food bingeing, Food starving, Caffeine, Shopping/spending, Compulsive helping, Exercise and Work. The results suggest that addictive behaviours are used in systematic ways in men and women.

These findings are important for a number of reasons. First, when it comes to treatment, quite often only one addictive problem is addressed by treatment agencies rather than investigating what may well be the generic addictive process and its "variety" of addictive manifestations. This has important implications for relapse prevention, as different behaviours may be substituted for the original addiction.

Second, even though work has been conducted investigating the links between the several addictive outlets, systematic consideration needs to be given to the greater variety of addictive behaviours. This is to ensure that the process, or processes, which underlie or drive certain characteristic orientations, and which lead to specific combinations of behaviours being used, are more fully understood. Far from the study of addiction being devalued by the increasing range of behaviours which are being termed as addictive, these additional behaviours may in fact illuminate the broader process of mood alteration. By studying patterns of co-variation between addictive behaviours their more general psychological significance may be grasped more securely. This in turn may lead to improved treatment design and consequent improved outcomes for sufferers.

Although there are likely to be some distinctive features in different addictions, and continued research into the separate behaviours prove beneficial, there are undoubtedly common features which require systematic study. Concerns over the

pursuit of commonality between syndromes cannot be overlooked as it is possible that this emphasis may ignore important etiological differences in the onset of different addictive behaviours. Notwithstanding this objection, in chapter three it was noted that there are a number of levels of analysis that have been used to "explain" and support the idea of strong commonalities between different addictive behaviours, such as the neuro-chemical (e.g. Koob & Le Moal, 1997). This type of research provides a further level of justification for the pursuit of a more comprehensive understanding of the common processes which may underlie this range of behaviours. Revealing systematic patterns, as this study aims to do, may at least guide further research aimed at clarifying the underlying processes of cross-addiction (cf. Kosten, Rounsaville, Babor, & Spitzer, 1987)

Examples of theoretical ideas which may shed light on the differing patterns of "addictiveness"

It may be argued that there is truth in the idea that the urge to avoid pain and seek pleasure is part of our biological make up, and that both the excessive involvement in and normal use of the wide variety of potentially addictive behaviours mentioned thus far is, at least in part, a consequence of this. However this simplistic notion doesn't explain *why* certain behaviours emerge as candidates for addiction over and above others. Individual differences based in biology and psychological motivation play a role, but are unlikely to provide a complete answer. Evidence for addictive orientations may point the way to a more satisfying general theory.

Social learning theory has been utilised as a useful model for explaining excessive drinking (Abrams & Niaura, 1987) and can readily be adapted for patterns of

addictive use where a number of behaviours are used. People use an addictive behaviour, according to social learning theory, for at least three reasons. First that the effects of the behaviours bring pleasure; second, a person may decide earlier that the behaviours are consistent with personal standards (cognitive mediation) and third, the person may learn to use the behaviours through the observation of others (modelling) (op. cit.). Any one of these factors or a combination is sufficient to initiate and guide use of an addictive behaviour. So here the possibility is that "orientation" may be a question of consistent exposure or learning in people whose values are similar and who are exposed to similar models and reinforcements.

A different explanation involves the idea that there is a biological substrate which links certain types of behaviours with certain physiological types. Jacobs (1989) defines addiction as, "A dependent state acquired over time by a predisposed person in an attempt to relieve a chronic stress condition" (P.35). He posits that two sets of predisposing factors much be present for an individual to develop an addiction. The first is an abnormal physiological resting state that is chronically either excessively excited or depressed and the other being of a psychological nature, characterised by feelings of inferiority, rejection, inadequacy and or guilt stemming from childhood. It is thought that the physiological condition of either being chronically excited (highly aroused) or depressed is stress inducing.

Individuals suffering from either of these extreme arousal levels are therefore thought to be motivated to seek activities or substances that correct this resting state, with the goal of obtaining a more comfortable homeostatic position. So, a person with a hypotensive physiological arousal level may find relief in a stimulating and exciting

activity such as gambling. This temporarily eliminates feelings of boredom, or a more general feeling of emptiness or flatness. A person with a hypertensive arousal state may find relief in substances or behaviours that have a depressing or calming effect, such as alcohol or tranquillisers. This line of reasoning suggests that certain sets of behaviours are used flexibly, some sets being stimulating and some calming.

In sum, research has revealed that addictive behaviours co-vary in systematic ways. In addition, some theoretical ideas illuminate why such orientations may occur. However, until we can say with more certainty that such orientations as indicated in Stephenson et al's 1995 study are indeed present, searching for explanations of co-variation would be premature.

Aims

Bearing the above comments in mind, the aim of the present study is to investigate patterns of addictive co-variation in reported usage in a large variety of addictive behaviours using the Shorter PROMIS questionnaire (SPQ), to see whether the orientation revealed by Stephenson et al's 1995 study are replicable and are capable of further refinement. It is hoped that a clarification of those earlier findings may be achieved, and a more in-depth exploration of the nature, significance and possible utility of the orientations be made possible.

5.2 Method

The data set

When clients enter PROMIS a full medical history is taken by nursing staff and this, in conjunction with psychiatrists' reports and other referral information, provides the basis of the primary diagnosis. At a later stage, usually within the first 7 days of treatment, Questionnaires are administered to patients and are used as part of the full assessment process. The questionnaires include the SPQ, and others such as the Eating Disorder Inventory (EDI; Garner, Olmstead & Polivy, 1983) and the Brief Symptom Inventory (BSI; Derogatis, 1993). The results of the SPQ are routinely fed back to patients. The questionnaires are administered by a research psychologist and the usual conventions of psychometric research obeyed. Where a patient was on a chemical detoxification programme, which may have impaired their concentration, questionnaires were administered when the patient was fully detoxified.

Patients were informed of the ongoing research programme at PROMIS and written permission was asked for their responses to be used for research purposes. Before completing the questionnaire they were assured of complete confidentiality and given the opportunity not to participate.

Data were obtained for 543 consecutive admissions to the PROMIS Recovery Centre between 1995 and 1999; 285 were male and 258 were female. Their ages varied from a minimum of 14 to a maximum of 79 with a mean of 35 and a standard deviation of 12.8.

Table 5.1. Summary table for treatment population by diagnostic category

Diagnostic category	Males and Females	Males	Females
Alcoholism	30.02% (163)	37.19% (106)	22.09% (57)
Drugs	18.6% (101)	26.32% (75)	10.08% (26)
Alcoholism + Drugs	11.6% (63)	14.04% (40)	8.91% (23)
Bulimia	4.24% (23)	0.35% (1)	8.53% (22)
Over Eating	4.05% (22)	3.16% (9)	5.04% (13)
Anorexia	3.13% (17)	0.7% (2)	5.81% (15)
Unspecified Eating Disorders	8.66% (47)	1.75% (5)	16.28% (42)
Alcoholism + Eating Disorders	2.58% (14)	0% (0)	5.43% (14)
Drugs + Eating Disorders	1.47% (8)	0.7% (2)	2.33% (6)
Alcoholism + Other	3.13% (17)	4.21% (12)	1.94% (5)
Eating Disorders + Others	1.47% (8)	1.05% (3)	1.94% (5)
Eating Disorders + Alcoholism + Drugs	1.84% (10)	0.35% (1)	3.49% (9)
Gambling	1.1% (6)	2.11% (6)	0% (0)
Others*	8.1% (44)	8.07% (23)	8.14% (21)

*This category includes Shopping, Compulsive helping, Relationships, Sex and Work; and any combination of these groups

Statistical analysis

Data were analysed using SPSS version 8 statistical software. Distributions were plotted and were seen to be variously skewed, with a number of the scales exhibiting ceiling effects. Patient's scores according to diagnosis can be found in Appendix 2.

5.3. Results

Table 5.2: Treatment population. Mean, median and standard deviations of the SPQ items

Variable	Mean	Median	Standard Deviation
Age	34.89	34.29	12.78
Alcohol	28.24	28.59	17.14
Shopping	13.06	12.14	12.29
Food bingeing	15.36	14.35	16.07
Compulsive helping submissive	22.85	22.66	11.29
Nicotine	24.13	24.06	17.86
Gambling	6.41	4.85	11.11
Food starving	12.52	11.45	12.87
Compulsive helping dominant	18.31	17.88	11.72
Drugs	19.46	18.85	20.60
Sex	10.16	8.93	12.38
Work	17.31	16.86	11.90
Relationship dominant	15.78	15.20	12.12
Caffeine	5.70	4.47	8.93
Prescription drugs	12.22	10.89	15.70
Exercise	11.30	12.24	11.26
Relationship submissive	15.93	15.44	11.06

When dealing with multivariate data there is often evidence of interdependence between the variables. This is easily detected by forming the correlation matrix for

the data and studying the off-diagonal elements, which show the interdependence between the variables. These entries take values between 0 and 1, with 0 showing no dependence and 1 showing perfect correlation. The correlation matrix for the SPQ Treatment data is given in table 5.3 below. It can be seen that there are many large and statistically significant (i.e. >0.09) off-diagonal elements, this suggesting that the data can be simplified, or explained by a lesser number of variables.

Table 5.3: Treatment population. Correlation table for the sixteen scales of the SPQ

	AL	SH	FB	CHS	NI	GA	FS	CHD	DR	S	W	RD	CA	PD	EX	RS
AL	1	0.06	-0.15	0.21	0.32	0.08	-0.07	0.15	0.11	0.2	0.18	0.2	0.08	0.28	0.06	0.13
SH	0.06	1	0.5	0.31	0.06	0.17	0.44	0.45	0.07	0.23	0.3	0.33	0.4	0.2	0.22	0.49
FB	-0.15	0.5	1	0.14	-0.02	-0.03	0.64	0.29	-0.09	0.02	0.12	0.13	0.41	0.02	0.27	0.3
CHS	0.21	0.31	0.14	1	0.05	0.06	0.23	0.79	-0.11	0.09	0.64	0.31	0.27	0.11	0.27	0.39
NI	0.32	0.06	-0.02	0.05	1	0.17	0.05	0.14	0.41	0.2	0.07	0.14	0.22	0.37	0	0.22
GA	0.08	0.17	-0.03	0.06	0.17	1	-0.02	0.16	0.26	0.3	0.15	0.32	0.16	0.29	0.13	0.22
FS	-0.07	0.44	0.64	0.23	0.05	-0.02	1	0.32	-0.08	0.03	0.28	0.09	0.41	0.06	0.45	0.29
CHD	0.15	0.45	0.29	0.79	0.14	0.16	0.32	1	0.06	0.25	0.57	0.48	0.37	0.23	0.31	0.59
DR	0.11	0.07	-0.09	-0.11	0.41	0.26	-0.08	0.06	1	0.38	-0.11	0.08	0.11	0.54	0.02	0.21
S	0.2	0.23	0.02	0.09	0.2	0.3	0.03	0.25	0.38	1	0.16	0.43	0.2	0.22	0.15	0.45
W	0.18	0.3	0.12	0.64	0.07	0.15	0.28	0.57	-0.11	0.16	1	0.45	0.26	0.11	0.34	0.32
RD	0.2	0.33	0.13	0.31	0.14	0.32	0.09	0.48	0.08	0.43	0.45	1	0.22	0.17	0.19	0.54
CA	0.08	0.4	0.41	0.27	0.22	0.16	0.41	0.37	0.11	0.2	0.26	0.22	1	0.21	0.3	0.34
PD	0.28	0.2	0.02	0.11	0.37	0.29	0.06	0.23	0.54	0.22	0.11	0.17	0.21	1	0.12	0.27
EX	0.06	0.22	0.27	0.27	0	0.13	0.45	0.31	0.02	0.15	0.34	0.19	0.3	0.12	1	0.25
RS	0.13	0.49	0.3	0.39	0.22	0.22	0.29	0.59	0.21	0.45	0.32	0.54	0.34	0.27	0.25	1

Alcohol (AL), Shopping (SH), Food Bingeing (FB), Compulsive Helping Submissive (CHS), Nicotine (NI), Gambling (GA), Food Starving (FS), Compulsive Helping Dominant (CHD), Drugs (DR), Sex (S), Work (W), Relationships Dominant (RD), Caffeine (CA), Prescription Drugs (PD), Exercise (EX), Relationships Submissive (RS).

It can be seen that the correlations are predominately positive, though there are a very few notable negative exceptions, in particular with respect to correlations with food

bingeing. Overall the matrix indicates that factor analysis will yield a solution which reflects the generally positive pattern of co-variation.

There are two main approaches to reducing the dimensions of this data, namely Principal Component Analysis (PCA) and Factor Analysis (FA), and it was thought that both of these approaches would be useful in attempting to reduce the dimensions.

5.3.i. Principal Component Analysis (PCA)

PCA works by sequentially searching for the dimensions that explain the greatest amount of variation in the data, such that each dimension is mutually orthogonal. These dimensions are defined by the eigenvectors of the correlation matrix (or of the co-variance matrix when all variables are measured on the same scale), and their relative importance is defined by the size of their corresponding eigenvalues. Because this new co-ordinate system is not invariant to scale, a spectral decomposition was performed to find these dimensions on the correlation matrix.

Hence, the Principal Components (PCs) are linear combinations of the original variables with weights given by the standardised eigenvectors and relative importance given by the eigenvalues. When PCA is performed on the correlation matrix the proportion of variance explained is given by the ratio of eigenvalue to number of variables. So for these 16 variables, PCs are of interest with eigenvalues greater than 0.8 (5%) but preferably greater than 1.6 (10%).

Application of these criteria to the analysis of the SPQ data, it is likely that there are probably between 3 and 6 underlying dimensions. However, only the first two of

these PCs are particularly interpretable with the first being a rough average of all 16 variables and the second being a contrast of "hedonistic" type behaviour (drugs, alcohol, sex, etc) and "nurturant" type behaviour (shopping, food bingeing, etc). A further mathematical analysis that allows greater manipulation to produce more meaningful variables, is Factor Analysis (FA).

To perform Factor Analysis a number of assumptions need to be made about the number of underlying factors needed in the model. There are a number of ways of choosing the number of factors to be included, based on the spectral decomposition and the variance explained by each dimension. By using the Kaiser Criterion the eigenvalues of the correlation matrix greater than one may be considered to be significant. In addition to this, simulation studies by Zwick and Velicer (1986) found that scree plot and MAP (minimum average partial correlation) were the best performing rules for deciding on model size. In this study model size was based on the scree plot which is an intuitive and reliable method, and the results from the PCA. The scree plot is a plot of the eigenvalues associated with a factor versus the number of the factor and the point where the smooth decrease of the eigenvalues appears to level off to the right of the plot is looked for.

Figure 5.1: Treatment population. Scree plot of the 16 scales from the SPQ

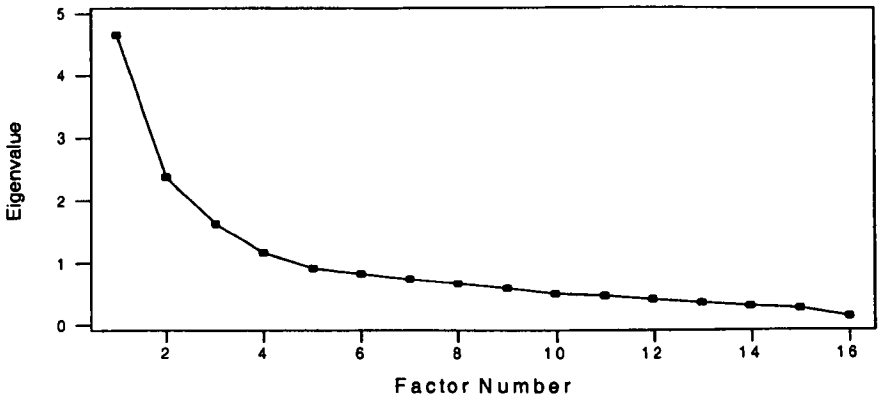


Table 5.4: Treatment population. Results from the Principal Components Analysis

Principal components	Eigenvalue	Proportion	Cumulative proportion
PRIN1	4.66755	0.291722	0.29172
PRIN 2	2.36730	0.147956	0.43968
PRIN 3	1.61876	0.101172	0.54085
PRIN 4	1.16459	0.072787	**0.61364**
PRIN 5	0.91446	0.057154	0.67079
PRIN 6	0.82208	0.051380	0.72217

Looking at figure 5.1, clearly this plot, in conjunction with the results from the Principal Components Analysis (table 5.4) suggests that it is models with between 2 and 4 dimensions that need to be investigated, as further dimensions do not have a noticeable effect in reducing the variance. A Factor Analysis was conducted to identify 4 factors and this was compared with a 3 and a 2 Factor Analysis.

5.3.ii. Factor Analysis

Factor Analysis works by assuming a mathematical model for the data that consists of a number of underlying factors that are not necessarily measurable as such (e.g. intelligence). It assumes that these factors can explain all the co-variance between the measurable variables, and most of the variance. Estimation of this model can be done in a number of ways, the most common being either Maximum Likelihood or Principal Axes Factoring. For this analysis we chose Principal Axes Factoring (PFA) as it involves fewer distributional assumptions, and converges quite quickly. (In this application typically after 15 - 20 iterations).

What is of particular interest is the loading of each factor for the particular variables, as this permits the interpretation of the factors. Large loadings indicate agreement between the variable and the factor, and hence allows an interpretation of what the underlying factor may be measuring. For instance, if factor 1 has large loadings for nicotine, gambling, and alcohol, it could be said that the underlying factor is measuring legal forms of mood altering.

Because of the statistical assumptions of the factors, zero mean and unit variance, calculating the variance explained by the model for a particular variable amounts to calculating the sum of squares for the loadings, known as the communality. So the communality of a variable is the proportion of the variance of that variable explained, and the total communality is the total proportion of variance explained by the model.

One positive aspect of this type of analysis is that any consistent factor model will remain a consistent factor model after any orthogonal transformation. Hence the

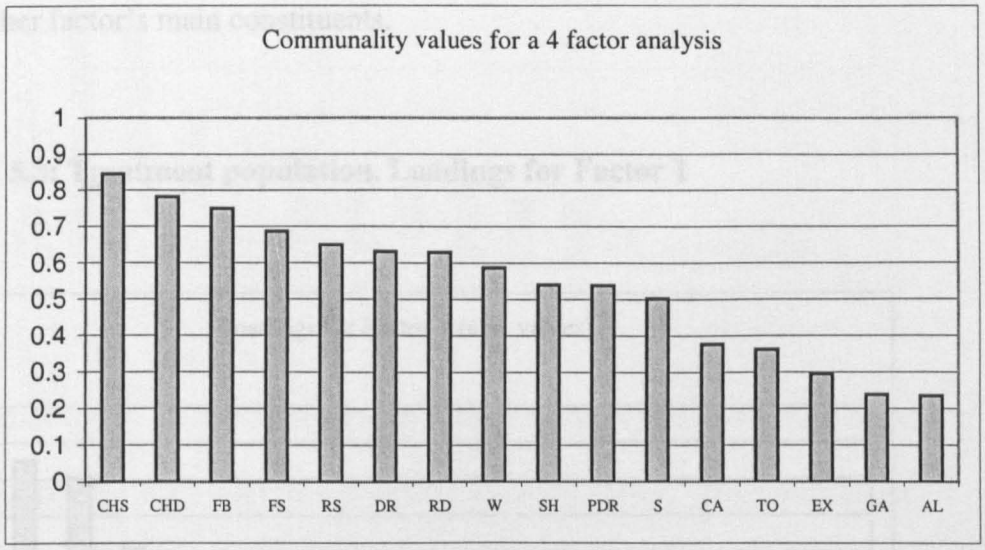
initial factor model can be rotated to produce a model that is easier to interpret. The most usual rotation to use is the "Varimax" rotation, which is the method used in this analysis. Varimax rotation is an orthogonal rotation which works by maximising a variables loading with respect to one and only one factor, hence resulting in a distinct construct. It can be opposed to an oblique rotation which is more complex to analyse. After 15 iterations the PFA process converges to produce the following results for the rotated factor loadings and their communalities estimates.

Table 5.5: Treatment population. Results for the rotated factor loadings and their communality estimates.

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Communality
Alcohol	-0.17124	0.24051	0.37468	0.09320	0.2362
Shopping	0.61172	0.22902	0.07484	0.32718	0.5392
Food bingeing	0.85153	0.01898	-0.13557	0.06586	0.7481
CH submissive	0.21128	0.88903	0.05782	0.07765	0.8444
Nicotine	0.02651	0.07538	0.59208	0.07824	0.3631
Gambling	0.04125	0.06411	0.28278	0.39308	0.2403
Food starving	0.80769	0.17552	-0.04890	-0.03182	0.6866
CH dominant	0.38122	0.71545	0.14958	0.31941	0.7816
Drugs	0.01199	-0.17434	0.72952	0.25922	0.6299
Sex	0.07572	0.06591	0.31406	0.62762	0.5026
Work	0.23090	0.69815	0.02045	0.21486	0.5873
Rel dominant	0.16344	0.38283	0.07753	0.67035	0.6286
Caffeine	0.52097	0.20618	0.20293	0.15231	0.3782
Prescription drugs	0.13896	0.09676	0.68796	0.18777	0.5372
Exercise	0.43875	0.28627	0.05928	0.13243	0.2955
Rel submissive	0.40074	0.32835	0.21891	0.57685	0.6491

Figure 5.2: Treatment population. Graph of the communality values

The graph of the communality values shows that this model explains a large part of the variability for most of the variables. There is, nevertheless, a wide range of values, and Alcohol and Gambling, in particular, fit less convincingly into the factor structure than do others. Some reasons for this will be discussed later, especially in relation to



the results for alcohol.

The proportion of variance explained by each factor is given by the ratio of the sum of the squared loadings and the total variance. Hence the proportion of variation explained by each factor is:

FACTOR 1 16.9%

FACTOR 2 14.8%

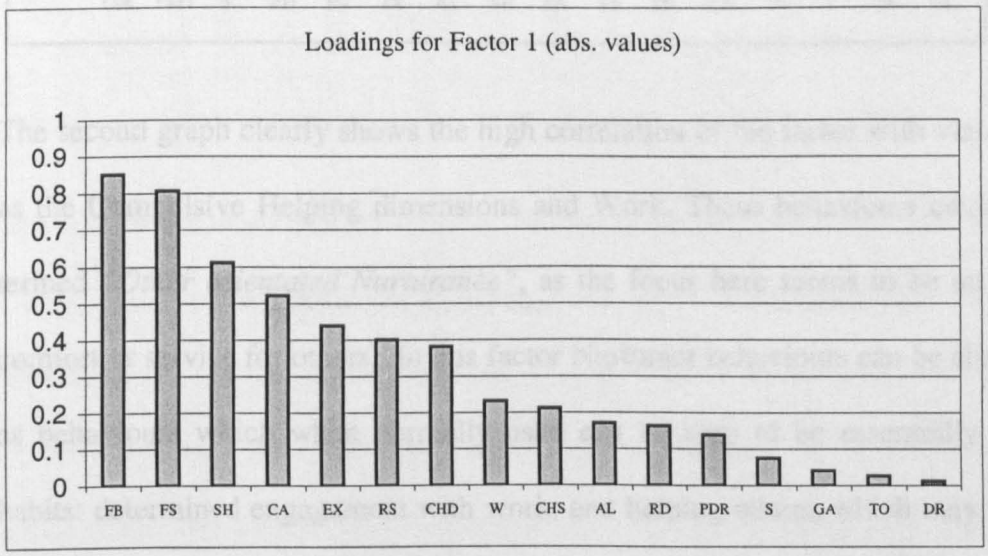
FACTOR 3 11.4%

FACTOR 4 11%

So the first 4 factors explains 54.1% of the total variation.

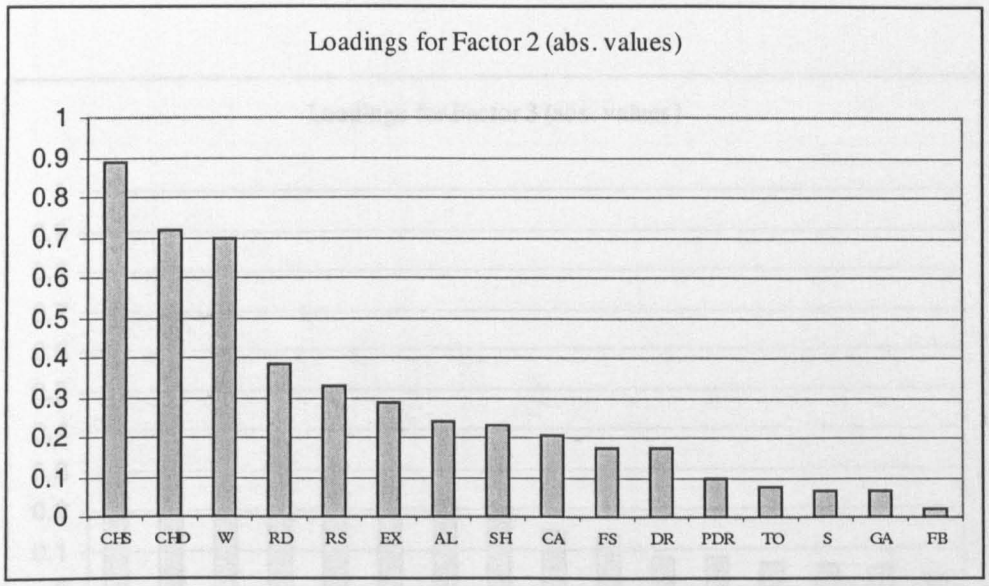
The following four graphs concern the loadings of the factors. The loadings indicate the proportion each variable contributes to a particular factor and so by looking at them an interpretation of what each factor is measuring can be made. For this analysis a Varimax rotation was used which works by maximising a variable's loading with respect to just one factor. So each factor's main constituents should be different from each other factor's main constituents.

Figure 5.3: Treatment population. Loadings for Factor 1



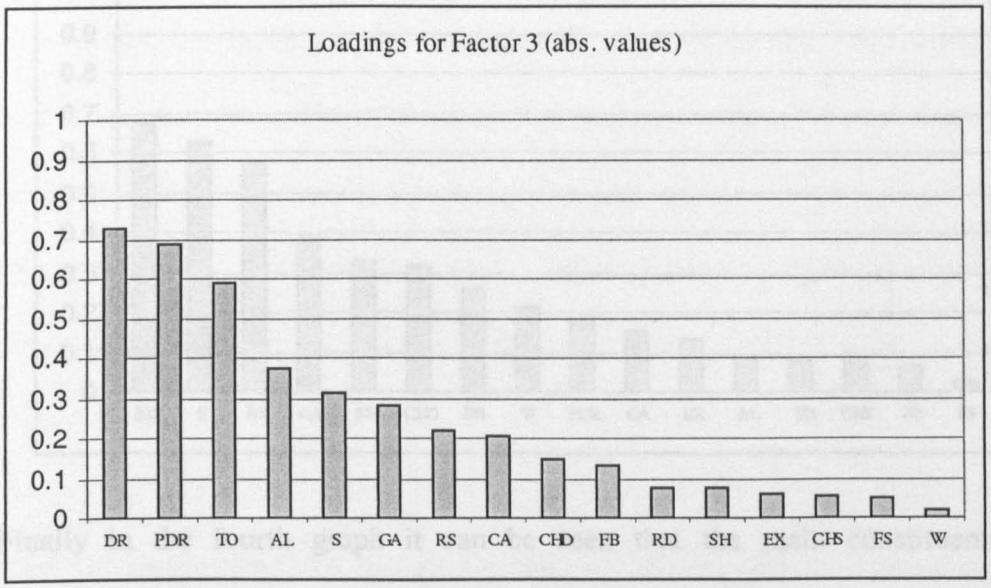
The first graph shows high loadings (.5 and above) for Food disorders, Shopping and Caffeine, which could be seen as behaviours which are more characteristic of women's behaviour (Chrisler, 1989). Using Stephenson et al's (1995) descriptors, these *Nurturant* behaviours if engaged in to excess can be seen to be to do with the consumption or use of behaviours concerned very much with legal and acceptable ways of soothing or coping with the self. And so this factor has been labelled, *"Self orientated Nurturance"*. This factor can be seen to be undoubtedly more socially acceptable than behaviours such as drug taking and gambling, and can be viewed in a different light again when compared with working, and helping others (factor 2).

Figure 5.4: Treatment population. Loadings for Factor 2



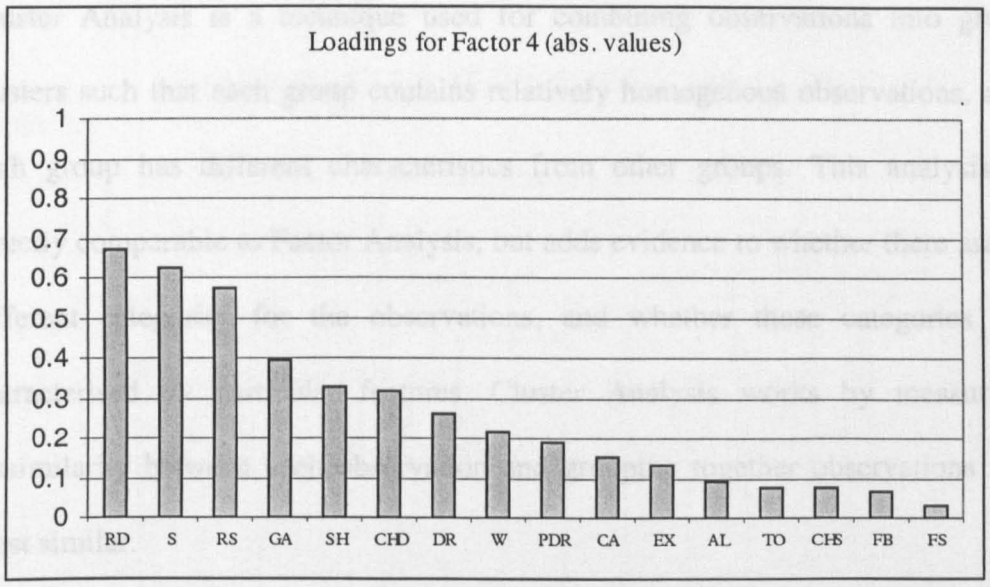
The second graph clearly shows the high correlation of the factor with variables such as the Compulsive Helping dimensions and Work. These behaviours could be aptly termed *"Other orientated Nurturance"*, as the focus here seems to be on providing comfort or service for others. In this factor Nurturant behaviours can be characterised as behaviours which when normally used can be seen to be essentially pro-social habits: determined engagement with work, and helping others, which may be seen as acceptable even commendable activities that others may aspire to. However, used in an addictive fashion, the addict's mood may well be altered though the utilisation of such activities.

Figure 5.5: Treatment population. Loadings for Factor 3



In the third graph we can see that the variables that contribute most to the factor are Drugs, Prescription Drugs, Nicotine and, to a lesser extent, Alcohol. These may be considered as the 'physical addictions'. Here we are looking at the "aggressive", obvious and traditional addictive forms of mood altering. Factor 3 has a flavour of recklessness and a sense of active and demonstrative self indulgence. Here we have mood altering in a deliberate less socially desirable way. This factor may be termed, "*Sensation seeking Hedonism*".

Figure 5.6: Treatment population. Loadings for Factor 4



Finally in the fourth graph it can be seen that the main constituents are the Relationship dimensions, Sex and, to a lesser extent, Gambling. This factor seems to be related to behavioural mood altering, which again may be seen as active, deliberate and related to sensation seeking. Recall that the Relationships scales reflect the exploitation of other people, whether through the exercise of power directly, or through the use of more subtle psychological manipulation. A similar desire to control is evident in Gambling and more particularly in Sex. These behaviours, although not substance based, when engaged in excessively are nonetheless largely frowned upon. This dimension will be termed *"Power related Hedonism"*.

Interestingly this four factor solution has produced two Hedonistic and two Nurturant factors which are, in effect, subdivisions of the previously found Hedonistic and Nurturant dimensions in the previous study (Stephenson et al, 1995). To help draw a more explicit comparison with that earlier study, I shall now report the results of a Cluster Analysis, which is more suited to displaying what appears to be a quasi-hierarchical structure in the pattern of co-variation.

5.3.iii. Cluster Analysis

Cluster Analysis is a technique used for combining observations into groups or clusters such that each group contains relatively homogenous observations, and that each group has different characteristics from other groups. This analysis is not directly comparable to Factor Analysis, but adds evidence to whether there are in fact different categories for the observations, and whether these categories can be characterised by particular features. Cluster Analysis works by measuring the dissimilarity between each observation and grouping together observations that are most similar.

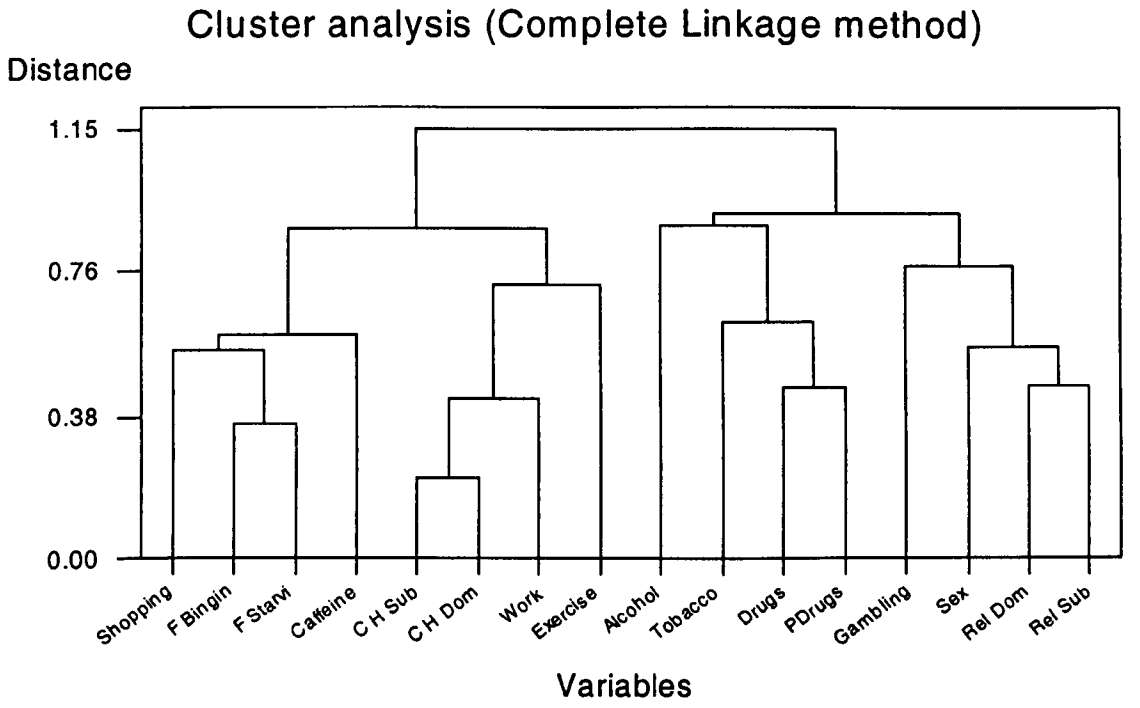
Pairs of observations are looked for that are closest and then these are grouped together. This process is then repeated, grouping together observations that are closest together. When a cluster is found it has to be decided where to start measuring from. It was decided that the three main different methods would be investigated to see how they related to the Factor Analyses. The three methods of measuring from a cluster to an observation outside the cluster are as follows:

Single Link: measures from outside observation to nearest observation in cluster

Complete Link: measures from outside observation to furthest observation in cluster

Average Link: measures from outside observation to each observation and finds the mean.

Figure 5.7: Treatment population. Cluster analysis of the SPQ scales.



Of the three methods, the conventional Complete Linkage technique revealed a coherent hierarchical structure which confirmed expectations of the importance of the two Hedonistic and Nurturant orientations. The dendogram of the cluster analysis using the Complete Linkage method shows the possibility of grouping the variables into the following four groups given above.

1. Shopping, Food disorders, Caffeine;

2. Compulsive helping dimensions, Work, Exercise;

3. Alcohol, Drugs, Nicotine; Prescription drugs;

4. Gambling, Sex, Relationship dimensions.

These clusters closely match the four factors of the Factor Analysis, and provide strong confirmation the significance of the 4 factors grouping, within the broad framework of Hedonistic and Nurturant orientations.

5.4. Conclusions

There are a number of points to be made at this juncture, before I discuss more fully the significance of the individual factors.

1. Positivity in the Addictive Behaviours Correlation Matrix

The review of literature revealed an increasing tendency to assume that common motivations may underlie different addictive behaviours, such that one might expect a broadly positive pattern of co-variation to obtain between different addictive behaviours. Indeed, looking at the correlation matrix (Table 5.3.), it can be seen that this, by and large, is the case. With few exceptions involving food scales and "aggressive" hedonistic scales for the most part, the correlations in the matrix are positive. The evidence, so far as it goes, is supportive of the notion of a general, albeit weak, tendency towards excess across the full range of behaviours assessed by the SPQ.

2. Factorial Structure

The relationships between many variables are insignificant, and explanation of the co-variation benefits hugely from a consideration of the structure of inter-relationships as revealed by factor and cluster analysis. Factor analysis suggests that four factors are necessitated, these being replicated in the cluster analysis.

3. Replication of the Stephenson et al, (1995) study

One of the main aims of the study was to investigate patterns of co-variation in a large variety of addictive behaviours to see whether the orientation revealed by Stephenson et al's 1995 study was replicable.

On the basis of the scree plot, the principal components analysis, and the factor analysis, a four factor solution was chosen as the best model to explain the data. Additional evidence for the appropriateness of this number of factors was given by the cluster analysis. These four factors represented subdivisions of the two factors found in the previous study. Hence, the results from the current factor analysis indicates that the findings from Stephenson et al's 1995 study are broadly supported, and further clarified, employing a more valid psychometric instrument.

Hierarchical pattern

The cluster analysis suggests that the four factors are grouped in a way that not only replicates the results of the previous study, but also portrays the further links between the two orientations of Hedonism and Nurturance, suggestive of a hierarchical structure. At the broadest level, the participants in the study can be described in terms of the extent of their overall addictive tendencies. At the next level, they can be seen to be differently orientated towards Hedonism or Nurturance. At the next level, more precisely, they exhibit systematic variation in addictive tendencies, towards self, or other directed, nurturance; and sensation-seeking, or power-related, hedonism. Finally, they can, of course be depicted in terms of specific behavioural addictive characteristics.

Factors and illusory correlations

From the previous literature it seemed that different addictions did co-vary. Some of these suggestions have been confirmed by our results, for example drugs and nicotine. Given the existence of a general tendency towards "addictiveness" as suggested by the overall correlation matrix, it may be expected that when looking at the correlation

between any two behaviours i.e. drugs and nicotine, that there may well be a positive relationship, as it were, by chance. However, the factorial structure indicates which addictive behaviours consistently co-vary, and factorial structure suggests that some "correlations" observed in the past may well have been illusory. For example, in one study high levels of alcohol and drug abuse were observed in 40% of individuals with a diagnosis of anorexia or bulimia (Zerbe, Marsh & Coyne, 1990). The results here do not support the view that these two behaviours consistently co-vary. Moreover, the data suggest that there is a *stronger, more consistent* association between the food disorders with other behaviours such as work and caffeine. This may prompt future research to examine what might be the common motivational basis for the observed co-variation within such clusters of addictive behaviours, thereby leading to considerable enhancement of theory.

The nature, significance and utility of the four factors.

Factor 1 "Self Orientated Nurturance"

Looking at the first factor this can be seen to be a Nurturant factor with the inclusion of both the food dimensions, shopping, and caffeine. Though exercise fails to meet the .5 threshold this dimension loads more highly on this factor than any other and when looking at the cluster analysis it can be seen to be most linked with this grouping of addictive behaviours. This grouping of behaviours may be seen to be motivated by or related to control of body image.

The high correlation between the two food disorders may appear strange, as intuitively they seem to be at opposite poles of a food problem continuum. But in practice it seems that those who have difficulty in controlling excessive consumption

have periods of severely restricting their food intake, and would therefore on this questionnaire score on the food starving dimension. This occurs in the opposite direction as well, in that people who severely restrict their food intake, on occasion go through periods of what they at least would term, excessive consumption (Slade & Duker, 1988). This may or may not actually constitute a binge, but for the sufferer the binge episode, or period of time where their control weakens, feels excessive. Indeed it is not unusual to find those in the food disorder category who go through phases of over-eating and then severely under-eating, to the extent that these different forms of "using " food have become commonplace (op cit.).

These extremes may reflect a generalised tension and problem with food. In bulimia research there has been debate as to whether this disorder represents one end of a generalised eating disorder continuum or is somehow categorically different from sub-threshold bulimia or an absence of eating disorders. Results have been mixed with the continuity hypothesis being supported for measures of weight concerns and the discontinuity hypothesis being supported for measures of psychopathology (Stice Killen, Hayward, & Taylor,1998).

The other scales in this cluster (shopping and caffeine and, marginally, exercise) seem to be characterised by a concern with consumption, this either being positive or negative, which is directly related to the self. It has been suggested that these behaviours may be linked, in that they may perform some form of compensatory behaviour, possibly to do with masking feelings of lack, or feeling unloved or not good enough. Feelings of unworthiness or emptiness may be alleviated by over-eating or over-spending; and with these behaviours there is a sense of "filling up".

The idea of "retail therapy", it may be observed, has become commonplace within western culture.

The power in this set of addictive behaviours lies in the dominance of these more feminised activities: body image and concerns over planning eating/non-eating, exercise regimes and shopping.

Factor 2 "Other Orientated Nurturance"

Interestingly with this set of dimensions when looking at the cluster analysis it can be seen that they form a sub division of the Nurturant dimension, and therefore are more associated with Factor 1 "Self orientated nurturance". Helping others and determined engagement with work can, on the surface, be seen as commendable activities, though their excessive use is now starting to be reported as problematic (Cermak, 1991). This is due to the fact that when engaged in to excess, though the individual may feel better as any internal discomfort or confusion is externalised, there is a reduction in the individual's ability and desire to look at themselves. The concept of control here is interesting as it is possible that with this factor that engagement in this range of addictive behaviours is also related to the desire to achieve control (as in the previous factor). A further point is that the methods chosen to achieve this are very different, the first factor involving a focusing on the self and this second factor energy being directed to the external world.

When busy looking after other people's needs or compulsively working, there is, by default, a reduction in the time available for addressing the self. Perhaps the mechanism also involves an unworthy self and this is compensated for through

helping others and through over work, i.e. excelling in other people's opinions. It is in this sense that this cluster of behaviours could be to do with conformity and approval seeking and control. It is possible that when these dimensions are used in isolation without other forms of addictive use, consequent problems stemming from these behaviours may be more difficult to detect. Here the power of the combination of activities is effective as huge effort is expended in looking after external situations and people.

Factor 3 " Sensation Seeking Hedonism" (Substances)

With this combination of addictive behaviours comes the more radical, reckless and pharmacological ways of mood altering that are less socially acceptable than the previous two factors. In the same way as in factor one this combination seems very much to do with the self, but in this factor the combination of behaviours share the fact that these methods are more direct and aggressive forms of mood altering. It has been stated before that the issue of control is a useful dimension when looking at addiction, and it is likely with this factor that engagement in this range of addictive behaviours is to do with the desire to lose control.

A further idea is that here the individual's feelings, whether negative or dull etc, are such that solace can only be found in a fast-acting and perhaps more importantly a dramatic way of mood alteration. Perhaps this degree of mood change or shift in perception is determined by a need for a sharp elevation in mood, a shift which can be perceived immediately. Perhaps the same feelings of inadequacy and feeling not right in some way are, for some reason, directed into these extreme behaviours. Perhaps this orientation is led by a combination of factors (such as the environment in which

they are used) that leads the individual past the more acceptable/legal ways of mood altering, into the more aggressive forms and so a cycle of drug taking (whether prescription or illicit or a combination of both) and alcohol use is entered into.

Factor 4 "Power Related Hedonism"

The significance of the grouping of these dimensions seems to relate to behavioural mood altering which is hedonistic and related to power. These dimensions are hedonistic and the distinction between the previous factor and this one is that substances are not involved and it is largely behavioural. The power element seems to be an apt concept to unify both the relationship dimensions and sex, as it is feasible that a degree of power or manipulation over another person is necessary to deliver the response for the addict's satisfaction. Also with gambling there is a sense that an underlying dimension which may run beneath the thrill of the chase and of a winning rush in gambling may also be related to power.

One difference which is similar to the distinction between factors one and two is that in factor four though Hedonistic these behaviours are to do with others or are external to the self (i.e. gambling). When considering the concept of control with this dimension, it seems that the underlying objective has more to do with the desire to achieve control over others or the external (i.e. gambling) in order to achieve the desired effect.

In sum from these results it seems as though there may be an additional way to view "choice" of addictive behaviour which adds a further dimension of explanation to the field. Instead of viewing these behaviours as completely different and in isolation or

as sharing many common dynamics as a number of theorists are moving towards (e.g. Marks, 1990) it may be useful to think in terms of orientation. This permits the differences between these behaviours to be acknowledged while at the same time room for their similarities and co-occurrence is made.

Drawing from the review chapter it can be argued quite convincingly that there is enough evidence which suggests that there are substantial commonalities between the array of addictive behaviours, what these results add is that the four factors may provide a convenient structure with which these commonalities and reported incidence of cross addiction can be understood. For example the high incidence of alcoholism and drug addiction can be seen as a general orientation towards a need to lose control in an aggressive and direct way. Though it must be said that this orientation doesn't investigate how these disorders develop it may aid in the generation of new ideas or provide support for established theories.

Another area where this orientation may help is when health professionals are assessing patients suffering from addiction, as using this structure may help them to keep an open mind to further problem behaviours, such as exercise being an associated problem with eating disorders. A further utility may be in the area of predicting which behaviours may become problematic if a genuine and deep recovery for the primary addiction isn't instated during treatment.

In general it may be said that at a fundamental level these behaviours have similarities such as loss of control, tolerance etc. At a level beyond this a splitting seems to occur and this may have something to do with personality, developmental factors or

environmental pressure i.e. learning, exposure or availability. If this is indeed the case this casts doubt on the premise that these behaviours are the same, as the origin, function and motivation for there use may stem from quite different sources.

In the next chapter factor analysis was performed on a set of data completed by a group of people not suffering from addiction to investigate whether any form of orientation is present in a population where, for the vast majority of participants, these behaviours are used in a "normal" and non-problematic fashion.

Chapter Six

The shorter PROMIS questionnaire in a Non-treatment population

6.1. Introduction

Although one dominating idea is that addicts and non-addicts are characteristically different, possibly but not necessarily as a result of genetic disease, the prevailing view would probably be that defining the point at which excess becomes addiction is highly problematic (cf Vaillant. 1985). Whatever view one takes, it is clear that engagement in an addictive behaviour does not necessarily indicate addictive use, and that even experimentation with highly addictive substances does not necessarily predict addiction.

Acknowledging the fact that these behaviours are used in a normal fashion, a method is required for distinguishing between normal and abnormal usage. Psychiatric classification (e.g. DSM-IV) aims to do this. However, moving on from the more formal classification systems and methods of detecting problematic use, a conceptual framework that builds upon the use of addictive behaviours within a Non-treatment population is of value.

Research has very much concentrated on problematic use with only a few studies investigating addictive tendencies within a normal population, such as Von Knorring and Oreland's study (1985) where it was found that smokers were more prone to the abuse of alcohol, glue, cannabis, amphetamines and morphine. As these behaviours

are routinely used there is a possibility that even without pathological levels of use, it may still be possible to study *orientations* within a Non-treatment population, akin to those within the Treatment population. The results of such a study would be of considerable theoretical, and practical, interest.

6.2. General statistical information on the use of addictive substances in a non-Treatment population

Information on the nation's involvement in the more notorious addictive substances is routinely collected, and looking at some basic statistics reveals that the involvement in addictive behaviours is quite substantial. In 1998 the British Crime Survey showed that 29% of those aged between 16 and 24 in England and Wales had used an illegal drug in the past year. The most commonly used drug was cannabis, which had been used by a third of young men and over a fifth of young women in the previous year. Although only 3% of young people reported using cocaine in the last year there had been a significant increase in the proportions using this drug since 1996.

The current Department of Health advice on alcohol is that consumption of between 3 and 4 units a day for men and 2 to 3 units for women is within "safe" limits. However, the proportion of men drinking over 21 units a week has remained broadly similar since 1988, at around 27%. The proportion of women drinking over 14 units has increased from 10 to 15 per cent between 1988 to 1999 (General Household Survey, 2000). These figures suggest that addictive levels of use are increasingly commonplace.

There is evidence which suggests that there may be similar relationships between

addictive behaviours in Non-treatment group (i.e. non-addicts) as in those receiving treatment. In a study by Gilbert, Gilbert and Schultz, (1998) it was suggested that there is a high degree of similarity in withdrawal response across a number of addictive areas (alcohol, nicotine, caffeine, food and relationships) in both addicted and "non-addicted" populations. Similarities in withdrawal symptoms across substances suggested that individuals experiencing severe symptoms associated with withdrawal from one type of dependence were also likely to experience severe withdrawal symptoms from another. In addition to this, the observed co-morbidity between eating and drinking problems in clinical populations has been found to be present in non clinical samples of adolescent boys and girls (Krahn, Piper & King, 1996). Where commonalities such as these exist, there may be similar mechanisms e.g. of habit reinforcement, in these different populations. To search for mechanisms specific to the onset of addiction "proper" may be misguided. Personality, physiological or behavioural correlates of engagement in addictive behaviours may be equally evident in Non-treatment populations.

If there are similar patterns of usage in this Non-treatment population it would imply that "addicts" are not a discrete or especially distinctive population. Rather, they may be viewed as somewhat akin to neurotics, as those whose location at one extreme of a normal continuum, have experienced particular problems of adjustment to their environment. The orientations towards addictive behaviours may hence appear in the Treatment population in an amplified, exaggerated and problematic way. They are, nevertheless, orientations in terms of which the Non-treatment population may be characterised and assessed.

Alternatively, it is not hard to envisage that the normal results will fail to replicate the results with the Treatment group, and that the factors discovered in the Treatment group are not evident in those who claim not to have problems with addiction and who have not sought treatment. A Non-treatment group might be expected to develop preferences for different substances in an idiosyncratic way, according to personal inclination and learned experience.

Having found the addictive orientations in the Treatment group, the expectation that the findings of the Treatment group would be broadly replicated seemed the more appropriate expectation. The addictive orientations seem to reflect attitudes towards experience that are quite close to those of personality orientations discovered in conventional psychometric work in normal populations. This topic will be further explored in a later chapter.

For the moment, let us pose the question: Will the results from a Non-treatment group broadly replicate the factors found in the Treatment group? Do those who are not addicted express preferences for addictive substances and behaviours in the fashion of the orientations towards those substances and behaviours exhibited by the Treatment group? The answers to these questions will serve to direct the further study of the role of personality in the development of addictive behaviours.

6.3. Method

Collection of Non-treatment data

The SPQ was administered to 199 male and 309 female participants making a total of 508. These participants were obtained by convenient opportunity, one group from a student population and another from the community. The only sampling criteria were that that could read the SPQ and were not receiving treatment for any type of addictive behaviour.

Approximately 200 participants were students at the University of Kent and were obtained through the Psychology Department's Research participation scheme (RPS). People studying psychology are required, as part of their course requirement, to participate in a number of pieces of psychological research and are awarded "credits" for participation and it was from this population that this sample was drawn.

The remainder were gathered from outside of the University. This was conducted using a "pyramid gathering" technique where up to five questionnaires were sent to various contacts who were asked to complete one themselves and for the remainder to be given to friends or colleagues to complete. Confidentiality was insured as the participants were not required to enter their name, and envelopes were provided for each participant to place their questionnaires into.

6.4. Results

Factor Analysis

The same analysis which was utilised with the Treatment population was conducted using data from a sample of 508 declared non-addicts. The sample included 199 males and 309 females. As this sample has a disproportionately high number of females, more precisely comparable results may be obtained when the analyses are completed by gender. The MANOVA/ANOVA tests later will test whether there is indeed a significant difference between genders and whether this factor needs to be taken into account. The descriptive statistics indicate that the mean values of each variable and the standard deviations are significantly smaller (in most of the cases less than half) than the values in the Treatment population (see Table 5.2. for details of Treatment group).

Table 6.1: Non-treatment population. Table of means and standard deviations of the SPQ items

Variable	Mean	Standard Deviation
Alcohol	15.95	12.44
Shopping	11.53	9.83
Food bingeing	11.51	10.5
Comp help sub	19.59	10.19
Nicotine	12.65	16.9
Gambling	2.56	5.66
Food starving	7.93	9.11
Comp help dom	13.91	9.74
Drugs	5.07	10.16
Sex	5.24	8.46
Work	14.1	9.59
Rel dom	9.44	9.41
Caffeine	3.13	5.13
Pres drugs	2.93	6.27
Exercise	9.96	8.95
Rel sub	9.33	8.58

Table 6.2: Non-treatment population. Correlation table for the 16 scales of the SPQ

	AL	SH	FB	CHS	TO	GA	FS	CHD	DR	S	W	RD	CA	PD	EX	RS
AL	1	0.15	0.26	0.22	0.29	0.21	0.21	0.28	0.31	0.33	0.19	0.31	0.22	0.19	0.23	0.32
SH	0.15	1	0.56	0.42	0.02	0.15	0.47	0.55	-0.03	0.04	0.34	0.39	0.29	0.37	0.31	0.57
FB	0.26	0.56	1	0.39	0.14	0.12	0.61	0.47	0.09	0.08	0.33	0.36	0.29	0.37	0.35	0.47
CHS	0.22	0.42	0.39	1	0.15	0.19	0.48	0.77	0.06	0.08	0.69	0.43	0.27	0.27	0.36	0.53
TO	0.29	0.02	0.14	0.15	1	0.09	0.18	0.21	0.41	0.27	0.14	0.12	0.31	0.16	-0.02	0.19
GA	0.21	0.15	0.12	0.19	0.09	1	0.15	0.17	0.23	0.39	0.21	0.26	0.17	0.18	0.22	0.27
FS	0.21	0.47	0.61	0.48	0.18	0.15	1	0.54	0.05	0.14	0.46	0.36	0.38	0.44	0.5	0.56
CHD	0.28	0.55	0.47	0.77	0.21	0.17	0.54	1	0.16	0.19	0.59	0.54	0.37	0.39	0.4	0.67
DR	0.31	-0.03	0.09	0.06	0.41	0.23	0.05	0.16	1	0.35	0.04	0.16	0.21	0.19	0.01	0.14
S	0.33	0.04	0.08	0.1	0.27	0.39	0.14	0.19	0.35	1	0.13	0.41	0.21	0.12	0.18	0.35
W	0.19	0.34	0.33	0.69	0.14	0.21	0.46	0.59	0.04	0.13	1	0.52	0.34	0.25	0.41	0.46
RD	0.31	0.39	0.36	0.43	0.12	0.26	0.36	0.54	0.16	0.41	0.52	1	0.29	0.29	0.36	0.64
CA	0.22	0.29	0.29	0.27	0.31	0.17	0.38	0.37	0.21	0.21	0.34	0.29	1	0.37	0.19	0.36
PD	0.19	0.37	0.37	0.07	0.16	0.18	0.44	0.39	0.19	0.12	0.25	0.29	0.37	1	0.24	0.37
EX	0.23	0.31	0.35	0.36	-0.02	0.22	0.5	0.4	0.01	0.18	0.41	0.36	0.19	0.24	1	0.4
RS	0.32	0.57	0.47	0.53	0.19	0.27	0.56	0.67	0.14	0.35	0.46	0.64	0.36	0.37	0.4	1

Alcohol (AL), Shopping (SH), Food Bingeing (FB), Compulsive Helping Submissive (CHS), Nicotine (NI), Gambling (GA), Food Starving (FS), Compulsive Helping Dominant (CHD), Drugs (DR), Sex (S), Work (W), Relationships Dominant (RD), Caffeine (CA), Prescription Drugs (PD), Exercise (EX), Relationships Submissive (RS).

The correlation matrix for the sixteen scales is shown in table 6.2. It can be seen that the correlations are almost entirely positive, to an even greater extent than in the Treatment group. In the same way as in the Treatment sample, it seems that the matrix indicates that factor analysis will yield a solution which reflects the generally positive pattern of co variation. Where r is the estimated correlation and n is the number of observations it is confirmed that correlations as low as 0.09 are significant as the 5% level.

6.4.i. Principal components analysis

As with the Treatment sample, the preliminary Principal Components analysis Scree plot (figure 6.1) shows that there are possibly between 2 and 4 dimensions that explain the data well. In the present sample however, the largest eigenvalues of the correlation matrix, which represent the dimension that explains the most variation (the first PC) are much higher.

Figure 6.1: Non-treatment population: Scree plot of the sixteen scales from the SPQ

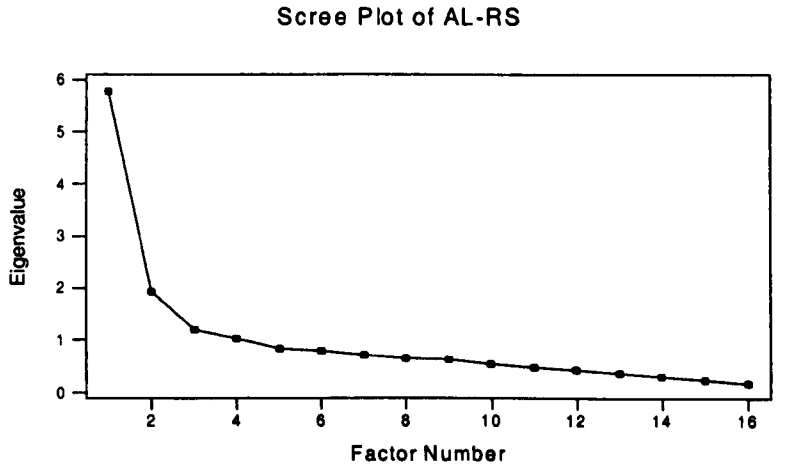


Table 6.3. Non-treatment population: Results from the principal components analysis

Principal components	Eigenvalue	Proportion	Cumulative proportion
PRIN1	5.79128	0.361955	0.361955
PRIN 2	1.92473	0.120296	0.48225
PRIN 3	1.19721	0.074826	0.55708
PRIN 4	1.01968	0.063730	**0.62081**
PRIN 5	0.83800	0.052375	0.67318
PRIN 6	0.78570	0.049106	0.72229

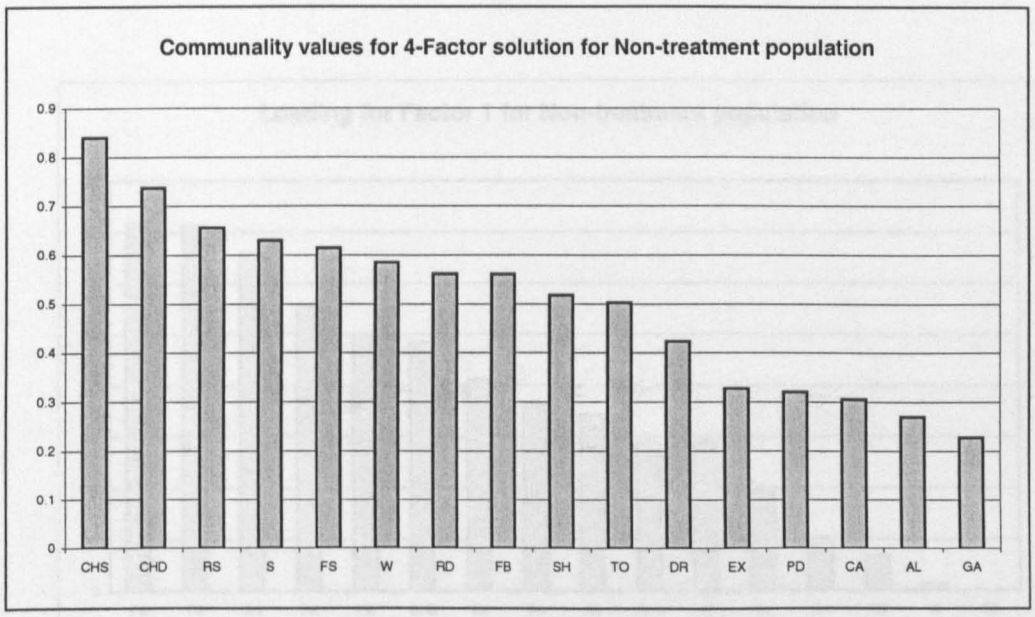
6.4.ii. 4 Factor Model for the Non-treatment sample

In the Treatment group factor analysis it was seen that a four factor model explained the data well. The task now is to investigate the factorial structure in the Non-treatment sample to see whether there are any similarities in factor structure.

Table 6.4. Non-treatment population: Results for the rotated factor loadings and their communality estimates.

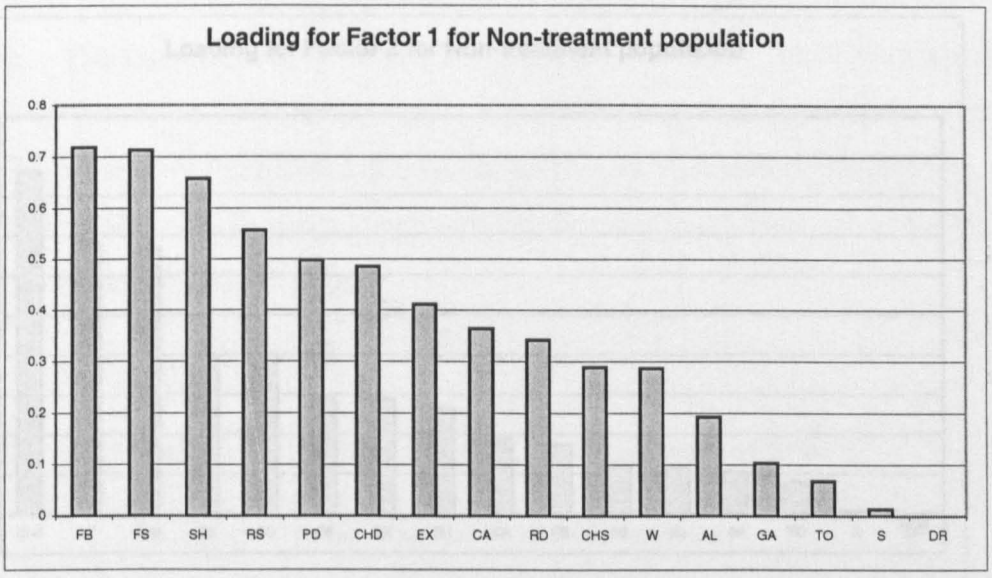
Variables	Factor 1	Factor 2	Factor 3	Factor 4	Communality
Alcohol	0.19275	0.11459	0.32816	0.33632	0.271084
Shopping	**0.65815**	0.26393	0.10175	-0.06991	0.518062
Food bingeing	**0.71885**	0.17369	0.0577	0.09861	0.559966
CH submissive	0.28899	**0.86338**	0.05196	0.09743	0.841137
Nicotine	0.06786	0.07884	0.06672	**0.69865**	0.503386
Gambling	0.10327	0.10388	0.43921	0.11775	0.228233
Food Starving	**0.71293**	0.29171	0.08867	0.11375	0.61416
CH dominant	0.48467	**0.66457**	0.17212	0.17623	0.737251
Drugs	0.00012	-0.02993	0.27565	**0.58907**	0.423881
Sex	0.01347	0.00479	**0.73869**	0.28888	0.62931
Work	0.28732	**0.68402**	0.17811	0.05018	0.584677
Rel dominant	0.34262	0.39907	**0.53177**	0.0406	0.56108
Caffeine	0.36459	0.18817	0.13443	0.34599	0.306118
Prescription drugs	**0.4981**	0.11711	0.10524	0.21918	0.320929
Exercise	0.41208	0.28797	0.26309	-0.08228	0.328728
Rel submissive	**0.55655**	0.40074	0.42051	0.09251	0.655719

Figure 6.2: Non-treatment population. Graph of the communality values



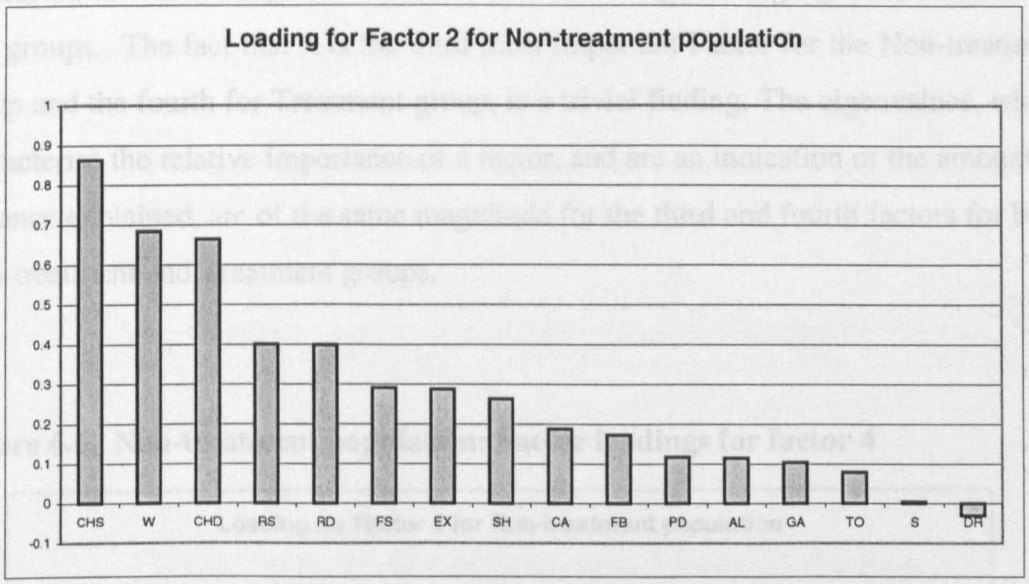
Again the graph of communality values shows that the model explains a large part of the variability for most of the variables. It is of note that the Compulsive helping variables are most, and that Alcohol and Gambling are least, explained, which is in direct correspondence with the 4 Factor Solution for the Treatment population (see figure 5.2 for graph of the communality variables for the Treatment population). It is to be expected that there are slight differences between the Treatment and Non-treatment groups with the communality values and rank orders, but basically the models seem to be consistent at this point.

Figure 6.3. Non-treatment population: Loadings for factor 1



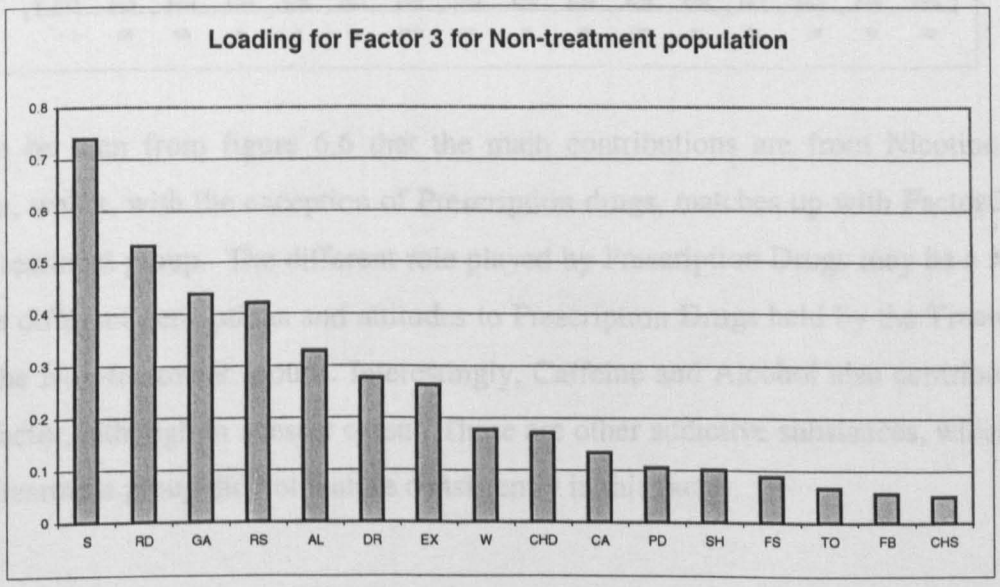
Looking at figure 6.3. it can seen that the main constituents of Factor 1 are both the Food dimensions and Shopping, which corresponds exactly to the 3 variables with the highest correlation with Factor 1 for the Treatment population. So again this factor may represent "Self orientated nurturant behaviours". However, using our 0.5 criterion would lead us also to include Relationship submissive for the Non-treatment group as opposed to Caffeine with the Treatment sample This identifies a slight differences between Non-treatment and Treatment groups. In addition we may also include Prescription drugs as this dimension's factor loading is 0.498.

Figure 6.4. Non-treatment population: Factor loadings for factor 2



Looking at figure 6.4. it can be seen that the main constituents for Factor 2 are Compulsive Helping Submissive, Work, and Compulsive Helping Dominant. This is identical to Factor 2 for the Treatment group, and closely replicates the "Other-orientated nurturant" factor found.

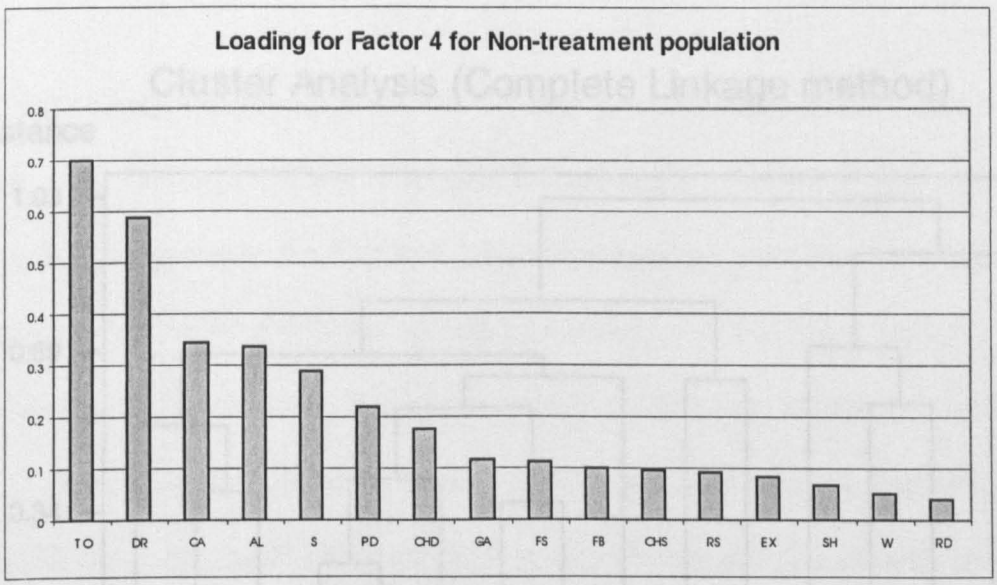
Figure 6.5. Non-treatment population: Factor loadings for factor 3



Looking at figure 6.5 on the previous page it can be seen that the main constituents of factor 3 are Sex and Relationship Dominant. Gambling and Relationship Submissive

are also worth considering as contributing a significant amount to this factor. Together these 4 variables contribute the most, which matches up with the main constituents for Factor 4 for the Treatment group. So essentially these Factors are measuring the same thing, but the constituents are weighted slightly differently in the two groups. The fact that it is the third most important Factor for the Non-treatment group and the fourth for Treatment group, is a trivial finding. The eigenvalues, which characterise the relative importance of a factor, and are an indication of the amount of variance explained, are of the same magnitude for the third and fourth factors for both Non-treatment and Treatment groups.

Figure 6.6. Non-treatment population: Factor loadings for factor 4



It can be seen from figure 6.6 that the main contributions are from Nicotine and Drugs, which, with the exception of Prescription drugs, matches up with Factor 3 for the Treatment group. The different role played by Prescription Drugs may be a result of the different perceptions and attitudes to Prescription Drugs held by the Treatment and the Non-treatment groups. Interestingly, Caffeine and Alcohol also contribute to this factor, although to a lesser extent. These are other addictive substances, which for the Treatment group did not feature consistently in this factor.

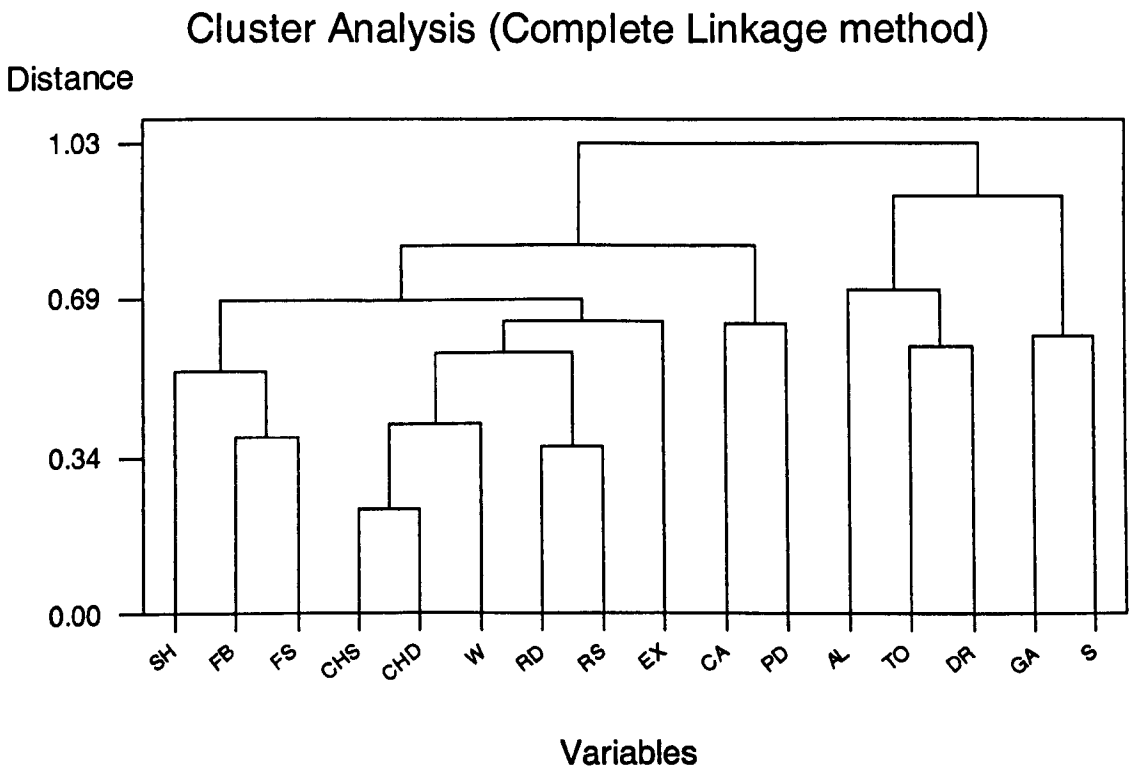
Even though there are differences between the samples there are clusters of behaviours which remain constant, especially the Food scales and Shopping, Drugs,

Nicotine, Gambling and Sex. For the most part, the highest loading variables are consistently found in the equivalent factors in the two groups

6.4.iii. Cluster Analysis for Non-treatment group

The Complete Linkage Algorithm for cluster analysis produced the dendrogram as below.

Figure 6.7: Non-treatment population. Cluster analysis of the SPQ scales.



If the cut off point is set at around 0.60 this partitions the variables into five main groupings:

Cluster 1: Food Bingeing, Food Starving and Shopping

Cluster 2: Compulsive Helping Submissive, Compulsive Helping Dominant, Work, Relationship Dominant, Relationship Submissive and Exercise.

Cluster 3: Caffeine and Prescription Drugs.

Cluster 4: Alcohol, Nicotine and Drugs.

Cluster 5: Gambling and Sex.

The first cluster matches up to Factor 1 ("Self orientated nurturance"), the second cluster with Factor 2 ("Other orientated nurturance"). Cluster 3 and Cluster 4 combined correspond to the Factor 4 ("Sensation seeking hedonism") and Cluster 5 corresponds to Factor 3 ("Power related hedonism"). Whilst these are quite good matches the cluster analysis is not so consistently confirmatory as with the Treatment group. This perhaps indicates some of the differences between the populations. In particular the "additional" factor of Caffeine and Prescription Drugs is an anomaly. Nonetheless, the overall pattern replicates the factor analysis closely in the major divide between the Hedonistic and Nurturant orientations, and in the further sub-division of each of those into two essentially similar clusters. Moreover, the "anomalous" pairing of Caffeine and Prescription Drugs has close links with the Hedonistic group.

6.5. Conclusions

The aim of this study was to investigate patterns of co-variation in a large variety of addictive behaviours in a Non-treatment population to see whether some form of orientation found in the Treatment group would be replicated.

On the basis of the scree plot and the principal components analysis a four factor solution was chosen as the best model to explain the data. Additional evidence for the appropriateness of this number of factors was given by the cluster analysis. The results indicate that the four factor model as found in the Treatment sample closely mirrors the "normal" pattern, but with interesting deviations which may throw light on the pathology of problematic indulgence in the Treatment group. These results have important implications for both the conceptualisation and measurement of addiction.

Characterising the similarities and differences between the Non-treatment and Treatment populations.

The similarity of factor structure in the two populations may indicate that the process. or *motive to use* is similar across the populations. If this is the case it may be said that there are naturally occurring orientations towards these clusters of addictive behaviours that when "used" or engaged in a non addictive way constitute a normal pattern of behaviour. This may perhaps be attributable to personality or temperament. Maybe then some additional factor or combination of factors, such as genetic predisposition, psycho social stressors, or developmental pressures, that then tips an individual user over from a normal pattern of involvement into the compulsive, addicted behavioural realm.

Though there are a number of very notable similarities across the populations there are, however, some interesting differences. One of these differences is in the position of prescription drugs in the factor structure. In the Treatment group that scale is linked to recreational drugs, whilst in the Non-treatment group it constitutes a separate cluster with caffeine, and is linked more directly to the Nurturant orientation. This exception to the rule may be symptomatic of the broader differences in style of use between the Treatment and Non-treatment populations. It is possible that in the Non-treatment population's usage of prescription drugs focuses on pain killers, anti-anxieties and anti-depressants that are used for their prescribed or stated medicinal effects. As prescription drugs falls into the "Self orientated nurturant behaviours" in the Non-treatment group it is likely that this behaviour is used legally in a self soothing way, and not as a means to alter mood in the manner of recreational drugs.

In the Treatment population the use of prescription drugs may be more of a deliberate and aggressive nature, possibly involving the ingestion of more than the recommended dose, obtaining them illegally, or as a substitute for unobtainable recreational drugs. This difference in "style" is, of course, what characterises the difference between addictive and non-addictive use more generally. The different location of prescription drugs in the factor structure highlights the point.

It is of interest to note that Alcohol in the Non-treatment sample does not load on any of the factors. This is possibly to do with how acceptable and pervasive the use of alcohol is, and until usage becomes "alcoholic" or problematic it coexists alongside with many behaviours, without contributing conspicuously to any one factor.

Theoretical ideas which may shed light on the differing patterns of addictive involvement in Non-treatment and Treatment populations.

In the previous chapter Jacob's (1989) idea of two factors having to be present in order for an addiction to develop was mentioned. The first necessary factor is thought to be an abnormal physiological resting state that is either excessively excited, or depressed. The second is an emotional or pathological state which stems from childhood. This helps to shed light on why similar patterns of orientations are found in Non-treatment and Treatment populations, as it could be argued that without pathological or extreme levels of the predisposition of hyper and hypo arousal what may be produced is a normal involvement or tendency to be more involved in certain addictive areas.

It is possible that *people in general* can be characterised as experiencing either of these arousal states but not in an extreme way. Contributing evidence for this stems from studies which have found that those who like to engage in extreme sports are more likely to be extroverted and have higher levels of external locus of control (Hughes & Coakley, 1991). It is thought that these characteristics contribute to the attraction of these high risk pursuits. If this is the case, these naturally occurring levels may then determine what types of activities are sought out. For instance for those who are already aroused to some degree, Gambling or Drug taking may be too stimulating, so more comforting behaviours which soothe the slightly elevated arousal state, may be a more natural preference. So a person with a hypertensive arousal state may find relief in substances or behaviours which have a resultant calming affect such as exercise with the resulting endorphins burning off excess energy or anxiety. A person with a depressed physiological arousal level may find relief in a stimulating

and exciting activity such as gambling, thus temporarily eliminating their boredom and possible depression. In this way activities are determined by the naturally occurring arousal levels. With this goal achieved, the resting state is altered and a more comfortable homeostatic state is found.

The presence of an extreme level of arousal, whether over or under aroused, increases the likelihood of an addiction developing. According to the theory, an additional set of environmental conditions are required, leading to the development of a certain psychological "state", before addictions are formed. It is this additional experiential factor, that affects the sense of selfhood, that maybe the necessary prerequisite that pushes this natural orientation from the normal range into the range of active addictive usage.

A further possibility is that the orientations can be understood in terms of Social learning theory, as mentioned in the previously. If this was the case then an inclination towards specific clusters of behaviours could be seen as a cultural and a behavioural phenomenon, with the orientations forming part of a learnt behavioural repertoire, influenced by parental figures, peers etc. In this case, it is feasible that the generalised patterns of use apparent in both of the populations, is a consequence of culture, personality and learning etc., but that in the Treatment population these naturally occurring inclinations are taken to an extreme. Hence the real difference is to do with degree of psychological or emotional significance and involvement which produces the person with characteristic addictive problems. Of course, the "physiological" and social learning theories may be seen as complementary to one another, in providing a basis for the orientations.

As differences were noted in chapter three regarding gender differences in various addictive behaviours, (e.g. the dominance of females suffering from eating disorders Andersen and Holman, 1997), in the next chapter differences between the two populations according to gender are explored.

Chapter Seven

Investigation of gender differences in addictive orientation

7.1. Introduction

For many years most studies of drug and alcohol addiction used only male subjects, as it was assumed that these findings would also apply to women (Miller, 1997). However, more recent studies comparing women and men have found significant gender differences in epidemiology, clinical presentation, pharmacology and socio-cultural aspects of addiction (op cit.). It is, therefore, important in the present instance to investigate differences in addictive orientation according to gender, in both of the populations investigated so far. First a further look will be taken at the kind of gender differences which have been found previously in those with drug, alcohol and eating problems and in so doing expand on the differences that were noted in chapter three.

Research has shown that male and female substance abusers report different problem histories and pathways (Hodgins, El-Guebaly, Addington, 1997). For example in a study by Weiss, Martinez-Raga, Griffin, Greenfield & Hufford (1997), of cocaine treatments, males were reported as having an increased incidence of anti-social personality disorder whereas females had significantly more severe family and social problems.

Related findings were revealed in a study by Luthar, Cushing & Rounsaville, (1996) who looked at gender differences among opioid addicts. Here, results indicated that female addicts had significantly lower levels of conduct problems and higher levels of

"internalising" problems during childhood, while males had significantly higher child conduct problems. From these findings it was suggested that opioid addiction for males may be more related to conduct problems in childhood and for females more related to the internalisation of problems during childhood.

Linking to this, it is well documented that, in general, boys and men are reported as exhibiting more delinquency than women and girls (Mears, Ploeger & Warr, 1998). In order to clarify this there has been a diverse range of explanations for the pervasive finding of greater risk taking among young men. For example the influence of social roles (Berger, 1989), the impact of societal structure and associated patterns of family interaction (Grasmick, Hagan, Blackwell, & Arneklev, 1996) have all been used to discuss these differences found between young men and women. As these are general, pervasive gender differences it is reasonable to propose that they may also impact the choice of addictive behaviour from initial experimentation through to pathological involvement.

There is evidence which corroborates this position, first, with regards to alcohol involvement. The results from a general population survey of over 2,500 men and women looking at factors associated with alcoholism indicated that being male, engaging in serious antisocial behaviour, and having a family history of problem drinking all increased the probability of alcoholism (Lewis & Bucholz, 1991). In conjunction to this in a survey of over 22,000 participants classified as current drinkers, it was found that the average estimated alcohol intake of males exceeded that of females by a factor of 2 (Dawson, 1996).

Eating disorders

Turning now to eating disorders the most remarkable difference between men and women is that men are reported as representing only 10% of eating disorder cases (Andersen & Holman, 1997). However, it is thought that there is an increase in incidence in young adult males which is likely to continue (Hartley, 1996). In addition to this a piece of epidemiological research looking at newly diagnosed cases of anorexia and bulimia between 1988 and 1994 fully emphasises the differences between men and women. The relative risks of females to males were calculated as 40:1 for anorexia nervosa and 47:1 for bulimia nervosa (Turnbull, Ward, Treasure, & Jick 1996).

Looking at evidence from the Non-treatment population sheds light on the possible origin of such findings. In a study by Shapiro, Newcomb & Loeb (1997) it was shown that societal directives to be thin are perceived among children, and that the discontentment with body and behaviours, associated with eating disorders, begins before adolescence, and is most prevalent in females. It was concluded from this study that components that may lead to the development of eating disorders or dis-regulated or restrained eating in adolescents may be both internalised and expressed at a very early age (op cit.). It seems then that, early in socio-cultural development of children, gender seems to be an influential factor in the selection of ideal body size and in determining body satisfaction.

It may be the case that due to these influences females are in a way "prepared" or sensitised to be overly concerned with body image and are thus channelled into a range of sub-clinical eating and food related attitudes. In one study investigating the

attitudes of young men and women (Tiggemann, Winefield, Winefield, & Goldney, 1994) this idea was partially supported, as it was shown that women tend to view themselves as more overweight than did men regardless of their true weight.

A further study that supports this position investigated the relationship between gender differences in eating patterns among college students (Hesse-Biber, 1989). Results indicated that a considerable number of college women but few men showed *behavioural* patterns associated with an eating disorder (anorexia or bulimia). These findings implied that the eating disturbances of these women may be eating problems which only partially resemble clinical eating disorders, as although the female subjects displayed the behavioural symptoms associated with anorexia and bulimia they exhibited few of the constellation of psychological traits associated with these disorders (op cit.).

Stephenson et al's (1995) Factor analytic study

The findings of this study indicated that even though there were many similarities between men and women, there were differences in factor structure. This was taken to indicate that there may be differences in the way that men and women use and are involved in addictive behaviour. The main difference was that Alcohol formed a clear component of the Hedonism factor in the female sample. In this study it was also indicated that women were as Hedonistic as men, but were more Nurturant than men regardless of diagnosis.

Hypothesis generation

These previous findings have important implications for the comprehension and treatment of addicts, and given the evidence it is appropriate to consider what gender differences may be predicted.

First, it is predicted that there will be differences between the male and female Treatment populations' factorial structure, perhaps with the most pertinent and notable differences observed between the Sensation Seeking Hedonism factor (drug) and the Self Orientated Nurturance factor (food). With males having perhaps a better defined Sensation Seeking Hedonism factor due to the general findings of greater risk taking among young men (Mears, Ploeger & Warr, 1998). So here there may be a difference in how the hedonistic behaviours cluster together, perhaps reflecting the link between problems of conduct in males and the internalisation of problems in females (Luthar, Cushing & Rounsaville, 1996). In support of this expectation Orford (1985) has stated that excessive gambling and sexuality, alcoholism and drug addiction have commonly been thought to be addictions mainly in the male domain. An additional difference may be the role of alcohol as in Stephenson et al's (1995) study it was found that alcohol played a more "Hedonistic" role for women and a more "Nurturant" role for men, and this may be replicated in this study.

It seems from the literature that the dominance of eating disorders in females may lead to a stronger Self Orientated Nurturance factor, in comparison to the males. Especially with the relative risks of females to males being calculated as 40:1 for anorexia nervosa and 47:1 for bulimia nervosa (Turnbull et al, 1996).

Second, it is predicted that there will be differences between the male and female Non-treatment factorial structure, and, as in the Treatment population, with the most pertinent differences observed between the Sensation Seeking Hedonism factor (drugs) and the Self Orientated Nurturance factor (food). Perhaps with similar differences as found in the Treatment population being observed but to a less marked extent. For instance, concerns with weight and body size are better represented by normal females than males, and behaviours, associated with eating disorders, are more prevalent in normal females (Shapiro et al, 1997).

7.2. Method

The analysis will be conducted in three parts. First some preliminary statistics are calculated for the Treatment sample to look at general differences in how males and females score on the individual scales. After this a factor analysis is conducted to see whether there are differences in "addictive orientation" in male and female Treatment populations.

Second, in the same way as for the Treatment sample, preliminary statistics are calculated for the Non-treatment sample to look at general differences in how males and females score on the individual scales. After this a factor analysis is conducted to investigate whether there are differences in addictive orientation in male and females in this population, and whether these patterns are similar to or different from the patterns found in the Treatment population.

Finally a Manova on the combined set of data is performed to see whether there are systematic differences between gender and Treatment/Non-treatment status.

7.3. Results

7.3.i. Factor analysis in the Treatment population. Gender differences.

First of all the means and standard deviations were calculated for males and females in the Treatment population, (table 7.1). Following this two sample t-tests were calculated to establish whether males and females score differently from one another on the individual scales of the SPQ.

Table 7.1: Treatment population. Means, medians, standard deviations and t-values for males and females

Addictive Behaviour	Patient Sex	Mean	Median	Standard Deviation	t-value	p
Alcohol	F	26.79	28.59	18.06	-1.87	< 0.06 (ns)
	M	29.55	34.0	16.18		
Shopping	F	17.05	14.5	13.10	7.48	< 0.001
	M	9.44	6.0	10.26		
Food bingeing	F	22.56	20.0	17.57	10.75	< 0.001
	M	8.84	5.0	11.13		
Comp help submissive	F	24.83	25.0	11.87	3.91	< 0.001
	M	21.03	20.0	10.45		
Nicotine	F	24.29	30.0	18.87	0.19	ns
	M	23.99	29.0	16.93		
Gambling	F	3.63	0.0	8.37	-5.83	< 0.001
	M	8.94	3.0	12.60		
Food starving	F	17.99	15.0	14.65	10.04	< 0.001
	M	7.57	5.0	8.36		
Comp help dominant	F	20.45	19.0	12.45	4.08	< 0.001
	M	16.38	15.0	10.68		
Drugs	F	16.79	4.0	20.08	-2.91	< 0.01
	M	21.89	21.0	20.79		
Sex	F	7.69	2.0	11.59	-4.54	< 0.001
	M	12.41	8.0	12.65		
Work	F	17.53	16.0	12.56	0.40	ns
	M	17.12	16.0	11.28		
Relationships dominant	F	14.41	13.0	11.62	-2.53	< 0.01
	M	17.02	15.0	12.45		
Caffeine	F	6.80	2.5	9.97	2.70	< 0.01
	M	4.71	1.0	7.76		
Prescription drugs	F	12.65	4.5	15.92	0.60	ns
	M	11.84	4.0	15.52		
Exercise	F	12.07	8.0	12.45	1.44	ns
	M	10.63	8.0	10.04		
Relationships submissive	F	17.23	15.0	11.61	2.62	< 0.01
	M	14.74	13.0	10.42		

In general males have higher mean values for Gambling, Drugs, Sex and the "dominant" Relationship dimension. However when looking at the t-tests it can be seen that the difference between males and females on the Alcohol dimension doesn't quite reach significance ($p < 0.06$). The other behaviours, Gambling, Drugs, and Sex are shown to be highly significantly different from the females scores, in all cases $p< 0.001$ except for the Drug and the Relationship dominant dimension where the p value was found to be $p < 0.01$.

Females on the other hand score much more highly on the Food dimensions; Food bingeing (Females = 22.56, Males = 8.8, Shopping (Females = 17.05, Males = 9.44), the Compulsive Helping dimensions, and Relationships submissive. When looking at the t-tests it can be seen that females do score significantly higher than males with Shopping, both the Food dimensions and both the compulsive helping dimensions having a p value of < 0.001 Females were also found to be significantly higher than males on the Caffeine and relationship submissive dimensions ($p < 0.01$).

No significant differences were found in the way that male and female addicts score on the following dimensions. Nicotine, Work, Prescription drugs and Exercise.

Distinctions found between males and females in the Treatment sample

The factor analysis was repeated for men and women and the analysis suggested a four factor solution in both cases. The factor loadings and the communality values given in tables 7.2. and 7.3 show that these models explain most of the variability for the variables except, as seen before, the Gambling, Exercise and Alcohol scales. These findings support the findings from Stephenson et al's (1995) study where the

role of Alcohol was found to be different in men and women, a Hedonistic behaviour for woman and more of a Nurturant role for men.

Table 7.2: Treatment population. Rotated factor loadings for the female Treatment population

			Female	Treatment			
FACTOR1	VARIABLES	FACTOR2	VARIABLES	FACTOR3	VARIABLES	FACTOR4	VARIABLES
0.74495	**Drugs**	0.9095	**Compulsive helping submissive**	0.84991	**Food starving**	0.70712	**Relationship submissive**
0.7168	**Prescription drugs**	0.77222	**Compulsive helping dominant**	0.60196	**Food bingeing**	0.51482	**Relationship dominant**
0.56402	**Nicotine**	0.69585	**Work**	0.59677	**Exercise**	0.51425	**Sex**
0.49713	**Gambling**	0.36506	Relationship dominant	0.4368	**Caffeine**	0.47216	**Shopping**
0.48532	**Alcohol**	0.23265	Relationship submissive	0.36272	Shopping	0.4164	Food bingeing

Table 7.3: Treatment population. Rotated factor loadings for the male Treatment population

			Male	Treatment			
FACTOR1	VARIABLES	FACTOR2	VARIABLES	FACTOR3	VARIABLES	FACTOR4	VARIABLES
0.79893	**Food bingeing**	0.81135	**Compulsive helping submissve**	0.70553	**Relationship dominant**	0.69177	**Prescription drugs**
0.65037	**Caffeine**	0.67224	**Work**	0.66418	**Relationship submissive**	0.68584	**Drugs**
0.62628	**Food starving**	0.62559	**Compulsive helping dominant**	0.57409	**Sex**	0.56211	**Nicotine**
0.50868	**Shopping**	0.35752	Alcohol	0.46507	Shopping	0.21316	**Sex**

Factor 1

As in the previous "Treatment" analysis (chapter five) the components of this factor for the male Treatment group are the behaviours which are associated with food intake and body image etc. these being both the Food dimensions, Shopping and Caffeine. This result matches perfectly with the cumulative analysis of the Treatment group. This however is not the case for the females as the first factor includes Drugs, Nicotine, Gambling and Alcohol, while the Food disorder dimensions are included in Factor 3.

Factor 2

This factor for both males and females comprises of both the Compulsive helping dimensions and Work.

Factor 3

The composition of this factor for the female sample can be seen as a cluster of addictive areas that are associated predominately with involvement or concern with eating regulation and body size/shape. For males this factor is made up of both the Relationship dimensions and Sex.

Factor 4

For the male sample this factor contains Prescription drugs, Drugs and Nicotine. For females the factor is made up of both the Relationship dimensions and Sex.

7.4. Factor analysis in the non-Treatment population. Gender differences.

First of all the means and standard deviations were calculated for males and females, (table 7.4). Following this two sample t-tests were calculated to see whether males and females score significantly different from one another on the individual scales of the SPQ.

Table 7.4: Non-Treatment population. Means, medians, standard deviations and t-values for males and females

Variable	Patient Sex	Mean	Median	Standard Deviation	t-scores	p
Alcohol	F	14.24	12.0	11.81	-3.83	<0.001
	M	18.59	17.0	12.94		
Shopping	F	14.13	13	10.17	8.32	<0.001
	M	7.49	5	7.73		
Food bingeing	F	13.68	11	11.25	6.41	<0.001
	M	8.15	6	8.17		
Comp help sub	F	20.28	21	10.59	1.95	<0.05
	M	18.52	18	9.48		
Nicotine	F	11.52	0	16.43	-1.85	<0.07(ns)
	M	14.40	2	17.52		
Gambling	F	1.57	0	3.74	-4.40	<0.001
	M	4.09	0	7.51		
Food starving	F	9.45	6	10.21	5.27	<0.001
	M	5.56	4	6.43		
Comp help dom	F	14.77	14	10.05	2.55	<0.01
	M	12.57	12	9.11		
Drugs	F	3.11	0	7.63	-5.05	<0.001
	M	8.12	1	12.58		
Sex	F	3.07	0	5.68	-6.72	<0.001
	M	8.61	4	10.69		
Work	F	13.84	13	9.87	-0.77	<0.05
	M	14.50	14	9.15		
Relationships dom	F	8.88	6	8.57	-1.60	ns
	M	10.31	7	10.55		
Caffeine	F	3.10	1	5.42	-0.15	ns
	M	3.17	1	4.64		
Prescription drugs	F	3.04	0	6.16	0.47	ns
	M	2.77	0	6.46		
Exercise	F	9.97	7	9.47	0.03	ns
	M	9.95	8	8.11		
Relationship sub	F	9.71	8	8.95	1.27	ns
	M	8.74	7	7.97		

In general males have higher mean values for Nicotine, Work, Alcohol, Gambling, Drugs, Sex and Relationship dominant. When looking at the results of the t-tests however it can be seen that males are significantly higher than females on the following dimensions Alcohol, Gambling, Drugs, Sex (all at $p < 0.001$) and Work ($p< 0.05$).

Females on the other hand have higher mean values for Shopping, Food bingeing, Food starving, both Compulsive helping dimensions and Relationship submissive.

Again when looking at the significance of these differences Shopping ($p < 0.001$) both the food dimensions ($p<0.001$) Compulsive helping submissive ($p < 0.05$) Compulsive helping dominant ($p < 0.01$) are found to be significantly different from the males scores. Even though females score more highly on Relationship submissive this failed to reach significance. The scores between males and females on the following dimensions were also found not be significantly different Nicotine, Relationships dominant, Caffeine, Prescription Drugs and Exercise.

Comparison of the gender differences found in the Non-treatment and Treatment population

If the Non-treatment means are compared to the Treatment means it can be seen that in general across the behaviours that the Treatment group achieve higher scores than the Non-treatment group. However, in particular Drugs and Prescription drugs are nearly triple in the Treatment population for both males and females.

Drugs Female Treatment = 16.7, Female Non-treatment = 3.1, Male Treatment = 21.8, Male Non-treatment = 8.1.

Prescription drugs Female Treatment = 12.6, Female Non-treatment = 3.0, Male Treatment = 11.8, Male Non-treatment = 2.7.

Substantial differences between the females in the two samples can be seen in the Food dimensions

Food bingeing Female Treatment = 22.5, Female Non-treatment = 14.2, Male Treatment = 8.8, Male Non-treatment = 8.1.

Food Starving Female Treatment = 17.9, Female Non-treatment = 9.4, Male Treatment = 7.5, Male Non-treatment = 5.5.

Of interest was the similarity in the location of the gender differences between the Treatment and Non-treatment populations. With males scoring higher than females on Alcohol, Drugs, Gambling, Relationship dominant and Sex. Females on the other hand scored higher than the males on Prescription drugs, Shopping, both Food dimensions, both the Compulsive helping dimensions and Relationship submissive.

As differences in factorial structure were found between men and women in the Treatment population it was thought that the factor structure may also vary in the Non-treatment population. So the factor analysis was repeated and the analysis again suggested a four factor solution in the case of both men and women. Having accepted a four factor model as the most suitable one for this data, the obtained results from the analysis of the male and female samples are now detailed and comparisons drawn with the previous analysis.

Table 7.5: Non-Treatment population. Rotated factor loadings for the female Non-treatment population

			Female	Non-treatment			
FACTOR1	**VARIABLES**	**FACTOR2**	**VARIABLES**	**FACTOR3**	**VARIABLES**	**FACTOR4**	**VARIABLES**
0.88337	**Food starving**	0.86037	**Compulsive helping submissive**	0.61653	**Shopping**	0.74136	**Nicotine**
0.57519	**Exercise**	0.69816	**Compulsive helping dominant**	0.58954	**Relationship submissive**	0.45562	**Drugs**
0.55343	**Food bingeing**	0.67711	**Work**	0.54908	**Relationship dominant**	0.35544	Alcohol
0.43041	Prescription drugs	0.38994	Relationship submissive	0.41341	Compulsive helping dominant	0.28151	Sex
0.41238	Relationship submissive	0.36091	Relationship dominant	0.32536	Alcohol	0.26327	Caffeine

Table 7.6: Non-treatment population. Rotated factor loadings for the male Non-treatment population

Male Non-treatment							
FACTOR1	VARIABLES	FACTOR2	VARIABLES	FACTOR3	VARIABLES	FACTOR4	VARIABLES
0.75658	**Shopping**	0.82285	**Compulsive helping submissive**	0.81751	**Sex**	0.72437	**Nicotine**
0.7073	**Food bingeing**	0.72176	**Work**	0.5722	**Relationship dominant**	0.64135	**Drugs**
0.57783	**Prescription drugs**	0.63443	**Compulsive helping dominant**	0.49966	**Relationship submissive**	0.44798	Caffeine
0.5497	**Food starving**	0.47774	Relationship dominant	0.40137	Exercise	0.33162	Alcohol
0.4684	**Caffeine**	0.3959	Relationship submissive	0.38096	Gambling	0.32528	Sex
0.45052	CHD	0.38069	Food starving	0.36364	Alcohol	0.26467	Prescription drugs

If 0.5 is used as the threshold for the inclusion of each variable into a factor, a number of the variables do not reach this threshold and have relatively small loadings, such as Sex, Alcohol, Gambling, Caffeine and Prescription drugs in the female sample. However in this sample some of the groupings reflect the analysis from the Treatment sample. For example both the Food disorder dimensions appear with Exercise, but Shopping in this case is grouped with the Relationship dimensions.

Comparing the factors from the Treatment and Non-treatment populations, across gender, there is a correspondence between Factors 2 for the four groups (male - female and Non-treatment - Treatment), this being the presence of the Compulsive helping factors and Work. There is also a correspondence between Factor 4 of the

Male Non-treatment and Female Non-treatment groups, with Nicotine and Drugs being present in both.

There is a correspondence in Factor 1 between the two male groups with both the Food dimensions and Shopping being present. In the male Treatment group this cluster was also joined by Caffeine and in the Non-treatment male group the cluster was joined by Prescription drugs. Again comparing the two male groups there is a high correspondence between Factors 3 with both the Relationship dimensions and Sex clustering together.

7.3.iii. MANOVA. Combined Analysis

In order to obtain a more precise evaluation of the interaction between gender and Treatment/Non-treatment status, it was decided to test formally whether there is a difference between Treatment group (i.e. addicts) and gender, using multivariate analysis of variance. To perform this multivariate analysis of variance it was necessary to combine the two samples (Non-treatment and Treatment), fit a factor model to the combined data and then to formally examine the effects of treatment status and gender. In the combined data there were 1051 observations, each one classified as Male or Female and as Treatment or Non-treatment. Performing the Factor Analysis in the usual manner the following loadings were produced (see table 7.7. on the next page).

Table 7.7: Combined populations. Rotated factor loadings

VARIABLES	FACTOR1	FACTOR2	FACTOR3	FACTOR4	COMMUNALITY
Alcohol	0.01437	0.21948	0.43747	0.19594	0.278151
Shopping	**0.57651**	0.23025	0.04858	0.24208	0.446345
Food Bingeing	**0.80598**	0.05603	-0.00572	0.03389	0.653932
Compulsive helping submissive	0.21659	**0.91799**	0.09433	0.03607	0.899809
Nicotine	0.07525	0.08464	**0.61585**	0.07562	0.397813
Gambling	0.05147	0.07149	0.30802	0.37613	0.24411
Food starving	**0.7848**	0.19629	0.08137	-0.01061	0.66118
Compulsive helping dominant	0.38659	**0.70116**	0.18834	0.25911	0.743685
Drugs	0.01066	-0.10067	**0.76842**	0.20307	0.641959
Sex	0.07284	0.03836	0.36002	**0.57774**	0.470172
Work	0.24457	**0.65622**	0.0474	0.22587	0.5437
Relationship dominant	0.20568	0.35836	0.14844	**0.68415**	0.660828
Caffeine	**0.46845**	0.17662	0.26988	0.12527	0.339168
Prescription drugs	0.17356	0.09968	**0.63836**	0.15139	0.470479
Exercise	0.39988	0.25504	0.03476	0.14735	0.247864
Relationship submissive	0.43227	0.3392	0.27267	**0.51272**	0.639144

It was anticipated that the same four factors would emerge as when the analysis was done separately. This is in fact the case with the factors main contributors listed in order below:

Factor 1: **Both Food dimensions, Shopping and Caffeine.**

Factor 2: **Both Compulsive Helping dimensions and Work.**

Factor 3: **Drugs, Prescription drugs, Nicotine and Alcohol.**

Factor 4: **Both Relationships dimensions and Sex.**

The four factors correspond to the factors which emerged before the merger the two populations. The first factor explains nearly 16% of the total variance, the second factor 14% the third, 12.6% and factor 4 explains 6%. Total =

Manova to test the effect of classification and gender.

This particular analysis can be considered as testing four different classifications: Male Treatment, Female Treatment, Male Non-treatment and Female Non-treatment. However, this is an unbalanced design as there are a different number of observations for each "treatment", and so the Sums of Squares needed in the analysis are constructed in two different ways to ensure correct inference. The two methods used are:

Type 1 SS – lists the Sum of Squares in the order they were entered into the model

Type 2 SS – lists the Sum of Squares of each variable as if they were entered last into the model

Both these methods produced consistent answers and so no further reference is made to method of calculation. There are four "treatments" and so three contrasts are

constructed to test the differences. The model we are testing is the two factorial experiment with interaction.

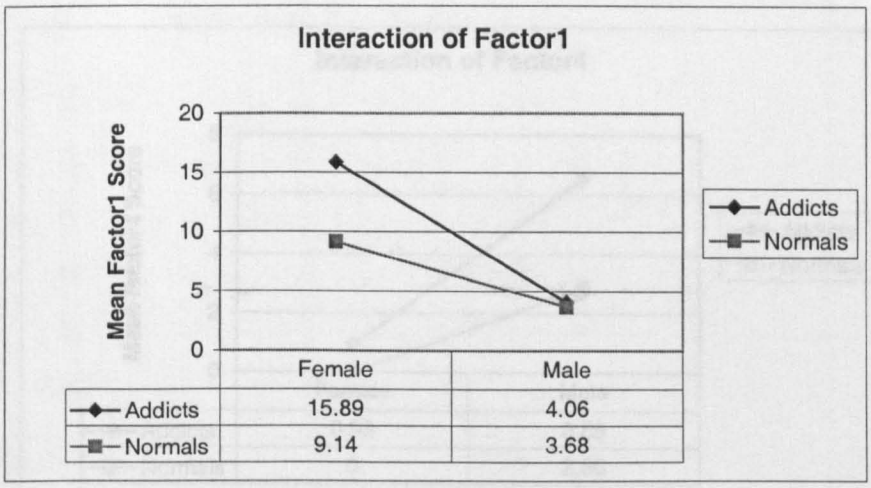
In the multivariate sense (testing all four factors together) the following test statistics were obtained:

Table 7.8. Wilk's Lambda test results for significance of gender, Treatment/Non- treatment and interaction on factor scores.

Effect	Wilk's Lambda	F	p-value
GENDER	0.7738	76.27	< 0.001
TREATMENT/NON TREATMENT	0.7656	79.90	< 0.001
INTERACTION	0.9654	9.34	< 0.001

These statistics indicate that all three terms are highly significant. Clearly we would expect GENDER and TREATMENT/NON-TREATMENT to affect the four factor scores, but what is not so expected is the significance of the interaction or GENDER*TREATMENT/NON-TREATMENT term. Without an interaction it would be expected that the differences between male and female Treatments be the same as the differences between male and female Non-treatment group, but the test suggests that this is not the case. This either means the difference between Men and Women is greater for the Treatment group than the Non-treatment group or vice-versa. To investigate this interesting interaction further, a univariate Anova was conducted on each factor separately. Only Factor 1 (F=26.66) proved to be highly significant but Factor 4 also produced a reasonably high F-statistic with a significance level of 11%. These interactions are best represented graphically as follows:

Figure 7.1: Graph illustrating the interaction of Factor 1 (Self Orientated Nurturance "food")

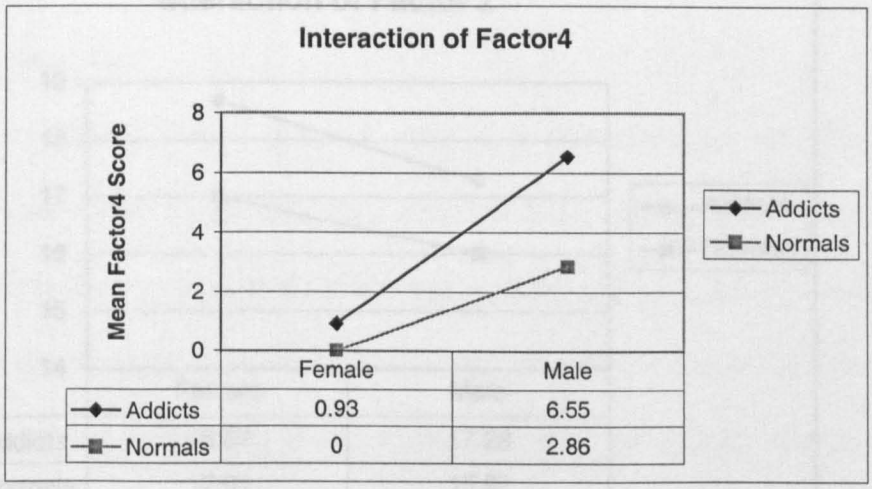


	Female	Male
Addicts	15.89	4.06
Normals	9.14	3.68

If there was no interaction for Factor 1 then we would expect these lines to be parallel. However we can see from the graph how the two male scores do not differ, whereas the Treatment females show a hefty increase from the Non-treatment baseline. Non-treatment females, it should also be observed, score much more highly than the Non-treatment men. It appears that with pathological involvement the female addicts build upon an already high baseline level of involvement in this cluster of behaviours.

Figure 7.2: Graph illustrating the interaction of Factor 4 (Power related hedonism "Relationships")

Factor 4



Here we can observe the same pattern, but in reverse. Treatment and Non-treatment females differ little on this factor, whereas men have a high baseline level, which sharply increases in the addicted population. Again, we may suggest that an existing baseline "problem", in this case concerning the exploitative use of power, may become acutely problematic for that gender in particular.

The results of the other two factors can be presented just in terms of Type or Gender, as there is no significant added effect (interaction) See figures 7.3 and 7.4. on the next page.

Figure 7.3: Graph illustrating the interaction of Factor 2 (Other Orientated Nurturance "Compulsive helping")

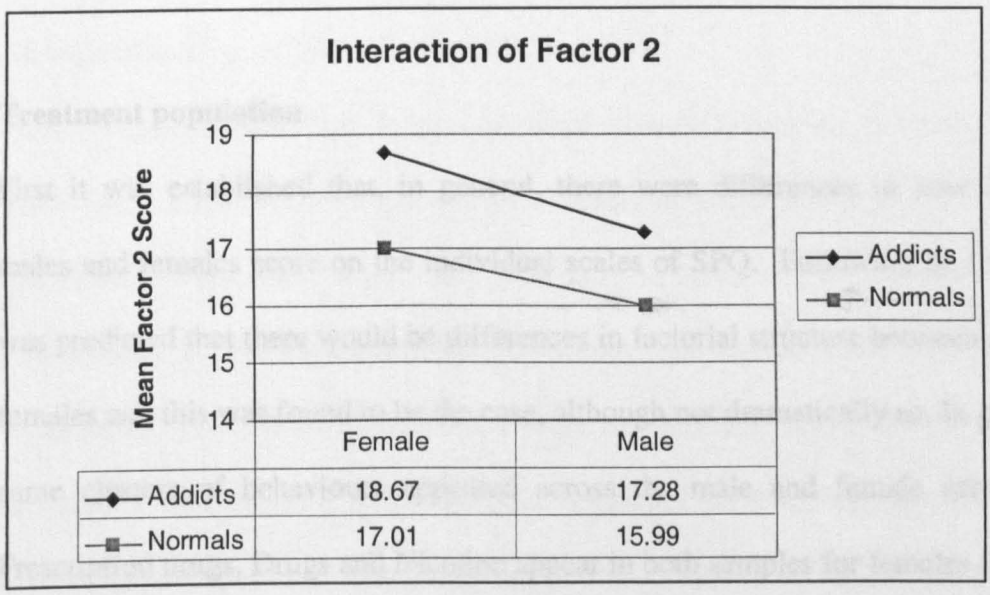
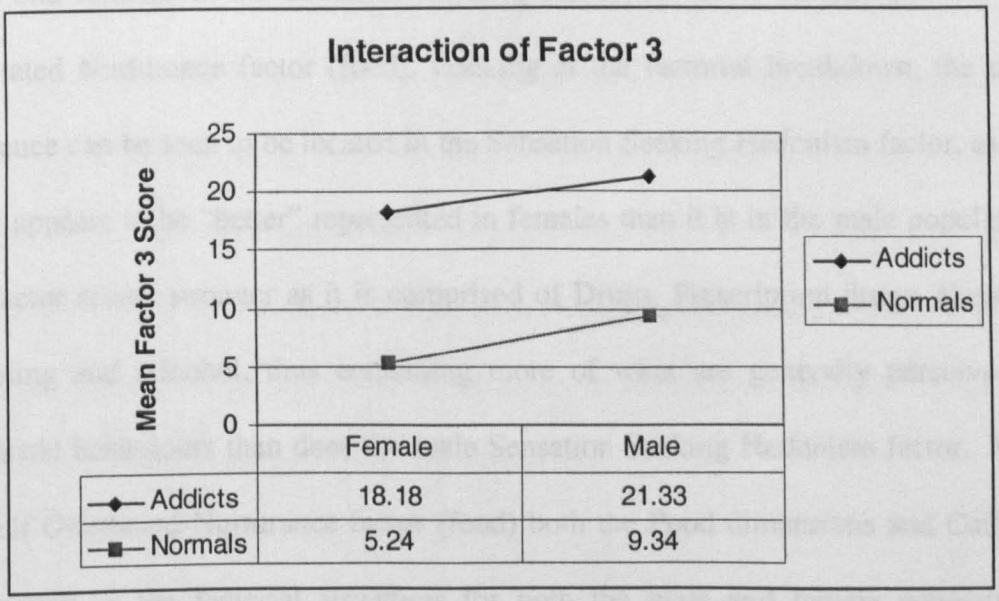


Figure 7.4: Graph illustrating the interaction of Factor 3 (Sensation seeking hedonism "Drugs")



7.4. Conclusions

Exploring the differences between the populations

Treatment population

First it was established that, in general, there were differences in how Treatment males and females score on the individual scales of SPQ. Following on from this it was predicted that there would be differences in factorial structure between males and females and this was found to be the case, although not dramatically so. In general the same clusters of behaviours appeared across the male and female samples (e.g. Prescription drugs, Drugs and Nicotine appear in both samples for females in Factor 1 and for males in Factor 4).

However it was also predicted that the most notable differences would be between males and females in the Sensation Seeking Hedonism factor (drugs) and the Self Orientated Nurturance factor (food). Looking at the factorial breakdown, the main difference can be seen to be located in the Sensation Seeking Hedonism factor, as this factor appears to be "better" represented in females than it is in the male population. The factor seems stronger as it is comprised of Drugs, Prescription drugs, Nicotine, Gambling and Alcohol, thus containing more of what are generally perceived as hedonistic behaviours than does the male Sensation Seeking Hedonism factor. With the Self Orientated Nurturance factor (food) both the Food dimensions and Caffeine are present in the factorial structures for both the male and female populations. However this constellation of behaviours is joined by Exercise in the female sample,

whilst it is joined by Shopping in the male sample, so comparing the male and female samples on this, it can be seen that they are actually quite similar.

Non-Treatment population

First it was established that, in general, there were differences in how Non-treatment males and females score on the individual scales of SPQ. Following on from this it was predicted that there would be a difference in factorial structure between males and females in the Non-treatment population, and in the same way as for the Treatment population this prediction is only partially supported. Even though slight differences were found it was noted that in general the same clusters of behaviours appeared across the male and female samples (e.g. both forms of compulsive helping and work appear in both samples for males and females in Factor 3).

It was also predicted that the most notable differences would be between males and females in the Sensation Seeking Hedonism factor (drug) and the Self Orientated Nurturance factor (food). Looking at the factorial breakdown the main difference can be seen to be located in the Self Orientated Nurturance factor (food), as this factor contains additional behaviours in the male population, and so is comprised of both the Food dimensions (same as the females) Shopping and Prescription drugs. With the Sensation Seeking Hedonism factor (Drugs) this factor contains the same behaviours in both the populations namely Nicotine and Drugs.

In terms of correspondence between the Non-treatment and Treatment populations it was seen that even though differences were found, in general there was a high degree of similarity in terms of the factorial composition. The factor that was most similar

was Factor 2 (Other Orientated Nurturance), but of course women score more highly than men on the factor.

MANOVA on the combined data set

Combining the data from Treatment and Non-treatment populations, it was found that differences in factor scores for gender depend on Treatment status. What was found was that the main effects of gender, and Treatment/Non-treatment status, and of the interaction were highly significant ($p < .001$). Without this interaction it would be expected that the differences between males and females from the Treatment group to be the same as the differences between the males and females from the Non-treatment group. This was not the case. In investigating the interaction further it was found that only the interaction for the Self Orientated Nurturance factor (food) proved to be highly significant. Looking at the interaction graphically it was seen that Treatment women score much higher than would be expected from the Non-treatment baseline score. A similar effect in reverse was noted with respect to Factor 4 (Exploitative Relationships), with male scores rising disproportionately in the Treatment group. It is suggested that a prevailing problem in each case (Food for women, and Power for men) is reaching pathological proportions predominantly in the respective gender group.

Similarities between males and females

Though there are differences it must be pointed out that across the four samples (male Treatment, female Treatment, male Non-treatment, female Non-treatment) there are a number of stable dimensions which cluster together.

Substance factor: Drugs, Nicotine and Prescription drugs.

Relationship factor: Relationship dimensions, and Sex.

Food factor: Food bingeing, Food starving and Caffeine.

Helping factor: Compulsive Helping dimensions and Work.

Another way of looking at the similarities and the differences between these populations is to compare Non-treatment females with Treatment females and then to compare Non-treatment males with Treatment males. It can be seen below that even though there are differences in the factorial structures, there are a number of areas which cluster together across the samples.

Clusters of addictive behaviours which appear in both the female samples

Substance factor: Drugs, Nicotine and Alcohol (doesn't reach threshold for inclusion but this behaviour came closest to contributing to this factor).

Relationship factor: Relationship dimensions, and Shopping.

Food factor: Food bingeing, Food starving and Exercise.

Helping factor: Compulsive Helping dimensions and Work.

Clusters of addictive behaviours which appear in both the male samples

Substance factor: Drugs and Nicotine.

Relationship factor: Relationship dimensions and Sex.

Food factor: Food bingeing, Food starving, Shopping and Caffeine.

Helping factor: Compulsive helping dimensions and Work.

Brief overview of how the results will be further discussed

To make sense of the similarities and differences found between the populations each factor will be taken in turn and the Non-treatment factorial compositions will be examined to see whether a meaningful rationale for the various clusters of behaviours can be established. This is because these behaviours are used routinely by people who are not suffering from addiction, and it seems logical to propose that there may be a common drive or function that underlies the clustering of these areas.

This achieved, the Non-treatment structure may be seen to form a base line of addictive orientation, or in other words, areas which are commonly used together in a non-addicted fashion. If attention is paid to these "basic core structures", this enables the characteristic orientation which occurs in the Non-treatment population to be seen as a foundation for subsequent addictive use.

There are a number of reasons why certain behaviours may occur together and why differences may be found between genders. For instance an individual's gender and associated set of gender-role expectations may exert a dominating influence on one's sense of self in terms of what are viewed as acceptable behaviours to be engaged in. The discussion will center on the possibility of the differing experiences of the two genders contributing to the orientation towards certain behaviours. Basically an argument will be made that connects males' substance use with conduct disorder, delinquency and social roles, as their involvement in behaviours in Factor 3 (Substances) and Factor 4 (Relationships) are already primed. For females an argument will be made which links being female and a propensity to eating disordered behaviour, via a pre-existing orientation to the behaviours characteristic of Factor 1 (Food).

The factors

Sensation Seeking Hedonism

The core of this factor seems to originate with the association of Nicotine and Drugs, as it is these two areas which are found to co-occur in both the Non-treatment male and female populations. This association has been revealed in previous research. In a study by Von Knorring & Oreland (1985) it was found that regular smokers were found to be more prone to the abuse of alcohol, and to a variety of drugs such as glue, cannabis, amphetamines and morphine. In another study investigating the prevalence and use of alcohol, nicotine and other drugs in a family practice setting, a definite overlap between nicotine and other substance use was found (Mar, Johnson Pistorello, Rigmaiden & Veach, 1995). These previous studies in conjunction with the present results suggest that there may be a general orientation to these addictive substances. This may be taken to mean that if one is engaged in first, most likely nicotine, then this increases the likelihood of other substances being used.

The dominance of males

However there are differences between males and females scoring on this dimension. For instance comparing the male and female Non-treatment Drug scores, males score significantly higher on average than females (Males = 8.1; Females score 3.1 ($p < 0.001$). It is possible that these addictive behaviours are better represented in males as perhaps the uptake and involvement in these behaviours is in part determined by a difference in gender roles and socialisation, with these areas being more acceptable in males and less tolerated in females. Evidence which in part supports this position

comes from research showing that men, as compared with women, are more likely to engage in risk behaviours (Byrnes, Miller, & Schafer, 1999).

Looking at further evidence to support this position it was mentioned in the introduction that it is well documented that, in general, boys and men are reported as exhibiting more delinquency (Mears, Ploeger, & Warr, 1998) and drug taking may be considered as delinquent behaviour. In a study investigating the factors associated with aggressive and delinquent behaviours in adolescents, it was found that adolescents who engage in these behaviours are more likely to use alcohol and other drugs, to engage in sexual risk behaviours, have problems with peer and family relationships and report more mental health symptoms (Durant, Knight, & Goodman, 1997).

Further supporting evidence for this position includes Gilligan's (1982) suggestion that females in general are more socialised, in such a way that they become more subject to moral pressures. If this is the case then females will be more reluctant than males to engage in behaviours that would attract criticism and negative evaluations from others.

Another hypothesis proposes that gender differences in health behaviour are due primarily to two complementary aspects of gender roles. First, males' greater risk taking and females' greater health concerns (Waldron, 1997). This hypothesis proposes that males are socialised to take risks whereas females are socialised to be more cautious and more concerned with protecting health. Consequently males

engage in more risky behaviour while females engage in more preventative health behaviour (op cit.).

Treatment population

Men are consistently higher on this dimension than are females ($p < 0.01$) although the increase for females is proportionately higher than it is for men: Non-treatment male; 8.1. Treatment male; 21.8. Female Non-treatment; 3.1. Treatment female; 16.7.

There is an interesting difference between the populations in the role of Prescription drugs in this factor. What seems to occur is that when an individual moves into the realm of problematic usage, another behaviour which becomes associated is Prescription drugs, where again the difference between the male Non-treatment score and the Treatment score is great: Non-treatment male score; 2.7 and Treatment male score; 11.8. This leap in score in the Treatment group perhaps suggests that Prescription drugs are not *typically* used to alter mood and are not likely to be abused unless an individual is already in the realms of addictive use. This is perhaps why this behaviour does not load on Sensation Seeking Hedonism for the Non-treatment males. When drugs are used to excess it seems that Prescription drugs take a more important role, as this score is almost four times higher in the addicted population than in the Non-treatment population: (Male Treatment; 11.8. male Non-treatment; 2.7. Female Treatment; 12.6 Female Non-Treatment: 3.0).

Females

What is particularly interesting with the female Treatment group is that there is a strong and well defined cluster of Hedonistic behaviours, which again seems to based

on the core components of Nicotine and Drugs which appear in the Non-treatment female sample. Perhaps then this is not the most obvious route of excessive behaviour for females to be engaged in. However, when involved, it seems that their use escalates. This is apparent initially when looking at the composition of the Treatment population as there are many more males in treatment for drug and alcohol addiction.

Looking at the drug scores, the average female Non-treatment drug score is; 3.1 and the female Treatment score is; 16.7. This Treatment score is therefore five times greater than in the Non-treatment population (the difference in magnitude between the male Treatment and the male Non-treatment is under three). This may suggest that when a female becomes involved in such areas the involvement in some ways is more marked and extreme in conjunction with being more unusual. In addition to this it can be seen that, in general, the female's scores on this factor are lower than the males (apart from Prescription drugs which is slightly higher).

Support for these ideas stems from Heimer (1996, p.42), as when commenting on delinquency in men and women, female delinquency was termed as different from male delinquency as it is, "Doubly deviant". This is because it is inconsistent with societal gender role expectations as well as with laws and codes of conduct. This is because inappropriate role behaviour, which would include the behaviours on this factor may elicit more negative and perhaps more extreme societal judgement in females than in men. It would be interesting to look at these women as it may be found that their personality traits may have some features of male gender identity, which serves to orientate them towards this set of behaviours. This is, in part, because

it has been suggested that females with higher levels of masculine personality traits are more likely to use alcohol or drugs (Lucke, 1998).

Other Orientated Nurturance

Across the four samples (male and female Treatment, and male and female Non-treatment) it was found that both the Compulsive Helping dimensions occur together with Work. It can be seen that there differences between males and females and between the two populations, though females tend to score higher than the males (i.e. Compulsive Helping submissive: Male Treatments score 21.0, Female Treatments 24.8, ($p<0.001$) Male Non-treatments 18.5 Female Non-treatment 20.3 ($p< 0.05$)). The presence of both Compulsive Helping and Work can possibly be explained by the fact that the two are conceptually quite close anyway, so it is perhaps unsurprising that these behaviours cluster together.

Thinking about stereotypical concepts used to describe women and men it may be expected that women would score more highly on these types of scales, as it may be argued that their socialisation promotes supportive and dependent roles. Looking at the basic compositions of social stereotypes, being feminine means being attuned to and responsive to the needs of others, more emotional and more nurturant (Williams, Satterwhite & Best, 1999). Independence, competence, assertiveness and aggression are typically used terms which describe the characteristics that are to do with masculinity (op cit.). Gilligan (1982) suggests that moral development in females is guided by the importance and centrality of human relationships and by a dominating obligation to care for others. This "other" orientated quality of female moral

development contrasts sharply with the moral socialisation of males which is thought to be more associated with self interest (op cit.).

Some evidence which provides support for these ideas comes from a study by Eisenberg, Fabes & Shea (1989), who observed that from the age of about 11 or 12 girls are more concerned with others in relation to their moral reasoning than are boys.

Power Related Hedonism

The core of this factor seems to originate with the association of the Relationship dimensions, as it is these two areas which are found to co-occur in both the Non-treatment male and Non-treatment female populations.

In the same way as in the previous factors it may be expected that these areas are "better" represented or inflated in the Treatment populations, as these normal orientations are taken to extreme by addicts. Interestingly, Shopping appeared in the female Non-treatment and female Treatment factors, and Sex appeared in the male Non-treatment and Treatment factors, thus contributing to the interpretation of this factor as a concern with stereotypical role-related exercise of power.

With reference to the Relationship scales perhaps it is to be expected that these scores in the male population load with the Sex dimension, as stereotypically males are seen to be orientated toward hierarchy, mastery and control whereas women are orientated towards the maintenance of relationships, (Stiles, Lyall, Knight, Ickes, Waung, et al, 1997). Another relevant issue is the relationship between dominance and masculinity

which is often cited (e.g. Kaufman, 1997 and Spence & Buckner, 1995) as this may, in part, contribute to the comprehension of this pattern of scoring.

In relation to these issues, power has been seen as an important factor in the study of romantic relationships since the 1950's (Waller & Hill, 1951 in Browning, Kessler, Hatfield & Choo, 1999). The two major definitions of power are as follows: the ability to influence another person's attitude or behaviour (Cromwell & Olsen, 1975; McCormick & Jessor, 1982 in Browning, Kessler, Hatfield & Choo, 1999) and the capacity to produce intended effects (Gray-Little & Burks, 1983 in Browning, Kessler, Hatfield & Choo, 1999). Both of these features are central to the Relationship dimensions.

In terms of the present results, controlling another person for personal advantage may be achieved in two main ways, namely in a submissive (tranquillising) and in a dominant (stimulating) form. It seems that when looking at the males association with the Sex dimension in conjunction with their Relationship scores indicating that they score higher than women on the Relationship *dominant* scale, this it may be argued represents a more characteristically male than female way of being which originates in "normal" behaviour. Support for this position can be found in a study by Felmless (1994) where the power balances in romantic relationships were investigated and less than half saw their relationships to be equal in the distribution of power, and men were over twice as likely as women to be viewed as the partners having more power.

Sex forming part of this factor for Non-treatment males maybe has something to do with the prevailing attitudes of acceptability, as even though double standards with

regard to sexual behaviour has diminished since the 60's (Lottes, 1993) they have by no means vanished. Oliver & Hyde's (1993) meta-analysis of gender differences in sexuality found large gender differences in both sexual permissiveness and casual intercourse. For instance, incidence rates and approval of premarital sexual behaviour and of many sexual risk practices continue to be higher for men than for women (Oliver & Hyde, 1993), as do the rates of other risk behaviours such as delinquency and to a lesser extent, alcohol and drug use (e.g. Magurie & Pastore, 1997; Maxim & Keane, 1992). So what seems to be appearing is a more global acceptance of hedonistic or sensation-seeking behaviours in men. This concept of hedonism or sensation seeking is useful as it seems to be thematic in the male involvement in these areas and is related to many risk behaviours including sexual risk (Arnett, 1996).

Oliver & Hyde (1993) have emphasised that a variety of different perspectives such as socio-biological, social learning, social role and script theories all expect women to have more negative attitudes toward casual, premarital sex than do men. According to this line of reasoning the very low score that Non-treatment females achieved on Sex and that it failed to load on any of the factors in the Non-treatment sample seems to fit closely with previous work conducted in this field.

A study which provides evidence and supports this line of reasoning investigated the relationship between sexual behaviour and non-traditional gender role and masculine gender traits in young people. The findings indicated that women with *higher* levels of masculine personality traits and egalitarian gender role attitudes were *more* likely to have multiple partners use and alcohol or drugs (Nicholson, White & Duncan, 1999).

In conjunction to this young women are more likely than men to be committed to their relationships, to report being in love and to view love as important while men subscribe to more permissive sexual attitudes (Hendrick & Hendrik, 1995). This indicates that women's motivations and involvement may be quite different than are men's. In research looking at motivations for sex, young men are more likely to give reasons to do with physical pleasure, whereas young women emphasise emotional and relational reasons (e.g. Murstein & Tuerkheimer, 1998). Interestingly, in the female Treatment sample Sex was found to appear on the Power Related Hedonism factor. Perhaps what occurs here, in the same way as on the Sensation Seeking Hedonism factor, is when an individual gets into problematic behaviour the constraints of morality and expected social role are reduced and it is this which permits engagement in behaviours otherwise considered taboo or "off limits".

The role of shopping: Power

In conjunction with Relationships the behaviour which also appeared in this factor for women in both samples was Shopping. It has already been mentioned that shopping is possibly a way of self-medicating depression (Faber & Christenson, 1996), and in comparison to other forms of mood altering is certainly a more socially acceptable method of "feeling better". Looking at the significance of this association, previous research has indicated that self image, self-presentation and shopping behaviour is more closely linked for women than for men in both ordinary consumers (shoppers) and excessive shoppers (Dittmar & Drury, 2000). Importantly, controlling the household budget is a source of power and control in the family for many women, and spending itself may also induce the feeling of control and capability and authority.

Self Orientated Nurturance

The core of this factor appears to be the two Food dimensions, as it is these which appear in both the male and female Treatment and Non-treatment populations. As both are to do with food consumption it is likely that there is something to do with the regulation of food intake, perhaps related to over indulgence on some occasions and under eating by way of compensation on others. In the same way as with the previously mentioned factors, investigating these patterns in a Non-treatment population permits some assumptions to be made about the Treatment population.

Comparing the male and female Non-treatment Food bingeing and Food starving scores, males score on average 5.5 and females 9.4 for food starving ($p < .001$) and males score 8.1 and females 13.6 for food bingeing ($p < .001$). Looking at this difference between males and females, and at the interaction found, it is logical to deduce that this factor holds more significance and meaning for females and it is this which causes the higher scores in women. There's one main question to be addressed when considering these results, why are Non-treatment women scoring highly on the Food dimensions?

One possible idea is that it is today's cultural emphasis on preoccupation with food, body shape and dieting which is most commonly directed at women which contributes to these higher scores. In support of this, in one study investigating the content of men's and women's magazines it was found that women's magazines contained on average 10.5 times as many advertisements and articles promoting weight loss than men's magazines (Andersen & DiDomenico, 1992). Interestingly these present

findings indicating more of a preoccupation with food and weight issues are well placed in relation to other research which has been conducted in this area.

It was mentioned in the introduction that it is well documented that women tend to view themselves as more overweight than do men in general (Tiggemann, Winefield, Winefield, & Goldney, 1994). It could be posited from this finding that this would increase the likelihood of women engaging in dieting type behaviours and exhibiting a greater tension around food. This may help to account for the higher score for Non-treatment women.

From the review in the introduction of this chapter, it was also seen that gender differences in body image and dieting appear before adolescence and that it is females who experience the most struggle with this area (Shapiro, Newcomb & Loeb, 1997). Further findings which support this account include a study by Rolls, Fedoroff, & Guthrie, (1991) who found that adult women in general experience more food related conflict than men in that they like fattening foods but perceive that they should not eat them. In conjunction to this it was also shown in this study that women are more dissatisfied with their body weight than men (op cit.). As there seems to be a dominance of these concerns in the Non-treatment female population it seems possible that socio-cultural influences in conjunction with psychological factors may be important in the development of eating disorders, which are much more prevalent in females.

Treatment population

If the above arguments are valid then again it would be expected that the SPQ scores would be higher in the Treatment population as they would be better represented, as these behaviours are being used in an excessive and perhaps pathological way. It can be seen from a comparison of the means that this seems to be the case, see table 7.9.

Table 7.9: Means for food starving and food bingeing in male and female Treatment and Non-treatment populations

	Food Starving	Food bingeing
Female Treatment	17.9	22.5
Female Non-treatment	9.4	13.6
Male Treatment	7.5	8.8
Male Non-treatment	5.5	8.1

Interaction

The results, looking at possible interactions, revealed that there was an interaction effect on Factor 1. This indicated that Treatment females score *much* higher than would be expected on this factor, given the "baseline" figures from the Non-treatment population. This fits in with the previously mentioned evidence, as it seems that women in general are more concerned with the main areas contained in this factor.

The pertinent question here, which seems to be also reflected in the present results, is why is there such a gender discrepancy in the eating disorders? It can be seen that the food dimension scores for women in general are substantially higher than those for the males. In conjunction to this it was mentioned in the introduction to this chapter

that men are reported as representing only 10% of eating disorder cases (Andersen & Holman, 1997). Much has been written on gender issues and eating disorders (e.g. Dolan & Gitzinger, 1994) and a brief view of some of these thoughts will be looked at.

On a socio-cultural level it is thought that the dominance of women in the eating disorders is maybe to do with the contrived and impossible demands in which women are placed. The link here is that the thin ideal for women espoused in the media is related to the high rates of eating disorders (Waller & Shaw, 1994). Possibly as a response to this, dieting has been characterised as normal eating for North American women and is thought to have been caused by a shift in the female beauty ideal toward a thin physique (Polivy & Herman, 1987).

It may be the case that women who score relatively highly on these dimensions are exhibiting some of the behaviours or symptoms of an eating disordered pattern. It was mentioned in the introduction that in one study it was found that in a female college sample behavioural symptoms associated with anorexia and bulimia were displayed but interestingly few of the constellation of the psychological traits were exhibited which are associated with these disorders (Hesse-Biber, 1989). What was concluded in this study was that, "The aetiology of eating problems may be partly related to women wanting to be thinner than is medically desirable and may represent a response of "normal" women to the new, more demanding cultural and super-cultural standards for thinness" (Hesse-Biber, 1989, p.71) This provides an interesting perspective on the present results.

Exercise plays a role for females across both samples

A further interesting element from the results is the involvement of Exercise on this factor. Whereas Exercise failed to load on any of the factors in either of the male samples, in the female samples it loads strongly with the Self Orientated Nurturant factor appearing with Caffeine and both of the Food dimensions. It has already been said that this factor seems to be concerned with self control especially regarding body image, and if this is the case then Exercise fits well with this interpretation. This is because if compulsive exercise is used in conjunction with under eating and the use of caffeine (perhaps to moderate over eating), this constellation of behaviours will all contribute to weight regulation.

The presence of Exercise in the Food factor is likely to be related to the previously mentioned tension which exists between food and body image. A piece of research which relates to this is a study by McDonald & Thompson (1992), who investigated levels of eating disturbance, body dissatisfaction self esteem etc. of physically active males and females. The results indicated that for women the motivation for exercise was more often related to weight and muscle tone reasons than that of men. Interestingly for both genders, exercising for weight, muscle tone and attractiveness reasons was highly correlated with other measures of disturbance (op cit.). It can be seen that if only the means of the Exercise dimension are considered there is little variation across the samples, and it was found that there wasn't a significant difference between the male and female Treatment population and the male and females Non-treatment population. It is only when this dimension is considered alongside other behaviours that its possible relevance is revealed.

The role of alcohol

Alcohol is a very commonly used substance due to its availability and socially accepted use. However, in general it has been seen from the previous literature that men consume more alcohol than women (e.g. Dawson, 1992). It may be, in part, for these reasons that alcohol doesn't load highly on one particular factor in the Non-treatment and Treatment male populations. With females, however, alcohol appears alongside Nicotine and Drugs in the Treatment population and comes closest to loading on this factor for the Non-treatment population.

Males

One of the main differences between the male and female samples is that Alcohol in the male sample doesn't form a stable component of any of the factors, though it comes closest to contributing to Factor 2 which is a Nurturant factor, containing Compulsive Helping in both forms and Work. Here its role may reflect its use as a response to, or use in conjunction with, the commitment to working hard, looking after others (family responsibilities) essentially keeping on top of everyday obligations. It is conceivable that the effects of alcohol are sought as a socially acceptable release from the stress of keeping a "normal" life together and performing the role of the traditional male bread-winner. Though this idea is being stated in stereotypical terms it can be seen that with the consideration of the more nurturant behaviours being engaged in alongside alcohol use such as Work, the picture portrayed is potentially quite different. From the previous literature it may have been expected that alcohol would load most highly with the other forms of hedonistic behaviours as it seems to be most often reported alongside drug use and other anti-social activities.

It seems possible then that there may be a number of orientations towards alcoholism, as alcohol seems to play a part in a range of addictive activities. And so perhaps the consideration of the possibility of two broad categories would be useful, a Hedonistic alcoholic and a Nurturant alcoholic.

Females

In the Non-treatment female sample Alcohol comes closest to appearing in the Sensation Seeking Hedonism dimension along with Nicotine and Drugs. In the female Treatment population, Alcohol contributes to the Sensation Seeking Hedonism factor appearing alongside Drugs, Nicotine, Prescription drugs and Gambling. As Alcohol appears with the other more aggressive and obvious substance based forms of mood altering in conjunction with Gambling, it is possible that this reflects the way that alcohol is used in a different capacity in comparison to its use in men. The majority of these areas involve deliberate and obvious acts of mood altering and it's plausible that here alcohol is used more as an "upper" or a mood enhancer rather than for its tranquillising effects.

Again Heimer's (1996) idea of double deviance is interesting here, as perhaps alcohol use is still not as acceptable in women's behavioural repertoires as it is in men's and therefore is seen as being associated more comfortably with the more extreme and deviant forms of mood alteration. In support of this the incidence rates and approval of delinquency and to a lesser extent, alcohol and drug use continue to be higher for men than for women (e.g. Magurie & Pastore, 1997; Maxim & Keane, 1992)

Final conclusions

It seems from the results and discussion that part of the comprehension of addictive orientation will involve the careful consideration of gender. It seems that it is, in part, gender which orientates people towards the normal use of (and subsequent addictive use of) addictive substances and behaviours. Though it must be said that as both males and females are affected by addiction there may be a number of common factors which increase the likelihood of addictive use occurring. It seems that it may be gender which propels males and females into different courses of activity.

Future research

Theorists argue that focusing on lives in context is needed to understand differences in risk behaviours (Chesney-Lind, 1989). This is especially applicable in the field of addiction as it may be said that conventional ideas of addiction have been largely constructed to explain male addiction. It may be argued that consideration of and investigation into the complexity and richness of men's and women's lives will reveal important insights into the many questions surrounding gender and addiction. It may even be the case that separate theories are required to account for male and female "orientations" to addiction.

A requisite component of future research may be to attempt to contextualise the sociological and cultural variations in women's and men's lives, as it is important to place addiction within the context of contemporary society; to talk about both theory and life experiences of addicts, as it is likely that women and men may engage in the same behaviours for different reasons (Waldron, 1997). One implication is that this may cause differences in how to best approach and treat these problems.

In order to further explore these gender differences, it would be interesting to investigate the relevance of personality and associated psychiatric symptomatology in relation to the factors, especially with reference to the relevance of social and conduct disorder elements. In the next two chapters these areas will be explored.

Chapter Eight

Relationship between personality dimensions and addictive orientations

8.1. Introduction

In the previous chapter it was argued that gender differences in addictive orientations build upon "normal" orientations towards certain clusters of behaviours in males and females. The discussion of the nature of these differences drew on a "sociological" perspective. Now we are going to consider the possibility of the role of personality playing a part in the "addictive orientations".

It is known that personality is a contributing factor to a variety of health problems, such as heart disease. For instance in a study of 3,500 initially healthy men it was shown that those characterised as being Type A (competitive, hard driving, and impatient, etc.) were about twice as likely as their Type B counterparts to develop angina myocardial infarction, and sudden cardiac death (Friedman & Rosenman 1974 in Pervin 1990). This relationship was stable even when statistical adjustments were made to control for traditional coronary risk factors (Rosenman et al, 1975 in Pervin 1990). Indeed, it has been assumed for some time that certain psychiatric syndromes may be influenced by pre-morbid personality characteristics, and that these personality characteristics may interact with treatment approaches (Deary, Peter, Austin & Gibson, 1998). More specifically in relation to addiction, its comprehension, prevention and treatment may improve significantly with *any* knowledge of the mechanisms and determinant factors related to its acquisition, development and maintenance. One of these factors includes the study of the possible

relevance and contribution of personality.

Interestingly there seems to be quite a widespread acceptance of the idea of an "addictive personality" among the general public, though in recent years the contribution of personality in the research and theoretical field of addiction hasn't been so popular. Nathan (1988) has argued that the search for a general tendency toward addiction has historically been an exploration for an "addictive personality" and has been generally unsuccessful. This may be because of a number of reasons.

First, within the different fields of addiction, i.e. alcohol, drug and eating disorders, the results have been quite divergent with different studies finding support for a wide range of personality characteristics. For instance in the field of alcoholism, impulsivity/disinhibition, (Sher & Trull, 1994), and links with antisocial personality disorder (Hesselbrock, Hesselbrock & Workman-Daniels, 1986) have been implicated. In the field of eating disorders, even though impulsivity has been found to be related to problems in this area, other dimensions such as obsessive compulsive characteristics (Fahy, 1991) personal ineffectiveness and low self esteem (Mayhew & Edelmann, 1989) have also been found. In just mentioning a small handful of studies it can be seen that the findings are broad-ranging and do not seem to fit into an overall picture of an addictive personality.

A related problem involves the ability of personality studies to reliably *predict (rather than "postdict")* addictive involvement. Nathan (1988) investigated personality characteristics which predict substance abuse, addictive behaviours and treatment outcomes and concluded that only one common factor seemed to exist, this being a

correlation between antisocial behaviour in childhood or adolescence, and an excessive use of alcohol in adult life. In relation to drug use, The Royal College of Psychiatrists summed up the research in the field stating that, "The best evidence is that no single underlying trait or unique constellation of personality features can be identified as predisposing to drug misuse" The Royal College of Psychiatrists, (1987, p.43).

It has been argued that most of the addictive personality arguments rely on an outdated and unsophisticated view of personality that ignores more recent concepts in the field of personality such as locus-of-control, risk-taking and sensation-seeking (Kerr, 1996). In sum, much research, which has been summarised in many reviews, has failed to identify a *unique* pattern of personality traits which characterise those who will become alcoholics or other substance abusers (e.g. Nathan, 1988; Sutker & Allain, 1988).

8.2. Why still pursue the possible involvement of personality?

Even though the role of personality in relation to an "addictive personality" has been criticised, the view that personality is involved in addiction remains, and the linking of personality and addictive behaviours is still pursued and continues to be present in the literature (Nurco & Lerner, 1999; Donovan, Soldz, Kelley & Penk, 1998). Maybe this continued presence and determination is to do with the inherent common-sense expectation that personality *must* have some form of involvement with addictive behaviour. The major aim of this chapter is to explore again some of the research investigating which personality characteristics have been associated with which addictive behaviours, with a view to examining whether or not the concept of

addictive orientation may be elaborated and clarified through the use of personality data.

The investigation of some of the current and popular views on the existence of the addictive personality will be explored in relation to current conceptions in the personality literature. For instance some theorists claim that there may be a biological basis to addictive personality (Jacobs, 1989) and hence addictive behaviour, and this is one of the areas which will be looked at. The idea that addiction covers a range of behaviours, and not simply the taking or ingesting of substances, has led to several general theories of addiction which may have contributed to the continued interest in the idea of an addictive personality underlying all addictions (e.g. Blaszczynski, Buhrich & McConaghy, 1985; Gossop & Eysenck, 1980).

A degree of consistency has been found within addictive behaviours such as alcohol, yet the search for an overall addictive personality seems not to have been successful. It is possible that looking at personality in relation to the orientations described in the previous chapters would be a worthwhile route of investigation. This is because the function of the orientation maybe serves as a middle ground bridging the divide between the exploration of personality within *individual* behaviours and the search for a personality constellation which is applicable to a wide range of different addictive behaviours or addictive orientations. In among the criticisms, a number of prominent researchers have proposed theoretical models that include personality factors as pivotal elements in the development of addiction (e.g. Cloninger, 1987, Tarter, Alterman & Edwards, 1985). These may aid the development of hypotheses relating personality to the factor analytic results from the previous studies.

Certain groupings of addictive behaviours seem to cluster inherently around broad personality dimensions or characteristics, e.g. the excessive behaviours of "Self Orientated Hedonism" are characteristic of the stereotypical extrovert, dominant and with a lawless streak. This being the case it is likely that it is, in part, the person's personality which contributes to the development of particular *patterns* or orientation to addiction. Personality factors may also help to reveal why there are important individual differences in frequency and amount of addictive behaviour engaged in, and why some people become addicted to some substances rather than others, and some do not become addicted at all.

8.3.i. Models of personality and addiction

Given an orderly relationship between personality factors and addictive orientation, the question of the direction of causality inevitably raises the question, is it the addictive personality which *leads* to addiction, or is the personality of the addict a *consequence* of the addiction? There are two main *implicit* models here which will explain the existing data. First, models exist that propose that personality is a *pre-existing* factor which increases the likelihood of an addiction developing (e.g. Eysenck, 1997 and Khantzian, 1985). Here it is thought that personality provides the primary source of motivation for addictive use. Taken to an extreme this view proposes that there are certain personality types that are predisposed to becoming addicted to certain substances or behaviours. Conversely personality characteristics can also be seen as a *consequence* of addictive involvement. This position may propose that factors such as psychosocial stressors cause addiction and *result* in personality changes. This second use of the term implies that certain personality traits only occur in addicts or that they are present in a stronger or modified way compared

to non-addicted individuals (e.g. Barnes, 1983 in Kissin & Begleiter, 1983).

There is however some research which sheds light on this problem. It has been reported that considerable data across samples of varying age, gender, ethnicity and drug of choice, suggest that personality traits, such as neuroticism, predispose to later development of substance use problems, deviant and other risky behaviours (Tarter, 1988). Moreover, in the area of alcoholism there is evidence that personality correlates of clinical alcoholism differ from prospective personality predictors of subsequent risk for alcoholism, thus leading to distinctions between pre-alcoholic and clinical alcoholic personalities (Barnes, 1983 in Kissin & Begleiter, 1983). On the other hand, Sharma (1995) examined the relationship between drug dependence and personality traits among adolescents, and concluded that addictive personality *preceded* addictive behaviour, and that addiction itself does not create the profile of the addictive personality.

8.3.ii. Physiological model of personality in relation to addiction

Eysenck, (1997) takes an interesting position here in that he suggests that addictive behaviour fits into a "Psychological resource model", in which addictive behaviours are adopted and utilised because they serve a useful function for the individual. He suggests that the nature of the functions they fulfil is related to the personality profile of the addict. For instance some addicts may have abnormally decreased arousal levels and orient themselves toward activities which compensate for the lacking stimulation, this resulting in an increase of arousal which is experienced as a more comfortable or rewarding state. For some people this once resourceful activity develops into a form of addiction, and he suggests that the reason this occurs is related

to excessive dopamine functioning. This explanation is used in turn, to suggest the nature of the addictive personality. In other words the behaviour gives the user certain benefits and hence the behaviour is continued even though there may be unwanted consequences.

In relation to the physiological level others have proposed that alcoholics may have a sensitivity to alcohol, which makes them more vulnerable to its reinforcing effects (Levenson, Oyama & Meek, 1987). In one study it was demonstrated that individuals who are high on measures of impulsivity (a commonly quoted correlate of alcoholism) are likely to experience pronounced alcohol effects, in that its capacity to reduce physiological responses to stress (responses to electric shock and self disclosing speech) was more pronounced in this group of high scorers (op cit.). This evidence in part supports Eysenck's theory of the addictive behaviour having "particular" benefits to certain individuals.

It has been proposed by Eysenck (1997) that two types of arousal distinguish the Extroversion and Neurosis dimensions of his personality theory. He put forward the idea that the biological basis of Neurosis originates from the sensitivity of the limbic autonomic system, which determines our reactivity to environmental and psychological stimuli. Highly reactive individuals are typically easily startled and agitated, and might be expected to use substances for their calming effects. In contrast, he proposed that the biological basis of Extroversion is closely related to the level of arousal in the neo cortex, with highly extroverted individuals having a low level of cortical arousal. Such individuals are not as reactive to stimuli and require larger amounts of stimulation to maintain an optimal level of cortical arousal, thus

resulting in their extrovert behaviour. They might be expected to use with a view to providing excitement and distraction.

8.3.iii. Self-medication model: Relating personality and addiction

Eysenck's general approach is supportive of one popular explanation of addiction, that psychologically, or mentally, disordered people may be using substances and behaviours to self-medicate, and that the motivation to "use" or "act" involves the need to control or alter feelings states that are inaccessible or cannot be put into words (Khantzian, 1985). Kjantzian & Mack (1994) also argue that, addictive behaviour is automatic and beyond awareness and that the use of substances is often a conscious attempt to avoid distressing feelings. For example an individual with depression may drink to excess in order to mask or reduce his depressive feelings, and due to this excessive drinking alcoholism may develop as a secondary problem. The underlying premise is that substances are chosen for their specific effects.

Khantzian (1985) has argued that addicts use their addiction as a form of self-medication to combat and cope with their psychological problems. He has also argued that the drug of choice is not random but rather specific to the individual's psychopathology. He found for instance that heroin addicts preferred the calming and dampening effects of opiates and used it to defend against psychological pain and aggression. Amphetamines were reported to support an inflated self worth and a defensive style, which involved an active confrontation with the environment. Cocaine abuse was said to assuage depression, hyperactivity, bi-polar illness and Attention deficit hyperactivity disorder. Khantzian (op cit.) also found that most of his interviewed heroin addicts had histories of life-long exposure to violence in the

family. It is thought that if anxiety and depression remains unverbalised they leave the person ill-equipped to deal with feelings and predisposed to drug abuse as a way of compensation.

A review of alcohol's effects on emotional states suggests that alcohol can reduce anxiety and depression, although it must be said that these findings do not appear to be consistent across situations and individuals (Sher, 1987). There is evidence which suggests that alcohol and drugs alleviate a variety of different factors such as social problems, insomnia, depression, etc. but it is rarely reported that specific substances are sought to alleviate specific symptoms (Muesler, Drake & Wallach, 1998). Another possibility is that personality features may render an individual vulnerable to certain psychosocial stressors, which in turn predispose the individual to become involved with certain clusters of behaviours.

8.4. Biochemical, behavioural demands

It may be expected that genetic factors may play a role, as it is known that they are major contributors to practically all known personality traits, and because the major dimensions of personality implicated in addiction in particular are known to have high heritabilities (Eaves, Eysenck & Martin, 1989). The idea that personality has a genetic dimension has a long history, with Hebb (1955) advocating physiological underpinnings of behavioural psychology and developing a theory of optimum level of stimulation. In this theory arousal is the physiological basis of any behavioural drive. It was proposed that with *low* levels of arousal, an *increase* in arousal is rewarding and pleasurable, and at much higher initial levels of arousal, a *decrease* is rewarding. This type of idea is still embraced by researchers, and biological

differences in the arousal of individuals is often cited in their theories of personality (e.g. Eysenck, 1967 and Kagan, 1996).

Research suggests that there are, indeed, genetic factors in alcoholism (McGue, 1995) and smoking (Rowe & Linver, 1995), and there is some evidence which suggests that even eating disorders and obesity have a genetic basis (Spelt & Meyer, 1995). Behavioural genetic studies have consistently indicated that genetic factors contribute to risk of substance abuse (McGue, 1995; Pickens et al, 1991) and have thereby implicated the existence of inherited, individual level risk factors for substance use disorders. As personality characteristics are thought to constitute an important instance of an individual level risk factor that is both associated with substance abuse risk (e.g. Sher & Trull, 1994) and are thought to be substantially heritable (e.g. Tellegen 1991) this line of reasoning gives further support to the investigation of the influence of personality on addictive orientation.

There is no direct evidence that the same genes are involved in different types of addiction, but if they were found to be then it would be expected that similar underlying personality factors may appear in connection with each. As it has been proposed that there are differences in arousal for either genetic or environmental reasons, and these differences affect an individual's disposition, it is possible that this in turn may affect the choice of addictive behaviour or clusters of behaviours for addicts and non-addicts alike. This is because if there are differences in the individual's preferred level of stimulation, and behaviour is strongly motivated by the desire to achieve an *optimal* arousal state, this would influence or determine the choice of addictive outlet or outlets. For instance the use of sensation-seeking

behaviour e.g., drug taking, may be related to an attempt to correct low cortical activity, and use of nurturant activities e.g., over-consumption of food, may be related to the attempt to correct high cortical activity.

8.5. Anti-social personality disorder

Alcoholism and anti-social personality disorder have been considered linked in terms of "dis-inhibitory psychopathology". This term refers to failures in self-control, and includes problems such as hyperactivity in childhood, anti-social behaviour, psychopathy and alcoholism (Sher & Trull, 1994). Anti-social personality disorder is a personality syndrome which involves an onset very early in life of a behaviour pattern that involves high levels of impulsivity and difficulty learning from punishment, characteristics that probably contribute to the high reported incidence of excessive use of substances in those with anti-social personality disorder (Regier et al, 1990). Research has estimated that both men and women with anti-social personality disorder have a 70% or greater probability of developing an alcohol use disorder (Hesselbrock, Hesselbrock & Workman-Daniels, 1986) This syndrome has been a popular avenue of investigation, and much research has shown that anti-social personality disorder is strongly related to both alcohol and drug addiction (Regier et al, 1990).

This relationship seems to have implications for different populations, as alcohol use disorders have been found to be highly correlated with both anti-social personality disorder and drug use disorder in both clinical (e.g. Hesselbrock, Meyer & Keener, 1986) and general populations (e.g. Helzer & Pryzbeck, 1988). The results from a general population survey of over 2,500 men and women indicated that serious anti-

social behaviour (both conduct disorder and anti-social personality disorder), gender and a family history of problem drinking were all significantly associated with alcoholism. With regards to gender, being male increased the probability of alcoholism (Lewis & Bucholz, 1991). Interestingly it was also indicated that anti-social behaviour was a more powerful risk factor for women than for men. However despite this close association with alcoholism, having either anti-social personality or a positive family history of problem drinking identified only 53% of male alcoholics and 41% of female alcoholics. This implies the importance of further influential factors.

Broad personality dimensions which have been found to be linked with anti-social personality disorder include; neuroticism/emotionality, impulsivity/disinhibition and extroversion/sociability. However most importantly it is impulsivity/disinhibition which seems to be the most consistently related dimension, incorporating traits such as sensation seeking, aggressiveness, impulsivity and psychoticism (Sher & Trull, 1994). Individuals with anti-social personality disorder have shown deficits in delay of gratification, frequent sensation-seeking behaviour and vulnerability to boredom (Quay, 1965).

Interestingly, these dimensions have also attracted attention in the alcohol literature and in the same way as with anti-social personality, impulsivity/disinhibition appears to be relevant to alcoholism (see later section on alcohol). Anti-social personality disorder in individuals with a primary substance use disorder has also been consistently linked with a more *severe* course of illness and history including an earlier age of substance use disorder onset, more severe physical dependence and

more adverse physical social consequences (Alterman & Cacciola, 1991). It has also been indicated that individuals with alcoholism and anti-social personality disorder have an increased likelihood of associated anxiety, affective and schizophrenic disorders (e.g. Regier et al, 1990).

Even though this seems to be fruitful area of enquiry it could be the case that substance abuse may *contribute* to anti-social personality characteristics so that instead of anti-social personality disorder being a *risk factor* for addiction it is a *consequence* of it. However it is thought that childhood conduct disorder is often a *precursor* of later anti-social personality disorder (Muesler et al 1998), and this gives additional weight to the argument that anti-social personality may be a contributing factor for addiction. A further important point is that both anti-social personality and alcoholism are highly heterogeneous and therefore generalisations may be limited due to this. However, there is an undeniable affinity between anti-social personality disorder and the more hedonistic orientations, and the notions of recklessness and vulnerability to boredom may be useful concepts in the elucidation of the hedonistic excessive behaviours.

8.6. Possible structures of personality variables which may link with addiction

Developments in the theory of personality have led to the advancement of hierarchical models of based on either three (e.g. Eysenck, 1967) or five factors (e.g. Costa & McCrae, 1992). These models have facilitated research on personality not only by providing a theoretically coherent structure for the array of hypothesised traits but also by suggesting systematic approaches to the assessment of the major dimensions of personality. A degree of consensus has emerged over the past few years for the

validity of the five factor model of personality, although there are several competing models (Goldberg, 1993).

Ball (1995) found in cocaine using men and women that patients scoring higher on impulsivity/sensation seeking, neuroticism/anxiety and aggression/hostility exhibited greater addiction severity. These traits also grouped together in cluster analyses to define two subtypes of cocaine mis-users, a less pathological type and a more severe subtype (Ball, 1995). Ball also found that cocaine misusing women scored higher than men on impulsivity/sensation seeking, neuroticism/anxiety and aggression/ hostility, this suggesting greater sociopathic traits in women.

In the present study, the Interpersonal Adjective Scales, IASR-B5 (Trapnell & Wiggins, 1990) was chosen as the method of personality measurement. The five-factor measure examines what are now commonly regarded as the five principal dimensions of personality initially developed by factor analysis. The dimensions are the recognised "Big Five" of Dominance, Agreeableness, Neuroticism, Conscientiousness and Openness to experience.

8.7. Personality in relation to addictive behaviour in non-addicts

Before moving on to look at the evidence from the clinical population, what would lend further support to the investigation of personality in relation to addiction would be evidence that suggests a relationship between the *normal* use of addictive behaviour and personality in *non*-addicts. This information would very much support the case for the direction of causality, as it would suggest that orientation towards certain types of addictive behaviour is, in part, a normal consequence of personality,

which has contributed to problematic effects in the clinical group.

In support of this idea, a study by Von Knorring and Oreland (1985) found that regular smokers were more extroverted, more sensation seeking and more easily bored than non-smokers. Interestingly they were also found to be more prone to the abuse of alcohol, glue, cannabis, amphetamines and morphine. This study supports the notion of a general tendency to addictive substances that may be personality based, in that in this study there seemed to be a "general" orientation to these addictive substances. If these results are extrapolated it may be deduced that the more extroverted, sensation seeking and easily bored an individual is, the more likely it is that the person will become addicted. It may also be noted that this array of behaviours closely resembles the "Self Orientated Hedonism" factor first revealed in chapter five. It is possible on the basis of this and other studies to begin to formulate how different personality characteristics may be associated with the different addictive orientations described in chapter five.

In the next section personality variables which have been found to be associated with various forms of addiction are looked at to provide further theoretical background upon which predictions may be made linking the factorial structure with personality variables. Though results have varied, it is also thought that there may be a common personality trait, which may contribute to an individual's vulnerability to extreme appetitive behaviours. Alcohol abuse (Cloninger, Sigvardsson, Reich & Bohman, 1988) and bulimia (Bulik, Sullivan, Weltzin & Kaye, 1995), have both been characterised by an appetitive drive, and have been strongly associated with novelty seeking traits. Extroversion has also been a factor suggested as being associated with

addiction though this is thought not to be the case with exercise addiction (Mathers & Walker, 1999).

A caveat should be entered at this point. To make a secure causal link between personality and addiction requires longitudinal predictive studies, as then personality is assessed before the onset of addictive behaviour and so the likelihood of personality having a direct effect on the development of addictive behaviour is greater. However the majority of the studies which have been conducted in this field have been correlational, and so it can be argued that the found personality variables are a *consequence* of the addiction rather than a contributing factor in the development of addiction. I shall return to this question later.

8.8. The generality of personality characteristics across the addictions and research evidence for the existence of a relationship between personality and addiction

Alcohol

Even though there is a high level of heterogeneity among alcoholics, awareness of the co-occurrence of alcoholism and psychiatric disorder has led to sub-typing of alcoholics. Over the years there have been a number of attempts to formulate sub-types (e.g. Jellinek, 1960). Cloninger (1987) proposed two major sub-types of alcoholics, called Type I and Type II, with the latter characterised by an earlier onset of problems, a more severe course and higher levels of criminality. It is of note, however, that this differentiation seems to overlap with the occurrence of anti-social personality disorder in Type II alcoholics, and with the concept of early versus late onset alcoholism (Penick, Powell, Nickel, & Bingham, (1994). Of particular interest

are the findings using general cluster analytic techniques, which have tended to provide consistent evidence for at least two clusters which can broadly be termed as a personality disorder cluster and neurotic cluster (Morey & Blashfield, 1981 in Sher & Trull, 1994).

Babor, Dolinsky, Meyer & Hesselbrock (1992), in a similar vein, found a two-cluster solution. Type A alcoholism was characterised by a later onset of alcohol-related problems, less severe symptoms of substance use disorders, the absence of childhood risk factors, such as hyperactivity, minimal brain dysfunction, or conduct problems, and a lower probability of having received prior treatment for alcoholism. The Type B group is the opposite of the Type A which includes individuals with other higher rates of other substance use disorders and higher levels of life stress.

These distinctions are interesting as in the previous studies it was found that for female addicts in particular alcohol contributed to the Self Orientated Hedonism factor (Drugs factor); for males on the other hand alcohol came closest to contributing to the Other Orientated Nurturance factor. This possibly indicates that there are two main orientations towards alcoholism, with Type II or Type B falling into the more Hedonistic category and Type I or Type A perhaps falling into the more Nurturant category. This information also contributes to the prediction of which personality characteristics may be associated with which orientation.

Many studies have shown that personality variables are related to alcohol consumption and alcoholism (e.g. Cloninger, 1987; Cooper, Frone, Russell & Mudar, 1995). As has already been noted, one which has been shown to be associated with

alcohol use is impulsivity/disinhibition, which incorporates traits such as sensation seeking (Sher & Trull, 1994). Interestingly some studies have suggested that sensation seeking is positively related to alcohol consumption even in samples of non-alcoholics (Andrew & Cronin, 1997). With alcoholics however it has most frequently been associated with Type II alcoholism (early onset, high genetic loading and severe social complications such as aggressiveness, complications at work and illegal drug abuse) (Cloninger, 1987).

It is thought that one implication of the high co-morbidity between alcoholism and anti-social personality disorder is that some alcoholics are likely to be impulsive and anti-social (Regier et al., 1990). With this apparent relationship between anti-social personality disorder and alcoholism, moving towards some form of a deviance proneness model emphasising traits related to impulsivity and dis-inhibition may have considerable explanatory power, especially for alcohol's contribution to the Self Orientated Hedonism factor.

McGue, Slutske & Iacono, (1999) state that the vast majority of research linking personality to substance use disorders has focused on alcoholism. The bulk of the research (Sher & Trull, 1994) implicates two major dimensions of personality in the etiology of alcoholism. These are "negative emotionality" or the tendency to experience negative mood states and psychological distress and "behavioural dis-inhibition". Compared to non-alcoholic individuals, alcoholics on average score higher on negative emotionality and behavioural dis-inhibition and there is some evidence which suggests that these differences predate alcoholism onset (e.g., Caspi, Moffitt, Newman & Silva, 1996; Cloninger, Sigvardsson, Reich & Bohman, 1988)

Interestingly, when the three broad dimensions of Eysenck's personality theory are studied in relation to alcohol use in non-alcoholics, a positive relationship is generally found between psychoticism (this including traits such as aggressiveness, coldness, impulsivity, egocentricity and tough mindedness) (Eysenck & Eysenck, 1985) and extroversion with the consumption of alcohol (Martsh & Miller, 1997). In contrast to this, neuroticism seems only positively related to alcohol consumption among alcoholics, and the finding that alcoholics score high on various measures of neuroticism is well established (Sher & Trull, 1994).

Relating again to the "anti-social" and alcoholism link, Nathan (1988) investigated personality characteristics that predict substance abuse, addictive behaviours and treatment outcomes, and concluded that only one common factor seemed to exist, this being a correlation between anti-social behaviour in childhood or adolescence and excessive use of alcohol in adult life. However, in Nathan's (1988) study many problematic drinkers showed no anti-social behaviour in childhood, and it is clear that many anti-social children do not develop drink problems as adults. Nathan (1988) concluded stating that if personality influences alcoholism risk, it does so as one of a myriad of risk factors rather than as the effect of the solitary impact of personality characteristics, the possession of which leads inevitably to an addiction.

Drugs

It can be said that, in general, in drug dependent samples, high Neuroticism is usually found and is often accompanied by high Psychoticism scores (Eysenck and Eysenck, 1985). These findings seem to be fairly robust. A study by Francis (1996), linking addiction with personality, listed all available studies for addiction to alcohol, opium,

heroin, benzodiazepines, etc. In total, 19 studies were found specifically linking Psychoticism and drug addiction and 23 studies were found linking Neuroticism and drug addiction. Indeed the association is such that in one study with a sample of cocaine-using, pregnant and post-partum women, Neuroticism was the most powerful predictor of symptom severity for this sample (Ball & Schottenfeld, 1997). Sex differences appear not to change this pattern of high Neuroticism and Psychoticism, but women seem to have less elevated Neuroticism differences (Eysenck, 1997).

In a study using the Minnesota Multiphasic Personality Inventory (MMPI), investigating the personality of male and female adolescent drug users, it was found that for females Neuroticism was more important in the prediction of the use of licit drugs and cannabis, and Psychopathic deviance and Mania more important in the prediction of the use of other illicit drugs. For males, elevated Psychopathic deviance and Mania scores were strongly associated with extent of drug use (Lavelle, Hammersley & Forsyth, 1993).

Sensation seeking is another widely studied personality correlate of drug use disorders, with the finding that indicators of this personality characteristic are associated with drug use disorder status (McGue, Slutske & Iacono 1999). Zuckerman (1980) put forward a number of interesting links between biological processes and the personality construct of sensation seeking. He proposed that sensation seeking is a global trait, and can be described as, a desire for varied, novel and elaborate stimulation and experiences and the willingness to take risks for the sake of such pursuit. Sensation seeking appears to be correlated with Eysenck's Extroversion dimension, especially the impulsivity factor of this dimension (Farley &

Farley, 1970).

With reference to impulsivity, cocaine addicts have been characterised by excitability, lability of mood and impulsivity in comparison to alcoholics, poly-drug users and heroin users, poly-drug users being characterised by acute disturbance with paranoid thinking, massive anxiety and profound withdrawal (Donovan, Soldz, Kelley & Penk 1998). The idea that impulsivity may be one of the principal personality correlates of drug abuse seems to be meaningful, as individuals who are impulsive may be characterised by a lack of behavioural constraint, a lack of caution, and possibly even failure to conform to conventional moral expectations. Drug use and abuse are strongly discouraged by conventional cultural standards and are considered risky activities because of their illicit nature.

Individuals who are low on constraint may be at increased risk of drug abuse because they are less likely to accept and be less fearful of the consequences of failing to follow cultural norms governing drug use. Interestingly in a study comparing those with a substance use disorder with those without, rates of conduct disorder, anti-social personality disorder and nicotine dependence were consistently higher among those having a substance use disorder than among those not (McGue, Slutke & Iacono, 1999). In addition to this finding among men with a drug use disorder, alcoholism was significantly associated with higher rates of multiple substance abuse or dependence (op cit.).

Gambling

Gambling has already been described as a form of risk taking or sensation seeking

behaviour in chapter three. Interestingly links have been made between sensation seeking behaviour, gambling and drinking. Zuckerman's (1994) (in Gupta & Derevensky, 1998) findings suggest that individuals who score highly on sensation seeking more frequently engage in gambling activities and are more likely to engage in high risk activities such as drinking and reckless driving. Pathological gamblers are known to be high sensation seekers, scoring significantly higher than social gamblers on the Disinhibition, Boredom Susceptibility, and Experience Seeking sub-scales of Zuckerman's Sensation Seeking Scales (Dickerson, Hinchy & Fabre, 1987). In addition to these findings in a study of adolescents by Vitaro, Arseneault & Trembley, (1999) results suggested that a self report measure of impulsiveness significantly predicted problem gambling even after controlling for socio-demographic variables and other personality variables such as aggressiveness and anxiety.

Nicotine

Eysenck (1980) has argued that nicotine has a bi-phasic action, increasing cortical arousal in smaller doses, and decreasing tension in larger doses. With reference to addictive personality these effects are thought to be reinforcing, in extroverts raising their abnormally low level of cortical arousal, and also in the emotionally unstable who are attempting to lower their tenseness. This analysis suggests that smoking may be related to personality, in the sense that people high on extraversion or neuroticism are more likely to smoke than people low on either or both these personality traits.

Eating disorders

It has been claimed that the same personality factors which place individuals at risk

for substance abuse are often found in individuals with eating disorders (Weiner, 1998). Gossop and Eysenck (1980) and De Silva (1987) investigated the personalities of anorexics and bulimics and found that they showed personality traits, which in some ways are similar to drug addicts in that they scored high on psychoticism and neuroticism and achieved low scores on social desirability and extroversion.

People with eating disorders have been characterised as exhibiting a dysfunctional personality, in particular by a sense of personal ineffectiveness (an essentially external locus of control) and by low self esteem (Mayhew & Edelmann, 1989). It is also thought that obsessive compulsive traits are likely to be present in the personality of people with eating disorders (Fahy, 1991). Other research has suggested that bulimics' personalities are thought to be characterised by variable moods, problems in relation to locating and articulating their feelings and low self esteem in conjunction with high aspirations (Johnson & Conners, 1987).

In relation to the previously mentioned areas Bjorvell (1985) found that obese subjects were higher than the population average on impulsiveness and other variables such as somatic anxiety and monotony avoidance. This pattern was characterised as an impulsiveness syndrome, which is also found in drug addicts. Features such as difficulty with learning from experience and a tendency to act on the spur of the moment can be observed in repeated failures to lose weight, and, as in other addictions, relapse is common.

In one study (Gendall, Sullivan, Joyce, Fear & Bulik, 1997) investigating the relationships between psychopathology and personality in "food cravers", it was

found that those who experienced food cravings also tended to have higher levels of novelty seeking behaviour. This trait is associated with excitability, impulsivity, dramatisation, overspending, and thrill seeking. It is thus possible that the extreme forms of consummatory behaviour and behavioural activation seen in alcohol abusers, those with bulimia nervosa and food cravers may have a basis in a novelty seeking temperament. In these individuals this type of underlying temperament trait might also manifest itself in other behaviours that have an appetitive quality (Op cit.).

Exercise

The relationship between eating disorders and exercise dependence has already been discussed in chapter three, but, in relation to the incorporation of personality into the discussion, it has been suggested that similarities in personality exist with both groups, these being characterised by a poorly established sense of self and the use of exercise or diet as a means of gaining a sense of mastery and control (Yates, 1987). These similarities have not been accepted by all researchers and have attracted criticism (e.g. Sachs, 1987). Interestingly it is well known that the effects of moderate exercise are thought to improve mood and improve a sense of control (McDonald & Thompson, 1992) It is thought that the prime motive for obligatory exercisers is self regulation and control of athletic performance, physical appearance or both (op cit.).

While the term exercise addiction has been largely rejected in favour of, for example, exercise dependence, the association of exercise with addiction stems from Glasser (1976) who differentiated between positive and negative addiction to running, being analogous to commitment and dependence. In relation to exercise addiction the available evidence suggests that it is extraverted individuals who are more prone to

this addiction (Kagan & Squires, 1985). In a study by Kagan and Squires (op cit.) the concept of an addicted personality style was assessed. Using measures of dependence, compulsiveness, Type A personality, rigidity, need for social approval and hostility, it was found that there was evidence to suggest that in terms of personality characteristics, there are consistent findings that fit with the idea that individuals can become addicted to exercise. In relation to the connection between eating disorders and exercise addiction, evidence also seemed to suggest that compulsive exercisers are very likely to score towards the extreme end of a scale on measures such as eating control, body dissatisfaction, low self esteem and self efficacy.

Other Nurturant behaviours : Work and compulsive helping

Although workaholism has received considerable attention from the media its comprehension based on research is quite limited (Burke, 1999). Links have been made with Type A personality (coronary prone) (Robinson, 1996 and 1999) and obsessive compulsive traits (Seybold & Salomone, 1994). Spence & Robbins (1992), found higher levels of perfectionism, non-delegation of responsibility and perceived work stress in workaholics than in those identified as work enthusiasts. Workaholics were defined as those experiencing high work involvement and drive with low enjoyment of work. Work enthusiasm on the other hand was defined as high work involvement and enjoyment with low drive.

Co-dependency research is in its infancy though it has been found to be related to self-defeating personality characteristics (Wells, Glickauf-Hughes & Bruss, 1998). It was seen in the cross-addiction review chapter (chapter three) that Cermak (1986) has

outlined five major characteristics of co-dependency: 1. Continual investment of self esteem in the ability to influence or control feelings and behaviour in the self. 2. The assumption of responsibility for meeting the needs of others to the exclusion of his or her own needs. 3. The suffering of anxiety in periods of intimacy or separation. 4. Emotional involvement in relationships with personality disordered, drug dependent and other compulsive people. 5. Constriction of emotions, depression, hyper-vigilance, compulsions and anxiety.

8.9. Summary and conclusions of the review

In sum it seems that there is a widespread expectation of inherent sense in the link between personality and addiction. This stems from the belief that many psychiatric syndromes may in part be linked to personality variables (Deary et al, 1998) and, perhaps more importantly, common sense assumptions which prevail. The review has outlined some of the research findings from a diverse set of behaviours which is necessary before predictions can be made relating the four factors with personality variables. However, it was seen that with many of the behaviours many different personality variables have been found to be associated with the same addictive behaviours. In the next chapter these findings are discussed with a view to providing a firm basis upon which predictions will be made about the association between addictive orientations and the Big Five personality dimensions.

Chapter Nine

Personality characteristics and addictive orientations

9.1. Introduction

In this chapter pertinent information from the previous review chapter will be summarised in order to introduce results linking the four factor solutions from previous chapters with personality characteristics. First, inherent problems with the attempt to link personality and addictive orientation will be highlighted. Following this, the possibility of the addictive orientations having a relationship to physiological correlates will be discussed, then the possible role of Anti-social personality disorder will be addressed. Finally, drawing upon the previous chapter, hypotheses will be generated which will attempt to predict which personality variables may be associated with the four factors.

A number of inherent problems detract from a simple cause and effect relationship between personality and addiction. The first problem involves the lack of *predictive* studies that link the existence of personality as assessed *prior* to the onset of addiction. In the present study the problem of causality cannot be addressed. Nonetheless, investigating patterns of personality in relation to the found addictive orientation is still a valid pursuit, and the studies which have been reviewed in the previous chapter will contribute to a base line level of expectation.

Second, great variability in personality characteristics has been found across the different forms of addictive behaviour. Looking at the predictive studies in conjunction with the correlational studies for different addictive areas it was noted in

the previous chapter that a wide range of personality variables have been implicated. Summarising some conceptual similarities from these areas will help to contribute to the predictions in the present study.

An area of particular interest from the review is the possibility of a relationship between a physiological model of addiction (Eysenck, 1997) and Khantzian's (1985) idea of self-medication. Both theoretical positions argue that addictive behaviour serves a useful function for the individual, and the nature of the functions they fulfil is related to the personality profile of the addict. Eysenck (op cit) proposed that those who are neurotic tend to be highly reactive to environmental and psychological stimuli. This it is thought results in individuals who are typically easily startled and shaken. In contrast, he proposed that individuals who are extrovert are not as reactive to stimuli, and that this characteristic requires extroverts to create their own excitement. Khantzian (1985) argued that addicts use their addiction as a form of self-medication to combat and cope with their psychological problems and that the drug of choice is not random but rather specific to their psychopathologies.

These analogous views may be taken to suggest that the baseline activation level of individuals who are orientated towards the more sensation-seeking hedonistic behaviours (contained in the Power related hedonism factor and the Sensation seeking hedonism factors) are low, and occurring in extraverted individuals. If this is the case then, possibly in conjunction with some form of psychological problem, this low baseline activity serves to orient them towards certain behaviours in order to satisfy or self medicate an internal state.

By contrast those orientated toward the Nurturant behaviours (Self orientated and Other orientated nurturance), maybe be more likely better characterised by neuroticism, as their baseline level of activation requires behaviours which soothe an already reactive and aroused state. So in this case this level of activation, possibly in conjunction with some form of distress or psychological problem, channels them towards these more soothing behavioural constellations.

Position on alcohol

In the review of the literature on alcohol's effects on emotional states (Sher, 1987) and other factors (Meusler et al, 1998) there seems to be plenty evidence which suggests that alcohol and drugs alleviate a variety of different problems. This rather contradicts findings reported in previous chapters that alcohol didn't contribute strongly to the drug-dominated factor, but contributed more weakly to a number of factors. In relation to personality it seems unlikely that alcoholism and alcohol use is straightforwardly related to personality. Evidence which supports this position includes the number of attempts which have been made to sub-type alcoholism (e.g. Cloninger, 1987, Babor et al, 1992); it seems that there are a number of different types of alcoholics, possibly reflecting different personality orientations.

Anti-social personality disorder (ASPD)

Anti-social personality disorder has been a popular avenue of investigation, and much research has shown that this personality disorder is strongly related to both alcohol and drug addiction (Regier et al, 1990). Of particular interest are the personality dimensions which have been found to be linked with Anti-social personality disorder. These include neuroticism, impulsivity and extraversion (Sher & Trull, 1994). The

unifying themes across these conditions include deficits in inhibition and excesses in rule breaking or norm violating behaviour. Individuals with Anti-social personality disorder have also been shown to exhibit deficits in delay of gratification, to engage in frequent sensation seeking behaviour and to be vulnerable to boredom (Quaym, 1965). Interestingly, these dimensions have also attracted attention in the alcohol literature. In the same way as with Anti-social personality disorder, impulsivity/disinhibition appears to be most relevant to alcoholism (see section on alcohol later in this chapter).

Interestingly, it has been shown that childhood conduct disorder is often a *precursor* of later Anti-social personality disorder (Muesler et al, 1998). As this evidence is prospective this gives additional weight to the argument that Anti-social personality disorder may be a contributing factor for addiction and most importantly that it is a factor which may precede addiction. In relation to the present study, the personality characteristics which are associated with Anti-social personality disorder suggest that the extraversion and related anti-social characteristics will be related to the hedonistic factors.

9.2. Hypothesis generation

9.2.i. An overall prediction

As this was a clinical sample, and Neuroticism is a personality dimension which has been found to be associated with many addictive behaviors, it was predicted that *Neuroticism would be positively associated with all of the factors. In particular, it was expected that there would be a particularly strong association with the Self orientated nurturance factor (the "eating disorder" factor), in line with results from*

previous research.

9.2.ii. Sensation seeking hedonism (Drugs, prescription drug factor)

In the review one of the main findings suggested that personality variables of Neuroticism and Psychoticism are positively related to drug abuse and across a large number of studies these findings are quite robust (Eysenck & Eysenck, 1991). Substance dependence has also been found to be associated with elevated levels of negative emotionality and depressed levels of constraint relative to controls (Krueger, Caspi, Moffitt, Silva & Mcgee, 1996 in McGue, Slutske & Iacono, 1999). In the previous chapter it was mentioned that the link between Anti-social personality disorder and drug and alcohol addiction has been a popular avenue of investigation, as much research has shown that this personality disorder is strongly related to both these addictions (Regier et al, 1990). For instance a study comparing those with a substance use disorder with those without, found that rates of conduct disorder, Anti-social personality disorder and nicotine dependence were consistently higher among those having a substance use disorder than among those not (McGue, Slutke & Iacono, 1999). This particular study seems to relate to one of the findings from the factor analyses, this being the strong association of nicotine with drugs.

In the previous chapter Sensation seeking was found to be another widely studied personality correlate of drug use disorders, with the finding that indicators of this personality characteristic tend to be associated with drug use disorder status (McGue, Slutske & Iacono 1999). In conjunction to this Gambling has also been described as a form of risk taking or sensation seeking behaviour (see chapter two). Pathological gamblers are known to be high sensation seekers, scoring significantly higher than

social gamblers on the Disinhibition, Boredom Susceptibility, and Experience Seeking sub scales of Zuckerman's Sensation Seeking Scales (Dickerson, Hincy, & Faber, 1987). What is also pertinent to this area is that males are more likely to be gamblers and sensation seekers than females (Spunt, Lesieur, Liberty & Hunt, 1996).

Interestingly work has been conducted where links have been made between sensation seeking behaviour, gambling and drinking (e.g. Zuckerman's 1994, in Gupta & Derevensky, 1998). These findings from Zuckerman (op cit) suggest that individuals with higher sensation seeking levels more frequently engage in gambling activities and are more likely to engage in high risk activities such as drinking and reckless driving.

If these findings are taken together what may be suggested is that personality variables which may be related to Anti-social personality disorder and conduct disorder, notably and especially Conscientiousness, and also Agreeableness, may be related to the Sensation Seeking Hedonism factor. In the present study this leads to the prediction that *the personality variables Agreeableness and especially Conscientiousness will be negatively related to the Sensation seeking Hedonism factor.*

As more males than females are diagnosed with Anti-social personality disorder it was thought that the representation of personality traits in the male and female samples may differ. Ball (1995) in his study found that cocaine misusing women scored higher than men on Impulsivity/sensation seeking, and Neuroticism/anxiety dimensions. This, he suggested, indicated greater sociopathic traits in addicted

women. In sum, looking at the evidence it seems both that men are more likely on the whole to be diagnosed with drug and alcohol addiction, and that Anti social personality disorder is related to these diagnoses. However, the women who are involved in these behaviors seem to exhibit a more extreme manifestation of the personality characteristics. It would seem then that differences in personality according to gender would be expected.

So, considering material from the previous chapter and looking at this selection of representative studies for this orientation it *was expected not only that the personality dimensions of Agreeableness and Conscientiousness would be negatively associated with Sensation seeking hedonism for both males and females but also that conscientiousness may be more relevant for men. In addition to this it was also predicted that the presence of Neuroticism would be associated with this factor and this association may be more important for women.*

Predicted personality variables

Negative conscientiousness (especially for men)

Negative agreeableness

Neuroticism (especially for women)

9.2.iii. Power related hedonism, (Relationships factor)

There is ongoing discussion around the inclusion of relationship addiction being a bona fide addictive behaviour to include under the term addiction. As a result of this, research investigating the personality characteristics of this area can be seen as in part exploratory. It can be suggested that the use of relationships in an addictive fashion is

predominantly to do with control, manipulation and the use of others in order to achieve satisfaction for the self. This being the case, *Dominance and negative Agreeableness* seemed to be appropriate predictions. In a similar fashion as sex addiction seems also to be to do with power and the use of others for personal gain *it seems possible that dominance may be the main predictor for this factor. As this factor is closely related to the previously discussed Hedonism factor, it was thought that negative conscientiousness may also be associated.*

Predicted personality variables

Dominance

Neuroticism

Negative Conscientiousness

Negative Agreeableness

9.2.iv. Other Orientated Nurturance, (Compulsive helping factor)

As the majority of addiction research has concentrated on alcohol and drug abuse the available research for this area is a little thin on the ground. Cermark (1986) has outlined a number of characteristics typically associated with "co-dependency", in particular, anxiety in periods of intimacy or separation, neurotic symptoms and taking responsibility of meeting other people's needs at the expense of their own. More recently co-dependency has been found to be related to self defeating personality characteristics (Wells, Glickauf-Hughes & Bruss, 1998).

It can reasonably be suggested that this constellation of behaviours involves gaining satisfaction through the pursuit of attending to other's needs. As this factor contains

Work in addition to the Compulsive helping dimensions it seemed logical that *a positive involvement in Agreeableness and Conscientiousness would be expected.* However, given the association of obsessive compulsive traits (Seybold, Salomone, 1994), perfectionism (Spence & Robbins, 1992) and Type A personality (coronary prone) (Robinson, 1996 & 1999), *the prediction of Neuroticism being associated with this factor was also made. In addition to this it was predicted that there may also be an association with negative Dominance.* It is unlikely that individuals who compulsively help would exhibit dominant personality characteristics, as this would contradict their drive to please others at their own expense. This would also be contrary to the findings that co-dependency has been found to be related to self defeating personality characteristics (Wells, Glickauf-Hughes & Bruss, 1998).

Gender difference

In the previous analysis looking at gender differences in the factorial structure it was seen that its composition was the same for both males and females. However, instead of predicting no gender differences for the personality configuration for this factor it was recognised that this factor is better represented by females, and that the expectations would be correspondingly greater for women. This is because the compulsive helping behaviours embrace strong care taking and nurturing of others which reflects a more typically stereotypical female behaviour.

Predicted personality variables

Agreeableness (especially for women)

Conscientiousness (especially for women)

Neuroticism

9.2.v. Self orientated nurturance, (Eating disorder factor)

Evidence which suggests that personal ineffectiveness and low self-esteem (Mayhew & Edelmann, 1989) combined with perfectionism and obsessive compulsive traits (Fahy, 1991) may be principal personality correlates of eating disorders seems to relate quite well to the more global personality constructs being used in this study. *It seemed appropriate to predict Conscientiousness and Neuroticism as being relevant to this set of behaviours* as these resonate with the idea of a sense of mastery and need for control, arguably features of the constellation of eating disorders.

Further evidence for these predictions comes from research findings from exercise addiction, as here again a poorly established sense of self and the use of exercise or diet as a means of gaining a sense of control has been found (Yates, 1987) In a similar vein it is thought that the prime motive for obligatory exercisers is self regulation and control of athletic performance, physical appearance or both (op cit). Kagan and Squires (1985) also found that compulsive exercisers are very likely to score towards the extreme end of scales measuring behaviours such as eating control, body dissatisfaction, low self-esteem and self-efficacy. *It may also be suggested that low self-esteem, characteristic of eating disorders, reflects a position of negative dominance. Finally, low self-esteem may also predispose those high on this factor towards agreeableness.*

Gender difference

As eating disorders are still predominately female disorders it was predicted that there may be differences in personality structure for males and females, as it was thought that the contribution of personality may have something to do with being female. If this addictive orientation is somehow essentially connected to being female, *it was predicted that for males that a negative score on dominance may be especially important. As in general it seems that eating disorders are well characterised by the Neuroticism dimension, it was predicted that Neuroticism may play a more important role for females.*

Predicted personality variables

Neuroticism (especially for women)

Conscientiousness

Agreeableness

Negative dominance (especially for men)

9.3. Method

Personality was assessed by self-report and this data was collected at the same time as the SPQ. The same clinical sample as used in the previous clinical study was used, and again the sample was split into males and females. This was done as in addition to global predictions, differences were predicted for the male and female. The sample in this study is reduced to approximately 350 from the original 543 patients as the personality scores were not available for the entire sample. This was due to a change in questionnaire use at the treatment centre.

Measures

The use of the Five factor model

The Five factor measure employed in the study examines what are now commonly regarded as the five principal dimensions of personality initially developed by factor-analysis (Cattell, 1946). This line of investigation has been continued and further refined by a number of investigators with recent work being completed by Peabody and Goldberg (1989). The Five factor model (FFM) dimensions are Dominance and Agreeableness, Neuroticism, Conscientiousness and Openness to experience, and has been well developed empirically (Costa & McCrae, 1992). The Five factor model is also thought to be well suited for exploratory research in relatively uncharted domains for which specific hypotheses regarding individual differences variables are lacking (Trapnell & Wiggins, 1990). It has been found that much of the variance of these dimensions is heritable (Heath, Neale, Kessler, Eaves & Kendler, 1992) and therefore can be seen not just as summaries of personality but as genotypic tendencies of individuals to think, act and feel in consistent ways.

Personality questionnaire: The Interpersonal Adjective Scales-Big Five. (IASR-B5)

The IASR-B5 (Trapnell and Wiggins, 1990) is a 124 item adjectival rating questionnaire which combines the circumplex and the Five factor models of personality. This questionnaire was developed in response to the growing recognition that the Dominance and Nurturance dimensions of the circumplex model correspond closely to the Extraversion and Agreeableness dimensions of the Five factor model. So the questionnaire measures the interpersonal circumplex dimensions of Dominance and Nurturance as well as the dimensions of the remaining dimension of the Five-

factor, these being Neuroticism, Conscientiousness and Openness to experience. The Five factors may be briefly described as follows.

Neuroticism: tendency to experience negative effect.

Dominance: gregariousness, activity.

Openness to experience: intellectual curiosity, awareness of inner feelings, need of variety in actions.

Agreeableness: altruism, emotional support, helpfulness.

Conscientiousness: will to achieve, dependability, responsibility.

In terms of the validity of the measure, the five scale measure, "Was found to have excellent structure on the item level, internally consistent scales, and promising convergent and discriminant properties" (Trapnell & Wiggins, 1990 p. 781). (Full questionnaire in Appendix 3).Instructions were given and respondents were asked to rate the self-descriptive accuracy of each single adjective on an 8 point Likert scale ranging from extremely inaccurate to extremely accurate.

9.4. Statistical procedures

The major study questions were addressed with regression analysis, with the factor score measures being derived from the previous clinical study.

Regression

What was of interest was the investigation of the *relationship* between the four factors from the previous study, and measures of personality, using the IASR-B5 (Trapnell & Wiggins, 1990). Initially the question to be answered was whether the factor scores could be "explained" by the personality measures, and if so, whether there was a statistical model for this relationship, and what was its level of predictive power.

By design the factors are independent and so a linear model was fitted to each of the 4 factors separately with the 5 personality measures as the regressors. The method of fitting the linear model was that of Least Squares, which produces the best linear unbiased estimators for the regression parameters. The normality assumption was checked through diagnostic plots, which indicated that the procedure was appropriate.

R^2 statistic

When assessing the fit of a linear regression model one of the most popular statistics to use is the R^2 statistic. This measures the proportion of variation explained by the model. This is a general measure of fit for the whole model as it measures the multiple correlation between the dependent variable y and the explanatory variables.

Model selection

What was of interest was which of the personality measures are useful in explaining and predicting the factor scores. A priori it can be assumed that it is unlikely that all the personality measures are needed to explain the separate factor scores and so some sort of model selection has to take place. There is a number of approaches to use for selecting which explanatory variable to include in the linear model. In essence these

methods reduce to comparing the variation explained by competing models. For this particular case where there is a small number of possible regressors the most suitable method is step-wise selection. Stepwise selection works by choosing whether to include or remove variables on the basis of an F-test. The F-test is obtained through comparing two models, one with and one without the variable being tested. The proportion of additional variation explained by including the variable, as measured through the sum of squares, is then tested to see whether it is significant. If it is, then the model with the extra term is kept; if not significant then the model without the extra term is kept.

Significant F-values

Basically the F-test compares a model with $(p - 1)$ parameters with a model with p terms. So the F-statistic has 1 and $(n - p - 1)$ degrees of freedom, which for the large number of observations and small number of parameters has approximately the same critical values as z^2, the square of the standardised normal

9.5. Results

Table 9.1. and 9.2. presents results of all the regression analyses and these are summarised in table 9.3. on page 204.

Table 9.1. Regression analyses of personality predicting factor scores in males.

Male: Factor 1 Self-orientated nurturance.

(Food bingeing, Caffeine, Food starving and Shopping)

For Factor 1 the overall model was significant (F (3, 149) = 8.416, p <.001)

Factors	Beta	t	p	Model R^2
Dominance	-0.18	-2.85	< 0.01	
Agreeableness	-0.15	-2.22	< 0.05	
Neuroticism	0.15	2.08	< 0.05	**14.49%**

Male: Factor 2 Other Orientated Nurturance.

(Compulsive helping submissive, Work, and Compulsive helping dominant)

For Factor 2 the overall model was significant (F (3, 149) =5.439 p = 0.001412)

Factors	Beta	t	p	Model R^2
Neuroticism	0.17	2.44	< 0.05	
Agreeableness	0.17	2.41	< 0.05	
Conscientiousness	0.12	2.05	< 0.05	**9.87%**

Male: Factor 3 Power related hedonism.

(Relationships in both forms and Sex)

For Factor 3 the overall model was significant (F (3, 149) = 10.86, p = < 0.001

Factors	Beta	t	p	Model R^2
Neuroticism	0.28	4.24	< 0.001	
Agreeableness	-0.24	-3.74	< 0.001	
Dominance	0.21	3.51	< 0.001	**22.7%**

Male Factor 4 Sensation seeking hedonism.

(Prescription drugs, Drugs and Nicotine)

For Factor 4 the overall model was significant (F (1, 151) = 26.68, p = < 0.001

Factors	Beta	t	p	Model R^2
Conscientiousness	-0.25	-5.17	< 0.001	**15.02%**

Table 9.2. Regression analyses of personality predicting factor scores in females.

Female: Factor 1 Sensation seeking hedonism.

(Drugs, Prescription drugs, Nicotine, Gambling and Alcohol)

For Factor 1 the overall model was significant (F (1, 147) = 10, $p < 0.01$)

Factors	Beta	t	p	Model R^2
Conscientiousness	-0.18	-3.16	< 0.01	**6.37%**

Female: Factor 2. Other orientated nurturance

(Compulsive helping in both forms and Work)

For Factor 2 the overall model was significant (F (2, 146) = 6.688, $p < 0.01$)

Factors	Beta	t	p	Model R^2
Agreeableness	0.18	2.12	< 0.05	
Conscientiousness	0.14	2.51	< 0.01	**8.39%**

Female: Factor 3 Self orientated nurturance.

(Food starving, Food bingeing, Exercise, Caffeine)

For Factor 3 the overall model was significant (F (2, 146) = 14.6, $p < 0.001$

Factors	Beta	t	p	Model R^2
Neuroticism	0.30	4.76	< 0.001	
Openness to experience	-0.21	-2.78	< 0.01	**16.66%**

Female: Factor 4 Power related hedonism.

(Relationships in both forms and Shopping)

For Factor 4 the overall model was significant (F (3, 145) = 13.32, $p < 0.001$)

Factors	Beta	t	p	Model R^2
Neuroticism	0.32	5.02	< 0.001	
Conscientiousness	-0.20	-4.19	< 0.001	
Dominance	0.18	2.87	< 0.01	**27.01%**

Table 9.3. Summary table: Regression analyses of personality predicting factor scores in males and females.

Male factors	Male personality variables and R^2	Female factors	Female personality variables and R^2
Factor 1 (Both food dimensions, Caffeine, and Shopping)	Dominance (-ve) Agreeableness (-ve) Neuroticism **14.49%**	**Factor 3** (both food dimensions, caffeine and exercise)	Neuroticism Openness to experience (-ve) **16.66%**
Factor 2 (Both Compulsive helping dimensions and Work)	Neuroticism Agreeableness Conscientiousness **9.87%**	**Factor 2** (both forms of compulsive helping and work)	Agreeableness Conscientiousness **8.39%**
Factor 3 (Both Relationship dimensions and Sex)	Neuroticism Agreeableness (-ve) Dominance **22.7 %**	**Factor 4** (Both relationship dimensions and shopping)	Neuroticism Conscientiousness (-ve) Dominance **27.01%**
Factor 4 (Prescription drugs, Drugs and Nicotine)	Conscientiousness (-ve) **15.02%**	**Factor 1** (Prescription drugs, drugs, nicotine, gambling and alcohol)	Conscientiousness (-ve) **6.37%**

It can be seen that not all the personality measures seem to influence the factor scores. In particular the Openness to experience doesn't seem to effect any of the models except for the female Self orientated nurturance factor (food). The R^2 values are not exceptionally high, but the included variables are statistically significant at the levels indicated. It is also clear that there is a correspondence between the male and female models.

9.6. Description and discussion of the results

Regression analyses comparing the factors and the associated personality variables

The first prediction was that Neuroticism would be associated with all of the factors, and that there would be a particularly strong association with the Self orientated nurturance factor (eating disorders). This prediction was partially supported as Neuroticism was found to be present in most of the models, the exceptions being: the male Sensation seeking factor (drug) and for females the Sensation seeking hedonism factor (drug) and Other orientated nurturance (compulsive helping) factors.

However, it was found that Neuroticism though present in both the male and female Self orientated nurturance factor had a particularly strong association with the female population. This association was significant at the 0.1% level and in conjunction with a low score on Openness accounted for 17% of the variance. This appearance of Openness to Experience is particularly interesting, and merits further comment (see section on Self orientated nurturance).

Out of the five personality dimensions a further pivotal finding is the presence or absence of Conscientiousness; with Conscientiousness being positively associated with the "Other Orientated Nurturance" factor and negatively with both the male and female Sensation seeking hedonism factors and the Power related hedonism factor in the female sample.

Examination of the regression analyses primarily reveals that the main predictions are confirmed. In the next section each addictive orientation is taken in turn and examined in order to look at the contribution and relevance of the personality variables for both males and females.

Hedonistic factors overall

Looking at the Sensation seeking factors for both males and females (Factor 3 for males and Factor 1 for females) and the Power related hedonism factor for females (Factor 4) it can be seen that a *negative* score on conscientiousness is associated with all three of these factors, thus suggesting that, in general, this personality variable is important in hedonistic behaviours.

One way of interpreting this is that there is a possibility that negative Conscientiousness in some way *channels* individuals into the use of these clusters of addictive behaviours. Individuals with personality characteristics which contribute to negative conscientiousness may be at increased risk of drug abuse because they are less likely to accept, and less fearful of, the consequences of failing to follow cultural norms governing drug use or concerning sexual conduct. Drug use and abuse, the manipulation of others for personal gain and sexual permissiveness tend to be discouraged by conventional cultural standards and are not considered as acceptable ways of behaving. However, as individuals who exhibit these characteristics can be characterised by the unwillingness or inability to inhibit behavioural impulses, a lack of caution, and a failure to endorse conventional moral standards, it is possible that it is these qualities which increases the likelihood of the hedonistic behaviours being attractive.

Sensation Seeking Hedonism

It was predicted that in general that the contributing variables for this addictive orientation would be Neuroticism (+ve), Agreeableness (-ve) and Conscientiousness (-ve). In the event, the results indicated that a negative score on Conscientiousness was the only personality variable which predicted these factor scores for both males and females. It was also predicted that Neuroticism may play a more important role for females and that low Conscientiousness would play a more important role for males. For the male sample low Conscientiousness explained 15% of the variance, and for females it explained 6%. So it can be seen that the prediction of low Conscientiousness playing a more important role for males was supported, whereas the prediction of Neuroticism playing a more important role for females was not supported.

It must be noted that there was a substantial difference in how much variance for this addictive orientation was explained by the conscientiousness variable (6% for females and 15% for males). This may be explained perhaps simplistically through differences in gender expectations, in that it is more acceptable for males to be delinquent and to be engaged in these behaviours. However, it must be said that as the percentage of variance explained for both males and females is low it reveals that there are other factors which may provide further explanation for the orientation.

However, a number of previously mentioned studies relate to the finding of *negative Conscientiousness.* In Krueger, Caspi, Moffitt, Silva & McGee's study (1996 in McCue, Slutske & Iacono, 1999) it was found that substance dependence was associated with *depressed levels of constraint* relative to controls. This seems to

resonate with negative Conscientiousness in the present study, showing an inability to control actions seems to well illustrate the idea of negative Conscientiousness. A further correspondence can be found in the study by McGue, Slutke & Iacono (1999) where rates of *conduct disorder and Anti-social personality disorder* were found to be associated with those with a substance use disorder. Again it would be expected that those with conduct disorder and/or Anti-social personality disorder low Conscientiousness would be associated, as this forms an intrinsic part of the characterisation of these disorders.

Power related hedonism

Dominance (+ve), Neuroticism (+ve), Conscientiousness (-ve), and Agreeableness (-ve), were predicted to explain this factor. These predictions were partly supported, as for both males and females the common personality variables that were found to contribute to this factor in males and females were *Dominance (+ve) and Neuroticism (+ve).* For both males and females Neuroticism was found to be the best predictor in the models, so the tendency to experience negative effect seems too important in the comprehension of this orientation. However, differences were found between males and females. For instance for males negative Agreeableness played a role for males and not for females. For females negative Conscientiousness contributed to this factor's prediction and this was not the case for the males. For the females low Agreeableness did not form part of the factor's explanation.

It can be said that the personality variables were found to be particularly relevant for the both the male and female Power-related hedonism factors, as a substantial amount

of the variance - males 23% and females 27% - were explained by the personality variables.

It is difficult to place these findings in the context of previous research as little empirical work has been conducted in the area. Though through this type of analysis the generation of ideas may begin. So, it is possible that for males the orientation towards, and the subsequent use, of Relationships and Sex has something to do with a disregard for other's feelings as a negative score on Agreeableness perhaps indicates a selfish attitude (i.e. lack of interest in offering emotional support). This feature in addition to being assertive etc. (Dominance) seems to correspond with the underlying significance of this factor, this being the manipulation of others for the individual's own gain.

For females it seems that if personality in any way drives these behaviors that maybe the key to involvement with this orientation has more to do with the tendency towards being undisciplined (-ve Conscientiousness) in conjunction with being assertive (Dominance).

Nurturant factors

Other Orientated Nurturance

Co-dependency (compulsive helping) has been found to be related to self defeating personality characteristics (Wells, Glickauf-Hughes & Bruss, 1998), and Cermark, (1986) has outlined a number of characteristics such as anxiety in periods of intimacy or separation, neurotic symptoms and taking responsibility of meeting other people's needs at the expense of their own.

Conscientiousness and Agreeableness were predicted as being associated with this factor and this prediction has been supported, as both of these personality characteristics appear in both the male and female models. It was also predicted that Neuroticism would contribute to this factor's explanation. For males this prediction was supported and Neuroticism was found to be the *most* important variable for this factor's explanation whereas for females Neuroticism did not feature in the model and the most important personality variable was found to be Agreeableness. Interestingly across all the factors for both males and females *positive Conscientiousness only* featured in the "Other Orientated Nurturance". This possibly suggesting that this dimension may help in terms of distinguishing the factors.

It was also predicted that negative Dominance and Neuroticism would contribute to this factor's explanation. The contribution of negative dominance was not indicated in either the male or female models. However, even though a number of the predictions were supported for this factor at a highly significant level, the percentage of variance which was explained amounted to 8% for the females and 10% for the males, which is quite low. Looking at gender differences it was predicted that for females Conscientiousness and Agreeableness would be particularly important for this factor, however as these variables also appeared in the male model this indicates that the hypothesis was not supported.

With the presence of Agreeableness and Conscientiousness this seems to elaborate, to a certain degree, the meaningfulness of this factor. As the incorporation of personality variables to this constellation of behaviours further illuminates its significance, as the dimensions fit well with descriptions of co-dependency. For example one can see that the drive to meet other people's needs may be well served

by having an agreeable and conscientious disposition. The picture portrayed is that of an individual who is eager to please others through being helpful and supportive and willing to take on responsibility.

Self orientated nurturance

Neuroticism, Conscientiousness, Agreeableness and negative Dominance were predicted as being able to explain, in part, this factor and these predictions were only partially supported. It was hypothesised that the best predictor for females for the "Self orientated nurturance" factor (the food factor) would be high Neuroticism, for men it was predicted that it would be (negative) Dominance, and both of these predictions were supported. Conscientiousness was found not to contribute to either populations.

The female structure

Negative Openness to Experience contributed to the variance explained in the female model, and it is noteworthy that this personality variable did not contribute to any other models. It has been mentioned that eating disorders have traditionally been seen as a predominately female problem. Perhaps the contribution of negative Openness reflects a withdrawal from curiosity and creativity as a consequence of the introspective nature of obsessional thinking and preoccupation associated with eating disorders.

In conjunction to this it has previously been mentioned that it has been proposed that problems are generally internalised in females (Luthar, Cushing & Rounsaville, 1996). Perhaps this internalisation of problems, in part, has a degree of

correspondence with females being less involved in the outward looking and expansive.

The male structure

It was hypothesised that Agreeableness would play a role in this factor, however it was found to be relevant only for the male sample and in a negative fashion i.e. negative score on Agreeableness contributing to the factor's explanation. Dominance was also found to contribute negatively to the explanation of the males' factor score and not the females'. In conjunction to this it was also found that Neuroticism contributed to the male model, and so the hypothesis for Neuroticism was supported.

Taking these results and bearing in mind the evidence which indicates that male eating disorder cases are on the increase, what may be indicated is that where there is a combination of males adopting stereotypically female attitudes towards body image and control, and exhibiting personality features which may be judged as more feminine (e.g. negative dominance) this serves to orientate them into the Self orientated nurturance arena.

The findings also relate to previous work which has been conducted in the area:

Taking the above factors and considering them in the light of Eysenck's (1997) physiological resource model it can be seen quite clearly that the Hedonistic factors with their associated personality variables fit quite succinctly into a pattern of extravert behaviour. If this is the case they may be understood in Eysenck's (op cit) physiological terms, in other words it is possible that these individuals may be characterised by being less reactive to stimuli and thus in turn needing larger amounts

of stimulation to feel satisfied. Although this general Eysenckian level of explanation is supported, the results suggest that it is possible to find personality differences in various groupings of the addictive areas, indicating a further elaboration of personality characteristics serving to orientate individuals to specific addictive areas.

The Nurturant factors also fit closely with Eysenck's (1997) explanation of Neuroticism. One can see that with the attraction to compulsive helping, work and eating disorders may be more comfortable for those who are perhaps already emotionally aroused and therefore highly reactive. Again, though differences have been found within this group of Nurturant behaviours, it may be the case that the neurotic and extraversion substrates do serve as fundamental building blocks which orientates people into certain directions i.e. outward extravert expression or more neurotic introvert expression. It is possible that it is a later stage of development perhaps influenced through learning or availability that a branching off occurs which leads to specific behaviors or combinations to be used.

A similar pattern can be discerned in Khantzian's self-medication model (1985), in that the more nurturant behaviours may be related to the desire to satisfy a problem-driven life which occurs in conjunction with a personality characterized by a drive to be conscientious, agreeable and socially acceptable. This is clearly a different pattern from the drug orientated factor which seems to be related to a very different characterological structure. Perhaps the commonality behind the factors is some form of dissatisfaction with the self which becomes manifested in different forms due to the nature of the personality.

It was said earlier that research on Anti-social personality disorder and drug addiction (Regier et al, 1990) has suggested that these disorders tend to co-occur, and the results from the drug factor for males and females relates to this previous finding for the following reasons. The most consistently reported personality dimension of Anti-social personality disorder is impulsivity/disinhibition (Sher & Trull, 1994) together with deficits in delay of gratification etc. (Quay, 1965). It is clear that this constellation of variables fits well with a negative score on Conscientiousness which was found to be the best predictor for the Self orientated hedonism in the present study. It is possible that it is this factor which may be most associated with Anti-social personality disorder, and this would be an interesting further investigation.

The role of personality in relation to alcohol

Alcohol features only in the female sample contributing a small degree to the "Sensation seeking hedonism" factor, but overall it doesn't feature *highly* as it is only a weak contributing addictive dimension for the female sample and in the male sample alcohol doesn't actually load on any of the factors. It is possible that this occurred because alcohol consumption can be seen as a universal behaviour and therefore is commonly used in conjunction with many different combinations of addictive outlets.

What may be of interest here is previous work looking at the possibility of the presence of more than one type of alcoholic orientation. This may help shed light on the confusing picture that Miller (1976) humorously illustrates in the next sentence. In his review of the personality of alcoholics he states that, "One could conclude from this research that the average alcoholic is a passive, overactive, inhibited, acting-out,

withdrawn, gregarious psychopath with a conscience, defending against poor defences as a result of excessive and insufficient mothering" (1976, p.657). This is obviously a tongue in cheek comment aimed at the smorgasbord of descriptors that have been found to be associated with alcoholism. It can be said that from clinical observation that often alcoholics present in many different ways for example suffering from additional problems of drug abuse etc. or involvement with workaholism and compulsive helping. Here looking at dimensions of addiction and the relevance of personality what may be revealed are certain patterns of personality which may be involved in these dimensions.

The idea that there may be two types of alcoholics (Cloninger 1987 & Babor et al, 1992) is of relevance here. The first type is characterised by a relatively late age of alcoholism onset, a low familial loading, and an *absence of other anti-sociality*, whereas the second is characterised by a relatively early age of alcoholism onset, a high familial loading, and the *existence of other anti-social behaviour.* Of particular interest in relation to this study is the idea that personality factors are differentially associated with the two forms of alcoholism. The first type of alcoholism is thought to be specifically associated with relatively high levels of negative emotionality, whereas the second type is hypothesised to be associated with relatively high levels of behavioural dis-inhibition (Sher & Trull, 1994).

These descriptors seem to lend themselves to a Hedonistic and Nurturant interpretation of the differing patterns of alcoholism. In the present study it can be seen that even though alcohol did not feature highly in contributing to a factor in the male clinical sample, it came closest to contributing to the Other orientated nurturance

factor (compulsive helping) with a loading of .36. This may be seen to fit with the type one alcoholic especially when considering the absence of other anti-sociality which has been associated with this type of alcoholism. In terms of the reported high levels of negative emotionality this factor was best predicted by positive Agreeableness, but this was in conjunction with the presence of Neuroticism. So it could be the case that the combination of activities i.e. working hard and drinking to excess are behaviours used to cover extreme feelings of negative emotionality concern or depression. Bearing in mind the terms mentioned by Miller (1976) it is interesting to note that Nurturant alcoholics may be characterised by a personality which is passive inhibited and withdrawn whereas the hedonistic alcoholic may be overactive, acting out and gregarious.

By way of comparison in the female sample it was found that alcohol made a contribution to the "Sensation seeking hedonism" appearing alongside drugs prescription drugs, nicotine and gambling. This seems to fit with the type two characterisation of alcoholism with its associated existence of other "anti-social" behaviour as drug taking can be considered to be anti-social. Here the only personality variable to contribute to this factor was negative Conscientiousness which has been previously linked to anti-sociality (Lewis & Bucholz, 1991).

Of relevance here are the results from a general population survey of over 2,500 men and women which indicated that serious anti-social behaviour (both conduct disorder and anti-social personality disorder), gender and a family history of problem drinking were all significantly associated with alcoholism. With regards to gender, being male increased the probability of alcoholism (Lewis & Bucholz, 1991). Interestingly it was

also indicated that anti-social behaviour was a more powerful risk factor for women than for men. Is this because this behaviour is not typically female, and when engaged in indicates that social mores have been violated? Maybe, but despite this close association with alcoholism, having either anti-social personality or a positive family history of problem drinking identified only 53% of male alcoholics and 41% of female alcoholics. This indicates the importance of further influential factors.

In a study by (McGue, Slutske & Iacono, 1999) support was found for the idea that *constraint* and *negative emotionality* mark distinct pathways to alcoholism, but the proposition that these two pathways are primarily distinguished clinically by different levels of general antisocial behaviour received only inconsistent support. It was suggested however that co-morbid drug abuse might be the critical clinical factor differentiating the two types of alcoholism (op cit). Again the pattern here tends to lend itself to a Hedonistic and Nurturant orientation, drug involvement perhaps escalating the level of anti-social behaviour and thus distinguishing two types of alcoholism.

Criticisms

The major limitation of the study is that its design was cross sectional rather than longitudinal, and as a consequence it is not possible to determine whether the personality differences which were observed predated the onset or developed as a consequence of addictive behaviour.

Another limitation is that personality data was not collected from non-addicted participants. This was because the non-addict data for the factor analytic studies was

collected over a number of other related investigations and was not standardised for present purposes. If it was found that correlations remained constant across a range of factors and personality in a normal population then this would strengthen the argument for the role of basic personality dimensions in addiction.

Another criticism involves the method of personality assessment. In general, participants found the questionnaire difficult and awkward to complete, finding it repetitive and some of the terms difficult to understand. This may have caused an under-estimation of the association with personality. In addition to this there may be personality characteristics which are associated with these different orientations to addiction that were not measured by this instrument.

Final statement

Unfortunately much empirical and theoretical work simply inventories the personality characteristics of various addictive groups observed on various traits instead of presenting *explanatory models* of the disorders, and the interplay between personality and other etiologically relevant variables (Sher & Trull, 1994). In this study the aim was *not* to establish relationships between diagnosis or individual behaviours and personality, but to look at the possibility of *underlying* dimensions of addiction having concomitant personality features. There is inherent sense in this approach and given the extent of cross addiction it seems appropriate to look at the possibility of *underlying* dimensions. It is perhaps a valid point to make that *orientation* instead of diagnosis is more scientifically suited in the *characterising* instead of *classifying* of addicts as one is possibly more likely to get consistent associations with personality variables. In addition to this, the incorporation of personality dimensions in relation to

these underlying dimensions may help researchers and practitioners think more clearly about *if* and *how* personality contributes in the development and maintenance of the constellation of behaviours used.

Overall, these results provide evidence for the utility of personality in the understanding of addictive orientations. It also extends previous research in the elaboration and characterisation of "addictive orientations" (Stephenson et al, 1995). Consequently one implication from this and earlier research is that the construct of personality should be considered to be of importance in the conceptualisation of addiction. In general, correlations were found between the personality variables and the factors in the directions predicted, and regression analyses indicated that personality made an important contribution to our understanding of the factors in all cases.

This study has helped to explain why there isn't a single addictive personality, as it seems that from the Five factor model the dimensions seem to contribute to different clusters of addictive behaviour. It has also become evident that most likely culturally determined gender differences exist in the salience both of particular orientations and associated personality dimensions. There may be many motives and layers of explanation behind why compensation, solace or excitement may be desired (in a normal and a pathological way), though it seems that personality may be one of the influential elements which dictate the kind of substance or addictive behaviour that an individual may choose.

However, regarding personality as a causative factor is problematic and that

consideration cannot be overlooked. But, considerable data do suggest that personality traits similar to those assessed in this study predispose the later development of substance use problems, deviant and other risky behaviours (Tarter, 1986). However, if personality does not cause repeated use of substances the question is what does, the answer, as with so many questions in psychology, is probably multi-factorial. The list of causative factors is likely to include environmental pressures, learning, and genetic influences amongst others. So it seems that until more evidence is available the claim that addicts are associated with any personality type must be made with caution.

Chapter Ten

A comparison of psychiatric symptomatology in addicts over the course of treatment in an in-patient setting

10.1. Introduction

The term co-morbidity was first used by Feinstein (1970) in an appeal to researchers to investigate the occurrence of any co-existing disorders that may impinge on psychological treatment. Since then it has become widely recognised that this phenomenon of co-morbidity affects a large number of disorders including addiction, and poses a perplexing challenge for the comprehension of the etiology, treatment and outcome of addictive disorders. With alcoholics for instance, the most consistently documented co-occurring disorders are other substance use, mood, anxiety and schizophrenic disorders (Kessler, 1995). In relation to the extent of co-morbidity a study investigating the prevalence of co-morbidity in 928 in-patient alcoholics found that 62% of the sample fulfilled inclusive diagnostic criteria for one or more additional psychiatric disorders (Penick, Powell, Nickel & Bingham' 1994). Studies have also shown that the degree of co-morbidity is similar in alcoholism and drug use disorders in clinical and general populations. (e.g. Hesselbrock, Meyer, & Keener, 1986 (clinical) & Lewis, 1984 (general). In addition to this more than 50% of people with mental disorders have been found to abuse drugs including alcohol (Regier et al, 1990).

As this knowledge has developed the term "Dual diagnosis" is frequently used in this field and refers more precisely to the presence of a substance use disorder co-existing with another major psychiatric disorder (Sheehan, 1993). We have seen that within an addicted population the pervasiveness of dual diagnosis is becoming increasingly

accepted (Reiger et al, 1990) and the realities of poly-drug use are beginning to be viewed as typical rather then atypical (Carroll, Rounsaville & Bryant, 1993). This obviously increases the complexity of an already difficult to treat disorder. This is because it may be difficult to be confident that existing findings in addiction are attributable to the precise disorder of interest and are not an artefact of co-morbid psychopathology, this obviously including cross addiction. This co-morbidity, especially if not taken into account, may reduce researchers' ability to unambiguously attribute various factors, such as personality characteristics, to specific disorders.

Even though co-morbidity in the addictions has been revealed to be a common occurrence, it can be seen from the above that estimates concerning its prevalence do vary. Regier et al, (1990) found that 37% of alcoholics and over 50% of other drug addicts they studied had a co-morbid mental disorder, the most common being anxiety, affective and anti-social personality disorder. Such statistics suggest that, if such co-morbidity remains unidentified and hence untreated, it might offer an explanation for poor outcome study results, especially if such high co-morbidity occurs in more recently proposed addictions (e.g Internet usage).

Also of concern is the lack of in-depth knowledge and understanding in this area. For instance, even though it is known that depression and alcohol dependence are two of the most prevalent psychiatric disorders (Kessler, 1995), relatively little is known about this dual diagnosis population (Cornelius et al, 1997). However, recognition of this complex area does seem to be increasing. Indeed Hall and Farrell (1997) have argued that it is imperative for staff in addiction services to be trained to identify other psychiatric disorders in clients.

Prevalence of co-morbidity in relation to gender

In line with other clinical areas, the associated diagnoses for men and women are different. For instance, for alcoholic women, anxiety and affective disorders constitute the largest proportion of lifetime co-occurring cases, while the substance disorders, conduct disorder, and anti-social personality disorder account for the majority of co-occurrence among men (Nestadt et al, 1992). These findings are supported by an investigation which found that depression, anxiety and eating disorders are largely seen in females, whereas alcoholism, aggressive and suicidal behaviour predominate in males (Steiner, Lepate & Dunn, 1997).

Even though a number of different disorders are highlighted in this type of research there seems to be a degree of consistency in the *nature* of the disorders found for men and women which relates to the idea presented earlier (chapter 8) that it is possible that women are more likely to be "internalisers" and men are more likely to be "externalisers" (Luthar et al, 1996) For instance, in one study higher rates of dysthymia and eating disorders were observed in females and higher rates of cluster A personality disorders were observed in males (Grilo, Martino, Walker, & Becker, 1997). Another study of individuals with a primary diagnosis of major depressive disorders indicated that women were significantly more likely than men to meet criteria for co-morbid bulimia nervosa and for simple phobia, while men were significantly more likely to meet criteria for lifetime history of alcohol abuse/dependence and other substance abuse dependence (Fava, Abraham, Alpert & Nierenberg, 1996). Other studies have shown that female alcoholics report more symptoms of depression, anxiety, and global psychopathology than males (Benishek et al, 1992), and that depression in treatment samples show an approximately 2:1

female predominance (Paykel, 1991).

Some research has been conducted on the relationship between binge eating disorder (BED) and psychiatric symptomatology e.g. depressive and anxiety symptoms (Telch & Agras, 1994, & Wilson, Nonas & Rosenblum, 1993), with the general conclusion being that BED is associated with high levels of psychiatric symptomatology as well as high rates of co-morbid psychiatric disorders. With regard to psychiatric diagnosis in women with binge eating disorder it was found that they had a higher lifetime prevalence rate for major depression, and axis I or II disorders in comparison to controls (Telch & Agras, 1994).

Consequences

When investigating such alarming prevalence figures the potential consequences of such complex diagnoses necessitates a little exploration. At the very least co-morbidity must increase the experienced distress for the sufferer and without a doubt poses a challenge to the health professional in terms of treatment. This is because many of these individuals manifest symptoms which are particularly severe, chronic, and refractory in nature (Regier et al, 1990), and they may not respond as well to treatment as other patients, may have a greater likelihood for relapse and therefore readmission rates. This increased complexity of dual diagnosis is illustrated by one study in which cocaine dependent, and cocaine and alcohol dependent in-patients were compared. The patients who were dependent on both cocaine and alcohol showed significantly more symptoms of depression and anxiety and were more likely to have anti-social and "avoidant personality disorders" (Cunningham, Corrigan, Malow & Smason, 1993). In another study investigating the differences in

psychological profile in alcohol dependent men who had either attempted suicide or who had not, it was found that a higher percentage of men who had attempted suicide had histories of either illicit drug use, past psychiatric treatment or both (Roy et al, 1991). The profiles of those who had attempted suicide also showed exaggerated tendencies toward sociopathy, anxiety, depression and hostility. It can be seen that the consequences of dual diagnosis here have potentially far-reaching and serious consequences.

In quite a different area, current depression has been shown to be a factor associated with continued smoking, as there is evidence to suggest that smokers with elevated levels of depressive symptoms have an increased risk of failing to stop smoking (Dilsaver, Pariser, Churchill & Larson, 1990). Possible explanations for this include the use of smoking to self-medicate to prevent or reduce depressive episodes, or that smoking and depression share a genetic or emotional basis. These findings if extrapolated to other forms of addiction may suggest that if an addict is also suffering from depressive symptoms this may decrease the likelihood of them successfully reaching or sustaining a successful recovery.

Relapse and treatment

Clinical studies suggest that people who have a history of co-morbid mental and addictive disorders, when treated for addiction, tend to relapse at a greater rate than those without a history of mental disorder; and it has been indicated that the combination of substance abuse and depression worsens prognosis (Nunes, Deliyannides, Donovan & McGrath 1996). It is possible that if interventions for

mental disorders were implemented in conjunction with the treatment of the addiction that this would reduce the relapse rate of these individuals.

The practical recognition of co-morbidity may have prognostic and treatment value, although the direction of causality remains a problem. Addiction may precipitate or exacerbate mental disorders, or self medication for mental disorders may result in drug abuse or addiction. Another area of concern is that the forms of co-morbidity may be affected by a number of different factors including gender, the duration of addiction and individual's sensitivity to the addiction's effects. Improving the knowledge of co-morbid disorders and how one may impact the other is important because this type of information may help aid prevention, and enable treatment services to be appropriately configured and designed for clinical populations.

Often the almost inevitability of co-morbidity is ignored in treatment contexts as there are different treatment systems for the different disorders and quite often separate programmes that focus on addiction. It seems reasonable to assume whatever the causes of these conditions, *both* co-morbid conditions need to be treated simultaneously and in an integrated way. However, without the integration of knowledge concerning these areas it is unlikely that treatment methodology will evolve to a point where these diverse problems can be effectively tackled at once.

Explanations for these co-occurrences

There have been a number of explanations put forward to explain the rate of addictions co-existing with other psychiatric disorders. Mueslar, Drake & Wallach (1998) note four general models which have been proposed.

Common factors model

In this model the high rates of co-morbidity are the result of risk factors that are shared across both substance usage and psychiatric disorders (e.g. a common biological causal pathway or genetic predisposition (Luthar, Merikangas, Rounsaville, 1993), or the sharing of certain neurobiological bases with alcohol dependence (Litten & Allen, 1995). Muesler et al (op cit) state that there is overwhelming evidence which suggests that genetic factors do indeed contribute to the development of not only addiction (especially substance use disorders) but other severe mental illnesses as well such as schizophrenia. It is of interest however, that, research which has addressed the possibility of genetic vulnerability to one disorder increasing the risk to another, provides evidence *against* this model (op cit).

Secondary substance use disorder model

This model proposes that the presence of psychiatric disorder increases the patient's chance of developing an addiction. One avenue of research was that of the self-medication hypothesis, which was discussed in the previous chapter. A further model, which comes under this rubric of secondary substance use, is that of the alleviation of dysphoria. This is a more general model than the self-medication model in that it indicates that people with severe mental illness are prone anyway to dysphoria which may make them more likely to mood alter (Bartels & Drake, 1988). This is because it has been recognised that the dysphorias are particularly heterogeneous, including anxiety, depression, boredom etc. Research which supports this position comes from Muesler et al (op cit) who states that the literature on self reported reasons for drug use supports the idea that many different types of dysphoria motivate initial alcohol and drug use.

Super-sensitivity model

According to this model, "Psychobiological vulnerability determined by a combination of genetic and early environmental events, interacts with environmental stress to either precipitate the onset of a psychiatric disorder or to trigger relapse." (Muesler et al, op cit, p. 723). In addition to the influence of stress on vulnerability, psychotropic medications can decrease vulnerability, whereas substance abuse may increase it. Because vulnerability is defined in terms of a compromised biological sensitivity to stress it may also apply to the effects of alcohol and drugs. This sensitivity may render patients with severe mental illness more likely to experience negative consequences from using relatively small amount of substances. An interesting implication of this model is that it suggests that negative consequences of substance use, rather than use alone, is what differentiates patients with severe mental illness from the general population.

The research seems to support the hypothesis that patients with severe mental illness are prone to experience negative consequences from lower amount of substance use than people in the general population, which could explain some of the excess co-morbidity. For example, Drake and Wallach (1993) looked at the longitudinal course of drinking in two samples of patients with severe mental illness and reported that fewer than 5% were able to sustain symptom free drinking over time without negative consequences, in contrast to approximately 50% of the general population who drink alcohol over time without developing a disorder.

Secondary psychiatric disorder model

It still can be argued that even with the previous hypothesis there is the possibility of a reverse explanation which places the substance use *first* and depression or indeed any other mental illness or symptomatology as being precipitated by the substance use, i.e. addiction may increase the likelihood of, or may exacerbate mental disorders.

It is possible that psychiatric disorder develops in addicted individuals who would otherwise *not* develop these disorders. Clinically it is well known that substances of abuse can actually cause symptoms of both depression and anxiety. Though interestingly these substance related syndromes appear to have a different course and prognosis that uncomplicated, independent anxiety and major depressive disorders have.

Bi-directional models

A bi-directional position takes the middle ground in effect and states that either disorder can increase the vulnerability to the other disorder's development.

Rationale for study

It is clear that the previously mentioned incidence figures painted a bleak picture. The majority of people with an alcohol disorder have at least one other psychiatric disorder, and this co-occurrence is stronger among women. The implications of these facts are far reaching. In the light of the preceding two chapters, it seems likely that exploring psychiatric symptomatology in relation to addictive orientation may help to elucidate further the complexities of dual diagnosis. Besides amplifying our understanding of the factorial structure, addressing addiction broadly in its association

with psychiatric symptomatology, personality variables and the likelihood of the use of other addictive areas creates a fuller picture. This may help not only in overall comprehension but may also prompt a fresh look at appropriate treatment. So, in the next study psychiatric symptomatology is considered in relation to the four factor addictive orientation.

10.2. Expectations

1. First, given the evidence in co-morbidity research it was anticipated that there would be a high level of symptom reporting by men and women upon entering treatment, and it was predicted that patients on average would score within a clinical range on the Brief Symptom Inventory.

2. It was further predicted that there would be a reduction of symptomatology scores over a 6-week period in treatment. No predictions were made regarding differences for males and females.

3. It was expected that (a) given the evidence for the association of different addictions with psychiatric symptomatology the factor scores would be differentially involved in the prediction of psychiatric symptomatology. (b) it was also predicted that there would be systematic differences between males and females in the relationships found, given that males and females with addictive problems have been found to have different patterns of associated symptomatology.

4. (a) It was also expected that any decreases in symptomatology scores across a six-week period would be predicted by factor scores, (b) in this case differences between males and females were also predicted.

10.3. Method

Following admission to PROMIS, in conjunction with the other questionnaires, the Brief Symptom Inventory is completed by all patients. The questionnaire is then administered again six weeks into treatment. This provides two sets of Brief Symptom Iinventory scores: time one (entry into treatment) and time two (six weeks into treatment).

Participants

There were 190 participants in total for whom complete data were available, 93 men and 97 women. This is a substantial reduction in the number of participants in comparison to the numbers used in the previous factor analytic studies. This occurred for a variety of reasons, such as patients at the Centre leaving with staff approval before second testing time, or leaving against staff approval before being re-tested, or otherwise leaving at a time that precluded re-testing, with or without intent.

Brief Symptom Inventory

The Brief Symptom Inventory (BSI) (Derogatis, 1993) is a 53 item self report symptom inventory designed to reflect the psychological symptom status of psychiatric patients, medical patients and individuals in the community who are not currently patients. It is a shorter version of a longer test developed by Derogatis designed for purposes of diagnosis of psychiatric patients. The BSI contains nine

primary symptom sub-scales (described below). The items are listed in Appendix 5. It may be used as a single point in time assessment of an individual's clinical status or it may be used sequentially either to document trends overtime or in pre/post evaluations. General instructions for the BSI are very straightforward and can be found in Appendix 4.

Although the Brief Symptom Inventory does not claim to be a diagnostic instrument as such, it was thought that if differences were found between the different Addiction Factors in terms of decrease in Brief Symptom Inventory sub-scale scores, that this would serve to further elucidate the significance of addictive orientations in psychiatric distress. This further exploration utilising these Brief Symptom Inventory variables may in turn have some implications for the comprehension of co-morbidity. This is for a number of reasons as we have already seen e.g. relapse and treatment.

Brief descriptions of the nine symptoms assessed in the Brief Symptom Inventory

1. **Somatisation**

Reflects distress arising from perceptions of bodily dysfunction.

2. **Obsessive compulsive**

This dimension focuses on thoughts, impulses and actions that are experienced as unremitting and irresistible by the individual, but are of an unwanted nature.

3. **Interpersonal sensitivity**

This centres on feeling of personal inadequacy, inferiority and self-doubt.

4. **Depression**

The symptoms of the depression dimension reflect a representative range of the indicators of clinical depression.

5. **Anxiety**

General signs such as nervousness and tension are included in this dimension, e.g. feelings of apprehension, panic attacks and feelings of terror

6. **Hostility**

This dimension includes thoughts feelings, or actions that are characteristic of the negative affect state of anger.

7. **Phobic anxiety**

Phobic anxiety is defined as a persistence fear response to a specific person, place, object or situation that is irrational disproportionate to the stimulus and leads to avoidance or escape behaviour.

8. **Paranoid ideation**

This dimension represents paranoid behaviour fundamentally as a disordered mode of thinking. The cardinal characteristics of projective thought, hostility, suspiciousness, grandiosity, centrality fear of loss of autonomy and delusions are viewed as primarily aspects of this disorder.

9. **Psychoticism**

This scale was developed to represent the construct of psychoticism as a continuous dimension of human experience. Items indicative of a withdrawn, isolated schizoid lifestyle were included, as were first-rank symptoms of schizophrenia, such as thought control. This scale provided for a graduated continuum from mild interpersonal alienation to dramatic psychosis.

10.4. Results

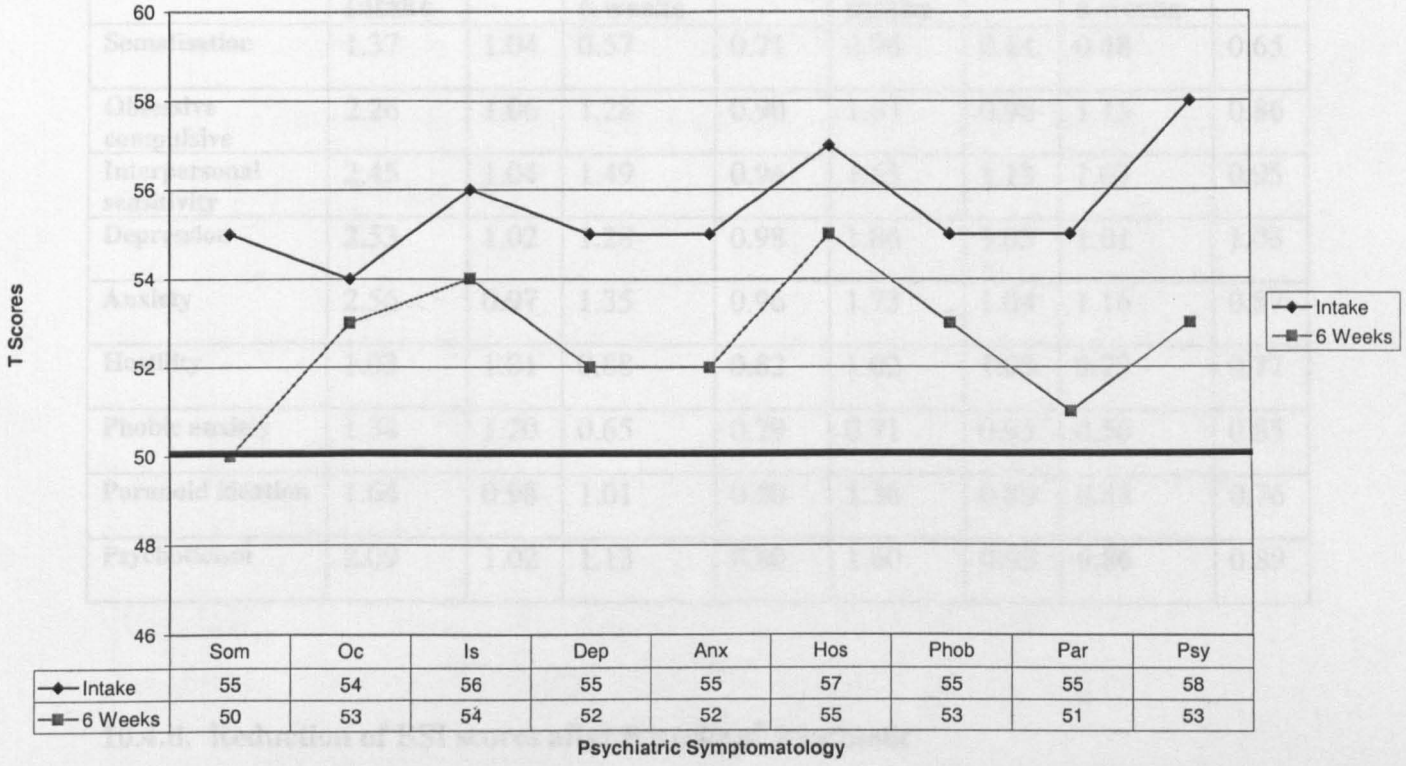
10.4.i. Level of BSI symptom reporting in males and females

Hypothesis 1

It was anticipated that there would be a *high* level of symptom reporting by men and women upon entering treatment, and it was predicted that patients on average would score within a clinical range on the Brief Symptom Inventory. Table 10.1. contains the average raw scores for males and females from the BSI. To make the different symptom dimensions comparable these scores are converted to standardised T scores (see bottom of figures 10.1 and 10.2). Standardised scales enable comparisons of the performance of an individual group (here addicts) with that of some relevant reference group. The T score has a mean of 50 and a standard deviation of 10. There are four norm groups for the BSI: adult psychiatric outpatients, adult non-patients psychiatric inpatients and adolescent non-patient and each group has separate norms for males and females. The norm group selected should be the one that best represents the individual or group being examined, so in this case the norm group selected was psychiatric in-patient.

Looking at figures 10.1 (male scores) and 10.2 (female scores), it can be seen that in general the scores indicate that they are in a clinical range in that the scores are within one standard deviation of the mean of 50. Though in fact as the scores in most instances are higher than the mean of 50 that this indicates that this population has a particularly high level of psychiatric symptomatology. For the male sample (figure 10.1) it can be seen that Psychoticism and Hostility are the highest scores on intake. For the female sample (figure 10.2.) it can be seen that Psychoticism and Anxiety are the highest scores on intake.

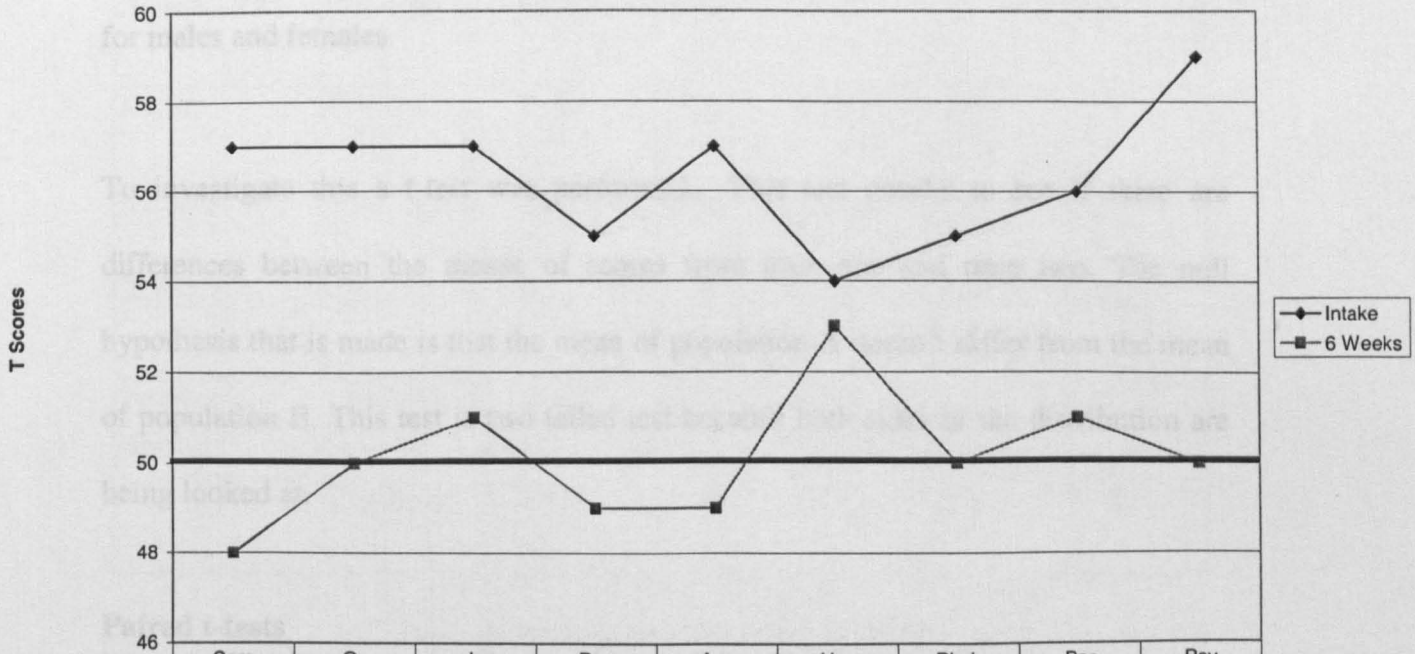
Figure 10.1. Male BSI Scores at Intake & After 6 Weeks of Treatment



	Som	Oc	Is	Dep	Anx	Hos	Phob	Par	Psy
Intake	55	54	56	55	55	57	55	55	58
6 Weeks	50	53	54	52	52	55	53	51	53

Psychiatric Symptomatology

Figure 10.2. Female BSI Scores at Intake & After 6 Weeks of Treatment



	Som	Oc	Is	Dep	Anx	Hos	Phob	Par	Psy
Intake	57	57	57	55	57	54	55	56	59
6 Weeks	48	50	51	49	49	53	50	51	50

Psychiatric Symptomatology

Table 10.1: Male and female BSI mean scores and standard errors at time of intake and after 6 weeks of treatment.

	Female Intake	S.E.	Female 6 weeks	S.E.	Male intake	S.E.	Male 6 weeks	S.E.
Somatisation	1.37	1.04	0.57	0.71	0.96	0.84	0.48	0.65
Obsessive compulsive	2.26	1.06	1.28	0.90	1.63	0.98	1.15	0.86
Interpersonal sensitivity	2.45	1.04	1.49	0.94	1.53	1.13	1.07	0.95
Depression	2.53	1.02	1.28	0.98	1.86	1.03	1.01	1.03
Anxiety	2.56	0.97	1.35	0.96	1.73	1.04	1.16	0.87
Hostility	1.03	1.01	0.88	0.82	1.02	1.03	0.79	0.77
Phobic anxiety	1.34	1.20	0.65	0.79	0.71	0.95	0.56	0.85
Paranoid ideation	1.64	0.98	1.01	0.80	1.36	0.89	0.83	0.76
Psychoticism	2.09	1.02	1.13	0.80	1.60	0.93	0.86	0.89

10.4.ii. Reduction of BSI scores after 6 weeks of treatment

Hypothesis 2

It was further predicted that there would be a reduction of symptomatology scores over a 6-week period in treatment. No predictions were made regarding differences for males and females.

To investigate this a t-test was performed. This test checks to see if there are differences between the means of scores from time one and time two. The null hypothesis that is made is that the mean of population A doesn't differ from the mean of population B. This test is two tailed test because both sides of the distribution are being looked at.

Paired t-tests

The t-test can only be conducted as such if the 2 samples are independent. In this case

this is not true as the same subjects are being tested before and after a certain period of time. In this situation a new sample is formed given by the difference between the scores of each personality at the admission and after 6 weeks and a one-sample t-test is performed on this newly formed sample. The null hypothesis in this case is that the mean of the difference will be zero against the alternative hypothesis that there is a decrease both at a 5% and 1% level.

The results are now presented in tabular form.

Table 10.2. Complete sample paired t-test for the addicts difference in BSI scores (Time 1 – Time 2)

Variable	N	Mean	Std Error	T	Prob>|T|	95% CI	
Somatisation	190	0.64	0.07	9.57	0.001	0.51	0.77
Obsessive compulsive	190	0.74	0.07	10.11	0.001	0.60	0.88
Interpersonal-sensitivity	190	0.71	0.09	8.39	0.001	0.55	0.88
Depression	190	1.06	0.094	11.25	0.001	0.87	1.24
Anxiety	190	0.90	0.09	10.59	0.001	0.73	1.06
Hostility	190	0.31	0.07	4.44	0.001	0.17	0.44
Phobia	190	0.43	0.08	5.48	0.001	0.27	0.58
Paranoid ideation	190	0.58	0.07	8.72	0.001	0.45	0.71
Psychoticism	190	0.86	0.08	11.08	0.001	0.71	1.02

For the 190 patients who completed both questionnaires it can be seen that there has been a decrease in their BSI scores at a 0.1% significant level. None of the Confidence Intervals (CI) contain zero. The next stage is to repeat the analysis for both males and females.

Table 10.3. Males paired t-test for males difference in BSI scores (Time 1 – Time 2)

Variable	N	Mean	Std Error	T	Prob>|T|	95%CI	
Somatisation	93	0.48	0.10	4.90	0.001	0.29	0.67
Obsessive compulsive	93	0.49	0.10	5.06	0.001	0.30	0.68
Interpersonal sensitivity	93	0.46	0.12	3.85	0.001	0.22	0.69
Depression	93	0.85	0.13	6.41	0.001	0.59	1.11
Anxiety	93	0.57	0.15	4.49	0.001	0.32	0.81
Hostility	93	0.23	0.10	2.23	0.03	0.03	0.43
Phobia	93	0.14	0.09	1.69	0.09 (ns)	-0.02	0.31
Paranoid ideation	93	0.53	0.09	5.61	0.001	0.34	0.71
Psychoticism	93	0.75	0.10	7.44	0.001	0.55	0.95

The results show a highly significant decrease in most of the Brief Symptom Inventory scores in the male sample. The majority at the 1% level of significance. It needs however to be pointed out that for Hostility the decrease is significant at the 5% level but not at the 1% level, while for Phobia the evidence of a change is not so strong with the 95% confidence interval including the zero (p-value for mean = 0 is 0.09). This means that we shouldn't refuse the null hypothesis of no change at the 5% level, i.e. there wasn't a significant decrease in phobia scores for males.

Table 10.4. Females Paired t-test for females difference in BSI scores (Time 1 – Time 2)

Variable	N	Mean	Std Error	T	Prob>|T|	95%CI	
Somatisation	97	0.80	0.09	8.89	0.001	0.62	0.97
Obsessive compulsive	97	0.98	0.10	9.42	0.001	0.77	1.18
Interpersonal sensitivity	97	0.96	0.12	8.22	0.001	0.73	1.18
Depression	97	1.25	0.13	9.62	0.001	0.10	1.51
Anxiety	97	1.22	0.11	11.60	0.001	1.02	1.42
Hostility	97	0.38	0.09	4.09	0.001	0.20	0.57
Phobic anxiety	97	0.70	0.12	5.67	0.001	0.46	0.94
Paranoid ideation	97	0.63	0.09	6.69	0.001	0.44	0.81
Psychoticism	97	0.96	0.12	8.26	0.001	0.73	1.19

For the female addicts the evidence of a decrease in their BSI scores is strong with all the decreases being at the 1% level of significance.

10.4.iii. Regression of psychiatric symptomatology on Factor Scores (on entry)

Hypothesis 3

It was expected that factors scores would be differentially involved in the prediction of psychiatric symptomatology. Initially the question to be answered was whether the initial BSI scores could be "explained" by the factor scores, and if so, whether there was a statistical model for this relationship, and what was its level of predictive power.

The simplest way of determining whether or not the factor scores explain a significant amount of the variation is to perform a linear regression. For this regression the factor scores are regressed against all BSI scores, and the factor variables that explain a significant amount of the reduction are kept in the model and those that don't, are removed. The most straightforward process for determining which variables to include is to use Efroymson stepwise variable selection technique, which uses a sequence of F-tests to determine which variables to include.

It is worth noting that by design the factors are orthogonal, and so are independent of each other, therefore there is no information loss by considering each BSI measure separately. Clearly there are different factor models for the female and male addicts, and so the analysis is done separately for each.

Regression analyses were computed to examine whether the factor scores were able to predict the initial Brief Symptom Inventory scores. As the results of this analysis produces a large number of models, the complete table of regression analyses are presented fully in Appendix 6. Contained in Table 10.5 is a summary of the findings.

Table 10.5. Summary table: Regression analyses of factor scores predicting initial psychiatric symptomatology scores in males and females

	Male sample: analysis based on scores on intake	Female sample: analysis based on scores on intake
BSI dimensions	**Factors which predict BSI scores**	**Factors which predict BSI scores**
Somatisation	Drug factor (4) Relationships (3) Food (1) **21%*** **	Drug (1) Food (3) **26%*** **
Obsessive-compulsive	Food (1) Drug (4) Relationships (3) **19%*** **	Drug (1) Food (3) Relationship (4) Compulsive helping (2) **24%*** **
Interpersonal-sensitivity	Relationships (3) Food (1) **20%*** **	Food (3) Relationships (4) Drugs (1) **24%*** **
Depression	Relationship (3) Food (1) Drug (4) **15%*** **	Food (3) Drug (1) Relationships (4) Compulsive helping (2) **25%*** **
Anxiety	Drug (4) Relationships (3) Food (1) **16%*** **	Drug (1) Food (3) Relationships (4) Compulsive helping (2) **28%*** **
Hostility	Drug (4) Relationships (3) Food (1) **29%*** **	Relationships (4) 1 drug Food (3) **23%*** **
Phobic anxiety	Food (1) Drugs (4) Relationships (3) **17%*** **	Food (3) Drug (1) Relationships (4) Compulsive helping (2) **26%*** **
Paranoid ideation	Relationships (3) Food (1) Drugs (4) **31%*** **	Relationships (4) Compulsive helping (2) Drug (1) Food (3) **24%*** **
Psychoticism	Relationships (3) Food (1) Drugs (4) **22%*** **	Food (3) Relationships (4) Drug (1) Compulsive helping (2) **28%*** **
Global Severity Index	Relationships (3) Drugs (4) Food (1) **17%*** **	Drug (1) Food (3) Relationships (4) Compulsive helping (2) **35%*** **

Significance for overall models *P< 0.05 ** P< 0.01 ***P< 0.001

Predicting psychiatric symptomatology scores

Two regression analyses were computed to examine the ability of factor scores to predict psychiatric symptomatology (the BSI scores). From the regression analysis it can be seen that a substantial portion of the variance is explained by the factor scores for all of the BSI dimensions in both males and females, and in all cases the significance of the models is at the 1% level. In all cases a number of the factors in different combinations contribute to the overall R^2. As there are a large number of models only the most salient for our discussion will be reported in detail.

Looking at the leading predictors for the various symptoms, for men the most relevant factor is the relationship factor (4 out of the 9 symptoms) and for women it is the food factor (4 out of the 9 symptoms).

A further notable difference is the difference in the amount of variance explained, with the female sample tending to have more variance explained than the males. For instance with the Depression dimension the male model though significant ($F(3) = 14.59$, $p < 0.001$) explained 15% of the variance compared to 25 % of the variance in the female model ($F(4) = 19.26$, $p < 0.001$). A similar pattern was observed for the anxiety dimension with 16% of the variance being explained by the male model ($F(3) = 16.42$, $p < 0.001$) and 28% of the variance being explained by the female model ($F(4) = 22.75$, $p < 0.001$).

There are however two notable exceptions these being Hostility and Paranoid ideation. In these cases it is the male sample which has the greater amount of variance explained for Hostility ($F(3) = 33.94$, $p < 0.001$) 29% of the variance was

explained compared to 23% of the variance in the female model ($F(3) = 22.18$, $p < 0.001$). For paranoid ideation in the male sample 31% of the variance was explained ($F(3) = 37.91$, $p < 0.001$) in comparison to 24% being explained in the female model ($F(4) = 17.45$, $p < 0.001$).

The greatest amount of variance explained was 35% and this was for the Global severity index in the female sample ($F(4) = 31.15$, $p < 0.001$) with the leading predictor being Sensation seeking hedonism (the drug factor) ($\beta = 0.32$, $p < 0.001$). This compares to only 17% of the variance being explained for the Global severity measure in the male sample ($F(3) = 33.3$, $p < 0.001$).

10.4.iv. Regression of psychiatric symptomatology on Factor Scores (after 6 weeks)

Hypothesis 3b

It was also predicted that there would be systematic differences between males and females in the relationships found, given that males and females with addictive problems have been found to have different patterns of associated symptomatology. The next stage of the analysis is concerned with determining whether the *amount* of decrease in BSI scores after undergoing 6 weeks of treatment can be explained by the factor scores. In the same way as with the previous analysis a linear regression was performed for male and female addicts.

In the same way as with the previous analysis, as the results produce a large number of models, the complete table of regression analyses are presented fully in Appendix 6. Table 10.6 provides a summary of the findings.

10.6. Summary table: Regression analyses of factor scores predicting reduction of psychiatric symtomatology variables

	Male sample: analysis based on scores after 6 weeks of treatment	**Female sample: analysis based on scores after 6 weeks of treatment**
BSI dimensions	**Factors which predict BSI scores**	**Factors which predict BSI scores**
Somatisation	Drug (4) **15%***	Food (3) **6%***
Obsessive compulsive	Relationships (3) **5%***	Food (3) Compulsive helping (2) Relationships (4) **28% ***
Interpersonal-sensitivity	Relationships (3) **8%***	
Depression		Food (3) **5%***
Anxiety	Compulsive helping (2) Drug (4) **9%****	
Hostility	Food (1) Drug (4) **16%*****	Relationships (4) **4%***
Phobic anxiety	Food (1) **8%****	**Food (3) 7%****
Paranoid ideation	Food (1) Drug (4) **9%****	Relationships (4) **5%****
Psychoticism	Relationships (3) **5%****	
Global Severity Index	Food (1) Relationships (3) Drugs (4) **17%*****	**Food (3)** **6%***

Significance for overall models *P< 0.05 ** P< 0.01 ***P< 0.001

10.5. Description and discussion of the results

1. High level of symptom reporting within clinical range

As predicted, the clinical graphs (figures 10.1 and 10.2.) indicate that in general on entry to treatment both males and females score within the clinical range of the BSI. As the scores in most instances are higher than the mean of 50 that this indicates that this population has a particularly high level of psychiatric symptomatology. This would be expected, as the literature suggests a complex array of potential other problems which concur with addiction (e.g. Kessler, 1995). In addition to this it could be anticipated that on entry to treatment that levels of depression, anxiety etc. may be elevated due to a number of different reasons, such as the added dimension of being in a treatment centre perhaps causing an initial increase in distress.

On entry to the treatment centre women in general tend to be particularly high on Somatisation, Obsessive compulsive, Interpersonal sensitivity, Anxiety and Psychoticism. Men on entry tend to score most highly on Interpersonal sensitivity, Hostility and Psychoticism.

2. Reduction in scores over six weeks

For the complete sample it was found that all of the BSI measures had decreased over the six-week period beyond the 0.1% significance level. This is a really positive result as it indicates that according to the variables measured the individuals were experiencing significantly fewer troublesome symptoms and behaviours six weeks into treatment. It must be highlighted that the treatment that they receive though

specifically aimed at treating addiction on the face of it clearly has a highly positive impact, as it effectively reduces symptomatology.

Differences in change between males and females

The most important difference was the level of symptom reporting on intake which was higher in females than in males. After six weeks of treatment interestingly the female's scores (see figures 10.1 and 10.2) were found to have reduced to a level which is lower than the males 6 week scores. This may indicate that the treatment is particularly helpful and successful for women. Further differences that were found were located in the male sample with the Hostility and Phobic anxiety dimensions. Hostility, though still decreasing significantly, was found to be significant at 5% rather than the .1% level as found with the other dimensions. Phobic anxiety on the other hand though having decreased failed to reach the 5% significance level. For the females the evidence of a decrease in their BSI scores is strong for all of the dimensions at a 0.1% significance level.

Regression analyses

The next stage of the analysis aimed to investigate whether the initial BSI could be explained or predicted by factor scores. It was also predicted that there would be differences between males and females. It was found that the results for both males and females indicated that it was possible to identify factors that explained the BSI scores on intake, and for all of the BSI symptom dimensions the level of significance for each regression model was high ($p > .001$).

On intake

The Global severity index, which is a global measure of symptom severity using all of the symptom dimensions, indicates that the key difference on intake is that 35% of the variance is explained for females ($F(4) = 31.15$, $p < 0.001$) which is over double for that of males (17%) ($F(3) = 33.3$, $p < 0.001$). This may indicate that for women, addiction is more associated with general psychiatric distress than it is for men. This finding seems to be in line with previous findings. For instance, it was mentioned in the introduction that other studies have shown that female alcoholics report more symptoms of depression, anxiety, and global psychopathology than male alcoholics (Benishek et al 1992).

In addition to this it can be seen that the Compulsive helping factor (Other orientated nurturance) is involved in the explanation of a large proportion of women's psychological distress on intake. It appears in 6 out of the 9 primary symptom categories whereas it doesn't appear as a predictor in any of the symptom categories for men. Therefore it seem to be in some way relevant for women's distress and not for men's. It has been mentioned previously that co-dependency (compulsive helping) has been found to be related to self-deprecating personality characteristics (Wells, Glickauf-Hughes & Bruss, 1998), and it has also been mentioned that it is associated with neurotic symptoms Cermark (1986). Perhaps what occurs is that with the general tendency to focus on other's needs, rather than their own, the development of psychiatric symptomatology may be heightened, as the time devoted to solving personal problems is curtailed by constant concern for others. This in turn may be related to Heimer's (1996) concept of women predominately internalising their problems. This may occur as a consequence of the expectation that females will look

to others in a care-taking capacity, thus leaving little room for an expressive outlet for their distress.

Leading predictors

Looking at the leading predictors for the various symptoms, for men the most relevant factor is the Relationship factor, "Power related hedonism" (4 out of the 9 symptoms) and for females it is the Food factor "Self orientated nurturance" (4 out of the 9 symptoms). For instance, in males the dimensions "Interpersonal sensitivity" and "Depression" are best explained by the "Power related hedonism" factor, whilst in females on the other hand it is the "Self orientated nurturance" factor which explains most of the variance in these sub-scales.

With respect to the association of "Power related hedonism" with the male symptoms, in the introduction it was noted that for male alcoholics, conduct disorder, and anti-social personality disorder account for a large proportion of co-occurrence among men (Nestadt et al, 1992). It could be argued that conduct disorder, and antisocial personality disorder has at its centre *difficulty in relating to and understanding others*. Holding this in mind, it is clear that the "Power related hedonism" factor (relationships) is concerned with the exploitative use of relationships for the individual's own gain and indicates a lack of empathy regarding others involved in the person's life. Perhaps "Power related hedonism" is figural for male addicts in particular, as there is a propensity for them to find it difficult to relate and understand others.

Previous research in the field of eating disorders ties in with the Food factor "Self orientated nurturance" being the leading predictors for the various symptoms. For instance research has been conducted looking at the relationship between binge eating disorder and psychiatric symptomatology (Telch & Agras, 1994 & Wilson, Nonas & Rosenblum, 1993), the general conclusion being that binge eating disorder is associated with high levels of psychiatric symptomatology as well as high rates of co-morbid psychiatric disorders. In another study it was found that in conjunction to the high rate of psychiatric symptomatology in women with eating disorders that for anorexia and bulimia nervosa, psychiatric symptoms were significantly more serious in purging than in non-purging groups (Favaro & Santonastaso, 1996). So these studies, which indicate a high level of psychiatric distress in those with eating disorders, seem to help to explain the role of the food factor in this study, as it suggests that for women, eating disorders and this general constellation of behaviours is related to general psychiatric distress.

Interestingly for both men and women the drug factor was found to be the leading predictor for Somatisation. This may be to do with the fact that even though patients at PROMIS are medicated where appropriate to minimise withdrawal discomfort, there may still be a number of somatic correlates such as numbness and tingling in the body which may explain this finding.

After six weeks

The results for both males and females show that it is not always possible at this level of significance to identify any factor that would explain the decrease of the Brief Symptom Inventory scores. Moreover, even when it is possible to include the factors

in the regression models the variability explained is not very high. The percentage of variance explained ranges from 5% explained for the male "Obsessive compulsive", male "Psychoticism" and female "Depression" dimensions through to 28% of the variability explained for the female Obsessive compulsive dimension. In the male sample the dimensions which had the most variance explained were "Somatisation" 15% and "Hostility" 16%. In the female sample the dimension which had the most variance explained was the "Obsessive compulsive" dimension (28%).

Looking at the Global severity index, it can be seen that one key difference between the genders is that 17% of the variance in the decrease in scores is explained for males. This is nearly three times that for females where only 6% of the variance is explained. What is also noteworthy is the fact that for the male sample the food factor is the leading predictor for the decrease in the global severity index and for females it is the only predictor. This may indicate that PROMIS is particularly good at treating people with eating disorders. In conjunction to this, for men, type of addiction is more important in determining reduction in psychiatric symptoms, even though after the six-week period women seem to be scoring lower on most of the dimensions in comparison to men. This on the other hand could indicate that it is something about the treatment at PROMIS which influences such a sharp decline in the females' scores.

It has already been posited as a possibility that females in some way may be at a disadvantage relative to males in terms of overall severity of psychiatric distress. The fact that a significant difference was found between the scores on intake and the scores 6 weeks later for all of the female scores, and that when looking at the

involvement of the factors only 6% of the variance for a global measure of severity could be explained, indicates that the "decrease" has something to do with aspects outside that of the particular characteristics of their addictions. Given the evidence it may be the case that it has something to do with being female. If this is the case then given the holistic and relational approach in the treatment setting, then possibly the decrease in scores reflects the suitability of this treatment method for females irrespective of their addiction.

In relation to this possibility, in the introduction one of the main areas which was consistently mentioned as a co-morbid factor, was depression (e.g. Roy et al 1991). It is now found that for females, not only is the food factor the leading explanatory factor for the initial score, but it is the only factor which explains part of the variance of the decrease in depressive symptoms six weeks later. For the males, no factor was found to explain the decrease in depression.

Criticisms and future research

An inherent problem with this type of research is that when attempting to investigate the possible importance of co-morbid factors it is impossible to know even in terms of symptomatology whether it is overall psychiatric distress which causes the addiction or whether the addiction causes the psychiatric distress. Indeed, another alternative is that they occur together. However, the global finding of male's psychiatric symptomatology being in some way related to the relationship factor and female's symptomatology being related to the food factor warrants further attention. Primarily, in the light of previous findings, differences have been revealed in relation to the different types of disorders that tend to dominate in men and women. Here the results

from this study have illustrated that on the level of psychiatric symptomatology, differences between men and women have also been found in terms of the amount of variance which can be explained for the various dimensions of psychiatric symptomatology. On the basis of these findings future research may include accurately assessing addict's co-morbid diagnosis in relation to their addictive orientation, and then investigating whether gender has a role to play in any differences found. This may then further elucidate the potential significance of the idea of women being predominately "Internalisers" and males "Externalisers" of problems (Heimer, 1996).

This suggestion may be seen as potentially increasing the complexity of an individual's diagnosis, and hence treatment, but without a recognition of the fact that individuals often present with a complex array of problems, addictive and otherwise, it is going to be difficult to first understand why a myriad of problems frequently co-occur, and second how to effectively treat such individuals.

The fact that some psychological disorders may develop as a consequence of the pharmacological effects of substance abuse, and that forms of co-morbidity may be influenced by the class of drug, the duration of drug use and individual sensitivity to the drug effects of abuse (Mirin, Meyer, & McNamee, 1976), should not be ignored. However, if there is a degree of systematic co-occurrence, further comprehension as to why this is the case would be important as it may shed light on causative factors and hence could enable prevention and treatment services to be appropriately configured.

On the face of it, treating addiction has been shown to effectively reduce symptomatology, especially in women, and this finding may be able to shed some light on the validity of the models of co-morbidity mentioned in the introduction (Mueslar, Drake & Wallach, 1998). Even though the purpose of the study was not to evaluate these models it is interesting to note that treatment for addiction does indeed seem to have an impact on the reduction of symptomatology dimensions. In this way it may be the case that the Common factors model would be particularly interesting to concentrate on, as in this model the co-morbidity is thought to be the result of risk factors that are shared across both addiction and psychiatric disorders. In addition we can say that the global finding of males' psychiatric symptomatology being in some way related to the relationship factor, and females' symptomatology being related to the food factor, indicates that the manifestation of particular clusters of problems is embedded in some facet of gender.

A fuller picture may be revealed of the origins of disorders, if psychiatric symptomatology was also investigated in a normal population. Further work conducted in these areas may reveal why different patterns of pathology appear, and perhaps how these behaviours reflect potential differences in the underlying psychology of addiction in men and women. With this may come a more informed and perhaps more holistic and socially relevant way of approaching these complex clients.

Chapter eleven

Summary, discussion and implications

This chapter brings together the results that have been presented in the thesis. The first section of this chapter looks at the main aims and context of the research. The second section summarises the main findings in relation to possible implications and ideas for future research.

Section one

11.1. Main purpose of the research

The main purposes of the research were to: (a) determine whether Stephenson et al's (1995) factor analytic study of addictive orientation in addicts was replicable; (b); explore addictive orientations in relation to a non-addict population (c) Explore the significance of the concept of addictive orientation in terms of gender differences. (d) Investigate the possible contribution of personality and psychiatric symptom variables to our understanding of addictive orientations in the clinical population. In sum, a series of exploratory studies investigating the potential and possible meaning of addictive orientation.

11.2 Part one: Background to the research (chapters, one, two, three and four)

As the research was set in a specific treatment setting it was important to conceptualize the research and so chapter one outlined the origins of the AA movement and some of its central assumptions such as the disease concept and spirituality. Chapter two described how PROMIS, a Minnesota method centre,

interprets the concept of addiction and how the centre treats addiction. This was important as the range of behaviours to be included in the research was already determined by the treatment philosophy and context. Due to this fact a number of behaviours were included that are not typically seen as addictions, such as work addiction or relationship addiction.

In chapter three literature was examined to investigate the central features of addiction in order to assess the appropriateness of the incorporation of other "addictive" behaviours not traditionally viewed as addictive. Interestingly, when exploring the relevant literature it was found that the behaviours which are considered addictive have started appearing in research more recently and that similarities across addictive behaviours are being documented. From this basis a number of arguments were made for their inclusion and the phenomenon of cross addiction was also explored.

The starting point of the current research stemmed from a piece of previous work which had been conducted on an older version of the current Shorter PROMIS questionnaire (Stephenson et al, 1995). This research suggested that the addictive behaviours under consideration seemed to fall into broad categories, Hedonism and Nurturance, and it was these two broad categories that was to provide the starting point of the current research. Chapter four initially outlined the development of the shorter PROMIS questionnaire, looked in further detail at the dimensions and items on the questionnaire and then went on to explore the rationale for a replication of Stephenson et al's (1995) research with the use of a control group.

11.3. Part two: The exploration of addictive orientation (chapters five, six and seven)

Chapter five of this thesis described a study which sought to determine whether Stephenson et al's (1995) factor analytic study of addictive orientation in addicts was replicable. Using the Shorter PROMIS Questionnaire a four-factor solution revealed the optimum number of factors for the clinical data. The four factors were called *Self oriented nurturance*, *Other oriented nurturance* (these two factors previously formed the Nurturance factor in Stephenson et al's 1995 study), and *Sensation seeking hedonism*, *Power related hedonism* (these two factors previously formed the Hedonism factor (op cit)).

Self orientated nurturance (both food dimensions, shopping and caffeine) was seen to be related to a tension around the control of the body, and the alteration of internal state through the focussing on the physical.

Other orientated nurturance (both compulsive helping dimensions and work) was seen to be related to the focussing on helping of others and determined engagement with work.

Sensation seeking hedonism (Drugs, prescription drugs, nicotine and marginally alcohol) seemed to be contain the "traditional" forms of mood alteration as it contained the more radical, reckless and pharmacological addictions.

Power related hedonism (Both relationship dimensions, sex and gambling) The significance of the clustering of these dimensions seemed to related to power

Conclusions from chapter five:

It was concluded that the dominant approach has been to consider addictive behaviours quite separately. However an increase in the reporting of the phenomenon of cross-addiction, and the results from this and the earlier related study suggest that it is important to look at addiction in terms of addictive orientation. The literature, indeed, shows high rates of cross addiction e.g. high rates of multiple substance disorders particularly nicotine, alcohol, cannabis and cocaine (Muesler et al, 1998) The present findings support the notion that proneness to addiction may be general up to a certain point, given the covariation of the different behaviours. Nevertheless, the factor analyses suggest that the four orientations emerge clearly from the overall pattern of covariation.

The shorter PROMIS questionnaire in a non-treatment population (Chapter six)

This chapter explored the possibility of the presence of parallel forms of orientation occurring in non-addicts. What was found was, in the same way as for the clinical sample, a four-factor solution. Looking at both sets of factors (from treatment and non-treatment populations), what was most striking was that a high degree of correspondence between the factorial structures between the two samples was found.

From these results it seems that in terms of addictive orientation a pattern already exists in the non-addict population. What this may suggest is that the combination of addictive behaviours which are commonly used by addicts, are built upon an already occurring orientations towards certain clusters of behaviours. If this is the case then it would seem that addictive orientation in addicts has, in some way, its roots in normal non-problematic behaviour, in a way not previously anticipated.

These results indicate that consideration must be given to why this pattern also appears in a non-addict sample As the other studies in the thesis consider only an addict population this question would be an interesting target for future research.

It may also be interesting to look at differences in drives, motivations and expectations in terms of what specific benefits, feelings etc. are gained with certain combinations of addictive behaviors being used, as it is likely that this sort of information would have implications for clinical populations. For instance examining whether there is a correspondence between non-addict and addict motivations for the use of the various orientations of addictive behaviour. Would any similarities be found between non-addicts and addicts who share an involvement with the same orientation ? Taking a more *dimensional* approach to addiction in terms of a pattern of behavioural usage being present in a non-treatment population (albeit at a lower level) allows us to study addictive behaviour within a non-clinical group with an eye to enhancing our understanding of disordered functioning.

The development of the idea of a "Continuation hypothesis of addiction"

These results suggest the possibility of considering addictive behaviour not as a bi-modal, or an "either/or" phenomenon, with non-addicts being completely different from addicts, but a phenomenon which is represented in a more continuous way than perhaps previously thought. This is because meaning and significance seems to found in the clustering of certain behaviours within a non-addict's behavioural repertoire. If this is the case then the placing of individuals into either/or categories (i.e. either disordered or not) could be seen as erroneous, because it implicitly ignores the potential for variation being present in disorders. If there is significance in the

clustering of addictive behaviours in non-addicts then further comprehension of the manifestation and generation of addictive disorders may improve from this information, and consequently the likelihood of prevention, early detection and treatment of addiction may increase.

There is some previous research that may provide support for a more general continuity hypothesis of addiction, for example, in bulimia research there has been debate as to whether this disorder represents an extreme end on a continuum of weight preoccupation and dieting, or is somehow categorically different from sub-threshold bulimia or an absence of eating disorders (Polivy & Herman, 1987). Interestingly a recent study (Stice et al, 1998) indicated that the continuity hypothesis is supported for both weight concern and psychopathology. This seems to make implicit sense, and if this ideas was tested across a whole range of behaviours it may indicate these behaviours are routinely used in the vast majority of cases in a non problematic fashion, and that the idea of viewing these disorders in terms of a continuum is valid and useful. From this, further understanding of the *development* of addiction may be possible.

Investigation into gender differences in addictive orientation in addicts and non addicts (chapter seven)

Chapter seven of this thesis described a factor analytic study that sought to determine whether there are differences in factor structure according to gender. This having been found to be the case, the significance of these orientations in terms of gender differences was explored. Though differences were found across the four samples (male addict, female addict, male non-addict female non-addict) a number of dimensions were found that cluster together.

It was posited that there may be a number of reasons why certain behaviours may occur together and why differences may be found between genders. For instance an individual's set of gender-role expectations may exert a dominating influence on one's sense of self, in terms of which behaviours are viewed as acceptable to be engaged in. From the results, discussion centered on the possibility of the differing experiences of the two genders contributing to the orientation towards certain behaviours. An argument was constructed that related male's better honed involvement in Sensation seeking hedonism (substances), and Power related hedonism (relationships), to delinquency, social roles and conduct disorder. For females an argument was made that relates females' propensity to eating disordered behaviour to their involvement in behaviours in the Self orientated nurturance factor (food).

11.4. Part three: The contribution of personality and psychiatric symptomatology to addiction (chapters eight, nine and ten)

In chapter eight the possibility of personality variables contributing to the further comprehension of addictive orientation was explored using current literature. In general it was found that the attempt to find an "addictive personality" has not been successful and that many personality variables have been linked to addictive behaviour. In chapter nine, using the Interpersonal adjective scales (IASR-B5), the role played by personality in relation to the addictive orientations for males and females in the clinical sample was investigated using regression analysis. It was found that the personality variables were differentially associated with the four factors for both males and females. This study has helped to explain why there isn't a single addictive personality, as it seems that from the Five factor model of personality the dimensions seem to contribute to *different* underlying dimensions of addictive

behavior. Consequently one implication from this and earlier research is that the construct of personality should be considered to be of potential importance in the comprehension of addiction.

So, even though previously a strong argument was made to support the idea that there may be a number of commonalties which run beneath many of the addictive behaviours, when it comes to involvement of gender and personality dimensions, differences in terms of associated personality characteristics can be shown. This is important, as with additional explanatory information attached to the different factors of addictive orientation, investigating further the significance of different "drives" or motivations behind addictive behaviour may be possible.

A very brief summary of the main findings will be drawn together here in conjunction with a consideration of their theoretical implications.

The role of Conscientiousness

Out of the five personality dimensions one of the more key findings was the presence or absence of Conscientiousness; with Conscientiousness being associated with the "Other Orientated Nurturance" (compulsive helping) and negative Conscientiousness being associated with the "Sensation seeking hedonism" (Drugs). This suggested that, in general, this personality variable is important in Hedonistic behaviours. There seems to be inherent sense in this association as the nature of this cluster of behaviours has the feel of recklessness, selfishness and carelessness. It was also found that the personality construct of low Conscientiousness is for some reason a more important contributing personality variable for males than it is for females. This may be explained perhaps simplistically through differences in gender expectations,

in that it is more acceptable for males to be delinquent and therefore to be engaged in these behaviours.

The role of Neuroticism

Out of the five personality dimensions another of the more key findings is the contribution of Neuroticism. Neuroticism though present in both the male and female Self Orientated Nurturance factor (food) had a particularly strong association with the female population. This suggests that, in general, this personality variable has an important role in the female Self Oriented Nurturance factor (food). So in the same way as Conscientiousness may contribute to the hedonistic areas in males in particular, so Neuroticism may be a cardinal aspect for the Self oriented nurturance factor (food). Previous research has indicated a link between neuroticism and eating disorders (e.g. De Silva (1987). However, with these present results, it seems that the association of neuroticism extends beyond that of eating disorders to encompass other addictive behaviors.

In addition to this, the dominance of females in the eating disordered sample must be noted as it may indicate that being female has something to do with what is driving women to choose this particular cluster of behaviors. This has considerable support as the relationship between being female and eating disorders is well established. For example, a meta-analysis of 22 studies supported an overall positive relationship between femininity and disordered eating (Murnen & Smolak, (1970).

Five factor measures of personality in conjunction with addictive orientation may be important for research on patient treatment program matching, as testable predictions

for which specific techniques might be more effective for which types of individuals can be made. For example, treatment for those scoring high on neuroticism might include behavioural techniques to manage overwhelming stress and emotions. For those who are impulsive, treatment approaches which provide instant and concrete contingent reinforcement for abstinence in the form of pleasing rewards may be useful.

Psychiatric symptomatolgy

Chapter ten of this thesis describes a study that considered how psychiatric symptomatology may contribute to the comprehension of addictive orientation for males and females. An initial finding indicated that the most important difference between males and females in terms of BSI scores was the level of symptom reporting which on intake was higher in females than in males. After six weeks of treatment however, the female's scores were found to have reduced to a level which was *lower* than the males 6 week scores. This, it was posited, may indicate that the treatment at PROMIS is particularly helpful and successful for women.

Using regression analysis it was found that these psychiatric symptomatology variables were differentially associated with the four factors for both males and females. One of the main findings was that more than double of the symptomatology variance was explained by the factor scores for females than it was for males, this possibly indicating that for women, addiction has more to do with psychiatric distress than it does for men. This particular finding seems to mirror other findings of increased psychiatric severity in females (e.g. Benishek, 1992).

Examining the most important factorial predictors for psychiatric symptomatology, it was found that on entry to treatment for males it was the Power related hedonism factor (relationships) that was the leading predictor for the various symptoms, and for women it was found to be Self orientated nurturance factor (food). Primarily as in the light of previous findings, differences have been revealed in relation to the different types of disorders that tend to dominate in men and women. From the results it could be said that gender-related power relationships underlie at least some aspects of addictive disorders in men and women. It can be noted that this position has a distinct resonance with the findings from the previous study involving personality.

Are addictions gendered disorders?

At the beginning of the thesis a case was made to support the position that a wide variety of behaviors may be considered to be addictive. We found an overall positive correlation between the said behaviors. However, it was only when the factor analyses were conducted that a pattern was revealed locating more precisely the strongest associations between these behaviours.

Importantly, differences were observed in the factorial structure for males and females (in both addict and non-addict populations), and these different factors were found to have different associations with personality and psychiatric symptom variables. This may have implications for the understanding of the differing expressions of addiction according to gender. This is because it appears that gender is impacting the behaviors chosen by addict and non-addicts. For instance when looking at the scores across the populations, men scored higher than women on behaviours such as gambling and women scored higher on the food related behaviors. So it seems that even though an

argument can be made of for the behaviors' similarity at another level, a marked difference in relation to their use is also revealed.

Strongly related to these findings, is the fact that women suffer from eating disorders more often than men, and that men suffer more often from substance use disorders and gambling (Feid & Burr, 2000). Concerns with diet and the body are stereotypically feminine, while substance use and gambling are stereotypically masculine behaviours, and it is this gender stereotyping which drives a course of least resistance into addictive usage. Addictive usage may be said to build upon sets of behaviours that are in some way already socially activated or stimulated.

Two notable differences can now be considered in relation to factorial structure, to illustrate these gender differences. Whereas exercise failed to load on any of the factors in the male sample, in the female samples it loads strongly with the Self Oriented Nurturant factor (food), appearing with Caffeine and both of the Food dimensions. It was said that this factor seems to be to do with self control, especially relating to body image, and if this is the case then exercise fits well with this interpretation. This is because if compulsive exercise is used in conjunction with under eating and the use of caffeine (perhaps to moderate over eating), this constellation of behaviours will all contribute to weight regulation.

Work has been conducted on the relationship between gender role identification and its relationship to eating disorders, and there is a growing literature which addresses the specifically gendered nature of women's eating problems (e.g. Dolan, & Bitzinger, 1994). In relation to what contributing forces are influential, Klingenspor

(1994), talking about bulimia, argues that it is the central place that beauty plays in the social construction of femininity and the current physical ideal of extreme thinness that in part explains the emergence of this new eating disorder.

Again in relation to gender, a study looking at the relationship between gender identity and bulimia indicated that bulimic individuals *under-identified* with masculine attributes, this suggesting that identifying with masculine attributes may be an effective strategy for achieving a positive self concept and for indirectly reducing the risk of eating disorders (Klingenspor, 1994). In another study, the role of both sexual orientation and gender related personality traits were examined in relation to disordered eating attitudes and behaviour. It was found that for both men and women irrespective of sexual orientation, it was higher scores on *negative* femininity that predicted higher levels of disordered eating (Lakkis, Ricciardelli and Williams, 1999). These studies help to support the position that eating disorders are to a certain degree gendered disorders.

In relation to the role of socialisation and attitudes of acceptability it is of interest to note that in the male samples sex appeared with both forms of the relationship dimensions whereas with the non-addict female sample it failed to load on any of the factors. Interestingly, it has been noted that incidence rates and approval of premarital sexual behaviour and of many sexual risk practices continue to be higher for men than for women (Oliver & Hyde, 1993) It has also been argued that a variety of different perspectives such as socio-biological, social learning, social role and script theories all expect women to have more negative attitudes toward casual, premarital sex than do men (op cit). So again perhaps what we are seeing is the

formation of attitudes towards various behaviours being influenced by the contribution of the socialisation of gender role. In addition to this, research has indicated that the rate and approval of risk behaviours such as delinquency and to a lesser extent, alcohol and drug use continue to be higher for men than for women (e.g. Magurie, & Pastore, 1997; Maxim & Keane, 1992)

How to view these gender differences

It seems then that there is evidence in conjunction with the present findings that indicate that the gender differences in patterns of addictive usage may have something to do with the socialisation of gender role. It is interesting to note that this idea goes some way to reinforce the conclusions of previous research, which has suggested that one way of looking at gender differences in the patterns of addiction is that socialisation somehow encourages the internalisation, or externalisation, of problems (with women internalising and men externalising their problems; Huthar, 1996).

The involvement of personality and psychiatric symptomatology variables can also be interpreted as elements which highlight the importance of clusters of behaviours into internalised or externalised expressions. For example the relative importance of neuroticism for the Self oriented nurturance (food) factor for females, may be explained by the tendency for problems to be internalised. In support of this, Broidy & Agnew (1997) argue that the lower rate of female delinquency may be explained by females being more likely to respond to strain and stressors with depression, i.e. internalising rather than externalising.

The importance of negative Conscientiousness in relation to the Sensation Seeking Hedonism (drugs) factor for men, provides an interesting *potential* overlap with this finding, in that much research has shown that antisocial personality disorder is strongly associated with substance use disorders (Regier et al, 1990), in both clinical (e.g. Hesselbrock, Meyer & Keener, 19856) and general populations (e.g. Helzer & Pryzbeck, 1988). It can be said that it would be expected that low conscientiousness would be associated with this personality disorder, and if this was found to be the case then it would seem likely that personality is a contributing factor to the development of a range of activities which can be termed as anti-social.

Considering the personality variables associated with both anti-social personality disorder and the hedonistic factors, a deviance proneness model emphasising underlying traits may have considerable explanatory power. It would be interesting to investigate the interaction of low conscientiousness, anti-social personality disorder and substance use disorder, as it may be predicted that those with particularly low conscientiousness would be more likely to exhibit anti-social personality disorder and be more likely to be addicts engaged addictively with behaviours from the hedonistic arena.

One important caveat must be entered here: the direction of causality. So for instance, it could be the case that substance abuse may contribute to anti-social personality disorder like symptoms, such that rather than anti-social personality disorder being a risk factor for substance abuse, it is simply a by- product.

It would seem pertinent therefore for researchers to direct attention to the range of

psychological and social factors that make men more at risk for developing culturally orientated drug problems, and for women, culturally orientated eating disorders. Perhaps thought could also be given to the possibility of males and females better responding to specifically designed treatment which considers the importance of these factors.

Understanding the increase in male eating disorders and the increase in female delinquency

Even though both men and women are affected by addiction and there may be a number of common factors which increase the likelihood of addictive use occurring, it seems that it may be something to do with gender which propels males and females into different courses of activity. Biological mechanisms acting through hormonal effects on the brain are plausible, but hard to test. This is because any biological explanation of observed sex differences in addiction needs to also to consider how the social position of women in society may influence their addictive involvement. The full explanation for the sex differences is likely to combine factors related to expression of distress biology and social situation.

Having said that, it is imperative that research should investigate the factors which seem to drive men and women into certain methods of mood alteration, whether this is within a normal range of usage or pathological range; obviously there is a degree of cross over. For instance it has been argued that women are catching up with men's drinking and drug use, and it is now recognised that some men suffer from eating disorders, though still at much lower rates then women (Feid & Burr, 2000). Nonetheless it must be said that some separation still remains, this being illustrated in

the diagnostic breakdown of the present clinical sample. However, how are we to view those that seem to buck the trend and opt for a non gender typical engagement in addictive behaviour ?

Currently, women's drinking and drug use seem to be more socially acceptable than men's eating disorders. Perhaps this is because as society becomes less heavily gendered, stereotypically "masculine" behaviour has become more acceptable for women than stereotypically "feminine" behaviour is for men (Reid & Burr, 2000). In conjunction to the present findings, a recent study reported that women with *higher* levels of masculine personality traits and egalitarian gender role attitudes were *more* likely to have multiple partners and use alcohol or drugs (Nicholson, White & Duncan, 1999) i.e. move into the traditionally male area of mood alteration. From this finding it seems as though the idea that engagement in addictive behaviour certainly does have much to do with gender identity.

It is likely that populations of individuals whose addictive inclinations are not gender typical would be interesting groups to focus on. As when women become involved in hedonistic type areas, it can be argued that not only are they being deviant they are also shunning cultural norms regarding their behaviour, and hence may be regarded as being "doubly deviant" (Heimer, 1996). Locating processes involved in this would be a worthwhile pursuit.

Theorists argue that focusing on lives in context is needed to understand differences in risk behaviours (Chesney-Lind, 1989). This it seems is especially applicable in the field of addiction as it may be said that conventional ideas of addiction have been

largely constructed to explain male addiction. If this is the case it may be argued that consideration and investigation into the complexity and richness of men's and women's lives may reveal important insights into the many questions surrounding gender and addiction. It may even be the case that separate theories are required to account for male and female addiction.

A required component of future research may be to attempt to contextualise the sociological and cultural variations in women's and men's lives, as it is important to place addiction within the context of contemporary society; to talk about both theory and life experiences of addicts. It is likely that women and men may engage in the same behaviours for different reasons (Waldron, 1997). One implication is that this may cause differences in how to best to approach and treat these problems.

11.5. Further implications and future research

(a) the appeal of a dimensional approach to addiction

It has been said that in their early stages all sciences tend to order their variables into separate or discrete classes (Hempel 1961). As progress within the discipline occurs, advanced methods of analysis become available to enable scientists to deal with the interplay of elements comprising their field, and thereby to specify how formerly unconnected characteristics overlap and interrelate. It can be argued that this is particularly applicable in the field of cross addiction and the related findings of co-morbidity. As the field progresses addictive disorders may be less likely to be seen as discrete and independent, and more as converging and reciprocal, exhibiting both interconnected and distinct features.

An approach that could be explored that may help to provide further understanding with more valid indices of addiction, is to emphasise a move from a categorical to a dimensional approach in describing addiction. It is possible that given the extent of cross addiction, the syndrome approach, which may be well suited to describing illnesses, is poorly adapted for describing the subtleties of individual differences in addiction and would be better served by a dimensional approach which would provide a more comprehensive assessment of addictive activity.

It has been argued that it may be important to look at addiction in a dimensional fashion rather than at individual areas, that investigating the found orientations further will reveal further the significance of certain behaviours clustering together. What has been previously reported is that alcohol and drugs alleviate a variety of different factors such as social problems, insomnia, depression etc. but it is rarely reported that specific substances are sought to alleviate specific symptoms (Muesler et al 1998). Further research may also indicate that even though many different problems may be alleviated through addictive involvement, the method of mood alternation seems to differ according to gender, to the extent that clustering of behaviours occurs also in non-treatment populations. So, in a way, rising above this level of problem driven analysis and concentrating on the processes which mediate this gender patterning may be an interesting area to focus on.

(b) Idea of a multiple risk factor model

It may be useful to formulate a theoretical model which expands and synthesises personality, patterns of consumption, into a single paradigm that attempts to account for the patterns of addictive use. This integrated model would provide an explanation

for how addicts may develop their behaviours and most importantly consider differences in gender. It attempts to advance our understanding of addiction in a number of ways: (1) by emphasising the pattern of addictive use in non-addict and addicted populations; (2) the consideration of personality; (3) the consideration of other psychiatric associations, and (4) emphasising the importance of social structures.

It has been said that it is useful to consider a range of behaviours simultaneously, and to examine the various influences which impinge on addictive behaviour. Nonetheless, it is still crucial to carry on the important work regarding individual addictions and contributing causative factors. For instance, a whole range of behaviours engaged in to excess can be seen as addictive, and this may point to a neuro-chemical substrate which makes those areas particularly prone to abuse. If it is the case that there is a biological substrate that forms the basis of a link between various addictive areas then these mechanisms need to be understood.

In addition to this it is quite a challenge to better understand the array of biological, environmental and psychosocial factors that contribute to the aetiology of addiction in order to respond better to addictive disorder. So the most appropriate research model will highlight the importance of the incorporation of biological, socio-cultural, situational and psychological factors.

(c) The use of non-addicts when investigating the role of personality and psychiatric symptoms in relation to addictive orientation

The investigation of non-addicts has been particularly useful in these studies. The

further use of non-addict samples would be interesting to explore further, for instance, what role personality variables play in relation to the development of the orientations in normal and clinical samples. If so then perhaps considering what *level* of certain personality characteristics tend to be present for people to go on to develop these problematic behaviors is one possible question that should be answered. It is also important to examine whether or not psychiatric symptomatology variables, or depressive or anxious tendencies etc., are in any way involved in the found pattern of addictive orientation in normal samples. This again may further the comprehension of how certain disorders develop.

(d) The influence of co-morbidity

It was seen that with this clinical sample there was a high degree of psychiatric symptom reporting, and it is fair to say that relatively little attention is being paid to the influence of co-morbidity on experimental results. Thus it is difficult to be confident that existing findings are attributable solely to the disorder of interest and are not an artefact of co-morbid psychopathology or general psychiatric distress. Further work with addicts should consider other symptoms that are experienced, together with to full consideration of cross addictive potential. For instance an individual may present with alcoholism when in fact other disorders, albeit at a minimal level, are also present. As alcoholism is a conventional problem the associated factors may well not be addressed, but for further comprehension of addictive behaviours a full and comprehensive history would be important in future research.

Finally, it should be said that those involved in the treatment of addictive disorders need to be aware of the widespread nature of the phenomenon of cross addiction, and to consider using the four factors as an important consideration in the organisation of treatment.

Appendix 1

The Shorter PROMIS Questionnaire (SPQ)

Further validation of a tool for simultaneous assessment of multiple addictive behaviours

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The Shorter PROMIS Questionnaire (SPQ)

Further validation of a tool for simultaneous assessment of multiple addictive behaviours

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RUNNING HEAD: Shorter PROMIS Questionnaire

The Shorter PROMIS Questionnaire (SPQ)

Further validation of a tool for simultaneous assessment of multiple addictive behaviours

Abstract - There is both a theoretical and clinical need to develop a questionnaire which assesses a range of addictive behaviours. The Shorter PROMIS Questionnaire (SPQ) is a 16 scale self-report instrument assessing the use of nicotine, recreational drugs, prescription drugs, gambling, sex, caffeine, food bingeing, food starving, exercise, shopping, work, relationships dominant and submissive, and compulsive helping dominant and submissive. Clinical cut-off scores using the 90th percentile were derived from a normative group of 508 individuals. These cut-offs correctly identified 78% to 100% of cases within clinical criterion groups of specific disorders. The clinical sample also completed other validated scales assessing gambling, eating, alcohol and drug use; correlations were typically .7 with relevant SPQ scales. The SPQ food, drug and alcohol scales were at least equivalent to validated comparison scales in the strength of their relationship to relevant clinical criterion groups. Internal consistency was high for all scales, and retest reliability was generally good. This clinically useful instrument provides a broad assessment of addictive problems, thereby benefiting both the treatment provider and the client.

Key words - substance abuse treatment; assessment; diagnosis; multiple addictive behaviours.

The Shorter PROMIS Questionnaire (SPQ)

Further validation of a tool for simultaneous assessment of multiple addictive behaviours

1. INTRODUCTION

Functional similarities between substance-related and other addictive behaviours have been observed at the biological, psychological and social levels of analysis (Donovan, 1988; Orford, 1985). It is also the case that different addictions tend to co-occur in predictable ways (Stephenson, Maggi, Lefever, & Morojele, 1995). Moreover, as McKay and McLellan's recent review would suggest, there is a clinical, not to say financial, imperative, to deal simultaneously with the related difficulties of "polyproblem individuals" (McKay & McLellan, 1998). These various considerations provide a compelling incentive to develop an instrument that assesses a broad range of excessive behaviours that could be deemed as being addictive.

It has been observed that behaviours not involving the use of psychoactive substances can still produce physiological arousal. The heart rates of pathological gamblers increase during a gambling session (Coventry & Norman, 1998; Coventry & Constable, 1999), and altered dopaminergic and serotonergic functions have also been observed (Bergh, Sodersten, & Nordin, 1997; De-Caria, Begaz, & Hollander, 1998). Similarly, cortical arousal is a discriminating factor in the identification of individuals with a dependency on exercise (Beh, Mathers, & Holden, 1996). Other processes usually associated with addictive psychoactive substance use have been observed in excessive use of sex (Roth, 1992), work and gambling (Orford, 1985); food (Cummings, Gordon, & Marlatt, 1980); tobacco and caffeine (Aubin, Laureaux, Tilikete, & Barrucand, 1999); shopping (Christensen, Farber, & DeZwaan, 1994);

exercise (Furst & Germone, 1993); and the playing of video games (Phillips, Rolls, Rouse, & Griffiths, 1995).

Other evidence suggests that addictive behaviours consistently co-vary. It is common for a high proportion of alcoholics in treatment to report previous drug use (Sokolow, Welte, Hynes, & Lyons, 1981). Conversely, alcohol use is considered a complicating factor in the treatment of drug users, (Miller, Belkin, & Gold, 1990). Wiederman and Pryor (1996) reported that a third of adolescents with bulimia also drank alcohol, used nicotine and smoked marijuana. A study of high school students classified as problem drinkers found that 35% also had eating problems (Peluso, Ricciardelli, & Williams, 1999). There have been similar rates of comorbidity reported in inpatient populations; for example, approximately 40% of individuals with a diagnosis of anorexia or bulimia also abused drugs and alcohol (Zerbe, Marsh, & Coyne, 1990). Also, 22% of those with an eating disorder reported using cocaine in an attempt to alleviate their symptoms (Gold, Gold, Sweeney, & Potash, 1987).

High levels of co-morbidity have been found in a survey of gamblers in treatment, with 47% also abusing drugs and alcohol (Ramirez, McCormick, Russo, & Taber, 1984). Conversely, 14% of substance abusers in treatment also met the criteria for pathological gambling with a further 14% identified as experiencing problems with gambling behaviour (Lesieur & Heineman, 1988). These relationships also exist in non-clinical populations; Griffiths and Sutherland (1998) discovered that among adolescents, self-reported gamblers were also significantly more likely than were non-gamblers to report that they drank alcohol, took drugs and smoked tobacco. In a study investigating 'overlapping' addictions, Greenberg, Lewis and Dodd (1999) found high correlations between college students' use of alcohol, nicotine, caffeine, chocolate, exercise and gambling; with a clear tendency to become addicted to more than one substance or activity.

1.1. The need to assess multiple addictive behaviours

The above evidence suggests that treatments targeting single behaviours may not be as effective as those that are wider in scope. For example, cocaine addicts commonly return to using cocaine through drinking alcohol (Smith, 1986). Donovan (1988) suggested that potentially addictive behaviours are interdependent with a decrease in the target behaviour accompanied by an increase in an associated behaviour. For example, in a study investigating nicotine and caffeine use in alcohol dependent individuals in treatment, it was found that both caffeine and nicotine intake significantly increased following abstinence from alcohol (Aubin et al., 1999). According to Donovan (1988), associated behaviours may cause abstinent individuals to return to their target behaviour, or develop a new addiction to the associated behaviour, or develop two individual but related addictions.

1.2. Development of the PROMIS questionnaire

To address the above issues the original PROMIS Addiction Questionnaire (Lefever, 1988) was developed to assess addictive behaviours in patients admitted to a residential facility for the treatment of alcohol and drug dependence, eating disorders and other forms of addiction. The questionnaire consisted of 16 scales, each containing thirty items contributing a score of "1" to the scales. The scale items each reflected seven common characteristics of addictive behaviour: pre-occupation, use alone, use for effect, use as a medicine, protection of supply, using more than planned, and increased capacity or tolerance (Lefever, 1988).

Preliminary evidence supporting the validity of the PROMIS Questionnaire scales was provided in an archival study conducted by Stephenson et al. (1995). Systematic questionnaire data, which had been collected from 471 patients admitted consecutively to treatment between 1988 and 1993, were used in a factor analytical study of addictive orientations. The scale scores had a reliability coefficient (Cochran's Q statistic) in the region

of .9 for each scale. They also found a statistically significant relationship between diagnosis and mean scale scores. Based on the results of these and additional factor analyses the highest loading items were selected, and in some cases combined and rewritten, to produce a smaller set of items that had equivalent scale reliability. These formed the basis of a shortened version of the questionnaire, the Shorter Promis Questionnaire (SPQ) (see Appendix 1).

1.3. The current study

The purpose of this study was threefold. Firstly, to standardise the SPQ using comparison and cut-off scores derived from a non-clinical community sample population. Secondly, to validate SPQ scales by using the cut-offs with a clinical sample population encompassing multiple addictive behaviours. Also, convergent and divergent validity were examined using subsets of the clinical sample that had completed other relevant validated scales. Finally, internal consistency and test-retest reliability were assessed using clinical samples.

2. MATERIALS and METHODS

2.1. Participants

The main clinical sample consisted of 497 (53% male) consecutive admissions to the PROMIS Recovery Centre between 1995 and 1999. Their mean age was 35.2 years (SD = 12.9, range = 14 - 79); 87% were British, 7% were other Europeans, 2% were North Americans, and the remaining 4% were Australian, Indian, South American, South African, Afro-Caribbean, Pakistani, Russian, Korean, Lebanese or Maltese. All of the patients spoke English fluently. The primary diagnoses were derived from medical histories and patients' own descriptions of their problems as recorded by the centre's nursing staff at assessment.

The primary diagnoses were as follows: 34% alcohol use, 22% drug use, 9% bulimia, 8% alcohol and drug use, 6% overeating, 5% other behaviours, 4% unspecified eating disorder, 3% anorexia, 3% alcohol use and eating disorder, 2% drug use and eating disorder, 1% gambling, 1% alcohol use and other behaviours, 1% eating disorder and alcohol and drug use, 1% eating disorder and other behaviours. Other behaviours included compulsive shopping, exercise, and relationship problems e.g., co-dependency. Patients had been asked to complete the SPQ as honestly as possible so that treatment could then be effectively tailored to meet their needs.

The non-clinical community sample consisted of 508 (39% male) individuals obtained using diverse groups of university students, patients attending a general medical practice and friends and acquaintances of a number of those who had already completed the questionnaire. It was essentially a sample of convenience, although efforts were made to ensure comparability with the clinical sample in terms of age, sex and social background. In the interests of guaranteeing anonymity we did not require any autobiographical information other than age and sex. Otherwise we ensured they could read the SPQ and were not receiving treatment for any type of addictive behaviour. The vast majority was British and all spoke English fluently. Participants were recruited in relation to a number of separate studies and in some cases a 'snowball' or 'pyramid' sampling method was used whereby each participant was asked to provide another five participants. Participants were not paid and there was no advantage to be gained from any particular responding style. Data on age were available for 77% of these participants, and their mean age was 30.1 years (SD = 11.3, range = 16 - 70).

The retest reliability group was a small clinical sample consisting of 20 (45% male) treatment admissions. Archival records were searched to find patients who had been tested twice, once at an assessment centre in London, and subsequently on admission to the Recovery Centre. Ten patients were found in this way. The remainder was tested twice at the

Centre, first on admission and again at least one week later, without forewarning. Mean age was 31.6 years (SD = 9.4, range = 18 - 46). Their primary diagnoses were 40% alcohol use, 30% drug use, 15% alcohol and drug use, 10% eating disorder, and 5% depression.

2.2. Measures

The Shorter Promis Questionnaire. The SPQ (Appendix 1) consists of 16 scales, each containing ten items scored 0 to 5, yielding a scale score range of 0 to 50. The scales contained in the SPQ are designed to assess behaviours and attitudes regarding alcohol, nicotine, recreational drugs, prescription drugs, gambling, sex, caffeine, food bingeing, food starving, exercise, shopping, work, relationships dominant and submissive and compulsive helping dominant and submissive. The 160 items comprising the 16 scales are distributed in a random order. There are written instructions on the front of the questionnaire, together with a brief explanation of several of the substances and behaviours included in the scale (see Appendix 1 and Lefever, 1988 for more detailed scale definitions and derivations).

CAGE (Mayfield, MacLeod, & Hall, 1974). This four item self-report measure has been found to have considerable reliability and validity in detecting clinical drinking problems (Ewing, 1984). A respondent scoring positively on two or more items is considered to have a drink problem.

Short Michigan Alcohol Screening Test (SMAST; Selzer, Vinokur, & van Rooijen, 1975). This 13 item self-report instrument was derived from the Michigan Alcohol Screening Test (MAST). MAST has been found to be reliable and valid when used in clinical alcoholic populations (Selzer, 1971) and it is highly correlated with SMAST. Scores range from 0 to 13, with three and above indicating a drink problem.

Severity of Alcohol Dependency Questionnaire (SADQ; Stockwell, Hodgson, Edwards, Taylor, & Rankin, 1979; Stockwell, Murphy, & Hodgson, 1983). This 20-item questionnaire measures alcohol dependence and consumption. It assesses four elements of the alcohol dependence syndrome (Edwards & Gross, 1976): physical symptoms of withdrawal, craving and relief drinking, consumption, and reinstatement of drinking pattern after withdrawal. Scores range from 0 to 60.

Severity of Opiate Dependency Questionnaire (SODQ; Sutherland, Edwards, Taylor, Phillips, Gossop, & Brady, 1986). It has five sections: quantity and pattern of opiate use, physical and affective symptoms of withdrawal, withdrawal relief drug taking, and rapidity of reinstatement after abstinence. Little information is lost by the addition of scores across scales (Sutherland, Edwards, Taylor, Phillips, & Gossop, 1988). Scores range from 0 to 48.

Severity of Dependence Scale (SDS; Gossop, Darke, Griffiths, Hando, Powis, Hall, & Strang, 1995) – Heroin, Cocaine, Amphetamine. Three separate five item self-report questionnaires were designed to measure dependence severity. Scores range from 0 to 15 on each questionnaire. A total dependence score is calculated totalling scores for each questionnaire. SDS measures have been found to be significantly and positively correlated with the Severity of Opiate Dependency Questionnaire (Sutherland et al., 1986; 1988).

Bulimic Investigatory Test, Edinburgh (BITE; Henderson & Freeman, 1987). This 33 item self-report questionnaire was designed for the detection and description of binge eating. Two scales measure symptoms and severity, with a combined range of scores across both scales

from 0 to 69. A total score of 25 and above is considered indicative of a severely disordered eating pattern (Henderson & Freeman, 1987).

Eating Disorder Inventory (EDI; Garner, Olmstead & Polivy, 1983). This 64 item, self-report multi-scale measure was designed to assess the behavioural and psychological traits considered common in anorexia and bulimia. Sub-scales 'Drive for Thinness', Bulimia and Body Dissatisfaction may be present in other types of eating disorders. A score across sub-scales of 30 and above is a standard criterion of weight preoccupation.

South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1988). This is a screening tool for the identification of pathological gamblers in clinical populations. It was based on DSM-III criteria and cross-validated to DSM-III-R. It is a 16 item self-report measure with a score range of 0 to 20. A total score of five and above indicates a probable pathological gambler.

2.3. Procedure

Patients in the clinical sample were required to complete all questionnaires a short time after admission to treatment. The resulting scores were subsequently made available to patients and staff during the treatment process. To minimise intrusiveness and maximise compliance, the non-clinical community sample was only required to complete the SPQ; no further data were collected from this group.

2.4. Statistical analysis

Data were analysed using SPSS version 8 statistical software. Scale scores were variously skewed, with clinical and non-clinical groups exhibiting ceiling and floor effects respectively. Clinical groups containing combined diagnostic categories exhibited bimodal distributions. In

the absence of normal distributions, percentiles were used instead of Z scores, and all statistical tests were two-tailed non-parametric. Bonferroni corrections were used where multiple tests were conducted simultaneously. Test-retest reliability coefficients were calculated using intra-class correlations (ICC; Bartko, 1976) derived from analysis of variance mean squares using the formulae specified by Streiner and Norman (1991).

3. RESULTS

3.1. Standardisation

The SPQ was standardised using the score distribution of the non-clinical 'normative' group (N = 508). Scale scores corresponding to the 10^{th}, 50^{th}, 70^{th}, 80^{th}, 90^{th}, 95^{th}, 97.5^{th}, and 99^{th} percentiles were used to generate a scoring grid for all 16 scales of the SPQ (Appendix 2). The 90^{th} percentile scores of the normative group were taken as the clinical cut-off level, as these generally produced the fewest false positive and false negative classifications when discriminating between normative and clinical groups. The 10% false positive figure was deemed acceptable in view of the fact that it correctly identified 90% or more of all clinical groups, with the exception of alcohol (78%). In the case of alcohol, it is entirely plausible that there were a significant number of individuals in the 'normative' group with drinking problems who did not recognise it or failed to reveal the fact. This caveat will also apply to other diagnostic categories, but is particularly relevant in the case of drugs like alcohol (and for that matter nicotine) which are so widely used.

3.2. Convergent Validity

SPQ scales were correlated with other validated scales also completed by the clinical sample (Table 1). Ten SPQ scales were omitted due to a lack of archival data from other psychometric instruments that would allow direct comparisons to be made. The CAGE was only given to part of the clinical sample, and some patients failed to complete all the questionnaires. Consequently, the sample sizes used varied with each comparison.

Insert Table 1 about here

As expected, the SPQ alcohol scale correlated most strongly with the three corresponding validated alcohol scales (CAGE, Severity of Alcohol Dependency Questionnaire, and Short Michigan Alcohol Screening Test). It bore no relationship to the other validated scales, thus indicating a good degree of specificity. Similarly, the SPQ recreational drugs scale correlated most strongly with the Severity of Opiate Dependency Questionnaire and the Severity of Dependence Scale, and it bore no relationship to the other validated scales. However, the SPQ prescription drugs scale correlated with six of the eight validated scales, although it was most strongly related to the two validated drugs scales. This most likely reflected the widespread use of benzodiazepines and anti-depressants among drinkers and eating disordered individuals.

The SPQ gambling scale also correlated with the two validated drugs scales but not the alcohol or eating disorder scales. This may be indicative of a sensation-seeking motive among drug users, which could make the heightened arousal associated with gambling particularly rewarding. Although the SPQ gambling scale was most strongly related to the South Oaks Gambling Screen, the relationship was not as strong as may have been

expected. However, the SPQ gambling scale also required respondents to include risk-taking ventures such as stocks and shares, whereas the South Oaks Gambling Screen was designed for more conventional gambling as with cards or horses. Therefore, these measures may not be directly comparable.

As expected, the two SPQ food scales correlated most strongly with the Eating Disorder Inventory and the Bulimic Investigatory Test. Although there were also significant correlations with some validated drug and alcohol scales, these relationships were inverse.

3.3. Discriminant Validity

Not all of the clinical sample had completed all of the validated comparison scales, so only those with complete relevant data were chosen for the following groups.

A combined group of individuals with a primary diagnosis of alcohol (n = 114) and drugs (n = 58) were incorporated into a dummy variable where drugs = 1 and alcohol = 2. The SPQ alcohol scale was as strongly related (r [170] = .45) to the alcohol diagnostic category as was the CAGE (r [170] = .45), the Severity of Alcohol Dependency Questionnaire (r [170] = .42), and the Short Michigan Alcohol Screening Test (r [170] = .41). All correlations were low because a large number of drug users also used alcohol. The SPQ recreational drugs scale was just as strongly related (r [170] = -.76) to the drugs diagnostic category as the Severity of Opiate Dependency Questionnaire (r [170] = -.65) and the Severity of Dependence Scale (r [170] = -.77). The SPQ prescription drugs scale was not as strongly related (r [170] = -.26) because it only measured a subset (most probably methadone and benzodiazepines) of the full range of drugs used. However, the combined SPQ scales of prescription and recreational drugs retained a strong relationship (r [170] = -.68) to the drugs category within the dummy variable. ($p < .001$ in all cases)

A combined eating disorders group was generated by combining the diagnostic categories of bulimia, overeating, unspecified eating disorder, anorexia, "drug use and eating disorder", and "eating disorder and other behaviours". Alcohol (n = 152) and eating disorders (n = 120) were then used in a dummy variable where alcohol use = 1 and eating disorders = 2. The SPQ food bingeing scale was just as strongly related (r [270] = .72) to the combined eating disorders diagnostic category as the Eating Disorder Inventory (r [270] = .70), and the Bulimic Investigatory Test (r [270] = .79). The SPQ food starving scale was not as strongly related (r [270] = .58) because not all of the combined eating disorders group would have been engaging in starving behaviours. However, the combined SPQ scales of food bingeing and food starving retained a strong relationship (r [270] = .74) to the eating disorders category within the dummy variable. ($p < .001$ in all cases)

Higher correlations above were thus indicative of a better discriminative ability and the SPQ scales' abilities to discriminate relevant diagnostic categories from unrelated ones were generally as good as the equivalent validated comparison scales.

The sensitivity and specificity of six of the SPQ scales were assessed using clinical subgroups with corresponding specific diagnoses (Table 2). No criterion groups were available to test SPQ scales of tobacco, caffeine, sex, relationships, compulsive helping, work, exercise, or shopping. These scales currently rely on face validity (see scale items listed in Appendix 1). Nonetheless, the scales were included in Table 1 in order to demonstrate their specificity and independence from non-relevant diagnostic categories.

Insert Table 2 about here

As expected, Table 2 indicates that the greatest percentage of individuals within particular diagnostic categories scored above the cut-off level for their corresponding SPQ scale. SPQ scales for drugs, gambling, bingeing and starving produced high rates (around 90%) of scoring above cut-off among their corresponding diagnostic categories. As noted above, only 78% of the drinkers fell above 90% cut-off on the SPQ alcohol scale, a fact that may be attributed to the relatively high normative scores produced for alcohol, owing to its social acceptability.

Significant associations also emerged between behaviours considered to be associated with particular disorders; for example 44% of the anorexic sub-group scored above cut-off on the SPQ exercise scale. Both drug and alcohol use were associated with high scores on the SPQ gambling and prescribed drugs scales. These associations may reflect patterns of addictive orientations, as opposed to a lack of specificity of the SPQ scales (see Stephenson et al, 1995).

3.4. Internal Consistency

The clinical sample's item scores were used to calculate the Cronbach's alpha coefficient for each SPQ scale. Table 3 indicates that all alpha coefficients were as high as should be expected from unidimensional scales, the mean alpha coefficient being .89 (SD = .05, range = .82 - .98).

Insert Table 3 about here

3.2. Test-retest Reliability

The mean retest period was 18.9 days (SD = 26.6, range = 7 - 92). The mean ICC was .77 (SD = .16, range .43 - .95), and all SPQ scales except for 'gambling' and 'relationships' produced reasonable coefficients (Table 3). There was a slight systematic bias due to the order of presentation for eight of the 16 SPQ scales, and this was most likely due to cognitive restructuring of participants during the treatment process. Pearson correlations have been recommended as reliability coefficients in these cases as they take into account any differences in mean score between the first and second testing occasions (Rust & Golombok, 1989). The mean Pearson coefficients were a little higher (M = .80, SD = .15, range .46 - .95) than the ICCs. All coefficients were significant at $p < .05$.

4. DISCUSSION

4.1. Summary of Findings

This study has illustrated that SPQ scales can distinguish between non-clinical and clinical populations, as well as between discrete categories of presenting diagnoses. A scoring grid and clinical cut-offs were empirically derived using the 90th percentile of scores from a normative sample. These cut-offs correctly identified around 90% of presenting clinical cases of eating, gambling and drug use problems. However, only 78% of presenting drinkers were correctly identified, probably due to a high prevalence of excessive drinking among the normative group. The conservative nature of this cut-off should be borne in mind when interpreting SPQ alcohol scale scores. SPQ scales correlated well with corresponding validated scales and they performed as well as validated scales when comparing the strength of their relationships to corresponding diagnostic groups. Internal consistency was high for all scales, and retest reliability was good for all but two scales.

4.2. Limitations

At this stage of their development, convergent and discriminant validity could not be demonstrated for all of the SPQ scales. This has proved difficult to achieve due to the absence of relevant validated scales and the small number of individuals presenting with primary diagnoses of tobacco, caffeine, sex, relationships, compulsive helping, work, exercise and shopping related problems. Nonetheless, this remains an area for future research. In the meantime, these SPQ scales are face valid (Appendix 1); generally have good retest reliability; have good internal consistency; have empirically derived cut-offs based on the 90th percentile of a large normative sample; and have some specificity insofar as they are not related to irrelevant diagnostic groups. They were conceived (Lefever, 1988) and then refined (Stephenson, et al., 1995) using the same processes as the SPQ alcohol, drugs, gambling, and food scales. It is thus argued that the validity demonstrated in this study is likely to generalise to all other SPQ scales. It was thought appropriate to include them in this report firstly because they have already made a significant contribution to the factorial assessment of addictive orientations and to encourage their further evaluation by others.

Another limitation is that the clinical criterion groups could not be guaranteed as 'pure' diagnostic categories. Although patient groups presenting with multiple addictions (e.g., alcohol, drugs and eating disorder) at intake assessment were excluded from this study, it is likely that many patients had secondary addictive behaviours that they did not report at intake. This made scale specificity difficult to demonstrate conclusively.

It cannot be demonstrated that the normative group were representative of a general population. However, a large sample was obtained which attempted to target a broad range of ages and socio-economic status, and no individuals were known to be being treated for addictive behaviours at the time of sampling.

4.3. Related Behaviours

One third of individuals presenting with a drink problem also had a problem with prescribed drugs. Similarly, one third of presenting drug users were found to have a problem with alcohol. A significant proportion of drink and drug users also appeared to have problems with excessive sex and gambling, a feature not shared by the eating disorders groups. About a third of the bulimic group also indicated problematic use of caffeine, shopping and dependent relationships. These relationships replicated the findings of Stephenson et al.'s (1995) correlation of the primary factor scores from the original Promis Questionnaire.

The SPQ supplies a useful level of detail, and it discriminates between overeating and starving (unlike the Bulimic Investigatory Test and Eating Disorder Inventory). It also discriminates between recreational and prescription drugs (unlike the Severity of Dependence Scale or Severity of Opiate Dependency Questionnaire), and it addresses a range of behaviours not commonly addressed, yet commonly associated with the more conventional addictive behaviours. A detailed assessment procedure covering a broad range of potentially problematic areas will have implications in terms of treatment. If a treatment is aimed at a single presenting problem behaviour then it may fail to be as effective at one that addresses all problem areas. Treatment may decrease an individual's engagement in their presenting problem area, but may be followed by an increase in associated behaviours which may then facilitate relapse (Donovan, 1988). Therefore, it is useful for all potentially addictive tendencies to be identified at treatment entry, whereupon they can be addressed as part of the treatment process.

4.4. Motivational Uses

Individuals seeking treatment may focus on a particular behaviour they feel to be most problematic at that time. However, this study has indicated that many individuals have

secondary unreported problem behaviours. It is uncertain whether this lack of reporting is due to individuals not having recognised their behaviours as worthy of intervention, or perhaps being not willing to encourage further interventions from the treatment setting. This would be an area for future research, but in either case, the SPQ scoring grid provides a particularly effective form of client feedback.

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TABLE 1

SPQ sub scales correlated with validated scales measuring similar fields

	Relevant SPQ sub scales.					
Comparison tests:	Alcohol	Drugs	Prescribed Drugs	Gambling	Food bingeing	Food starving
CAGE ($\underline{n}$ = 316) [a]	.78***	.05	.21*	.13	-.22*	-.14
SMAST ($\underline{n}$ = 430) [a]	.74***	.00	.23***	.13	-.20*	-.08
SADQ ($\underline{n}$ = 430) [a]	.73***	-.04	.23***	.10	-.14	-.02
SODQ ($\underline{n}$ = 370) [a]	-.01	.64***	.53***	.26***	-.19*	-.14
SDS ($\underline{n}$ = 370) [a]	-.05	.76***	.40***	.31***	-.23**	-.17*
SOGS ($\underline{n}$ = 460) [a]	.03	.10	.02	.50***	-.02	-.04
EDI ($\underline{n}$ = 467) [a]	-.04	-.01	.18*	.00	.74***	.61***
BITE ($\underline{n}$ = 464) [a]	-.14	.00	.07	-.07	.73***	.64***

[a] The total clinical sample size was 497 but not all subjects completed the comparison tests.

Scores were bimodally distributed so non parametric two-tailed Spearman correlations were used. A Bonferroni correction for 48 tests set the alpha level at $\underline{p}$ = .001.

* $\underline{p} < .001$ ** $\underline{p} < .00001$ *** $\underline{p} < .000001$

TABLE 2

SPQ sub scales identifying problem behaviours among clinical groups presenting with specified complaints.

	Percentage of clinical sample with SPQ scores falling above 90% cutoff for each SPQ sub scale						
SPQ sub scales	Drinkers.	Drug Users	Drink & drug users	Gamblers	Over eaters	Bulimics	Anorexics
	(n = 169)	(n = 110)	(n = 38)	(n = 6)	(n = 29)	(n = 46)	(n = 16)
	%	%	%	%	%	%	%
Alcohol	78.1***	29.1**	73.7***	16.7	10.3	17.4	6.3
Drugs	17.8	93.6***	89.5***	16.7	6.9	21.7	18.7
Prescribed drugs	31.4***	58.2***	65.8***	16.7	6.9	21.7	31.3
Tobacco	17.2	22.7	42.1***	16.7	13.8	13.0	12.5
Caffeine	18.9	10.0	36.8*	0.0	20.7	34.8*	12.5
Gambling	21.9*	32.7***	42.1***	100.0***	10.3	8.8	0.0
Sex	20.7*	34.5***	39.5**	16.7	6.9	10.9	6.3
Relations. dom.	30.2***	20.9	39.5*	66.7	13.8	32.6*	12.5
Relations. sub.	20.7	28.2**	34.2*	33.4	10.3	34.8*	12.5
Comp. hlp. dom.	22.5*	19.1	21.1	0.0	6.9	28.3	25.0
Comp. hlp. sub.	21.9*	10.9	21.1	0.0	3.4	15.2	12.5
Work	26.6***	12.7	13.2	16.7	0.0	26.1	25.0
Exercise	11.2	8.2	13.2	0.0	6.9	23.9	43.8*
Shopping	8.3	9.1	18.4	16.7	34.5*	37.0**	6.3
Food bingeing	6.5	4.5	15.8	0.0	89.7***	91.3***	25.0
Food starving	10.7	7.3	13.2	0.0	24.1	65.2***	93.7***

Association was calculated using two-tailed Fisher's exact tests. A Bonferroni correction for 112 tests set the alpha level at $p = .0005$.

* $p < .0005$ ** $p < .00001$ *** $p < .000001$

TABLE 3

Reliability of SPQ sub scales: Internal consistency and test-retest coefficients.

	Internal consistency (N = 497)	Test-retest (N = 20)	
SPQ sub scales	Cronbach's alpha	Pearson correlation	Intraclass correlation
Alcohol	.94	.95	.95
Recreational drugs	.98	.95	.95
Prescribed drugs	.95	.89	.87
Tobacco	.94	.94	.93
Caffeine	.88	.93	.90
Gambling	.92	.51	.49
Sex	.91	.80	.79
Relations. dom.	.88	.71	.62
Relations. sub.	.82	.46	.43
Comp. hlp. dom.	.84	.79	.77
Comp. hlp. sub.	.82	.87	.83
Work	.84	.73	.64
Exercise	.87	.72	.70
Shopping	.88	.88	.84
Food bingeing	.94	.87	.87
Food starving	.88	.76	.75
Mean coefficient (SD)	.89 (.05)	.80 (.15)	.77 (.16)

APPENDIX 1

The Shorter PROMIS Questionnaire

Notes

In this questionnaire certain terms are used which have general meanings attached to them.

"Tobacco" should be taken to mean either tobacco, cigarettes, cigars, snuff, tobacco bags and nicorette chewing gum.

"Drugs" should be taken to mean: cannabis, heroin, cocaine, LSD, magic mushrooms, 'designer drugs', amphetamines and other stimulants.

"Prescription drugs" or "Medication" includes all medicines that have a mood-altering effect, especially tranquillisers, anti-depressants, sleeping tablets, painkillers, cough mixtures and cold cures, slimming pills and antihistamines.

"Caffeine" includes coffee, tea, chocolate, cola, lemonade and Pro-plus.

"Work" includes hobbies and interests, cults and sects.

"Gambling and risk taking" includes property ventures, stocks and shares, insurance and other business risks.

Each question is on a six-point scale. Please read each question carefully before answering. Place a cross on the scale between one and six to indicate the extent to which the statement is 'Like' you or 'Not like' you.

For example: A cross at the 'Like me' extreme would indicate that the statement definitely applied to you.

i.e. Not like me _ _ _ _ _ _ Like me

A cross at the 'Not like me' extreme would indicate that the statement definitely did not apply to you.

i.e. Not like me _ _ _ _ _ _ Like me

A cross in between the two extremes indicates more or less agreement with one extreme.
e.g. If you felt that 'like me' is more appropriate than 'Not like me' you would answer as follows:

i.e. Not like me _ _ _ _ _ _ Like me

or

i.e. Not like me _ _ _ _ _ _ Like me

and if you felt that 'Not like me' is more appropriate than 'Like me' you would use one of the remaining two points as follows:

i.e. Not like me _ _ _ _ _ _ Like me

or

i.e. Not like me _ _ _ _ _ _ Like me

If you think that a question is just not applicable or incomprehensible to you please answer 'Not like me', as follows:

i.e. Not like me _ _ _ _ _ _ Like me

Do not leave any answers blank

The Shorter PROMIS Questionnaire

Alcohol

4) I have found that feeling light-headed has often been irrelevant in deciding when to stop drinking alcohol.

18) I have found that having one drink tended not to satisfy me but made me want more.

37) I have had a complete blank of ten minutes or more in my memory when trying to recall what I was doing after drinking alcohol on the previous day or night.

43) I have used alcohol as both a comfort and a strength.

51) I have tended to gulp down the first (alcoholic) drink fairly fast.

74) I had a good head for alcohol so that others appeared to get drunk more readily than I did.

82) I have found it strange to leave half a glass of (alcoholic) drink.

134) I have been irritable and impatient if there has been more than ten minutes conversation at a meal or social function before my host offers me an alcoholic drink.

136) I have deliberately had an alcoholic drink before going out to a place where alcohol may not be available.

140) I have often drunk significantly more alcohol than I intended to.

Shopping

8) I have felt uncomfortable when shopping with other people because it has restricted my freedom.

17) I have particularly enjoyed buying bargains so that I often finished up with more than I need.

48) I tend to use shopping as both a comfort and a strength even when I do not need anything.

59) I have tended to go shopping just in case I might see something I want.

61) When I have been shopping with family members, friends or other people, I have tended to disguise the full extent of my purchases.

80) I have often bought so many goods (groceries, sweets, household goods, books etc.) that it would take a month to get through them.

84) I have preferred to keep my shopping supplies topped up in case of war or natural disaster, rather than let my stocks run low.

93) I have bought things not so much as a means of providing necessities but more as a reward that I deserve for the stresses that I endure.

123) I have felt that I become a real person only when I am shopping or spending.

156) I have often gone shopping to calm my nerves.

Food bingeing

10) I have tended to think of food not so much as a satisfier of hunger but as a reward for all the stress I endure.

23) I have tended to use food as both a comfort and a strength even when I have not been hungry.

44) I have found that being full has often been irrelevant in deciding when to stop eating.

50) I have found that I have sometimes put on weight even when I am trying to diet.

71) Other people have expressed repeated serious concern about my excessive eating.

85) I have often preferred to eat alone rather than in company.

95) When I have definitely eaten too much I have tended to feel defiant as well as disappointed in myself.

113) I have preferred to graze like a cow throughout the day rather than ever allow myself to get hungry.

116) I have had three or more different sizes of clothes in my adult, (non-pregnant if female), wardrobe.

138) I have been aware that once I have consumed certain foods I have found it difficult to control further eating.

Compulsive helping submissive

14) I have tended to pride myself on never being a burden to others.

35) Other people have tended to express concern that I am not doing enough for my own pleasure.

39) I have tried to avoid all risks of upsetting other people.

45) I tended to give (an act of service to others) and not count the costs even though the costs mount progressively.

58) I have tended to remain loyal and faithful regardless of what I may endure in a close relationship.

62) I have liked to make myself useful to other people even when they do not appreciate what I do.

86) I have tended to take on more work for someone close to me even if I have not finished the previous batch.

103) I have felt like a real person only when performing acts of service for someone else.

149) I have often helped someone close to me more than I intended.

158) I have felt most in control of my feelings when performing services of one kind or another for someone else.

Tobacco

6) I have preferred to use nicotine throughout the day rather than only at specific times.

21) I have tended to use nicotine as both a comfort and strength even when I feel that I didn't want any.

47) I have been afraid that I will put on excessive amounts of weight or become particularly irritable or depressed if I give up using nicotine altogether.

64) I have often found that having my first use of nicotine in any day tends not to satisfy me, but made me want more.

83) I have continued to use nicotine even when I have had a bad cold or even more serious respiratory problem.

104) I have found that my nicotine consumption goes up or down when I am off alcohol or drugs or when I am on a diet.

131) I have deliberately used nicotine before going out to a place where I may not be able to use it.

132) When I ran out of my favourite form of nicotine, I have accepted the offer of an alternative that I do not particularly like.

146) I have often used nicotine to calm my nerves.

151) I have often used nicotine significantly more than I intended to.

Gambling

7) I have found that the amount that I have won or lost has often been irrelevant in deciding when to stop gambling or risk taking.

65) I have stolen or embezzled to cover gambling losses or to cover my losses in risky ventures.

77) I have found it more painful for me to give up gambling and risk taking than to give up a close friendship.

89) Other people have expressed repeated serious concern over my gambling or risk taking.

94) I have tended to accept opportunities for further gambling or risk taking despite having just completed a session or a project.

108) I have preferred to gamble or to take risks in one way or another throughout the day rather than at particular times.

120) I have tended to use gambling or risk-taking as a form of comfort and strength even when I have not felt that I particularly want to gamble or take further risks.

135) I have gambled or taken risks at the first opportunity in case I did not get the chance later on.

137) When my favourite form of gambling or risk taking is unavailable I have gambled on something else I normally disliked.

147) I have been irritable and impatient if there is a complete break of ten minutes in a gambling session.

Food starving

13) In a restaurant or even at home I have often tried to persuade others to choose dishes that I knew I would like even though I would probably refuse to eat them.

34) When I have eaten in company I have liked to be with special friends or family members whom I can rely on to finish off some foods for me.

53) I have had a list of so many things that I dare not eat, so that there is very little left that I can eat.

57) I have often chewed something and then taken it out of my mouth and thrown it away.

100) I have particularly enjoyed eating raw vegetables and also salty or sour things.

109) When I have eaten in company I have tended to time my eating as a form of strategy so that others are not really aware of just how little I am eating.

119) When I have eaten something reasonably substantial I have tended to feel disappointed or even angry with myself as well as slightly relieved.

139) I have become irritable and impatient at meal times if someone has tried to persuade me to eat something.

144) I have often avoided meal times by claiming that I have already eaten when it is not true.

152) Some food has made me wish I could eat it like other people do but I nonetheless find that I could not bring myself to do so.

Compulsive helping dominant

11) I have been afraid that I would be thought of as (and perhaps become) a callous person if I do not show my capacity for self-denial and care-taking on a daily basis.

25) The things I have done for others have often resulted in there being not much left of my personal life.

32) I have preferred to look after other people on my own rather than as part of a team.

49) I have found life rather empty when someone for whom I was caring gets better and I have felt resentful at times when I am no longer needed.

69) I have tended to use my self-denial and care-taking for others as both a comfort and strength for myself.

111) I have found that I tend to adopt a self denying and care-taking role in many of my relationships.

117) I have regularly given unsolicited advice to other people on how to solve their problems.

122) I have found it difficult to leave any loose ends in a conversation in which I am trying to be helpful.

127) I have often stayed up half the night having 'helpful' conversations.

155) I have felt that I have become a real person only when I am tidying up the physical, emotional and social messes made by someone else.

Recreational drugs

9) I have particularly enjoyed getting a really strong effect from recreational drugs.

24) I have had a sense of increased tension and excitement when I knew that I had the opportunity to get some drugs.

41) Other people have expressed repeated serious concern about some aspects of my drug use.

66) I have found that getting high tends to result in my going on to take more drugs.

76) I have tended to use drugs as both a comfort and strength.

88) I have often found that I use all of the drugs in my possession even though I had intended to spread them out over several occasions.

98) I have tended to make sure that I have the drugs or the money for drugs before concentrating on other things.

141) I have been irritable or impatient if my supply of drugs is delayed for ten minutes or so for no good reason.

143) I have tended to use more drugs if I have got more.

159) I have deliberately used drugs before going out for a time if I have felt there might not be the opportunity to use them later.

Sex

2) I have found it difficult to pass over opportunities for casual or illicit sex.

20) Other people have expressed repeated serious concern over my sexual behaviour.

30) I have prided myself on the speed with which I can get to have sex with someone and I have found that sex with a complete stranger is stimulating.

70) I have taken opportunities to have sex despite having just had it with somebody else.

75) I have found that making a sexual conquest has caused me to lose interest in that partner and led me to begin looking for another.

90) I have tended to ensure that I have sex of one kind or another rather than wait for my regular partner to be available again after an illness or absence.

110) I have had repeated affairs even though I had a regular relationship.

114) I have had three or more regular sexual partners at the same time.

128) I have had voluntary sex with someone that I dislike.

148) I have tended to change partners if sex becomes repetitive.

Work

12) I have taken on a piece of work that I actively disliked not so much out of necessity but more simply to keep myself occupied.

26) I have tended to work faster and for longer hours than any other people of my own ability so that they have found it difficult to keep up with me.

36) When I have definitely overworked and got myself irritable and overtired I have tended to feel defiant as well as slightly ashamed.

40) I have tended to tidy up the mess that someone else has got into at work, even when I have not been asked to do so.

46) I have found that finishing a specific project is often irrelevant in deciding when to stop working.

56) When working with others I have tended to disguise the full amount of time and effort that I put into my work.

67) I have tended to keep reserve projects up my sleeve just in case I find some time, even a few minutes to spare.

73) I have regularly covered other people's work and responsibilities even when there was no need for me to do so.

102) Other people have expressed repeated serious concern over the amount of time I spend working.

133) I have found that once I start work in any day I find it difficult to get 'out of the swing of it' and relax.

Relationships dominant

5) I have tended to look for, or take on, positions of power or influence so that I rise to a position of emotional or practical power over others as rapidly as possible.

29) I have found it difficult not to take up a position of power or influence when it is available, even when I do not really need it and can see no particular use for it.

72) I have preferred to have power and influence in all my relationships rather than allow myself to be vulnerable.

96) I have been afraid that my life will fall apart and that others will take advantage of me if I give up the power and influence that I have held or now hold.

101) I have regularly undermined other people's positions of power or influence even though they may have significantly less than my own.

106) I have found that having all the power and influence that I need for my own personal and professional life is irrelevant when deciding when to stop seeking more.

118) I have tended to use a position of power or influence as a comfort and strength regardless of whether there are particular problems needing my attention in other aspects of my life.

126) I have looked for all opportunities for power and influence as and when they arise.

130) In a new relationship I have felt uncomfortable until I hold the most powerful position.

160) I have tended to neglect other aspects of my life when I have felt that my position of power or influence is under threat.

Caffeine

1) I have had an intimate relationship with caffeine so that in a strange way I have felt that I became a real person only when I used it.

22) I have preferred to take caffeine on my own rather than in company.

28) I have felt it would be more painful for me to give up caffeine than to give up a close friendship.

31) I have regularly stolen or helped myself to other peoples caffeine even though I had enough money to buy my own.

52) I have tended to time my intake of caffeine so that others are not really aware of my total intake.

60) I have had a sense of increased tension and excitement when I buy caffeine substances or when I see advertisements for them.

107) I have found that my intake of another form of caffeine tends to increase when I am off my own favourite.

115) When I have used too much caffeine I have tended to feel defiant as well as disappointed in myself.

142) I have sometimes rushed through a meal, or skip it altogether, so that I can have some caffeine.

145) I have often been capable of drinking twenty cups of tea or coffee or cola or lemonade or eating twenty chocolates in a day.

Prescription Drugs

15) I have felt an increased tension or awareness when it has come to the time when I normally take my prescribed medication.

38) Other people have expressed repeated serious concern about my use of prescription medicines.

42) I have taken more than the prescribed dose of my prescription medication as and when I feel it necessary.

92) If my prescription medicines supply was being strictly controlled I would hang onto some old tablets even if they were definitely beyond their expiry date.

99) Other people (e.g. doctors) have commented that they would be knocked out by a fraction of the prescription medication that I have regularly taken.

112) I have found that my previous doses of prescription medicines are no longer successful in controlling my symptoms.

121) I have continued to take prescription medication because I find that it helps me, even though the original stresses for which the medication was prescribed, have been resolved.

125) If I had run out of my prescribed medication I would take an alternative even if I was not sure of its effects.

153) I have been irritable and impatient if my prescribed medication is delayed for ten minutes.

157) I have often found myself taking more prescribed medication than I intended to.

Exercise

3) I have often been so tired with exercise that I have found it difficult to walk or to climb up stairs.

19) I have preferred to exercise alone rather than in company.

33) I have often tried to take exercise several times a day.

54) I have particularly enjoyed getting wringing wet with sweat when I exercise.

68) I have often felt a sense of tension and excitement when about to take exercise.

79) I have responded positively to an unexpected invitation to exercise despite having just finished my regular exercise.

97) I have felt that I become a real person only when I am exercising.

105) I have tended to use exercise as both a comfort and strength even when I have been perfectly fit and do not need any more.

129) I have often taken exercise just to tire myself sufficiently for sleep.

154) When I have gone out I have often taken sports clothes and equipment with me 'just in case' the opportunity to exercise arises.

Relationships submissive

16) I have tended to be upset when someone close to me takes care of someone else.

27) I have felt that I become a real person only when I am being totally looked after by someone else.

55) I have found that other people have tended to express progressively more concern about my dependent relationships.

63) I have tended to find someone else to be close to when my primary partner is away even for a short time.

78) I have tended to find new close relationships within days or weeks of the failure of the old one.

81) I have tended to venture into company only if I have someone to look after me.

87) I have felt an overwhelming sense of excitement when I find a new person to look after my needs or a new way in which an existing partner can look after them better.

91) I have tended to think that a close friendship is when someone else really looks after me.

124) I have tended to get irritable and impatient when people look after themselves rather than me.

150) I have felt most in control of my feelings when other people are performing services of one kind or another for me.

APPENDIX 2

PROMIS Questionnaire 'normal' Comparison Scores (*N*=508)

Behaviour Range	None	Average	High range	Cause of concern →	Significant Problem →	Serious Problem →	Extreme Problem →	
Cum. Percentile	10%	50%	70%	80%	90%	95%	97.5%	99%
Probability	.			1 in 5	1 in 10	1 in 20	1 in 40	1 in 100
Alcohol	0	14	21	26	34	39	41	46
Caffeine	0	0	3	5	9	14	18	23
Comp. hlp. dom.	1	13	18	22	27	31	35	37
Comp. hlp. sub.	6	19	24	28	33	36	40	43
Drugs	0	0	2	7	20	30	38	44
Exercise	0	7	12	16	23	28	33	35
Food bingeing	0	8	15	20	26	31	36	43
Food starving	0	5	9	12	20	26	39	43
Gambling	0	0	1	3	8	14	19	28
Tobacco	0	0	21	34	41	44	45	48
Prescribed drugs	0	0	1	4	9	16	24	31
Relations. dom.	0	6	12	16	22	28	33	39
Relations. sub.	0	7	11	15	21	27	30	36
Sex	0	1	5	9	16	23	30	39
Shopping	0	8	15	20	25	30	35	37
Work	1	13	19	22	27	31	34	37

Appendix 2

Shorter PROMIS questionnaire: Scores according to diagnosis

Diagnosis alcoholism: mean scores on the SPQ

Diagnosis: alcoholism	Male Means	Male SD's	Female Means	Female SD's	Males and females means	Males and females SD's
Alcohol	39.7	9.22	40.8	8.91	40.1	9.10
Shopping	7.5	9.05	12.8	12.07	9.3	10.49
Food Bingeing	6.8	7.76	10.1	12.35	7.9	9.71
Compulsive help submissive	23.9	10.44	27.5	10.30	25.2	10.51
Tobacco	21.6	17.73	27.6	18.26	23.7	18.09
Gambling	5.5	9.31	3.0	6.41	4.7	8.48
Starving	8.3	8.27	9.5	10.69	8.7	9.17
Compulsive help Dominant	16.6	10.78	19.3	11.06	17.5	10.92
Drugs	7.7	14.24	7.5	13.68	7.7	14.01
Sex	9.0	9.97	5.9	11.46	7.9	10.59
Work	20.8	10.71	19.1	11.65	20.2	11.04
Relationship Dominant	17.2	11.80	14.1	11.64	16.1	11.80
Caffeine	4.4	7.30	4.3	6.70	4.4	7.07
Prescription Drugs	8.8	12.74	10.6	13.23	9.5	12.90
Exercise	10.6	9.70	9.3	9.08	10.2	9.48
Relationship Submissive	13.7	9.72	12.5	9.21	13.2	9.53

Diagnosis drug addiction: mean scores on the SPQ

Diagnosis: drugs	Male means	Males SD's	Female means	Female SD's	Male and females means	Male and female SD's
Alcohol	18.6	14.14	21.4	17.70	19.3	15.09
Shopping	7.9	8.56	11.3	10.67	8.8	9.22
Food Bingeing	4.9	6.22	9.9	10.21	6.2	7.71
Compulsive help submissive	17.6	8.91	20.9	12.82	18.4	10.09
Tobacco	28.1	13.69	32.5	13.64	29.2	13.75
Gambling	10.5	12.58	4.4	8.73	8.9	11.97
Starving	5.2	5.35	8.6	8.04	6.1	6.29
Compulsive help Dominant	14.8	10.75	18.5	11.66	15.8	11.05
Drugs	41.5	10.21	45.3	10.46	42.5	10.35
Sex	14.7	12.77	11.4	13.63	13.8	13.00
Work	12.8	10.35	10.7	11.53	12.2	10.65
Relationship Dominant	14.9	11.74	11.0	9.89	13.9	11.37
Caffeine	3.4	4.79	3.7	4.58	3.5	4.72
Prescription Drugs	17.4	18.00	30.7	17.27	20.8	18.66
Exercise	9.4	9.31	9.7	12.66	9.5	10.21
Relationship Submissive	14.3	10.37	17.5	12.73	15.1	11.05

Diagnosis alcoholism and drug addiction: mean scores on the SPQ

Diagnosis: alcohol and drugs	Male means	Male SD's	Female means	Female SD's	Male and female Means	Male and female SD's
Alcohol	37.2	11.98	41.2	6.94	38.7	10.54
Shopping	10.2	9.49	23.3	13.80	15.0	12.84
Food Bingeing	7.7	8.89	17.7	17.50	11.4	13.49
Compulsive help submissive	20.4	11.38	25.1	12.34	22.1	11.87
Tobacco	32.0	13.92	38.3	13.50	34.3	13.99
Gambling	8.7	11.37	10.0	14.86	9.2	12.65
Starving	6.7	7.46	15.0	14.82	9.7	11.36
Compulsive help Dominant	16.7	9.59	23.4	13.35	19.1	11.47
Drugs	37.8	15.03	40.0	13.73	38.6	14.50
Sex	15.0	13.22	10.9	11.08	13.5	12.55
Work	16.3	12.08	14.1	8.90	15.5	11.00
Relationship Dominant	17.5	12.90	15.2	10.44	16.7	12.03
Caffeine	5.7	8.55	8.7	10.05	6.8	9.16
Prescription Drugs	20.2	18.34	26.6	20.83	22.5	19.37
Exercise	11.3	9.95	9.1	8.59	10.5	9.47
Relationship Submissive	17.0	10.83	23.7	12.56	19.4	12.56

Diagnosis bulimia: mean scores on the SPQ

Diagnosis: bulimia	Male Means	Male SD's	Female means	Female SD's	Male and female Means	Male and female SD's
Alcohol	0	0	17.5	16.14	16.8	16.19
Shopping	27	0	17.2	10.69	17.7	10.64
Food Bingeing	32	0	39.2	6.57	38.9	6.59
Compulsive help submissive	16	0	22.7	12.61	22.4	12.40
Tobacco	0	0	21.0	18.80	20.0	18.88
Gambling	0	0	2.1	4.33	2.0	4.25
Starving	20	0	27.1	10.91	26.8	10.77
Compulsive help Dominant	11	0	19.6	12.08	19.2	11.94
Drugs	14	0	10.8	15.40	10.9	15.06
Sex	1	0	5.2	7.63	5.0	7.51
Work	13	0	17.3	10.98	17.1	10.76
Relationship Dominant	13	0	14.0	10.13	14.0	9.90
Caffeine	14	0	9.2	12.63	9.4	12.38
Prescription Drugs	0	0	7.5	9.44	7.2	9.35
Exercise	7	0	17.3	14.10	16.8	13.94
Relationship Submissive	16	0	15.8	7.80	15.8	7.62

Diagnosis bulimia: mean scores on the SPQ

Diagnosis: overeating	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	13.7	11.91	9.9	13.95	11.5	12.99
Shopping	14.1	9.02	19.8	12.17	17.5	11.13
Food Bingeing	38.1	11.32	43.1	6.73	41.0	8.99
Compulsive help submissive	18.7	10.50	13.9	5.51	15.9	8.07
Tobacco	16.3	18.53	7.5	14.95	11.1	16.68
Gambling	4.2	11.24	0.7	1.55	2.1	7.26
Starving	10.8	9.36	12.5	8.64	11.8	8.76
Compulsive help Dominant	18.0	8.34	10.0	5.99	13.3	7.95
Drugs	3.0	8.28	0.5	1.45	1.5	5.37
Sex	4.8	8.76	1.3	1.55	2.7	5.80
Work	17.0	5.39	7.3	7.19	11.3	8.02
Relationship Dominant	9.7	8.93	8.9	9.32	9.2	8.95
Caffeine	12.1	13.42	1.5	1.98	5.9	9.96
Prescription Drugs	2.4	5.46	2.1	3.82	2.2	4.44
Exercise	10.4	9.63	6.9	5.69	8.4	7.55
Relationship Submissive	9.0	7.78	12.2	8.74	10.9	8.32

Diagnosis anorexia: mean scores on the SPQ

Diagnosis: anorexia	Male means	Male SD's	Female means	Female SD's	Males and females Means	Male and female SD's
Alcohol	25	14.14	11.3	16.41	12.9	16.40
Shopping	15	18.38	10.7	8.93	11.2	9.64
Food Bingeing	10	7.07	16.4	14.20	15.6	13.57
Compulsive help submissive	18.5	12.02	25.1	13.24	24.4	12.94
Tobacco	20	28.28	11.3	17.05	12.4	17.68
Gambling	1.5	2.12	0.8	2.08	0.9	2.03
Starving	38	15.56	35.9	8.66	36.2	9.02
Compulsive help Dominant	18.5	16.26	19.4	11.39	19.3	11.41
Drugs	3	4.24	8.9	17.04	8.2	16.09
Sex	0	0.00	3.1	8.08	2.8	7.63
Work	21	4.24	20.7	13.43	20.7	12.61
Relationship Dominant	18.5	14.85	10.0	9.15	11.0	9.75
Caffeine	11.5	16.26	3.2	5.14	4.2	6.88
Prescription Drugs	12	0.00	5.7	9.44	6.5	9.07
Exercise	34.5	10.61	19.6	15.61	21.4	15.64
Relationship Submissive	20	28.28	12.3	10.81	13.2	12.60

Diagnosis eating disorder: mean scores on the SPQ

Diagnosis: eating disorder	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	19.6	18.50	13.6	15.16	14.3	15.43
Shopping	22.8	16.93	20.1	13.84	20.4	14.01
Food Bingeing	28.0	11.18	37.3	13.50	36.3	13.48
Compulsive help submissive	24.0	6.48	24.9	12.25	24.8	11.72
Tobacco	18.8	24.23	18.9	19.40	18.9	19.66
Gambling	13.0	21.52	2.8	8.44	3.9	10.67
Starving	31.2	7.95	28.5	14.27	28.7	13.70
Compulsive help Dominant	21.2	9.04	22.8	13.59	22.6	13.11
Drugs	28.4	17.30	8.1	13.45	10.3	15.07
Sex	13.6	12.82	7.4	11.44	8.1	11.60
Work	19.8	11.82	19.7	12.92	19.7	12.68
Relationship Dominant	14.4	12.42	16.8	12.31	16.6	12.21
Caffeine	12.6	15.90	10.7	13.26	10.9	13.38
Prescription Drugs	3.4	7.06	5.8	10.44	5.5	10.10
Exercise	22.4	6.43	15.7	15.57	16.4	14.97
Relationship Submissive	18.2	11.76	19.7	13.02	19.6	12.78

Diagnosis alcoholism and eating disorder: mean scores on the SPQ

Diagnosis: alcohol and eating	Female means	Female SD's
Alcohol	37.4	11.06
Shopping	19.5	13.51
Food Bingeing	28	15.55
Compulsive help submissive	24.1	9.81
Tobacco	21.4	17.43
Gambling	3.3	8.69
Starving	22.2	12.83
Compulsive help Dominant	18	10.65
Drugs	7.1	9.87
Sex	5.3	9.09
Work	16	10.01
Relationship Dominant	16.2	12.34
Caffeine	7.5	8.75
Prescription Drugs	10.5	13.94
Exercise	12.3	11.64
Relationship Submissive	19.1	12.65

Diagnosis drug addiction and eating disorder: mean scores on the SPQ

Drugs and eating	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	2.5	3.54	20.0	11.88	15.6	12.97
Shopping	10.0	7.07	28.3	12.03	23.8	13.51
Food Bingeing	30.5	19.09	28.3	12.56	28.9	12.88
Compulsive help submissive	15.0	15.56	27.8	12.19	24.6	13.27
Tobacco	23.5	0.71	30.0	17.52	28.4	15.11
Gambling	20.0	21.21	16.2	10.30	17.1	11.97
Starving	10.0	11.31	26.3	15.20	22.3	15.51
Compulsive help Dominant	19.0	21.21	23.8	13.11	22.6	13.86
Drugs	45.5	6.36	42.3	10.07	43.1	8.97
Sex	10.5	14.85	7.0	8.94	7.9	9.55
Work	14.5	20.51	20.7	16.35	19.1	16.10
Relationship Dominant	16.0	9.90	17.3	16.65	17.0	14.57
Caffeine	0.5	0.71	10.5	8.94	8.0	8.86
Prescription Drugs	16.5	12.02	20.2	16.12	19.3	14.46
Exercise	3.0	1.41	16.3	11.13	13.0	11.26
Relationship Submissive	11.5	16.26	24.8	12.54	21.5	13.72

Diagnosis alcoholism and "other" addiction: mean scores on the SPQ

Diagnosis: alcohol and other	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	42.2	11.22	39.0	9.19	41.2	13.03
Shopping	15.3	13.80	13.6	15.18	14.8	11.12
Food Bingeing	7.8	9.32	12.2	14.50	9.1	11.86
Compulsive help submissive	24.7	10.37	31.6	10.60	26.7	10.53
Tobacco	24.2	18.78	22.0	15.54	23.5	17.87
Gambling	14.2	17.56	0.0	0.00	10.0	9.00
Starving	3.8	4.02	13.4	19.87	6.6	12.63
Compulsive help Dominant	20.8	12.28	25.4	11.84	22.2	10.87
Drugs	12.4	18.58	9.4	21.02	11.5	14.30
Sex	22.3	18.57	7.4	12.76	17.9	11.46
Work	14.9	10.48	21.8	11.37	16.9	11.06
Relationship Dominant	24.2	15.69	11.2	8.23	20.4	11.91
Caffeine	4.9	9.23	1.8	4.02	4.0	6.73
Prescription Drugs	5.6	11.31	14.6	16.44	8.2	11.95
Exercise	8.6	12.72	6.2	9.12	7.9	10.83
Relationship Submissive	17.8	11.74	9.4	3.85	15.3	9.89

Diagnosis gambling: mean scores on the SPQ

Diagnosis: Gambling	Male means	Male SD's
SCORES	mean	std
Alcohol	13.5	13.20
Shopping	10.7	13.69
Food Bingeing	6.7	4.50
Compulsive help submissive	16.8	6.91
Tobacco	17.5	19.49
Gambling	39.2	5.67
Starving	5.2	3.92
Compulsive help Dominant	10.2	5.91
Drugs	6.2	13.69
Sex	10.5	8.19
Work	18.0	12.41
Relationship Dominant	18.2	11.65
Caffeine	2.2	3.92
Prescription Drugs	3.3	6.06
Exercise	7.8	7.47
Relationship Submissive	15.5	11.45

Diagnosis eating disorder and "other": mean scores on the SPQ

Diagnosis: Eating disorder and other	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	1.7	2.89	20.6	24.28	13.5	20.86
Shopping	8.0	13.00	21.0	11.98	16.1	13.25
Food Bingeing	32.0	9.85	33.4	17.39	32.9	14.18
Compulsive help submissive	22.3	13.80	26.4	14.15	24.9	13.16
Tobacco	0.0	0.00	18.8	22.30	11.8	19.46
Gambling	15.7	19.14	0.0	0.00	5.9	13.05
Starving	7.7	2.52	14.0	12.10	11.6	9.81
Compulsive help Dominant	20.0	16.00	24.4	14.74	22.8	14.23
Drugs	0.0	0.00	16.2	15.93	10.1	14.67
Sex	3.7	4.04	11.4	8.68	8.5	7.98
Work	10.3	6.81	20.2	13.52	16.5	11.99
Relationship Dominant	15.0	14.93	16.4	13.94	15.9	13.24
Caffeine	10.0	17.32	13.0	16.90	11.9	15.85
Prescription Drugs	2.0	3.46	11.2	15.27	7.8	12.62
Exercise	8.7	8.33	4.6	4.34	6.1	5.91
Relationship Submissive	11.7	14.57	21.0	10.95	17.5	12.35

Diagnosis alcoholism, eating disorder and drug addiciton: mean scores on the SPQ

Diagnosis: Ed, alcohol and drugs	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	49	0	42.8	6.34	43.4	6.29
Shopping	30	0	24.2	15.90	24.8	15.11
Food Bingeing	50	0	33.9	14.68	35.5	14.74
Compulsive help submissive	24	0	30.2	14.54	29.6	13.85
Tobacco	40	0	27.8	15.02	29.0	14.68
Gambling	0	0	5.6	12.10	5.0	11.55
Starving	12	0	26.1	13.79	24.7	13.74
Compulsive help Dominant	8	0	25.8	17.77	24.0	17.68
Drugs	48	0	38.1	14.78	39.1	14.28
Sex	17	0	19.9	17.29	19.6	16.32
Work	0	0	28.2	17.06	25.4	18.39
Relationship Dominant	36	0	24.3	13.45	25.5	13.21
Caffeine	0	0	17.1	15.68	15.4	15.74
Prescription Drugs	45	0	19.6	19.77	22.1	20.31
Exercise	0	0	23.8	17.48	21.4	18.11
Relationship Submissive	26	0	21.7	14.73	22.1	13.96

Diagnosis "other": mean scores on the SPQ

Diagnosis: Others	Male means	Male SD's	Female means	Female SD's	Male and female means	Male and female SD's
Alcohol	18.0	12.53	23.8	16.88	20.8	14.88
Shopping	12.3	12.96	17.1	13.92	14.6	13.49
Food Bingeing	10.8	12.85	11.8	9.83	11.3	11.39
Compulsive help submissive	20.7	11.85	26.0	11.16	23.3	11.71
Tobacco	17.3	17.01	24.4	21.52	20.7	19.40
Gambling	9.9	12.61	2.0	4.38	6.1	10.31
Starving	5.9	7.01	9.4	8.13	7.5	7.68
Compulsive help Dominant	17.4	11.87	22.5	13.73	19.9	12.90
Drugs	12.2	16.56	12.5	18.41	12.3	17.27
Sex	16.9	16.14	10.5	14.23	13.9	15.43
Work	18.0	13.02	19.4	15.00	18.7	13.85
Relationship Dominant	21.3	15.02	14.9	13.22	18.3	14.39
Caffeine	3.7	7.50	4.5	7.85	4.1	7.59
Prescription Drugs	4.0	6.65	7.5	10.74	5.7	8.92
Exercise	12.2	11.38	7.4	7.26	9.9	9.83
Relationship Submissive	16.7	10.73	21.7	9.56	19.1	10.38

Appendix 3

The personality questionnaire: The IASR-B5

INTERPERSONAL ADJECTIVE SCALES
(FORM IASR-B5)

On the next two pages you will find a list of words that are used to describe people's personal characteristics. Please rate how accurately each word describes you as a person. Judge how accurately each word describes you on the following scale:

1	2	3	4	5	6	7	8
extremely inaccurate	very inaccurate	quite inaccurate	slightly inaccurate	slightly accurate	quite accurate	very accurate	extremely accurate

For example, consider the word BOLD. How accurately does that word describe you as a person? If you think this is a quite accurate description of you, write "6" next to it:

Bold 6

If you think this word is slightly inaccurate description of you, write the number "4" next to it, if it is very inaccurate write the number "2" next to it, and so on.

1	2	3	4	5	6	7	8
extremely inaccurate	very inaccurate	quite inaccurate	slightly inaccurate	slightly accurate	quite accurate	very accurate	extremely accurate

1. Introverted ___
2. Assertive ___
3. Timid ___
4. Unargumentative ___
5. Organised ___
6. Boastful ___
7. Soft-hearted ___
8. Ruthless ___
9. Kind ___
10. Tense ___
11. High-strung ___
12. Cheerful ___
13. Unsparkling ___
14. Tricky ___
15. Unconventional ___
16. Inefficient ___
17. Unaggressive ___
18. Unreflective ___
19. Relaxed ___
20. Calculating ___
21. Unmoody ___
22. Anxious ___
23. Abstract-thinking ___
24. Philosophical ___
25. Tender ___
26. Hardhearted ___
27. Unneighbourly ___
28. Worrying ___
29. Literary ___
30. Uncharitable ___
31. Uncunning ___
32. Hypersensitive ___
33. Extroverted ___
34. Unphilosophical ___
35. At ease ___
36. Orderly ___
37. Cocky ___
38. Planful ___
39. Dominant ___
40. Unsearching ___
41. Anti-social ___
42. Perky ___
43. Forceful ___
44. Wily ___
45. Undisciplined ___
46. Sly ___
47. Systematic ___
48. Self-conscious ___
49. Ironhearted ___
50. Thorough ___
51. Untidy ___
52. Unbold ___
53. Neighbourly ___
54. Unorderly ___
55. Shy ___
56. Undemanding ___
57. Meek ___
58. Reflective ___
59. Inquisitive ___
60. Unwily ___
61. Unsystematic ___
62. Self-assured ___
63. Unsocial

1	2	3	4	5	6	7	8
extremely inaccurate	very inaccurate	quite inaccurate	slightly inaccurate	slightly accurate	quite accurate	very accurate	extremely accurate

64. Jovial ___
65. Domineering ___
66. Neat ___
67. Unabstract ___
68. Tender-hearted ___
69. Unworrying ___
70. Unimaginative ___
71. Tidy ___
72. Warmthless ___
73. Unsly ___
74. Enthusiastic ___
75. Firm ___
76. Impractical ___
77. Uncalculating ___
78. Questionning
79. Accommodating
80. Uncheery
81. Uncomplex
82. Calm
83. Conventional
84. Individualistic

___
___

85. Friendly ___
86. Cunning ___
87. Self-confident ___
88. Unauthoritative ___
89. Uncrafty ___
90. Unsympathetic ___
91. Charitable ___
92. Coldhearted ___
93. Guilt-prone ___
94. Nervous ___
95. Broadminded ___
96. Distant ___
97. Forceless ___
98. Efficient ___
99. Fretful
100. Overexcitable
101. Gentlehearted
102. Disorganised
103. Unplanful
104. Unanxious
105. Unself-conscious

106. Unreliable ___
107. Outgoing ___
108. Sympathetic ___
109. Boastless ___
110. Unnervous ___
111. Unliterary ___
112. Imaginative ___
113. Persistent ___
114. Reliable ___
115. Crafty ___
116. Unagitated ___
117. Stable ___
118. Uninquisitive ___
119. Unsociable
120. Unartistic
121. Self-disciplined
122. Forgetful
123. Cruel
124. Bashful

Appendix 4

BSI instruction and items

INSTRUCTIONS:

On the next page is a list of problems people sometimes have. Please read each one carefully, and blacken the circle that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Blacken the circle for only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully. Read the example before beginning, and if you have any questions please ask them now.

	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY	EXAMPLE HOW MUCH WERE YOU DISTRESSED BY:
1	⓪	①	②	●	④	Bodyaches

	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY	HOW MUCH WERE YOU DISTRESSED BY:
1	0	1	2	3	4	Nervousness or shakiness inside
2	0	1	2	3	4	Faintness or dizziness
3	0	1	2	3	4	The idea that someone else can control your thoughts
4	0	1	2	3	4	Feeling others are to blame for most of your troubles
5	0	1	2	3	4	Trouble remembering things
6	0	1	2	3	4	Feeling easily annoyed or irritated
7	0	1	2	3	4	Pains in heart or chest
8	0	1	2	3	4	Feeling afraid in open spaces or on the streets
9	0	1	2	3	4	Thoughts of ending your life
10	0	1	2	3	4	Feeling that most people cannot be trusted
11	0	1	2	3	4	Poor appetite
12	0	1	2	3	4	Suddenly scared for no reason
13	0	1	2	3	4	Temper outbursts that you could not control
14	0	1	2	3	4	Feeling lonely even when you are with people
15	0	1	2	3	4	Feeling blocked in getting things done
16	0	1	2	3	4	Feeling lonely
17	0	1	2	3	4	Feeling blue
18	0	1	2	3	4	Feeling no interest in things
19	0	1	2	3	4	Feeling fearful
20	0	1	2	3	4	Your feelings being easily hurt
21	0	1	2	3	4	Feeling that people are unfriendly or dislike you
22	0	1	2	3	4	Feeling inferior to others
23	0	1	2	3	4	Nausea or upset stomach
24	0	1	2	3	4	Feeling that you are watched or talked about by others
25	0	1	2	3	4	Trouble falling asleep
26	0	1	2	3	4	Having to check and double-check what you do
27	0	1	2	3	4	Difficulty making decisions
28	0	1	2	3	4	Feeling afraid to travel on buses, subways, or trains
29	0	1	2	3	4	Trouble getting your breath
30	0	1	2	3	4	Hot or cold spells
31	0	1	2	3	4	Having to avoid certain things, places, or activities because they frighten you
32	0	1	2	3	4	Your mind going blank
33	0	1	2	3	4	Numbness or tingling in parts of your body
34	0	1	2	3	4	The idea that you should be punished for your sins
35	0	1	2	3	4	Feeling hopeless about the future
36	0	1	2	3	4	Trouble concentrating
37	0	1	2	3	4	Feeling weak in parts of your body
38	0	1	2	3	4	Feeling tense or keyed up
39	0	1	2	3	4	Thoughts of death or dying
40	0	1	2	3	4	Having urges to beat, injure, or harm someone
41	0	1	2	3	4	Having urges to break or smash things
42	0	1	2	3	4	Feeling very self-conscious with others
43	0	1	2	3	4	Feeling uneasy in crowds, such as shopping or at a movie
44	0	1	2	3	4	Never feeling close to another person
45	0	1	2	3	4	Spells of terror or panic
46	0	1	2	3	4	Getting into frequent arguments
47	0	1	2	3	4	Feeling nervous when you are left alone
48	0	1	2	3	4	Others not giving you proper credit for your achievements
49	0	1	2	3	4	Feeling so restless you couldn't sit still
50	0	1	2	3	4	Feelings of worthlessness
51	0	1	2	3	4	Feeling that people will take advantage of you if you let them
52	0	1	2	3	4	Feelings of guilt
53	0	1	2	3	4	The idea that something is wrong with your mind

Appendix 5

Regression analyses from Personality chapter

Regression analyses based on BSI Scores on entry for male addicts

Male: Somatisation

For Somatisation the overall model was significant (F (3) = 23.5, $p < 0.001$) with the leading predictor being the "Sensation seeking hedonism factor (Drugs)" ($\beta = 0.39$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Somatisation				
"Drugs factor"	0.39	6.79	< 0.001	
"Relationships factor"	0.18	3.21	< 0.002	
"Food factor"	0.14	2.42	< 0.05	**21.4 %**

Male : Obsessive compulsive

For Obsessive compulsive the overall model was significant (F (3) = 20.28, $p < 0.001$) with the leading predictor being the "Self orientated nurturance factor (food)" ($\beta = 0.29$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Obsessive compulsive				
"Food factor"	.29	4.50	< 0.001	
"Drug factor"	.27	4.13	< 0.001	
"Relationship factor"	.26	3.90	< 0.001	**19.3 %**

Male: Interpersonal-sensitivity

For Interpersonal sensitivity the overall model was significant (F (2) = 31.92, p < 0.001) with the leading predictor being the "Power related hedonism factor (relationships)" (β = 0.39, p < 0.001)

Scores on BSI	Beta	t	p	Model R^2
Interpersonal-Sensitivity				
"Relationships factor"	.39	5.39	< 0.001	
"Food factor"	.38	5.30	< 0.001	**20 %**

Male: Depression

For Depression the overall model was significant (F (3) = 14.59, p < 0.001) with the leading predictor being the "Power related hedonism factor (relationships)" (β = 0.30, p < 0.001)

Scores on BSI	Beta	t	p	Model R^2
Depression				
"Relationship factor"	.30	4.19	< 0.001	
"Food factor"	.22	3.15	< 0.002	
"Drug factor"	.22	3.13	< 0.002	**15 %**

Male: Anxiety

For Anxiety the overall model was significant (F (3) = 16.42, $p < 0.001$) with the leading predictor being the "Sensation seeking hedonism factor (drugs)" Factor 4 ($\beta = 0.29$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Anxiety				
"Drug factor"	.29	4.30	< 0.001	
"Relationship factor"	.24	3.61	< 0.001	
"Food factor"	.22	3.32	< 0.001	**16 %**

Male: Hostility

For Hostility the overall model was significant (F (3) = 33.94, $p < 0.001$) with the leading predictor being the "Sensation seeking hedonism (drugs)" ($\beta = 0.39$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Hostility				
"Drugs factor"	.39	6.84	< 0.001	
"Relationship factor"	.32	5.51	< 0.001	
"Food factor"	.19	3.31	< 0.001	**29 %**

Male: phobia

For Phobia the overall model was significant (F (3) = 17.92, $p < 0.001$) with the leading predictor being the "Self oriented nurturance (food)" ($\beta = 0.30$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Phobia				
"Food factor"	.30	4.78	< 0.001	
"Drug factor"	.29	4.52	< 0.001	
"Relationship factor"	.14	2.22	< 0.05	**17 %**

Male: Paranoia

For Paranoia the overall model was significant (F (3, 255) = 37.91, $p < 0.001$) with the leading predictor being the "Power related hedonism factor (relationships)" ($\beta = 0.41$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Paranoia				
"Relationship factor"	.41	7.42	< 0.001	
"Food factor"	.30	5.56	< 0.001	
"Drug factor"	.19	3.34	< 0.001	**31 %**

Male: Psychoticism

For Psychoticism the overall model was significant (F (3) = 23.58, $p < 0.001$) with the leading predictor being the "Power related hedonism factor (relationships)" ($\beta = 0.41$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Psychoticism				
"Relationship factor"	.41	6.52	< 0.001	
"Food factor"	.21	3.42	< 0.001	
"Drug factor"	.16	2.60	< 0.01	**22 %**

Male: Global Severity Index

For the Global Severity Index the overall model was significant (F (3) = 33.3, $p <$ 0.001) with the leading predictor being the "Power related hedonism (relationships)" ($\beta = 0.27$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Global Severity Index				
"Relationship factor"	.27	5.61	< 0.001	
"Drug factor"	.25	5.20	< 0.001	
"Food factor"	.14	2.22	< 0.05	**17 %**

Regression analyses based on BSI Scores on entry for female addicts

Females: Somatisation

For Somatisation the overall model was significant (F (2) = 41.27, $p < 0.001$) with the leading predictor being the "Sensation seeking hedonism (drugs)" ($\beta = 0.54$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Somatisation				
"Drug factor"	.54	8.33	< 0.001	
"Food factor"	.25	3.86	< 0.001	**26 %**

Females: Obsessive compulsive

For Obsessive compulsive the overall model was significant (F (4) = 33.58, $p < 0.001$) with the leading predictor being the "Sensation seeking hedonism (drugs)" ($\beta = 0.44$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Obsessive Compulsive				
"Drug factor"	.44	6.71	< 0.001	
"Food factor"	.40	6.14	< 0.001	
"Relationship factor"	.33	4.76	< 0.001	
"C. Helping factor"	.18	2.88	< 0.01	**37 %**

Females: Interpersonal sensitivity

For Interpersonal sensitivity the overall model was significant (F (3) = 24.16, p < 0.001) with the leading predictor being the "Self oriented nurturance factor (food)" (β = 0.49, p < 0.001)

Scores on BSI	Beta	t	p	Model R^2
Interpersonal sensitivity				
"Food factor"	.49	6.26	< 0.001	
"Relationship factor"	.35	4.26	< 0.001	
"Drug factor"	.18	2.29	< 0.05	**24 %**

Females: Depression

For Depression the overall model was significant (F (4) = 19.26, p < 0.001) with the leading predictor being the "Self oriented nurturance (food)" (β = 0.42, p < 0.001)

Scores on BSI	Beta	t	p	Model R^2
Depression				
"Food factor"	.42	5.90	< 0.001	
"Drug factor"	.29	4.08	< 0.001	
"Relationship factor"	.24	3.15	< 0.01	
"C. helping factor"	.15	2.20	< 0.05	**25 %**

Females: Anxiety

For Anxiety the overall model was significant (F (4) = 22.75, $p < 0.001$) with the leading predictor being the "Sensation seeking factor (drugs)" ($\beta = 0.39$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Anxiety				
"Drug factor"	.39	5.78	< 0.001	
"Food factor"	.33	4.87	< 0.001	
"Relationship factor"	.27	3.82	< 0.001	
"C. helping factor"	.15	2.34	< 0.05	**28 %**

Females: Hostility

For Hostility the overall model was significant (F (3) = 22.18, $p < 0.001$) with the leading predictor being "Power related hedonism (relationships)" ($\beta = 0.37$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Hostility				
"Relationship factor"	.37	4.99	< 0.001	
"Drug factor"	.31	4.49	< 0.001	
"Food factor"	.23	3.32	< 0.001	**23 %**

Females: Phobia

For Phobia the overall model was significant ($F(4) = 20.18$, $p < 0.001$) with the leading predictor being "Self oriented nurturance (food)" ($\beta = 0.46$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Phobia				
"Food factor"	.46	6.44	< 0.001	
"Drug factor"	.25	3.40	< 0.001	
"Relationship factor"	.26	3.33	< 0.001	
"C helping factor"	.16	2.28	< 0.05	**26 %**

Females: Paranoia

For Paranoia the overall model was significant ($F(4) = 17.45$, $p < 0.001$) with the leading predictor being the "Power related hedonism (relationships)" ($\beta = 0.29$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Paranoia				
"Relationship factor"	.29	4.16	< 0.001	
"C. helping factor"	.24	3.91	< 0.001	
"Drug factor"	.23	3.55	< 0.001	
"Food factor"	.23	3.50	< 0.001	**24 %**

Females: Psychoticism

For Psychoticism the overall model was significant (F (4) = 22.36 $p < 0.001$) with the leading predictor being the "Self oriented nurturance (food)" ($\beta = 0.41$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Psychoticism				
"Food factor"	.41	6.20	< 0.001	
"Relationship factor"	.32	4.51	< 0.001	
"Drug factor"	.22	3.21	< 0.01	
"C. helping factor"	.15	2.39	< 0.05	**28 %**

Females: Global Severity Index

For the Global severity index the overall model was significant (F (4) = 31.15, $p <$ 0.001) with the leading predictor being Factor one ($\beta = 0.32$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
GSI				
"Drug factor"	.32	6.21	< 0.001	
"Food factor"	.32	6.24	< 0.001	
"Relationship factor"	.25	4.49	< 0.001	
"C. helping factor"	.14	2.82	< 0.01	**35 %**

Regression analyses based on BSI Scores after six weeks for male addicts

Male: Somatisation

For the Somatisation the overall model was significant ($F(1, 91) = 16.61$, $p < 0.001$) with the only contributing predictor being the "Self oriented nurturance (food)" ($\beta = 0.42$, $p < 0.001$)

Scores on BSI	Beta	t	p	Model R^2
Somatisation				
"Relationship factor"	.42	4.08	< 0.001	**15%**

Male: Obsessive Compulsive:

For the Obsessive compulsive the overall model was significant ($F(1,91) = 4.42$, $p < 0.001$) with the only contributing predictor being the "Power related hedonism (relationship)" ($\beta = 0.22$, $p < 0.0384$)

Scores on BSI	Beta	t	p	Model R^2
Obsessive compulsive				
"Relationship factor"	.22	2.10	< 0.05	**5%**

Male: Inter-personal Sensitivity

For the Inter-personal Sensitivity the overall model was significant ($F(1, 91) = 8.26$, $p < 0.001$) with the only contributing predictor being the "Power related hedonism factor (relationship)" ($\beta = 0.37$, $p < 0.005051$)

Scores on BSI	Beta	t	p	Model R^2
Inter-personal Sensitivity				
"Relationship factor"	.37	2.87	< 0.01	**8%**

Male: Depression:

No Factor is significant at the 5% level. Although Fac1 explains the most, but its critical value of F (1, 91) =2.60 is insufficient for it to be included in the model (p=0.11)

Male: Anxiety:

For the Anxiety the overall model was significant (F (2, 90) = 4.589 , $p < 0.01$) with the leading predictor being the "Sensation seeking hedonism" factor (drugs)" (β = 0..35, $p < 0.05$)

Scores on BSI	Beta	t	p	Model R^2
Anxiety				
"Drug factor"	.35	2.48	< 0.05	
"C. helping factor"	.26	1.97	< 0.05	**9%**

Male: Hostility:

For the Hostility the overall model was significant (F (2, 90) = 8.76, $p < 0.001$) with the leading predictor being the "Sensation seeking hedonism" factor (β = 0.39, $p <$ 0.001)

Scores on BSI	Beta	t	p	Model R^2
Hostility				
"Drug factor"	.39	3.62	< 0.001	
"Food factor"	.22	2.32	< 0.05	**16%**

Male: Phobia:

For Phobia the overall model was significant (F (1, 91) = 8,06, $p < 0.001$) with the only predictor being the "Self oriented nurturance factor (food)"($\beta = 0.24$, $p < 0.01$)

Scores on BSI	Beta	t	p	Model R^2
Phobia				
"Food factor"	0.24	2.84	< 0.01	**8%**

Male:Paranoia

For Paranoia the overall model was significant (F (2, 90) = 4.64 , $p < 0.01$) with the leading predictor being "Self oriented nurtruance factor (food)" ($\beta = 0.22$, $p < 0.05$)

Scores on BSI	Beta	t	p	Model R^2
Paranoia				
"Food factor"	.22	2.35	< 0.05	
"Drug factor"	.22	2.07	< 0.05	**9%**

Male:Psychoticism

For Psychoticism the overall model was significant (F (1, 91) = 4.78, $p < 0.01$) with the only predictor being "Power related hedonism factor (relationships)" ($\beta = 0.24$, $p < 0.05$)

Scores on BSI	Beta	t	p	Model R^2
Psychoticism				
"Relationship factor"	0.24	2.19	< 0.05	**5%**

Male: Global Severity Index

For the Global severity index the overall model was significant (F (3, 89) = 8.26 , p < 0.001) with the leading predictor being the "Self oriented nurturance factor (food) " ($\beta = 0.18$, $p < 0.05$)

Scores on BSI	Beta	t	p	Model R^2
GSI				
"Food factor"	.18	2.08	< 0.05	
"Relationship factor"	.20	2.14	< 0.05	
"Drug factor"	.24	2.58	< 0.05	**17%**

Regression analyses based on BSI Scores after six weeks for female addicts

Female: Somatisation:

For Somatisation the overall model was significant (F (1, 96) = 5.634 , $p < 0.01$) with the leading predictor being "Self oriented nurturance (food)" ($\beta = 0.23$, $p < 0.05$)

Scores on BSI	Beta	t	p	Model R^2
Somatisation				
"Food factor"	0.2327	2.37	< 0.02	**6%**

Female: Obsessive Compulsive

For Obsessive Compulsive the overall model was significant (F (3, 93) = 11.91 , p < 0.001) with the leading predictor being the "Self oriented nurturance factor (food)" (β = 0.38, p < 0.001)

Scores on BSI	Beta	t	p	Model R^2
Obsessive Compulsive				
"Food factor"	0.38	3.73	< 0.001	
"C. helping factor"	0.28	2.86	< 0.01	
"Relationship factor"	0.29	2.89	< 0.01	**28%**

Female: Interpersonal Sensitivity
No factor is significant. The nearest to be included in a model is the "Self oriented nurturance factor (food) but with a F-value of F(1, 95) =1.96 (p=0.16) it is far from being significant at the 5% level.

Female: Depression

For Depression the overall model was significant (F (1, 95) = 2.60, p < 0.05) with the only predictor being "Self oriented nurturance factor (food)" (β = 0.32, p = 0.0268)

Scores on BSI	Beta	t	p	Model R^2
Depression				
"Food factor"	0.32	2.25	< 0.05	**5%**

Female: Anxiety
No factor is significant. The nearest factor was "Sensation seeking hedonism (drugs)" but with F (1,95) =2.34 (p=0.1297) it is quite far from being significant.

Female: Hostility

For Hostility the overall model was significant (F (1, 95) = 4.065, $p < 0.05$) with the only predictor being the "Power related hedonism factor (relationships) ($\beta = 0.21$, $p < 0.05$)

Scores on BSI	Beta	t	p	Model R^2
Hostility				
"Relationship factor"	0.21	2.01	0.05	**4%**

Female: Phobia

For Phobia the overall model was significant (F (1, 95) = 6.884 , $p < 0.01$) with the only predictor being the "Self oriented nurturance factor(food)" ($\beta = 0.35$, $p < 0.01$)

Scores on BSI	Beta	t	p	Model R^2
Phobia				
"Food factor"	0.35	2.62	< 0.01	**7%**

Female: Paranoia

For Paranoia the overall model was significant (F (1, 95) = 5.573 , $p < 0.05$) with the only predictor being the "Power related hedonism factor (relationships)" ($\beta = 0.24$, $p = 0.0203$)

Scores on BSI	Beta	t	p	Model R^2
Paranoia				
"Relationship factor"	0.24	2.36	< 0.05	**5%**

Female: Psychotisim

No factor is significant. The nearest factor was the "Power related hedonism factor (relationships)". A single factor model it is quite far from being significant, for

"Power related hedonism factor (relationships)" regression model F (1, 95) =2.91 (p=0.06)

Female: Global Severity Index

For the Global severity index the overall model was significant (F (1, 95) = , $p < 0.01$) with the only predictor being the "Self oriented nurturance factor (food)" ($\beta = 0.22$, $p = 0.0166$)

Scores on BSI	Beta	t	p	Model R^2
Phobia				
"Food factor"	.22	2.44	< 0.05	**6%**

Appendix 6

Paper published during the period of the studentship

Narrative paper

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1072-0537/00 $12.00 + .00

SELF NARRATIVE FRAMING: THE EFFECTS OF SYSTEMATIC WRITTEN REFLECTIONS ON PERSONAL PROGRESS IN 12-STEP FACILITATION THERAPY

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Clients receiving twelve-step facilitation therapy in a residential setting were asked to complete, in the third person, a weekly evaluation of progress based on reading personal "Feelings" diaries they had written on a daily basis over a period of one week starting three weeks previously. All 12 patients who had been in treatment for four weeks prior to the intervention took part in the study. Controlled analyses of subsequent narrative content of the diaries indicated no change in focus, temporal orientation or referent, but did show a marked increase in their positivity. This was verified by a computer analysis of positive feelings words. The intervention also appeared to bring about a decrease in the consistency of feelings about personal progress. The study suggests that clients who responded positively to the intervention tended to do well in recovery.

Narrative therapists have emphasized their role as collaborators in the creative process of deconstructing the old and reconstructing the new life story (see White, 1993), the therapist being the editor in the client's "re-vision" of his or her life-story (Parry and Doan, 1994). There remains uncertainty about both the client's role in the process of "re-visioning" and also about the importance attached to writing itself as means of articulating feelings and thoughts about progress in therapy (Neimeyer, 1995). Stephenson and colleagues (1997), examined in detail the content of daily diaries of "significant events" written by patients undergoing treatment for various problems of addiction (princi-

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The study was conducted in collaboration with Dr Robert Lefever and Robin Lefever of the Promis Recovery Centre, Nonington, Kent. We gratefully acknowledge their contribution to the design and conduct of the study, and to discussion of the results in meetings of the Promis Research Group.

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pally drugs, alcohol and food disorders) in a center using the twelve-step approach of the Anonymous Fellowships. Changes in diary content over the time period of treatment (e.g., making fewer negative statements about self, and greater use of insight words, and language associated with self-management and control) were associated with improvement, as was a generally critical attitude towards self when combined with a positive attitude towards the treatment in the center. All these observations may be interpreted as indicating a willingness to adopt a new framework for the evaluation of self. In this study, our aim was to examine the possibility that these apparent benefits of writing a personally significant diary may be strengthened by retrospective analysis of diary entries. We argued that systematic written reflection on past writings about self (which we term Self Narrative Framing) may positively enhance the awareness of subsequent personal progress, as revealed in an analysis of diary content.

PROCEDURE

Clients were given a written request each Friday afternoon to answer in confidence the researchers' three questions about what they had written in their "Feelings" diaries in the seven daily entries of the previous three weeks. They were asked to answer the questions in the third person, as if commenting on themselves from an observer's perspective. The three questions on the Weekly Evaluation Sheet (WES) were as follows:

1. How would you summarize what "X" was trying to say in their Daily Feelings diary during the week? What are the main points "X" was trying to make?
2. How do you hope "X" has changed since these entries were written? Do you think these changes have happened?
3. What's your view about how things are going for "X"?

Selection of Diary Entries for Analysis

Three fortnightly samples of diary entries were selected for analysis from all clients who had been in treatment for at least 4 weeks:

1. *The Project sample*. The diary entries for 14 days from the Monday after the first request to complete the WES constituted the "Post-WES" sample of diary entries.

2. *The Comparison sample.* The diary entries for the 14 days immediately preceding the WES intervention were employed as the comparison sample.
3. *The Comparison Control sample.* The diary entries for the 14 days immediately preceding the comparison sample, were used as a control for the comparison sample.

A total of 90 sentences per participant was coded "blind," taken equally from the three samples.

Narrative Coding Analysis

The coding system used by Stephenson and colleagues (1997) was modified for use in the present study, and went through a number of revisions following discussion of successive reliability studies. The final version employed in this study (available from the first author) has the following characteristics: (a) sentences are randomly selected from the diary text; (b) each sentence is used as the basis for defining a narrative or "story;" (c) the sentence is required to be read, understood, and coded in context on four dimensions as follows:

1. *Principal Focus*: Does the story have implications for Personal Progress, or does it merely describe an (Event) or reaction to an event?
2. *Orientation*: Does the story implicate the future (Anticipation), or the past (Retrospection), or is it in the present (Reflection)?
3. *Referent*: Does the story refer to another or Other(s), to the treatment Context, or merely to Self?
4. *Mood*: Does the story indicate dissatisfaction or apparent satisfaction with the state of affairs described (i.e., is it *Positive* or *Negative*)?

Employing Kruskal's Lambda (λ), reliability coefficients of .91 (Narrative Focus), .89 (Temporal orientation), .84 (Referent), and .97 (Mood) were obtained. As an example of the coding, we offer the following narrative analysis of four randomly selected sentences taken from the diaries of two clients' entries used in the reliability study of the system. All names have been changed. The randomly selected sentences are presented (in italics) in the context of the complete entry for that day.

Example Client 1:
Saturday. God, I feel really good tonight after my afternoon in Canterbury with Alice and Jane! *This morning I was feeling really irritable*

and stroppy and got incredibly pissed off by having to take off my boots to be weighed and finding out Ann was coming shopping with us—how bloody ridiculous! (I) This afternoon I felt a really uncomfortable sensation in the first shop we went into something I got in the last few months of using—I felt incredibly tearful, lost, desperate, and wanting to get out of the shop and away from all the people. I couldn't look at the clothes properly, felt uncomfortable and paranoid that people were looking at me. *This got better after a while, but I was unhappy every time I glimpsed myself in a mirror.* (II) This feeling diminished with time and I had a thoroughly enjoyable day as a result—I bought a few bits for myself and feel really happy in my own skin tonight.

Example Client 2:
Sunday. I feel really heavy with emotions tonight—ever since the psychodrama with Abigail this morning I've felt pretty low. *I knew that while I was blubbering in the group I was hoping that Arthur would ask me to identify with Abigail (oh! The self-pity) and I knew that I should volunteer to share myself, but I didn't and now I can see just what odd behaviour that is—hoping somebody'll notice I'm down and pick me up on it, instead of taking responsibility for reaching out myself.* (III) Through talking to Jason I realised just how I'm trying to ignore one of my biggest problems—my relationships with mum and dad—by getting them to stay at home on the weekends when I don't feel like talking to them much. I had good chats with William and Henry this afternoon and wrote my Steps 10, 11, and 12 which I was in just the right frame of mind for. *I know I have to mix tonight, because I don't dare wallow in luxurious self-pity and isolations.* (IV)

The four sentences in italics were coded as follows: I (Event; Retrospection; Other; Negative); II (Event; Retrospection; Self; Negative); III (Personal progress; Retrospection; Self; Negative): IV (Personal progress; Anticipation; Self; Positive).

RESULTS

Changes in Positivity over Time

There was a significant increase in positivity over time ($F = 8.01$; $p < .002$) with means and SDs of 10.92 (6.54); 11.75 (5.88) and 16.42 (6.44) in the three consecutive time periods. The increase is clearly concentrated in the post-intervention phase, the proportional increase from Time period II to III being significantly greater than the increase from Time period I to II ($t(11) = 2.20$, $p < .025$). Pennebaker's Linguistic Inquiry Word Count (LIWC) program was used to validate this apparent effect

of the WES intervention on narrative positivity (Pennebaker, 1993). The dimension labelled *Positive Feeling Words* was selected as the dimension most likely to reflect positive mood change in the feelings diaries. The scale consists of 43 positive feeling words like "happy," "joy," and "love." In this analysis we used all the diary material in time periods I, II, and III, not just the sentences that had been randomly selected for narrative coding. There was a 36% increase in positive feelings after the WES intervention, with no difference between the successive Pre-WES periods. A test of this difference between the differences yielded a significant effect with $t(11) = 2.18$, $p < .01$. There were no overall differences over time with respect to narrative focus, orientation, or referent.

Idiosyncratic Change Post Intervention

We expected that the intervention would not act uniformly. Some might find the WES experience confirms their impression of change, others might perceive that they had benefited more than they previously realized, whereas yet others might be disappointed by their lack of progress. We argued that similarity of narrative content would be disrupted post-WES. Eighteen narrative types were derived from the combinations of the categories Principal Focus (Personal Progress or Event), Orientation (Anticipation, Retrospection or Reflection) and Referent (Other, Control or Self). The number of mood positive examples of each type was used as a basis for calculating the correlations between pre-intervention Time periods (I & II) and the post-intervention Time periods (II & III). The average of the 9 correlations (Fisher transformed) between positivity scores for Personal Progress narratives in Time Periods I and II before the intervention was .458. By way of contrast, the average correlation across the intervention, between Time periods II & III was .028, a reduction which a simple binomial test shows to be statistically significant ($p < .05$). In contrast, in the case of Event narratives, there was a nonsignificant increase in the correlational average from .105 to .315. The pattern of satisfaction with Progress is disrupted by the intervention.

Relationship of Change to Outcomes

We calculated Positivity Improvement scores by subtracting positive mood ratio scores in Times I and II from Positive mood ratio scores in the post intervention period. The scores were significantly positive—correlated $t(11) = 2.20$ $p < .025$. Outcomes were assessed 9 months

after the introduction of the intervention. Of the 12 clients in this study, we were unable to discover the whereabouts of one, and two had died, both accidentally but recklessly in ways related to their disorders. To our knowledge, no other deaths have since occurred among clients admitted during the 8-month period in which the intervention was in place, so we have no reason to suspect that the coincidence of two deaths in this small sample is directly related to the intervention. Nevertheless it is the case that these two were among the three lowest scorers on the Positivity Improvement scale, a fact which contributed appreciably to a marginally significant positive correlation between Positivity Improvement, and Outcome, as measured on a 4-point scale ranging from "worsened" to "completely abstinent" in the 11 participants contacted.

CONCLUSION

The results indicate that Self Narrative Framing significantly changes the patterning of narrative positivity in a group of patients receiving treatment for addiction problems. The changes are significantly positive overall, and are focused especially on perceptions of personal progress. The study raises a number of interpretative and methodological issues, the most important of which concerns the absence of a nonintervention control group. Data relevant to this issue from clients subsequently admitted to the center when the intervention was already in place will be the focus of a subsequent paper. However, given the evidence from the previous study (Stephenson et al., 1997) that positivity in itself is associated with favorable outcomes, we can be optimistic that the observed increases in positivity were beneficial. The possibility that the intervention may prove harmful to a minority of patients who perceive no progress for themselves must be borne in mind in future research and applications. More positively, and from a clinical perspective, the study suggests that keeping a "Daily Feelings" diary may not only facilitate change directly, but may by the written reflection technique, be used effectively to draw attention to the predominantly positive changes that are taking place.

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