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**UNDERSTANDING SEXUAL AGGRESSION IN UK MALE UNIVERSITY STUDENTS:  
AN EMPIRICAL ASSESSMENT OF RISK FACTORS AND ONLINE HARM  
PREVENTION PROGRAMMING**

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A thesis submitted in accordance with the University of Kent's requirements  
for the degree of Doctor of Philosophy in Forensic Psychology

**SUBMISSION DATE:** August 2022

**WORDCOUNT:** 67,723

This research was funded by an ESRC studentship ES/P00072X/1 (Ref: 2117875) granted to Samuel T. Hales by the South East Network for Social Sciences (SeNSS). The views expressed in this thesis are those of the author, not SeNSS or the University of Kent.

## PUBLICATIONS

**The data and literature in this thesis have been reported in the following academic peer-reviewed publications:**

- Hales, S. T. (2022). Sexual Violence in Higher Education: Prevalence and Characteristics of Perpetrators. In C. J. Humphreys & G. J. Towl (Eds.), *Stopping Gender-based Violence in Higher Education: Policy, Practice, and Partnerships*. Routledge. <https://doi.org/10.4324/9781003252474-8>
- Hales, S. T., & Gannon, T. A. (2022). *Empirically Assessing the Effectiveness of The Pathways Programme: An Online Self-Help Intervention for Male Sexual Aggression at UK Universities* [Manuscript under review]. School of Psychology, University of Kent.
- Hales, S. T., & Gannon, T. A. (2021). Understanding Sexual Aggression in UK Male University Students: An Empirical Assessment of Prevalence and Psychological Risk Factors. *Sexual Abuse*. Advance online publication. <https://doi.org/10.1177/10790632211051682>

**Select studies reported in this thesis have also been presented at various international conferences and invited talks (full list available upon request):**

- Hales, S. T. (2021, Mar 11). *From One-in-Four to None-in-Four: An Empirical Assessment of University-based Sexual Aggression Perpetration*. Forensic Psychology Seminar Series, University of Birmingham (held virtually). <https://doi.org/10.13140/RG.2.2.18972.82568/1>
- Hales, S. T. (2020, Sep 15). *Understanding Sexual Aggression in UK Male University Students*. National Organisation for the Treatment of Abusers (NOTA; held virtually). (4-Day Webinar Event.) <https://doi.org/10.13140/RG.2.2.13243.64805>
- Hales, S. T., & Gannon, T. A. (2019, Nov 6 – 9). *Assessing the Treatment Needs of Sexually Aggressive Male Students at University in the UK*. Association for the Treatment and Prevention of Sexual Abuse's (ATSA) 38th Annual Research & Treatment Conference, Atlanta, GA, United States. <https://doi.org/10.13140/RG.2.2.15942.22083>
- Hales, S. T. (2019, Jul 10 – 12). *Sexual Aggression in UK Higher Education: A Treatment Needs Analysis of Male Students*. SeNSS Virtual Summer Conference 2020 (Social Science, Social Value, & Social Justice), Norwich, Norfolk, UK. <https://doi.org/10.13140/rg.2.2.16089.26725/1>

## ACKNOWLEDGEMENTS

This thesis, and the outputs stemming from it, are the product of multiple individuals' commitment to me and my education over the past 28-years. Most central to my PhD work is my academic supervisor, Professor Theresa Gannon, who encouraged me to undertake doctoral level study and has provided endless support throughout my postgraduate journey. Theresa – I am truly grateful for your guidance and motivation during my PhD, as well as your dedication to my personal and professional development.

I am also thankful for the wider CORE-FP team who believed in me and pushed me to succeed at every possible opportunity, and who offered me critical – yet fair – research advice that helped to shape my thesis into the product that I am so proud of today. I further want to thank the University of Kent's Graduate and Researcher College, Careers and Employability Service, and IS Research and Scholarly Communication Team for their assistance throughout my studies, as well as the School of Psychology's Administration and Technical staff for their endless clerical and technological support.

Beyond the university walls, I want to send thanks to the South East Network for Social Sciences (SeNSS) for acknowledging the value of sexual harm prevention research and financially supporting me through my studies. I am also grateful to those at Canterbury Christ Church University, Circles South East, and the Association for the Treatment and Prevention of Sexual Abuse (ATSA) who have offered me countless opportunities over the past decade to grow as an academic and a person. Furthermore, I owe thanks to friends and colleagues at the Ministry of Justice, who understand the value of, and have been resolute in their commitment to, my professional development since I joined the Civil Service.

At a more personal level, I owe a huge debt of gratitude to my family and friends – particularly those within CORE-FP and SeNSS – for supporting me through my postgraduate career, which has ultimately culminated in this thesis. The journey wasn't always easy, but did teach me a lot about myself, about life, and about the value of stable, wholesome relationships. In particular, I'd like to thank my mum and grandparents for their encouragement, guidance, and protection during my studies. If I can offer my children and grandchildren half the support that they offered me, I know that I will have done good.

Perhaps I owe my biggest thanks, however, to my loyal and dedicated fiancée, Ellie-Mai, whose commitment and unwavering support to me and our relationship during my various academic endeavours has been nothing short of inspirational. Els – Thank you for sticking by me, even during the tougher times, and reminding me that “It's only a piece of paper”. Though I can't repay you in any meaningful way for your encouragement over the past six years, there is one thing I can promise: I shan't be returning to university again soon!

## **DEDICATION**

*To those individuals within the academic community who are swimming against a tide of bureaucratisation, marketisation, and politicisation to make universities safer.*

## CONVENTIONS USED IN THIS THESIS

### Presentation of Studies

Study presentation order has been decided by the researcher. Studies are not ordered based on when they were written. Study numbers do not align with chapter numbers.

### Tables and Figures

Tables and figures appear at the end of the chapter they are cited in. Consistent with APA 7 style, tables are presented first, followed by figures. Table and figure numbers continue across chapters and both are numbered independent of one another. For ease of reading, in-text references to tables and figures are presented with corresponding page numbers.

### Appendix

An appendix is included at the end of the thesis and contains useful contextual information on my studies. Full comprehension of individual studies is not dependent on information in the appendix. Materials not included in the appendix are available via OSF.io (see below).

### Footnotes

Footnotes appear at the end of a page and expand on the point being discussed. As footnotes are referenced throughout the thesis, numbering continues across chapters.

### Abbreviations

Several abbreviations are used throughout this thesis. While these are clearly identified in text, I have included a list of the most common abbreviations below for reference:

- **AIM:** Athletic Involvement Measure
- **DDQ:** Daily Drinking Questionnaire
- **AUDIT-C:** Alcohol Use Disorders Identification Test – Consumption
- **DERS-SF:** Difficulties in Emotion Regulation Scale – Short Form
- **BIDR-6-IM:** Balanced Inventory of Desirable Responding – Version 6
- **DJGL:** De Jong Gierveld Loneliness Scales
- **BPAQ:** Short-Form Buss-Perry Aggression Questionnaire
- **FAPCSM:** Friends’ Approval & Pressure for Coerced & Forced Sex Measure
- **BSCS:** Brief Self-Control Scale
- **FSCS:** Feelings of Safety on Campus
- **CCS:** Campus Connectedness Survey
- **GBV:** Gender-Based Violence
- **CSBI-13:** Compulsive Sexual Behavior Inventory-13
- **HE:** Higher Education

- **HEI:** Higher Education Institution
- **HTW:** Hostility Toward Women Scale
- **IRMA-R:** Illinois Rape Myth Acceptance Scale – Revised
- **MSIM:** Misperception of Sexual Intent Measure
- **NSA:** Non-Sexual Aggressors
- **PASM:** Personal Acceptance of Sexual Misconduct
- **PLC:** Perceptions of School Leadership Climate for Sexual Assault Prevention
- **PSAPS:** Participation in Sexual Assault Prevention
- **RSE<sub>neg</sub>:** Rosenberg Self-Esteem Scale – Negative Subscale
- **RSE<sub>pos</sub>:** Rosenberg Self-Esteem scale – Positive Subscale
- **SA:** Sexual Aggressors
- **SDQ:** Sexual Drive Questionnaire
- **SERR:** Self-Efficacy in Romantic Relationships Scale
- **SES-SFP:** Sexual Experiences Survey – Short Form: Perpetration
- **SFQ-R-SV:** Sexual Fantasy Questionnaire Revised – Short Version
- **SMS:** Sexual Media Scale
- **SPLS:** Self-Perceived Likelihood Scale
- **SRAS-SF:** Simple Rathus Assertiveness Schedule – Short Form
- **SSSS:** Sexual Sensation Seeking Scale
- **SSSV:** Student Supportiveness of Sexual Violence
- **SU:** Substance Use over the Past 30-days Measure
- **TG:** Treatment Group
- **TICSSS:** Trust in College Support System Scale
- **TPBQ:** Theory of Planned Behaviour Questionnaire
- **URRSV:** University Responsiveness to Reports of Sexual Violence
- **WCG:** Waitlist Control Group

### **Pre-Registration**

The six empirical studies reported in this thesis were pre-registered online on the Open Science Framework at OSF.io (see Foster & Deardoff, 2017). Pre-registration forms are publicly available at the following links along with copies of my ethics forms, study materials, surveys, and raw data. Please note that study identifiers below will not necessarily align with those on the associated OSF.io project pages:

- **Study 1:** <https://osf.io/4ht8m/>
- **Study 2:** <https://osf.io/n73wy/>
- **Study 3:** <https://osf.io/rj78t/>
- **Studies 4 and 5:** <https://osf.io/je23d/>
- **Study 6:** <https://osf.io/b79n3/>

## ABSTRACT

University-based sexual aggression is a pervasive public health issue associated with numerous negative, long-term outcomes. Most scientific literature on the topic has emanated from the US, where researchers possess a solid academic understanding of sexual aggression by male university students – the leading perpetrators of campus-based sexual offences – and have evaluated various harm prevention strategies for tackling the issue. This contrasts with the UK, where academic assessments of male students’ illegal sexual behaviours are scant and research evaluating evidence-based prevention interventions is embryonic. This is despite established high rates of sexual victimisation across campuses nationally.

To help catalyse research into university-based sexual aggression in the UK, this thesis presents six novel empirical studies that offer some of the first psychological insights into UK male students’ sexual offending behaviours. These include studies assessing the prevalence of, and socio-ecological risk factors associated with, the harmful sexual behaviours of male university students in the UK, the heterogeneity of self-reported perpetrators as a group of forensic interest, and the efficacy of evidence-based online harm prevention programming at reducing UK university males’ sexual offence proclivity.

Considered together, findings suggest that (a) UK male students are at increased risk of sexual perpetration at university; (b) perpetrators’ behaviours are guided by various socio-ecological risk factors, which differentiate them from their non-offending peers; (c) students with harmful sexual histories comprise a heterogeneous forensic group who can be meaningfully categorised based on their psychological characteristics; and (d) evidence-based online harm prevention programming can effectively reduce the short and longer-term risk of sexual offending amongst UK university males. The implications of findings for academic research and UK harm prevention work are discussed, alongside methodological limitations.

## COVID-19 IMPACT STATEMENT

Several amendments were made to this thesis owing to the COVID-19 pandemic, which negatively affected my anticipated research plans. Initially, I had hoped to develop, implement, and evaluate the efficacy of various face-to-face MBCT and CBT-based interventions for university-based sexual aggression with male students studying at the University of Kent. However, changes to the national legislative landscape – initially, the ban on face-to-face contact indoors and, later, restrictive social distancing guidelines – meant that I was unable to proceed with this plan. Instead, following a thorough review of the campus sexual assault literature, an executive decision was made to focus on the development and evaluation of a robust, evidence-based *online* self-help intervention for university-based sexual aggression, which I would develop following a comprehensive assessment of the socio-ecological risk factors associated with UK male university students' sexual perpetration behaviours. This amendment to my research design allowed me to formally assess the efficacy of online prevention programming at influencing the sexual behaviours and attitudes of UK male university students (a topic which had not undergone robust empirical academic examination at that point), whilst also providing strong foundations for future psychological research that could explore the viability of other prevention strategies for university-based sexual aggression in the UK.

My original research proposal, submitted to the South East Network for Social Sciences (SeNSS) in February 2018, can be accessed on the UKRI website at <https://gtr.ukri.org/projects?ref=studentship-2117875>. Mitigation strategies and later updates to my research plans were communicated to, and approved by, SeNSS throughout my PhD.

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## CHAPTER 1

### University-Based Sexual Aggression: An Introduction

**This chapter is a re-worked version of the following book chapter:** Hales, S. T. (2022). Sexual Violence in Higher Education: Prevalence and Characteristics of Perpetrators. In C. J. Humphreys & G. J. Towl (Eds.), *Stopping Gender-based Violence in Higher Education: Policy, Practice, and Partnerships*. Routledge. <https://doi.org/10.4324/9781003252474-8>

University-based sexual aggression is a harmful, pervasive, and growing public health and social justice issue that plagues higher education institutions (HEIs) internationally. The consequences of university-based sexual aggression extend well beyond individual perpetrators or victims – offending behaviours have deleterious effects on campus culture, climate, and safety, as well as broader society (Krug et al., 2002). Increased government, media, and public attention in recent years have impelled university policymakers to examine the prevalence and consequences of sexual aggression on their campuses, as well as implement strategies to reduce or prevent offending behaviours (see Donaldson et al., 2018; McMahon et al., 2019; Muehlenhard et al., 2016). These include climate surveys to assess rates of sexual victimisation and perpetration amongst students, robust and transparent policies designed to protect students at risk of experiencing violence, and evidence-based interventions to prevent sexual harm from occurring (see American Association of University Professors, 2013; McMahon et al., 2019; Universities UK [UUK], 2016, 2018, 2019).

To help orient readers to the work presented in this thesis, this chapter briefly introduces the topic of university-based sexual aggression by reviewing key terminology, published data relating to the prevalence of both victimisation and perpetration, and the established outcomes of offending behaviours for students. Reference is also made to UK law pertaining to university-based sexual aggression to provide additional context to the harmful sexual behaviours discussed throughout this thesis. It is hoped that this chapter will prime

readers with a good understanding of university-based sexual aggression and provide a helpful source of reference throughout.

### **Key Terminology**

In the context of this thesis, *university-based sexual aggression* refers to any non-consensual sexual behaviours that are perpetrated or experienced by students within the higher education (HE) system. Sexually aggressive behaviours cover a broad spectrum of adverse sexual behaviours that include unwanted kissing, rubbing against an individual's private parts, (attempted or actual) oral sex, and the insertion, or attempted insertion, of fingers, objects, or the penis into an individual's vagina or anus (see D'Abreu et al., 2013). To this end, sexual aggressive offences subsume specific sexually violent behaviours such as sexual coercion, sexual assault, and rape, as well as harmful sexual acts not yet codified in law. Sexually aggressive behaviours can be perpetrated through various means, including verbal coercion, the use of force or threats, psychological manipulation or exploitation, or incapacitation (see Koss et al., 2007). Given that cisgender male students perpetrate the overwhelming majority of offences, typically against cisgender female students (Martin et al., 2020; see also Breidling, 2015; Cantor et al., 2020; Jones et al., 2020a; McCarry et al., 2021; National Union of Students [NUS], 2011), university-based sexual aggression can be considered part of the broader social issue of gender-based violence (GBV) against women.

Various terms are used throughout published literature to refer to the individuals who experience university-based sexual aggression. In this thesis, the term *perpetrator* will be used to refer to individuals who engage in sexually aggressive behaviours, whilst the term *victim* will be used to reference the individuals who offences were perpetrated against.<sup>1</sup> Consistent with current academic practises in the UK, the term *sexual misconduct* may be used when discussing breaches of university policy or procedure relating to sexual

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<sup>1</sup> This follows the advice of anti-sexual violence organisation RAINN (n.d.), who recommend using the term *victim* when referring in a non-legal context to someone who has recently experienced sexual aggression.

aggression. Likewise, the terms *reporting party* and *responding party* may be used to refer to the individuals who formally report sexual misconduct and those accused of perpetrating sexual misconduct, respectively.

### **UK Law on Sexual Aggression**

Dedicated legislation is in the place across the UK to protect individuals against sexual aggression. In England and Wales, offences are covered under the Sexual Offences Act 2003 (England and Wales), which defines and outlines penalties for various harmful sexual behaviours. These include rape, assault, causing sexual activity without consent, and preparatory offences (e.g., administering a substance with intent to commit a sexual offence).<sup>2</sup> The Act stipulates that, to be convicted of a sexual offence, an individual must (a) not have received valid sexual consent from their sexual partner, and (b) not reasonably believe that their sexual partner provided valid sexual consent. Notwithstanding some cogent criticisms (e.g., Fisher & Pina, 2012; Simpson, 2016), the Sexual Offences Act 2003 (England and Wales) provides a good benchmark against which to assess the harmful behaviours associated with university-based sexual aggression in the UK.

In this thesis, participants' history of sexual aggression is assessed using one of two versions of Koss et al.'s (2007) established *Sexual Experiences Survey – Short Form: Perpetration (SES-SFP)* – a well-validated measure of past sexual transgressions developed for use with US university students. Whilst most items comprising the SES-SFP reflect illicit sexual activity in the UK, differences in sexual offending laws between the US and UK mean that select items may not be contrary to the Sexual Offences Act 2003 (England and Wales). Regardless, the SES-SFP offers a valid method of assessing UK male students' history of harmful sexual activity which, in most cases, will meet the threshold for criminal behaviour.

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<sup>2</sup> It is acknowledged that sexual offending laws in Scotland and Northern Ireland differ to those in England and Wales. However, given that the majority (87.83%) of UK students study at a higher education provider in England or Wales (HESA, 2022), reference is made throughout this thesis to the Sexual Offences Act 2003 (England and Wales). Readers should consult the Sexual Offences (Scotland) Act 2009 and the Sexual Offences (Northern Ireland) Order 2008 for sexual offending legislation in other UK countries.

## **Prevalence of University-Based Sexual Aggression**

### ***Prevalence of Victimization***

University-based sexual aggression occurs at alarming rates on campuses internationally (Steele et al., 2021a; see also Dworkin et al., 2021). Recent reviews of prevalence studies suggest that approximately 25% of female students in the US will be the target of sexual aggression whilst at university (Muehlenhard et al., 2017), with up to 8.4% being raped (Fedina et al., 2018). The Association of American Universities' (AAU) recent *Campus Climate Survey on Sexual Assault and Misconduct* – arguably the largest climate survey of sexual assault in the US to date – underlined these disturbing rates by showing that approximately one-in-four of their 110,812 female respondents reported experiencing non-consensual sexual activity since enrolling at university (Cantor et al., 2020). Worryingly, the survey also revealed that, since 2015, rates of sexual assault had increased by 3.0 percentage points for female undergraduate students and 2.4 percentage points for female graduate students. This emulates Koss et al.'s (2022) finding that rates of sexual victimisation amongst female university students in the US have “decisively” (pg. 25) increased in the past 30 years.

Several national climate surveys published in the past decade have highlighted that university-based sexual aggression also occurs frequently on UK campuses. The most comprehensive assessment to date is the NUS' *Hidden Marks* survey, which highlighted that one-in-four female university students in the UK report experiencing sexual assault during their studies – notably higher than the lifetime prevalence of sexual assault amongst UK community females at the time (see NUS, 2011). Of these respondents, five percent disclosed that they had been raped at university and two percent disclosed that they faced an attempted rape. Worryingly high rates have been described in follow-up surveys (e.g., AVA & NUS, 2022; Brook, 2019; McCarry et al., 2021; Steele et al., 2021b), including a recent report by national campaign group Revolt Sexual Assault who found that 48% of their female student

and recent graduate respondents had experienced sexual assault at university, with eight percent having been raped (Revolt Sexual Assault, 2018). Though not directly comparable, these figures appear to be notably higher than national prevalence estimates for sexual offences in the UK, which suggest that 6.2% of women will experience sexual assault by rape or penetration during adulthood (Office for National Statistics [ONS], 2021; see also Macdowall et al., 2013).<sup>3</sup> Similar to US data, female victims of university-based sexual aggression in the UK typically report perpetrators to be known male students studying at the same institution as them (see AVA & NUS, 2022; NUS, 2011; Jones et al., 2020a). This means that, despite popular belief, ‘stranger rape’ on UK campuses is rare.

Despite similarities in victimisation rates across countries, it is likely that the above figures represent conservative estimates of prevalence given high levels of under-reporting by victims (see Cantor et al., 2020; Fedina et al., 2018), differences in how sexual assault is conceptualised (see Papp & McClelland, 2021), and alarming rates of repeat sexual victimisation amongst female students (e.g., Cusack et al., 2021; Walsh et al., 2020). This is particularly true in the UK, where less than ten percent of students report victimisation (NUS, 2011; Revolt Sexual Assault, 2018) and upwards of 40% of victims experience sexual assault on multiple occasions (Jones et al., 2020a; Revolt Sexual Assault, 2018).<sup>4</sup>

### ***Prevalence of Perpetration***

Compared to sexual victimisation, there have been relatively few assessments of the prevalence of university-based sexual aggression perpetration (Anderson et al., 2021; Jones et al., 2020a; Martin et al., 2020). Of those assessments that do exist, prevalence estimates vary drastically as a result of differences in methodological approaches to measuring sexual

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<sup>3</sup> Interestingly, recent research suggests that the risk of sexual victimisation is around 20% higher for non-student women in the US (Axinn et al., 2018). This suggests that HEIs in the US are more effectively tackling university-based sexual aggression than those in the UK.

<sup>4</sup> A good recent assessment by Tutchell and Edmonds (2020) estimated that over 50,000 students are sexually assaulted at universities in England and Wales annually. When taking into account findings from contemporary climate survey research, the authors suggest that this figure may rise to over 100,000 students.

violence (Jouriles et al., 2022) and high rates of under-reporting by perpetrators (Strang & Peterson, 2017). In the US, the most reliable assessment to date is likely Anderson et al.'s (2021) systematic review of prevalence studies published between 2000 and 2017, which reported that 29.3% of university males in the US and Canada have engaged in sexually violent behaviours, with 6.5% having committed rape. These rates were similar to earlier estimates reported by Spitzberg (1999) who found that overall prevalence of sexual violence perpetration was approximately 25% amongst US community males (4.7% for rape perpetration) between 1957 and 1997. High prevalence estimates of male-perpetrated university-based sexual aggression have been reported in other countries (see Table 1, pg. 31) and, similar to sexual victimisation, recent evidence suggests that rates have increased over the past four decades (see Koss et al., 2022).

Interestingly, despite established high rates of sexual victimisation on UK campuses, there have been no formal assessments of the prevalence of university-based sexual aggression perpetration in either England, Scotland, Northern Ireland, or Wales. Data do currently exist on perpetration; however, this is based on the offence testimonies of victims versus self-report data from perpetrators. This surprising lack of data was underlined by Jones et al. (2020a) in their recent review of research into GBV at UK universities, who failed to identify any academic studies that had assessed sexual violence perpetration by students. Research with broader community samples of young adults – a group that make up most of the UK university student body (HESA, 2022) – offers some account of perpetration rates (e.g., Krahe et al. [2014] reported that up to 7.3% of community males in the UK profess to having engaged in sexually aggressive behaviour since the age of 16), but these insights are limited. As Jones et al. (2020a) argue, more research into perpetration is needed to assist in the development of evidence-based policies, procedures, and harm prevention interventions for university-based sexual aggression in the UK.

## **Consequences of University-Based Sexual Aggression**

The negative short-term and long-term sequelae of university-based sexual aggression have been extensively studied across samples of students in the US, to the extent that researchers there possess a good understanding of the academic, health, and economic outcomes associated with victimisation. Unsurprisingly, research in the UK is comparatively scant; however, some recent climate surveys have provided an insight into common outcomes experienced by students. These are briefly reviewed below.

### ***Academic Outcomes***

Understandably, several students who have experienced university-based sexual aggression report that their victimisation has negatively impacted their academic studies (for a review, see Molstad et al., 2021). Common academic outcomes associated with victimisation amongst students in the US and Canada include lower grade point averages (e.g., Baker et al., 2016; Jordan et al., 2014; Mengo & Black, 2016; Rothman et al., 2021; Stermac et al., 2020), higher rates of university dropout (e.g., Duncan, 2000; Griffin & Read, 2012; Mengo & Black, 2016), reduced institutional commitment (e.g., Banyard et al., 2020), and educational avoidance (e.g., Banyard et al., 2020; Kaufman et al., 2019; Rothman et al., 2021; Stermac et al., 2021). Interestingly, the impact of these outcomes has been shown to be dependent on the severity and frequency of a student's victimisation. For example, Jordan et al. (2014) reported that female students who had been raped typically displayed lower grade point averages than those who had experienced other forms of sexual assault. Likewise, Duncan (2000) noted that students that had experienced multiple forms of sexual violence were 15% more likely to drop out of university than victims who reported only one incident of sexual violence. This latter finding was replicated by Banyard et al. (2020), who discovered that polyvictimisation – experiencing multiple forms of victimisation – was

positively correlated with the number of negative academic outcomes experienced by female university students.

In the UK, findings from national climate surveys suggest that between 10% and 50% of female students in England, Scotland, Wales, and Northern Ireland report negative academic outcomes after experiencing university-based sexual aggression (see Jones et al., 2020a). These include dropping out of university, avoiding lectures and changing modules (typically to avoid the perpetrator), and witnessing a decline in academic performance (AVA & NUS, 2022; McCarry et al., 2021; NUS, 2011; Revolt Sexual Assault, 2018). In terms of academic engagement, roughly one-in-five victims also report a loss of interest in their course and a lack of motivation or commitment to their studies (NUS, 2011).

### ***Physical and Psychological Outcomes***

University-based sexual aggression is associated with several negative physical outcomes. These span immediate physical injuries associated with the offence itself (e.g., deep tissue bruising, lacerations, and broken bones; Sinozich & Langton, 2014) to longer-term somatic outcomes including sleep disturbances, sexual functioning difficulties, and substance misuse (e.g., Chang et al., 2020; Kaufman et al., 2019; Kelley & Gidycz, 2017). Despite the nature of their victimisation, studies have demonstrated that victims of university-based sexual aggression are also prone to engaging in risky sexual behaviours (e.g., having unprotected sex or multiple sexual partners; Davis et al., 2002; Kaufman et al., 2019), which are associated with additional health risks (e.g., unwanted pregnancies or catching STIs).

Beyond negative physical outcomes, adverse psychological health is another common consequence of university-based sexual aggression (for a review, see Dworkin, 2020). For example, research has shown that university students who have been sexually victimised are at increased risk of reporting clinical levels of anxiety (e.g., Carey et al., 2018; Eisenberg et al., 2016; Rothman et al., 2021), depression (e.g., Carey et al., 2018; Chang et al., 2020;

DeCou et al., 2017; Eisenberg et al., 2016; Kammer-Kerwick et al., 2021; Rothman et al., 2021), and post-traumatic stress disorder than non-victims (e.g., Brown et al., 2009; Chang et al., 2020; DeCou et al., 2017; Eisenberg et al., 2016; Kammer-Kerwick et al., 2021; Kaufman et al., 2019; Rothman et al., 2021), as well as lower levels of emotional and sexual intimacy (Rothman et al., 2021). Psychological distress – loosely conceptualised as a frenetic emotional state born of an inability to cope with major life stressors – is also a common mental health outcome of university-based sexual aggression (e.g., DeCou et al., 2017; Graham et al., 2021). As earlier, cumulative experiences of sexual victimisation have been shown to compound many of these outcomes (see Jordan et al., 2014; Zinzow et al., 2011).

In their review of research studies into GBV, Jones et al. (2020a) noted that poor psychological health and psycho-social adjustment were the most common outcomes of university-based sexual aggression in the UK, affecting between 18% and 78% of female victims. This is unsurprising when one considers the findings from recent climate surveys, which have shown that that over half of university students in the UK report high rates of anxiety, depression, and stress following their sexual victimisation (e.g., AVA & NUS, 2022; NUS, 2011), as well as acute deficits in their social functioning capabilities (NUS, 2011).

Whilst there have been no formal assessments of the physical health outcomes associated with university-based sexual aggression in the UK, NUS (2011) noted that several participants who responded to their *Hidden Marks* survey reported increased levels of binge drinking, eating, self-harming, unwanted pregnancies, and STIs following victimisation.

### ***Economic Outcomes***

Whilst there is a paucity of research examining the economic outcomes of university-based sexual aggression *per se*, there is a broad knowledge base pertaining to the individual and societal-level costs of sexual victimisation across the wider community (e.g., Day, 1995; Fedina et al., 2020; Loya, 2015). For example, Peterson et al. (2017) estimated that the

lifetime cost in 2016 of sexual assault and rape in the US was \$122,461 (approximately £102,000) per victim, for a population economic burden of \$3.1 trillion. This estimate was holistically derived and considered the health-related costs and legal fees associated with victimisation, as well as money lost due to work absence and property damage. Similar high estimates have been tendered by other researchers (e.g., Loya, 2015), who contend that sexual assault negatively impacts the long-term economic trajectories of victims.

Of the few studies that have assessed the financial consequences of university-based sexual aggression, most agree that victimisation begets long-term economic disadvantages, particularly for female students (e.g., Brewer & Thomas, 2019; Potter et al., 2018). For example, in their qualitative assessment of the longitudinal impacts of sexual aggression in the US, Potter et al. (2018) noted that female students who had been assaulted were more likely to abandon their career goals and seek underemployment or low-paying jobs owing to their victimisation. They were also at increased risk of underperforming in their professional roles and facing barriers that hindered their career progression, which impacted their financial independence and stability. There have been no formal assessments of the economic consequences of university-based sexual aggression in the UK; however, Jones et al. (2020a) did state that between 7% and 8% of female students in the UK report negative financial outcomes as a result of having been sexually victimised at university.

### ***Sexual Revictimisation***

Evidence suggests that female students in the US who experience sexual aggression are at increased risk of suffering a repeat victimisation during their studies (see Decker & Littleton, 2018). Those who enter university with histories of sexual victimisation are estimated to be between three and seven times more likely to experience another assault during the first year of their studies compared to non-victims (Krebs et al., 2007). In their secondary analysis of data from the *National College Women Sexual Victimization Study* – a

national probability survey of sexual aggression against female students in the US – Fisher et al. (2010) found that 65.4% of all reported incidents of university-based sexual aggression were experienced by 2.9% of respondents. Similar high rates of sexual revictimisation have been reported in follow-up studies (e.g., Littleton & Decker, 2017; Walsh et al., 2021). Whilst there is no robust explanation for this worrying trend, findings from socio-ecological research suggest that high rates of revictimisation are a result of the problematic coping mechanisms that victims often adopt following their assault (e.g., binge drinking), which make them vulnerable targets for perpetrators (e.g., Messman-Moore et al., 2010, 2013).

## **Conclusion**

University-based sexual aggression is endemic on campuses worldwide. Campus climate surveys have provided consistent evidence of this fact and highlighted the safety risk that female students face during their studies, whilst empirical work has revealed the negative outcomes associated with victimisation. Though a reliable evidence base has shown that male students commit most sexual crimes on campuses, academic understanding of their perpetration is limited. This is palpable in the UK, where research into students' harmful sexual behaviours has only started emerging in the past decade. To this end, this thesis positively contributes to nascent academic knowledge by offering the first empirical assessment of university-based sexual aggression perpetration by male students in the UK. This includes estimates of the breath and scope of sexual perpetration on UK campuses, a holistic evaluation of the risk factors associated with male students' sexual offending behaviours, and evidence pertaining to the viability and efficacy of evidence-based online sexual harm prevention programming at reducing sexual offence proclivity.

To help contextualise the studies presented in this thesis, the following two chapters review the established and theoretical socio-ecological risk factors associated with university-

based sexual aggression, as well as contemporary academic evidence pertaining to current sexual harm prevention strategies adopted by universities in the US and UK.

**Table 1***Prevalence of University-Based Sexual Aggression Perpetration by Non-US Male University Students*

| <b>Country</b> | <b>Age of Consent</b>            | <b>Author(s)</b>            | <b>Prevalence<sup>1</sup></b>                                     |
|----------------|----------------------------------|-----------------------------|---|
| Brazil         | 14                               | D'Abreu et al. (2013)       | 33.7% since age 14  |
|                |                                  | D'Abreu & Krahe (2014)      | 38.8% since age 14 and 18.3% in the past six months               |
| Canada         | 16                               | Jeffrey et al. (2022)       | 6.1% in the past twelve months                                    |
| Chile          | 14                               | Schuster et al. (2016a)     | 26.8% since age 14  |
|                |                                  | Schuster & Krahe (2019)     | 30.5% since age 14 and 17.6% in the past 12 months                |
| China          | 14                               | Wang et al. (2015)          | 26.4% in the past 12 months                                       |
| Croatia        | 15                               | Čvek & Junaković (2020)     | 36.9% lifetime prevalence   |
| Germany        | 14                               | Krahe & Berger (2013)       | 13.2% since age 14  |
|                |                                  | Krahe & Berger (2020)       | 13.3% since age 14  |
|                |                                  | Krahe et al. (2021)         | 17.7% since age 14  |
| Greece         | 15                               | Krahe et al. (2015)         | 48.7% since age 15  |
| Hong Kong      | 16                               | Chan (2021b)                | 15.8% lifetime prevalence   |
| New Zealand    | 16                               | Gavey (1991)                | 13.6% lifetime prevalence   |
| Poland         | 15                               | Tomaszewska & Krahe (2018a) | 6.8% since age 15 up to a year ago and 8.7% in the past 12 months |
|                |                                  | Tomaszewska & Krahe (2018b) | 11.7% since age 15  |
| Portugal       | 14                               | Carvalho and Sá (2020)      | 52.6% lifetime prevalence   |
|                |                                  | Moreira et al. (2022)       | 35.0% lifetime prevalence   |
| Philippines    | 12 (pre-2022),<br>16 (post-2022) | Tuliao et al. (2019)        | 14.4% lifetime prevalence   |
| Spain          | 13 (pre-2013),<br>16 (post-2013) | Martín et al. (2005)        | 14.3% since age 14  |
|                |                                  | Krahe et al. (2015)         | 9.5% since age 13   |
| Turkey         | 18                               | Schuster et al. (2016b)     | 28.9% since age 15  |
|                |                                  | Schuster & Krahe (2019)     | 33.1% since age 15 and 26.6% in the past 12 months                |

<sup>1</sup> Differences in conceptualisations and methods of measuring past sexual aggression mean that these statistics are not directly comparable.

## CHAPTER 2

### **An Ecological Review of the Risk Factors Associated with University-Based Sexual Aggression Perpetration**

**This chapter is a re-worked version of the following book chapter:** Hales, S. T. (2022). Sexual Violence in Higher Education: Prevalence and Characteristics of Perpetrators. In C. J. Humphreys & G. J. Towl (Eds.), *Stopping Gender-based Violence in Higher Education: Policy, Practice, and Partnerships*. Routledge. <https://doi.org/10.4324/9781003252474-8>

As highlighted in Chapter 1, university-based sexual aggression is a pervasive and costly public health issue that has far-reaching implications for individuals, campus communities, and broader society. In order to develop suitable, robust, evidence-based strategies to tackle the issue, researchers need to fully understand the causes and motivating factors associated with perpetration. This includes the socio-ecological risk factors that increase students' likelihood of engaging in harmful sexual activity, as well as homogeneity (i.e., similarity) of known perpetrators with regards to these risk factors.

As noted in the previous chapter, most research examining university-based sexual aggression has emanated from the US, where a large – and growing – body of academic literature has been developing for well over 70-years. Early empirical research on the topic conducted by sociologists Clifford Kirkpatrick and Eugene Kanin highlighted a “progressive pattern of exploitation” (pg. 58) on university campuses, whereby male students regularly coerced female students to engage in erotic or sexual activity against their will (Kirkpatrick & Kanin, 1957). The authors (crudely) recorded several possible ‘risk factors’ associated with perpetration, including students’ socio-economic status, fraternity membership, and understanding of sexual consent. This pioneering work formed the foundation for the development of the *Sexual Experiences Survey* (Koss & Oros, 1982), which revolutionised how researchers could assess the prevalence and behavioural dimensions of male students’ sexual aggression. Forty-years later, scientific inquiry into university-based sexual aggression

has yielded more than 2,000 peer-reviewed research studies, hundreds of books, and dozens of critical review papers (McDermott et al., 2015), as well as policy and professional guidance for tackling offending behaviours on campuses (see Butler et al., 2019; Donaldson et al., 2018).

This chapter reviews key research into the socio-ecological risk factors associated with male university students' sexually aggressive behaviours, as well as empirical work assessing the homogeneity of known perpetrators. The chapter also reviews three established theories of university male students' sexual aggression, which concentrate findings from risk factor research into useful frameworks for understanding perpetration. The content reviewed in this chapter will serve as a basis for the later empirical studies presented in this thesis, which examine (a) the socio-ecological risk factors associated with UK university males' sexually aggressive behaviours, (b) the homogeneity of self-reported recent sexual aggressors, and (c) the efficacy of evidence-based sexual harm prevention programming at reducing students' harmful sexual proclivities. Whilst most data derive from US studies, international research is included in this chapter to provide a holistic insight into university males' sexual offending behaviours.

### **Typical Characteristics of Sexually Aggressive University Male Students**

Consistent with general sexual offending patterns (e.g., Centers for Disease Control and Prevention [CDC], 2014a; ONS, 2021), academic literature has highlighted that heterosexual males perpetrate the majority (around 95%) of sexual crimes on university campuses globally (e.g., Cantor et al., 2020; D'Abreu et al., 2013; Krahe & Berger, 2013; NUS, 2011; Schuster & Krahe, 2019; Sinozich & Langton, 2014). Subsequently, this chapter, like the remaining thesis, will focus on male-on-female university-based sexual aggression.

#### ***Demographic Characteristics of Perpetrators***

Whilst male students who engage in university-based sexual aggression span a broad offender spectrum, US research has demonstrated that perpetrators often possess similar demographic traits. For example, in most cases, male students who report recent sexual aggression are between the ages of 18 and 21 (e.g., Porta et al., 2017; Walsh et al., 2021). The majority are enrolled on an undergraduate course at university, with relatively few graduate students perpetrating offences (e.g., Campbell et al., 2021). Emerging evidence suggests that ethnic background may be associated with perpetration risk, in that white male students typically report a greater proclivity towards, or more recent examples of, non-consensual sexual behaviours than students from minority ethnic backgrounds (e.g., McQuiller Williams et al., 2016; Palmer et al., 2021).<sup>5</sup> In terms of their intimate relationships, perpetrators tend to have had significantly more sexual and dating partners than their non-offending peers (Abbey & McAuslan, 2004), as well as earlier sexual experiences and a greater number of one-time hook-ups (Abbey & McAuslan, 2004; Walsh et al., 2021).

### ***The Socio-Ecological Model of Sexual Aggression***

Recent research from the US (e.g., Bonar et al., 2022; CDC, 2014b; Khan et al., 2020; McMahon et al., 2021; J. O'Connor et al., 2021; Walsh et al., 2021) and the UK (e.g., Jones et al., 2020b) has proposed that university-based sexual aggression is the product of multiple levels of influence on an individual's behaviour. Whilst demographic information helps researchers to understand more about the personal characteristics of male students who commit offences, it does not offer adequate insight into the key factors associated with their risk of perpetration. Subsequently, demographic information alone does not allow researchers to develop effective sexual harm prevention interventions for students likely to offend.

In the World Health Organisation's pioneering *World Report on Violence and Health*, Dahlberg and Krug (2002) proposed that Bronfenbrenner's (1977) socio-ecological model

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<sup>5</sup> Evidence will be presented later in this thesis countering this hypothesis.

(reviewed in depth later in this chapter) could provide a useful holistic framework by which to understand the complex interplay between the micro through macro-level risk factors associated with sexual aggression. Nowadays, the model is one of the most popular frameworks used by researchers to develop prevention strategies for sexual perpetration on campuses across the globe (see Moylan & Javorka, 2020).

In recent years, various iterations of the socio-ecological model have been proposed to help understand the risk factors associated with male students' harmful sexual behaviours. The following section reviews the key risk factors associated with university-based sexual aggression based on the four-level model proposed by Dahlberg and Krug (2002). Later in the chapter, an expanded version of the model is introduced that incorporates situational risk factors linked to perpetration. This five-level model is presented alongside additional information on the socio-ecological theory of sexual aggression to further contextualise the empirical studies described later in this thesis. Figure 1 (pg. 50) provides a diagrammatic representation of both versions of the model.

**Individual-Level Risk Factors.** Most research examining university-based sexual aggression has assessed the influence of psychological, physiological, and personal historic factors on a student's risk of committing an offence (see Moylan & Javorka, 2020; J. O'Connor et al., 2021). These individual-level factors are considered strong motivators for sexual perpetration and are believed to significantly increase university males' risk of engaging in harmful sexual behaviours (J. O'Connor et al., 2021; Tharp et al., 2013). Key individual-level risk factors can be classified into four key groups, described below.

The first, and arguably the most validated, category of individual-level risk factors relate to gender-based cognitions. In the context of university-based sexual aggression, these typically refer to male students' negative, derogatory, and bigoted views about women (for a review, see Ray & Parkhill, 2021). For example, researchers have found that male students

who self-report adversarial sexist beliefs or hostile attitudes towards women are significantly more likely to have perpetrated a sexually aggressive act against a female victim at university compared to students with less prejudiced views (e.g., Kingree & M. P. Thompson, 2015; Testa & Cleveland, 2017). Students who score high on measures of rape myth acceptance – a reliable index of sexist attitudes amongst men – are also more likely to report past harmful sexual behaviour (for a review, see Trottier et al., 2021; Yapp & Quayle, 2018), as well as a proclivity towards future sexual assault perpetration (Palmer et al., 2021) – an established indicator for later offending behaviours. These risk factors are considered to reflect broader ‘hostile masculine’ traits associated with university-based sexual aggression – discussed in more depth later in this chapter – which research has shown work in concert with one another to increase male students’ risk of sexual perpetration (e.g., Anderson & Anderson, 2008; Malamuth et al., 1991; Ray & Parkhill, 2021; Suarez & Gadalla, 2010).

The second category of individual-level risk factors pertains to a student’s sexual behaviours and sex-related cognitions. For example, male students who possess problematic sexual fantasies – particularly those associated with rape and sexual assault – have been shown to be at increased risk of engaging in, or reporting a proclivity to engage in, illegal sexual activities compared to those without such fantasies (e.g., Dean & Malamuth, 1997; Gold & Clegg, 1990; Greendlinger & Byrne, 1987; Malamuth et al., 1995; Williams et al., 2009).<sup>6</sup> Studies have also demonstrated that students who self-report high levels of sexual compulsivity (Hudson-Flege et al., 2018; M. P. Thompson et al., 2015; M. P. Thompson & Morrison, 2013), sexual sensation seeking (Garner et al., 2020; Kirwan et al., 2022), and pornography consumption (Carr & VanDeusen, 2004; D’Abreu & Krahé, 2014; Goodson et al., 2021; Vega & Malamuth, 2007) typically display (a propensity towards) more coercive sexual behaviours than students with healthier sexual cognitions. Sociosexuality – a

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<sup>6</sup> In this thesis, I define “problematic” sexual fantasies as those that are coercive, deviant, or atypical in nature (e.g., paraphilic interests).

predisposition to engage in non-committed (“no strings attached”) sexual activity – and hypersexuality – in brief, an overactive sex drive – are also established indicators of university-based sexual aggression amongst male students (e.g., Abbey et al., 2007; Schatzel-Murphy et al., 2009; Testa & Cleveland, 2017).

The third category of individual-level risk factors describes the psychosocial and interpersonal factors associated with students’ harmful sexual behaviours. A key risk factor here is non-sexual aggression, which has been shown to increase university males’ likelihood of engaging in harmful sexual activities during their studies (Kingree & M. P. Thompson, 2015; Rapaport & Burkhart, 1984). Emotion regulation – or rather, an inability to appropriately regulate one’s emotions – has also been linked to sexual perpetration at university (e.g., Pickett et al., 2016), as have impulsivity and attention issues such as poor self-control (e.g., Bouffard & Goodson, 2017; Franklin et al., 2012; Testa & Cleveland, 2017; M. P. Thompson & Morrison, 2013; Wilhite & Fromme, 2021). Adjustment difficulties and sexual cue misinterpretation also constitute strong predictors of past sexual aggression amongst male university students (e.g., Abbey et al., 1998; Martín et al., 2005; Nguyen & Parkhill, 2014; Tharp et al., 2013; Walsh et al., 2021), as do select aspects of psychopathology (e.g., depressive symptomatology; Tharp et al., 2013).

The final category of individual-level risk factors relates to substance use. Given the toxic drinking culture that is prevalent across the HE sector (see Cooke et al., 2019), it is unsurprising that several studies have examined the link between alcohol consumption and harmful sexual behaviours amongst university students (for a review, see Abbey et al., 2014; see also Holloway & Bennett, 2018). For example, many researchers have discovered strong associations between male students’ drinking habits or attitudes towards alcohol, and their perpetration of sexual aggression (Abbey et al., 2014; see also Carr & VanDeusen, 2004; M. P. Thompson et al., 2013). Similarly, findings have shown that male students who engage in

heavy episodic drinking – a dangerous form of alcohol consumption characterised by excessive intake of alcohol in a short time-period – are significantly more likely to demonstrate sexual aggression than their peers with healthier drinking habits (see Abbey et al., 2014), as are students who report both distal and proximal drug use (e.g., Casey et al., 2017; Swartout & White, 2010; Zinzow & M. P. Thompson, 2015). Given that many university students surpass the clinical cut-off for problematic drinking behaviours (see Cooke et al., 2019), these are worrying findings.

**Relationship-Level Risk Factors.** Research has shown that over one-third of male students would commit sexual assault if assured they would face no negative consequences (see Casey & Lindhorst, 2009), thus highlighting that conditions promoting university-based sexual aggression exist at the relationship and broader community and societal levels. Subsequently, assessing the psychological and personal characteristics of perpetrators alone is not sufficient for understanding their harmful sexual behaviours. The second level of the socio-ecological model therefore moves beyond individual-level risk factors to examine how proximal social relationships – including those with friends, peers, colleagues, family members, and intimate or dating partners – influence individual behaviour.

In terms of university-based sexual aggression, arguably the most dominant relationship-level risk factor is a student's perceptions of their peers' attitudes towards harmful sexual behaviours. Several studies have shown that male university students who report having friends that would approve of sexual aggression, or friends that have themselves acted in a sexually aggressive manner, are significantly more likely to report past harmful sexual behaviours than those without such associations (e.g., Dardis et al., 2016; Goodson et al., 2021; M. P. Thompson & Morrison, 2013; M. P. Thompson et al., 2013). It has been suggested that this perception of peer acceptance of sexual perpetration – regardless of whether it is accurate (see Dardis et al., 2016) – establishes a damaging norm that sexual

aggression is socially acceptable, which serves as a heuristic that biases male students' ability to make appropriate decisions in sexual situations (Burkhart & Fromuth, 1991; Hackman et al., 2017).

Sports participation – or rather, participation in certain hypermasculine sports – is another key risk factor for sexual aggression amongst university students (Murnen & Kohlman, 2007). For example, in the US, students who are members of a “high risk” sports team – that is, a team associated with heavy drinking and a party culture conducive to sexual aggression – or who play high-profile team sports (e.g., football) typically report higher rates of past sexual perpetration than students who are either members of a “low risk” sports team (e.g., athletics or tennis) or non-athletes (Gage, 2008; Young et al., 2017). Similarly, in the UK, participation in ‘laddish’ sports (e.g., rugby and football) – those that typically centre around homosocial bonding via inappropriate ‘banter’ and alcohol consumption – has been shown to increase individual risk of committing sexual assault and rape (e.g., Phipps & Young, 2013). Like sports participation, research has shown that fraternity membership is also linked to university-based sexual aggression perpetration, particularly amongst US students (Goodson et al., 2021; Hoxmeier & Zapp, 2022; Murnen & Kohlman, 2007; M. P. Thompson & Morrison, 2013). However, this relationship is likely to be attributable to the drinking and party climates associated with certain fraternities versus membership *per se* (see Kingree & M. P. Thompson, 2013).

Finally, though it is commonly conceptualised as an individual-level risk factor for sexual aggression, alcohol consumption can also be considered across other socio-ecological strata. For example, bystander research has shown that students who are exposed to drinking peers are less likely to either recognise harmful sexual situations (e.g., Ham et al., 2019; Leone & Parrott, 2019) or intervene when they witness sexual perpetration (e.g., Fleming & Wiersma-Mosley, 2015; Orchowski et al., 2016). It has been suggested that the relationship

between drinking behaviours and prosocial bystander attitudes is mediated by male students' perceptions of their peers' approval for sexual perpetration (Orchowski et al., 2016), providing additional support for alcohol consumption as a relationship-level risk factor.

**Community/Institution-Level Risk Factors.** This third level of the socio-ecological model examines how the social environments in which interpersonal relationships occur influence individual behaviour. In terms of university-based sexual aggression, this includes institution-level risk factors: the (actual or perceived) rules, regulations, management strategies, policies, and informal structures of individual HEIs that either inhibit or encourage students' harmful sexual behaviours. As an example, research has shown that universities that promote hypermasculine student lifestyles that centre on alcohol consumption, sports participation, and fraternity membership typically demonstrate increased rates of sexual aggression (e.g., Bellis et al., 2020; Moylan & Javoroka, 2020; Stotzer & MacCartney, 2016). It has been proposed that these lifestyles reflect a damaging sector-wide *lad culture* – defined as “a group or ‘pack’ mentality residing in activities such as sport and heavy alcohol consumption, and ‘banter’ which [is] often sexist, misogynist and homophobic” (pg. 28) – that normalises and encourages male students to engage in harmful sexual behaviours (Phipps & Young, 2013). Unsurprisingly then, US research has shown that HEIs where levels of alcohol consumption and lad culture are less pronounced (e.g., historically black colleges and universities and non-secular institutions) tend to report comparatively lower levels of sexual victimisation (e.g., Foubert et al., 2021; Krebs et al., 2011). Inversely, UK HEIs where lad culture is prevalent have been shown to be at increased risk of sexual perpetration (e.g., Jeffries, 2020; McCarry et al., 2021; Phipps & Young, 2013).

Beyond lad culture, passive university approaches to sexual harm prevention – such as the non-enforcement of sexual assault policies, limited prevention strategies to tackle sexual perpetration, or lenient or delayed outcomes in sexual misconduct cases – have also

been identified as key community-level risk factors for university-based sexual aggression, as they demonstrate to (would-be) perpetrators an institutional acceptance of sexual misconduct (e.g., Cass, 2007; Jones et al., 2020b; Stotzer & MacCartney, 2016). Recent climate surveys in the UK have underlined this finding by showing that university students who have experienced sexual assault or rape often report negative perceptions of their institution's concern for student safety (NUS, 2011), as well as disappointment in their institution's handling of sexual victimisation disclosures (Revolt Sexual Assault, 2018). Indeed, around one-third of female student respondents in McCarry et al.'s (2021) assessment of GBV at Scottish universities stated that they did not feel safe on campus or in the areas surrounding campus at night. It has been suggested that a university's inaction to tackle sexual aggression constitutes a common form of *institutional betrayal* – a deliberate failing of an institution to protect its members' trust and safety – which normalises students' aggressive sexual behaviours and exacerbates sexual trauma amongst victims (see Smith & Freyd, 2013).

Interestingly, empirical research in the US – including recent university climate surveys (e.g., Krebs et al., 2016; McMahan et al., 2015) – have identified several community-level risk factors associated with students' (willingness to report) sexual victimisation, which may also help to explain university males' harmful sexual behaviours. These include a student's sense of campus safety (Hollister et al., 2014), their perceptions of supportiveness on campus for sexual aggression (McMahan et al., 2015), and their trust in their university's campus resources (e.g., campus police, administrators) to tackle GBV (Sulkowski, 2011). Targeted research assessing the prognostic ability of these factors would provide useful academic insights into how institution-specific characteristics promote or discourage male students' sexual perpetration.

**Societal-Level Risk Factors.** These macro-level risk factors help create a climate in which sexual perpetration is considered permissible (Moynan & Javorka, 2020). As shown in Figure 1 (pg. 50), societal-level risk factors encompass all other socio-ecological strata; thus, they transcend individual HEIs, reflecting instead broader social challenges. Arguably the

most pertinent societal risk factors for sexual aggression are the normative sexual objectification of women and society's nonchalant attitudes towards sexual perpetration (see Szymanski et al., 2011). With regards to university-based sexual aggression, these norms serve two functions. For male students, they teach that non-consensual sexual behaviours are acceptable forms of interpersonal conduct and reflect a strength of character. For female students, they teach that individual worth is linked to sexual promiscuity and underline that sexual aggression is an integral part of one's university experience (see Berkowitz, 2010). These norms are evident particularly within the milieu of highly sexualised and misogynistically-tolerant drinking environments, such as campus bars and nightclubs (E. Thompson Jr. & Cracco, 2008).

Federal policies relevant to both sexual aggression and wider GBV are also considered key societal risk factors, particularly if they create or compound social or educational inequalities between groups (see Dahlberg & Krug, 2002). A noteworthy example from the US would be the retraction by the Trump administration of the progressive Obama-era *Title IX of the Education Amendment Act of 1972* (proverbially referred to as "Title IX") guidance on tackling university-based sexual aggression. These repeals were believed by many researchers to increase the risk of sexual harm perpetration on US campuses, as the amended legislation afforded greater protection to responding parties in sexual misconduct cases (see Butler et al., 2019).

Given their strong effect on individuals' behaviours, the influence of societal-level risk factors cannot be understated. However, they are often difficult to empirically or directly assess, given that they permeate other socio-ecological strata.

### ***Heterogeneity of Perpetrators***

Research has shown that sexually aggressive males in the US form a heterogeneous forensic population who can be categorised into distinct subgroups based on their personality

characteristics, motivations, and offending styles (for a review, see Robertiello & Terry, 2007; Wojcik & Fisher, 2019). US studies with male university students have proposed various typologies of sexual aggression, for example, based on offending patterns (e.g., Brennan et al., 2019; Foubert et al., 2020; Lisak & Miller, 2002; Zinzow & M. P. Thompson, 2015), athletic and fraternity involvement (Murnen & Kohlman, 2007), and self-reported alignment with “frat culture” (Testa & Cleveland, 2017).

Recently, Swartout and colleagues suggested that sexually aggressive university males in the US can be categorised into up to four offender typologies based on the frequency of their perpetration behaviours during their studies (Swartout et al., 2015a, 2015b; M. P. Thompson et al., 2013). These included students who perpetrate sexual aggression at “low”, “moderate”, “decreasing”, and “increasing” frequencies over time. Follow-up work by M. P. Thompson et al. (2015) showed that trajectory membership was associated with changes in risk factors associated with perpetration. For example, male students categorised into the ‘decreasing’ subgroup showed reductions in their levels of impulsivity, hostility towards women, sexual compulsivity, and rape myth acceptance over time, as well as decreases in their perceptions of their peers’ approval of sexual aggression. Conversely, students categorised into the ‘increasing’ subgroup displayed increases in these risk-relevant domains.

Whilst there is no universally accepted typological system for university-based sexual aggression – nor general sexual aggression – Wojcik and Fisher (2019) reported that psychological US literature traditionally classifies male sexual perpetrators into five groups. “Compensatory” and “sadistic” perpetrators are motivated by their sexual desires – the former exhibit non-aggressive expressions of sexual fantasies in their sexual aggression, whilst the latter display aggressive sexual fantasies. Conversely, “anger,” “power/control,” and “opportunistic/antisocial” perpetrators are non-sexually motivated; they are characterised

by physical and sexual aggression (against women), power and dominance, and impulsivity that often occurs alongside other offending behaviour, respectively.

Whilst the typologies noted above offer a useful insight into the characteristics associated with university-based sexual aggression, most are limited in that they derive subgroups of perpetrator based on standalone individual-level risk factors or offence characteristics only. Given the well-established fact that male students' sexual perpetration is a product of various levels of influence on their behaviour (e.g., Bonar et al., 2022; Dahlberg & Krug, 2002; Jones et al., 2020b; McMahon et al., 2021), it can therefore be argued that current typological systems cannot reliably inform campus sexual harm prevention work. Rather, more comprehensive groupings are required which derive typologies based on multiple factors linked to risk.

### **Theoretical Perspectives on University-Based Sexual Aggression**

Concerns about the high rates of university-based sexual aggression, as well as an established knowledge base pertaining to the risk factors associated with actual or possible perpetration, have encouraged researchers to develop evidence-based theories to help explain why certain male students engage in sexually harmful behaviours. As with the general sexual offending literature (see Gannon et al., 2008), there is no one theory of university-based sexual aggression that dominates the field (see Zinzow & M. P. Thompson, 2015; Steele et al., 2020); however, three theories have received strong, consistent empirical support.

#### ***The Socio-Ecological Theory of Sexual Aggression***

The socio-ecological model of sexual aggression, introduced earlier in this chapter, is arguably the most relied upon framework for understanding university students' harmful sexual behaviours (e.g., Bonar et al., 2022; CDC, 2014b; Jones et al., 2020b; Khan et al., 2020; McMahon et al., 2021; Walsh et al., 2021). As previously shown, the model considers sexual aggression as a product of several levels of influence on individual behaviour –

spanning from the micro-level (e.g., personality characteristics and personal historic factors) through to the macro-level (e.g., broader community and societal factors) – that, it proposes, work synergistically to either encourage or discourage perpetration. Unlike other theories that suggest specific indicators linked to perpetration, the socio-ecological framework asserts that subjective propensity towards sexual aggression varies at the individual level; subsequently, risk factors can drastically vary between students and across institutions. That being said, socio-ecological research into university-based sexual aggression has highlighted several strong predictors of students’ sexual offending behaviours (reviewed earlier in this chapter) which many researchers believe represent key treatment targets for intervention (e.g., Bonar et al., 2022; McMahon et al., 2021). Likewise, the model has been empirically substantiated across several international studies involving university students (Bonar et al., 2022; see also Hall & Barongan, 1997; Herres et al., 2021; Ouimette & Riggs, 1998; M. P. Thompson et al., 2011), thus evidencing its external validity.

As noted earlier, various iterations of the socio-ecological model exist. Whilst Dahlberg and Krug (2002) proposed a four-level model – which still forms the basis of most socio-ecological research into university-based sexual aggression (e.g., Bonar et al., 2022; Dills et al., 2016; Tharp et al., 2013) – conceptualisations of the social ecology vary between researchers. For example, several studies have noted that Dahlberg and Krug’s (2002) four-factor model neglects to consider the influence of situation-relevant factors (e.g., drinking environments) on male students’ offending behaviours (e.g., Fisher & Sloan, 2013; Henson & Stone, 1999). Subsequently, Wagman et al. (2020) recently proposed a five-factor socio-ecological model that incorporated a situational dimension to more effectively describe and contextualise male students’ sexual perpetration, as well as better enhance the predictive validity of the socio-ecological framework (see Figure 1, pg. 50). Though it has yet to be empirically validated, Wagman et al.’s (2020) expanded model provides researchers the

means through which to better explore the situations in which university-based sexual aggression occurs – a topic that has, to date, evaded robust academic scrutiny (for an exception, see Abbey et al., 2001). Understanding more about the environmental context of students’ offending behaviours, as well as the situational cues that either encourage or prevent perpetration, can help policymakers to identify additional opportunities for sexual harm prevention work.

### ***The Confluence Model of Sexual Aggression***

Socio-ecological assessments of sexual violence encouraged the development of the confluence model of sexual aggression, which offers a more specific approach to understanding perpetration (for a review, see Bruera et al., 2022). Originally proposed by Malamuth (1986), the confluence model suggests that sexual perpetration can be understood with reference to two distinct psychological pathways that can either individually or synergistically explain male students’ actual or potential harmful sexual behaviours.

The “hostile masculinity” pathway is a personality profile that aggregates two interrelated components, synthesised by Malamuth et al. (2021) as “a narcissistic, insecure, defensive, hypersensitive, and hostile-distrustful orientation, particularly, towards women”, and a “sexual gratification from controlling or dominating women” (pg. 2). The existence of this pathway has been supported by several research studies that have shown that male students who self-report high levels of hostile masculinity typically possess hostile or ambivalent attitudes towards women, powerful sexual dominance motives, and adversarial views about interpersonal relationships (for a review, see Ray & Parkill, 2021).

Conversely, the “impersonal sex” pathway reflects a developmental history of being brought up in an unstable or abusive household, an adolescent pattern of delinquency or anti-social behaviour, and an emotionally detached, passive, and hedonic approach towards sexual relationships which remains stable throughout an individual’s life (Malamuth et al., 2021). It

is hypothesised that this constellation ‘sets the stage’ for sexually aggressive behaviour on account of its foundations in negatively distorted perceptions of women, sexual activity, and intimate partnerships, which are often reinforced through negative peer associations (Malamuth et al., 2021). Support for this pathway is offered by research studies that show that sexually aggressive male students typically engage in earlier-onset sexual activity, tend more towards casual versus stable sexual relationships, and possess more passive attitudes towards one-night stands than their non-offending peers (e.g., Abbey et al., 1998; Malamuth et al., 1991, 1995).

In recent years, various iterations of the confluence model have been evaluated to better help explain the heterogeneity in male students’ sexual offending behaviours. These include models that incorporate alcohol consumption (Jacques-Tiura et al., 2007; Parkhill & Abbey, 2008), empathy deficits (Wheeler et al., 2002), and rape myth acceptance (Jacques-Tiura et al., 2007), which either directly or indirectly predicted men’s history of sexual aggression or their misperception of women’s sexual intent. Based on these findings, Malamuth et al. (2021) recently proposed an updated “four pillar” version of the confluence model that integrated various established secondary risk factors for university-based sexual aggression; namely, peer pressure/approval for forced sex, extreme pornography use, empathy deficits, and participation in alcohol parties. Across a diverse sample of US male university students, the authors showed that this expanded model accounted for a significant amount of variance in self-reported harmful sexual behaviours and thus provided a useful framework for understanding the aetiology of university-based sexual aggression.

### ***Integrated Gendered Social Bond and Male Peer Support Theory***

Developed from Hirschi’s (1969) social bond theory, Godenzi et al. (2001) proposed an integrated theory of conformity that sought to explain university-based sexual aggression by examining male students’ negative peer associations and their self-perceived pressure to

adhere to (perceived) social norms. Specifically, the authors proposed that male students' harmful sexual behaviours are a by-product of their attempt to maintain a social bond with a conventional social order typified by sexism and violence, which (they believe) is endorsed by their male peers. In support of this theory, several international studies have demonstrated that negative peer association – in this instance, an association with peers who endorse prejudicial or violent behaviours or ideologies – increases a male students' risk of displaying either harmful sexual behaviours or hostile masculine traits associated with sexual aggression (e.g., DeKeseredy & Schwartz, 2013; Durán et al., 2018; Franklin et al., 2012; Swartout, 2013). Broader institutional factors (e.g., the promotion of frat culture or athletic involvement) can further exacerbate these issues by pressurising male students to participate in activities associated with sexual aggression. To this end, several researchers consider male students' harmful sexual behaviours a form of learned behaviour (e.g., DeKeseredy & Schwartz, 2013; Kaczkowski et al., 2017).

## **Conclusion**

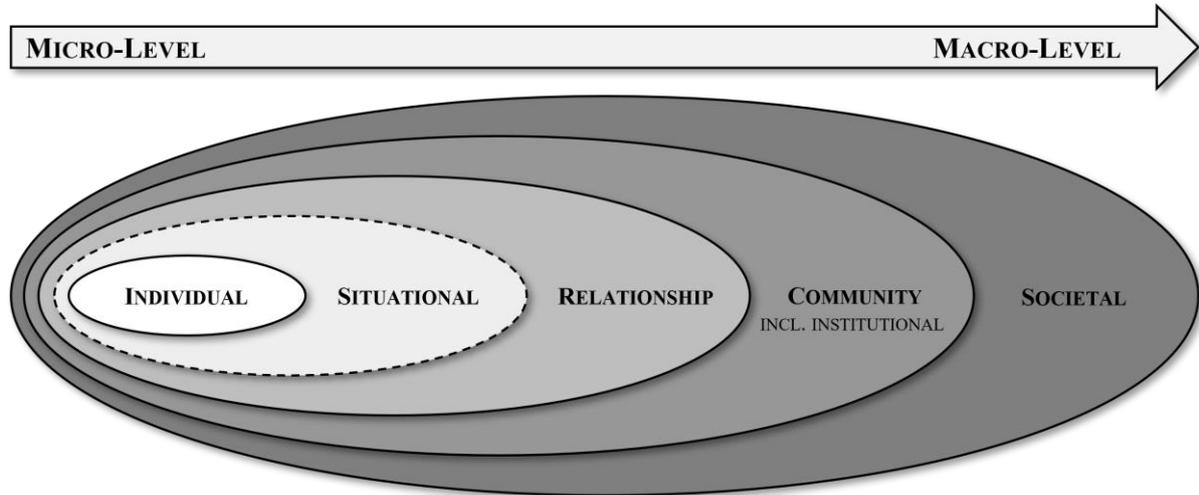
Decades of academic research, particularly from the US, have shown that male university students who engage in harmful sexual activity comprise a heterogeneous forensic group whose offending behaviours are the by-product of various inter-related individual, situational, relationship, community/institutional, and societal-level risk factors. Using the socio-ecological model as a guide, this chapter has reviewed some of the most validated risk factors associated with university male students' sexually aggressive behaviours and has highlighted how these factors often work in concert to either encourage or inhibit sexual perpetration. Emerging empirical evidence was also presented that showed that university males who engage in sexually aggressive activity can be apportioned into typologies – distinct, definable offending subgroups – based on either standalone individual-level risk factors associated with their sexual perpetration or the characteristics of their offending

behaviours. Finally, the chapter reviewed three empirically supported theories of university-based sexual aggression, each of which brought together known risk factors associated with male students' sexual offending behaviours into useful psychological frameworks for understanding perpetration.

Based on current academic understanding of university-based sexual aggression, this thesis adopts a socio-ecological lens when reviewing UK male students' sexual perpetration. Guided by Wagman et al.'s (2020) work, the social ecology is conceptualised as comprising five distinct levels – the individual level, the situational level, the relationship level, the community/institution level, and the societal level – which can be used to aid understanding of UK male students' sexual aggressive behaviours. Unfortunately, given the wide-reaching impact they have across other socio-ecological strata, it is beyond the scope of this thesis to examine or empirically assess the influence of societal-level risk factors on male students' harmful sexual behaviours; however, findings are considered alongside literature on social norms, economic policies, and federal and government work into GBV prevention to provide readers with a holistic overview of sexual aggression on UK university campuses.

**Figure 1**

*A Nested Illustration of the Socio-Ecological Model of Sexual Aggression, Adapted from Dahlberg and Krug (2002).*



*Note.* Dahlberg and Krug’s (2002) original four-level model did not include the situational level, which was added in by Wagman et al. (2020) to provide additional context to university students’ harmful sexual behaviours. In this thesis, the five-level model is used to guide study development.

## CHAPTER 3

### **Tackling University-Based Sexual Aggression: A Review of Sexual Harm Prevention Strategies Adopted by Universities in the US and UK**

Chapter 1 highlighted the high rates of sexual aggression on university campuses globally and described the wide-reaching negative consequences associated with sexual perpetration. Chapter 2 then outlined current academic understanding of the harmful sexual behaviours of male students – the key perpetrators of sexual crimes at universities – by reviewing empirical work into the risk factors associated with perpetration, the heterogeneity of perpetrators as a specialist forensic group, and theoretical explanations for students’ offending behaviours.

Though academic research into the aetiology and maintenance of university-based sexual aggression provides useful scientific insights for educational policymakers, administrators, and researchers wishing to make campuses safer, preventing sexual perpetration ultimately requires targeted harm prevention strategies that seek to either discourage or interrupt students’ harmful sexual behaviours. These strategies typically take the form of evidence-based harm prevention interventions and work by either (a) promoting students’ pro-social behaviours and attitudes, including the development of positive interpersonal and sexual relationships, or (b) therapeutically working with students – particularly those with anti-social cognitions, traumatic histories, or other criminogenic needs – to reduce their risk of, or their proclivity towards, perpetrating sexual harm.

This chapter builds on the research discussed in Chapters 1 and 2 by reviewing empirical work into the sexual harm prevention interventions used on university campuses internationally. This includes research examining effective programme design and delivery, which will feed into my intervention in Study 6. As in Chapter 2, emphasis is placed on reviewing US research, given that the US has a comprehensive agenda for campus sexual

harm prevention that has proliferated for several decades. However, time is also spent reviewing current approaches to sexual harm prevention on UK campuses to help contextualise my later studies. To this end, this chapter not only provides readers with an awareness of current approaches to university-based sexual aggression prevention, but also highlight gaps in scientific understanding of UK harm prevention that this thesis will address.

### **Prevention at US Universities**

Under the *Campus Sexual Violence Elimination (Campus SaVE) Act 2013*, any US university in receipt of government funding is mandated to provide sexual harm prevention programming to incoming students as part of their commitment to campus safety (see Newlands & O'Donohue, 2016). US policymakers have encouraged universities to be proactive in developing their own programming schedules; subsequently, there are huge disparities in the harm prevention interventions currently used on US campuses (see Bonar et al., 2022; Graham et al., 2021; Newlands & O'Donohue, 2016; Vladutiu et al., 2011). In this section, I will review academic research relating to the design, outcomes, and effectiveness of empirically appraised harm prevention interventions either developed or adopted by universities in the US. In doing so, I describe the breadth, quality, and evolution of harm prevention work across the US HE system, which could help guide the design and evaluation of sexual violence prevention programming in the UK.

#### ***Programme Design***

Reviews of sexual harm prevention work on US campuses have highlighted heterogeneity in programme design (e.g., Bonar et al., 2022; DeGue et al., 2014; Newlands & O'Donohue, 2016; Vladutiu et al., 2011). These institution-level variations in programming are ascribable to several factors – including resourcing and financing constraints, lack of senior-level commitment to preventing GBV, differential judgments about evidence-based practice, and institutional inertia (see Newlands & O'Donohue, 2016) – and underline that

there is currently no ‘one-size-fits-all’ approach to the prevention of university-based sexual aggression in the US. To encourage readers towards a good understanding of current intervention design practises, below I describe the key characteristics of US sexual violence prevention programmes that have undergone empirical evaluation. This includes the features associated with *effective* harm prevention programming, which will guide the research presented later in this thesis.

**Breadth of Content.** Presently, most programming on US campuses focuses on tackling individual-level factors for perpetration, with less attention paid to more macro-level indicators of risk (Bonar et al., 2022; McMahon et al., 2019). Whilst most programmes are brief psychoeducational interventions that focus on changing students’ attitudes, behaviours, and knowledge relating to sexual assault and rape (see DeGue et al., 2014; Vladutiu et al., 2011), programme content varies substantially between different published interventions.

In their meta-review of university-based sexual assault prevention programmes, Vladutiu et al. (2011) noted that there were vast disparities in the strategies and topics adopted by US programme designers. Interventions spanned “risk-reduction strategies, gender-role socialisation, sexual assault education, human sexuality, rape myths, rape deterrence, rape awareness, and self-defense” (pg. 77) which, the authors proposed, led to inconsistent harm prevention messaging for students. Whilst they reported that all types of content were associated with improvements in at least one outcome domain (described later), Vladutiu and colleagues noted that longer programmes with a broader content – primarily, those that aimed to positively affect students’ attitudes, knowledge, and empathy for victims – were often more effective at reducing (proclivity towards) sexual assault and rape as they addressed a broader range of risk factors associated with sexual perpetration. However, the authors also acknowledged the efficacy of well-targeted brief interventions – particularly,

those that addressed rape myth acceptance – as providing an effective way of tackling specific indicators of sexual assault.

DeGue et al. (2014) extended the work of Vladutiu et al. (2011) by reviewing published primary prevention strategies for sexual perpetration as used across both student and non-student groups in the US. In reviewing the characteristics of published programmes, the authors also discovered wide variations in program content. Of the 140 outcome evaluations they reviewed, DeGue et al. (2014) reported that the majority (over 80.7%) of described interventions focused on either shifting participants' attitudes towards sexual violence (e.g., by targeting men's hostility towards women) or increasing their knowledge of sexual harm prevention. Less common were programmes that focussed on sexually aggressive behaviours (13.6%), policy and sanctions related to sexual violence (4.3%) or teaching sexual consent (2.9%). The authors also reported that some programmes introduced a socio-cultural relevance by including content targeted at specific groups who are at increased risk of sexual victimisation (e.g., minority ethnic groups) or perpetration (e.g., fraternity members or student athletes). Most interventions, however, were targeted at white samples and did not account for the macro-level factors associated with sexual harm. Like Vladutiu et al. (2011), DeGue and colleagues recommended that programme designers focus more on designing comprehensive evidence-based primary interventions that target the spectrum of known risk factors for sexual violence, as well as assess the viability and efficacy of more novel prevention strategies.

Notwithstanding the aforementioned criticisms of programme content – which, despite the work of Vladutiu et al. (2011) and DeGue et al. (2014), remain endemic to sexual harm prevention programming (see Bonar et al., 2022) – there have been some positive recent shifts in primary prevention planning on US university campuses. Most notable is that many universities now incorporate as part of their harm prevention arsenals active bystander

trainings that seek to disrupt sexual violence through peer intervention (McMahon et al., 2019). This approach is based on evidence showing that most US students are not victims or perpetrators of sexual aggression; however, they are a part of a campus community that contributes to sexual victimisation and perpetration (see Banyard et al., 2004). Bystander approaches typically work by educating students about sexual aggression and changing individual attitudes and beliefs associated with sexual assault and rape, whilst also addressing broader ecological factors (e.g., social norms about peer acceptance of sexual perpetration) related to university-based sexual aggression. Given that they target various levels of the social ecology, it is unsurprising that recent evaluations of bystander interventions on US campuses have shown that they bring about positive shifts in students' pro-social helping behaviours (e.g., Jouriles et al., 2018; Kettrey & Marx, 2019). However, these programmes have been criticised for placing the onus on the broader campus community – not solely perpetrators – to address university-based sexual aggression (see Camp et al., 2018; Labhardt et al., 2017). To this end, many researchers recommend that bystander interventions should form part of a comprehensive toolkit for tackling sexual aggression on US campuses and not be used as a standalone approach to prevention (see Banyard, 2014).

**Delivery Style.** In terms of harm prevention planning, delivery style refers to the ways in which a programme is communicated to students. This includes information on the length of a programme, how content is presented, and, in the case of face-to-face programmes, who the facilitator is. In their systematic review, DeGue et al. (2014) noted that approximately two-thirds of the interventions they appraised were one-session programmes with university students. Most of these programmes were around one-hour in length and adopted a pre-post measurement design to assess outcomes immediately following intervention completion. Graham et al. (2021) reported similar findings in their evaluation of prevention programmes for men's sexual violence, noting a preponderance by programme

designers towards shorter standalone sexual assault workshops or trainings versus more long-term prevention activities. This is an interesting finding given that early sexual harm prevention evaluations – which would have informed the development of the interventions reviewed by Graham and colleagues – underlined that longer programmes typically report better outcomes than one-off or shorter programmes (e.g., Anderson & Whistone, 2005; Flores & Hartlaub, 1998; Lonsway, 1996).

In terms of mode of delivery, DeGue et al. (2014) reported that over half of their reviewed interventions favoured traditional teaching methods; for example, the use of didactic lectures, interactive presentations, or film/media performances with follow-up structured group discussions. Novel delivery styles – including role play sessions, live theatre performances, and peer-led policy development activities – were infrequently used. For those programmes that adopted a trainer-led approach to delivery, the authors reported that most were facilitated by either students, academic or support staff, or external partners. Only a quarter of programmes were led by sexual violence experts who possessed a good understanding of the harm prevention models at play (e.g., programme developers) or students who had undergone advanced training in intervention delivery. By extension, this meant that many programmes were facilitated by trainers who lacked relevant subject expertise – including knowledge of how to respond to reports of sexual trauma, violence victimisation, and perpetration – which may account for the large proportion of weak and harmful interventions exposed by the authors.<sup>7</sup>

Interestingly, research into ‘what works’ in primary sexual harm prevention has underlined for at least two decades that classroom-based programmes that adopt interactive activities and promote skills-based learning are often most effective at encouraging students’

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<sup>7</sup> Interestingly, there have been calls in recent years for universities to harness the knowledge and expertise of their academic staff – particularly psychologists who have worked with, or researched into, sexual violence – to help design, facilitate, and evaluate campus-based sexual harm prevention initiatives (e.g., Finley & Levenson, 2017; Towl, 2018).

pro-social behaviours and attitudes (see Nation et al., 2003). This idea is supported by more recent behavioural change literature which has highlighted that interventions that incorporate multiple forms of teaching and encourage student engagement are more likely to positively affect outcomes than those favouring a single mode of programme delivery (Paul & Gray, 2011). Having discovered that many sexual harm prevention programmes in the US still rely on using one teaching method only, several authors have recommended that programme designers develop more interactive interventions that encourage students' knowledge acquisition and retainment and allow them opportunities to practise the skills they have been taught (e.g., DeGue et al., 2014; Senn et al., 2018). In support of this argument, McMahon et al. (2019) recently highlighted that several prevention programmes focussed on engaging male students have demonstrated success at improving individual-level attitudes relevant to sexual violence.

It is worth noting that, in recent years, several innovative prevention efforts have been trialled on US campuses based on DeGue et al.'s (2014) recommendations (for a brief review, see McMahon et al., 2019). Most notable are online self-help interventions, which offer a scalable and reliable modern-day approach to prevention planning (see Burns et al., 2019; Kleinsasser et al., 2015; Zapp et al., 2021). These programmes are not beholden to the issues associated with face-to-face interventions – for example, they do not require spaces or facilitators to deliver training – and they are oftentimes accessible to a broad range of participants via their personal electronic devices (Jouriles et al., 2018). Online prevention programmes further allow participants to engage with sensitive topics in a private setting on their own time, whilst providing researchers the means to track user participation. They can also be set up to include interactive exercises and mechanisms that provide personalised feedback to encourage participants' learning (Burns et al., 2019; Kleinsasser et al., 2015; M. P. Thompson et al., 2021; Zapp et al., 2021). Preliminary evidence suggests that online harm

prevention programming is positively received by university students (e.g., M. P. Thompson et al., 2021) and is as effective as in-person sexual harm prevention interventions on US campuses (Salazar et al., 2014). However, additional research is needed to understand how students engage with online self-help programmes, as well as ideal dosage (see McMahon et al., 2019; M. P. Thompson et al., 2021).

**Dosage.** Also referred to as programme intensity, dosage represents the amount of programming a student needs to be exposed to for it to bring about desirable outcomes. Though it is difficult to quantify, dosage can be inferred by examining how the length of an intervention, the number and frequency of sessions, and overall programme duration impact students' behaviours, knowledge, and attitudes (see Nation et al., 2003). Consistent with the risk-needs-responsivity model of offender rehabilitation (see Bonta & Andrews, 2007), most US researchers propose that individual risk status dictates ideal dosage, inasmuch as individuals with greater needs will require more exposure to an intervention or higher intensity programming than their lower-risk counterparts (Nation et al., 2003; DeGue et al., 2014). Likewise, many harm prevention experts – including the US Centers for Disease Control and Prevention (Dills et al., 2016) – agree that programmes that incorporate a longitudinal element are more effective at reducing students' sexual aggression than those that run for a shorter term (e.g., DeGue et al., 2014; Nation et al., 2003; Newlands & O'Donohue, 2016). This is because follow-up (booster) sessions support the durability of programme impact and reaffirm to students both the key lessons taught during initial programming, as well as their university's commitment to sexual harm prevention. Including a longitudinal arm in programme design is vitally important to reduce outcome decay over time – a common issue associated with campus sexual harm prevention programmes (see Nation et al., 2003).

Unfortunately, a lack of outcome evaluations of longitudinal campus sexual harm prevention interventions in the US restricts research into programme dosage and hampers programme development and refinement (see Bonar et al., 2022; Graham et al., 2021; Khan et al., 2020). This is concerning given that reviews of primary prevention strategies for sexual violence have returned mixed findings when it comes to programme duration and efficacy (e.g., DeGue et al., 2014; Vladutiu et al., 2011). Given that many universities only have one opportunity to provide students with universal prevention programming (see DeGue et al., 2014), it is vitally important that programme designers assess dosage to ensure that delivered interventions can bring about sustained change. Moynihan et al. (2015) emphasised the positive cumulative effect on attitudinal and behavioural outcomes of combining multiple prevention strategies (e.g., running a sexual violence programme alongside a targeted social marketing campaign); however, DeGue et al. (2014) note that research is required to assess the viability of this approach on individual campuses given resource constraints.

**Theoretical Foundations.** Incorporating established scientific theory into sexual harm prevention planning is critical, as it ensures that interventions are evidence-based and likely to bring about positive behavioural and attitudinal changes (DeGue et al., 2014). In their early review of ‘what works’ in prevention programming, Nation et al. (2003) suggested that there are two groups of theories central to effective programme development: etiological theories (that seek to understand the risk and protective factors associated with perpetration) and intervention theories (that seek to assess the mechanisms associated with behavioural change). By incorporating both theories into programme development, the authors proposed that programme designers can (a) identify the etiological risks associated with risk-related behaviours (e.g., sexual aggression) that need targeting through tailored intervention, and (b) develop effective primary prevention programmes that seek to positively affect identified treatment targets. This approach is supported by the CDC, who note that evidence-based

theories of change are central to effective prevention planning on US campuses (Dills et al., 2016).

In their systematic review of primary prevention strategies for sexual perpetration in the US, DeGue et al. (2014) found that many recent programmes implicitly incorporated etiological theories during programme development. Unfortunately, many of these programmes focussed on improving participants' legal or sexual knowledge – factors that, at the time, not been empirically examined as indicators of sexual aggression – in lieu of established markers for sexual violence. The authors proposed that future programming should instead target more cognitive factors – for example, men's hypermasculine attitudes, hostility towards women, and traditional gender role adherence – which are rarely addressed in sexual assault prevention efforts despite forming key elements of well-validated theories of sexual aggression (e.g., the confluence model; Malamuth et al., 2021). This echoes Paul and Gray's (2011) recommendation that incorporating a broader range of risk factors and additional behaviour change theories into university sexual harm intervention development will likely result in more effectual and integrative models of prevention, as well as help delineate the mechanisms associated with effective programming.

### ***Programme Outcomes***

In terms of sexual harm prevention programming, outcomes refer to the specific (attitudinal, behavioural, ecological) factors that an intervention aims to target. In their assessment of early US literature reviews on university-based sexual assault interventions, Vladutiu et al. (2011) discovered that the most common programme-related outcomes assessed by researchers were those associated with participants' rape-related or rape-supportive attitudes. This was followed closely by rape myth acceptance, rape awareness behaviour, and rape empathy and knowledge.

DeGue et al. (2014) reproduced these findings in their systematic review of broader general population sexual violence interventions in the US. Specifically, the authors reported that the majority of studies examined either attitudinal outcomes (i.e., participants' attitudes associated with gender role adherence, sexual assault, sexual behaviours, or bystander intervention;  $n = 115$ ; 84.6%) or knowledge outcomes (i.e., participants' knowledge about the prevalence, definition, and legal outcomes of sexual assault;  $n = 34$ ; 25.0%) associated with programme completion.<sup>8</sup> Comparatively rare were evaluations that assessed post-intervention changes in participants' harmful sexual behaviours or proclivity towards sexual harm perpetration ( $n = 21$ ; 15.4% and  $n = 18$ ; 13.2%, respectively); that is, despite sexual aggression being the key treatment target for all interventions included in the review. A recommendation was made by DeGue and colleagues that future evaluations should assess programme efficacy against shifts in participants' sexual behaviours or propensities – not just their attitudes – to ensure that interventions are working as intended and not delivering harmful outcomes. This approach is consistent with the CDC's guidance for tackling sexual violence on US campuses, which advises programme designers to include outcomes that focus on actual behavioural change, such as a reduction in rates of perpetration (Dills et al., 2016).

Unfortunately, despite these calls for change, Wright et al. (2020) highlighted in their recent meta-analysis of male-targeted sexual assault prevention programmes that most harm prevention interventions on US campuses have continued to evaluate programme efficacy against attitudinal, knowledge, and skills development outcomes more frequently than shifts in students' sexual behaviours or proclivities. However, as Graham et al. (2021) showed, notable exceptions do exist in the literature. For example, Salazar et al. (2014, 2019) reported

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<sup>8</sup> Whilst the authors appraised  $N = 140$  outcome evaluations, four studies contained insufficient information on their outcome analyses to determine programme effectiveness. The figures reported in this section pertain to the remaining 136 studies.

that participants who took part in *RealConsent* – an interactive, theory-driven online harm prevention programme for US university males – reported less sexually aggressive behaviours at six-month follow-up compared to those who did not undergo programming. Programme participants also exhibited significantly lower levels of rape myth acceptance, hostility towards women, and hypermasculine beliefs, as well as increases in their understanding of sexual consent and legal knowledge relevant to sexual violence.

Similar findings were reported by Gidycz et al. (2011) in their evaluation of *The Sexual Assault Prevention Program* – an evidence-based social norms and bystander intervention for US male students – who discovered that programme completion was associated with positive short-term changes in participants’ self-reported sexual aggression, alongside reductions in other risk-related domains. Whilst these behavioural shifts decayed over the long-term, the authors reported that the temporary reductions in participants’ harmful sexual behaviours evidenced that their programme showed promise at lowering US male students’ likelihood of future sexual perpetration. To assist in the development of more efficacious harm prevention strategies, Gidycz et al. (2011) recommended that future primary prevention programmes assess outcomes associated with sexual proclivity (versus actual sexual aggression) given that most male students will not engage in harmful sexual behaviours during their studies but will be at increased risk of perpetration by dint of broader socio-ecological factors.

### ***Programme Effectiveness***

As highlighted earlier in this chapter, the effectiveness of sexual harm prevention programming – conceptualised in this thesis as the ability of a programme to bring about positive long-lasting changes across anticipated outcome domains – is determined by several competing factors. These include factors inherent to intervention design and delivery (e.g., programme content, delivery format, and dosage), as well as broader socio-cultural factors

associated with students' willingness to engage in sexual assault prevention efforts. Institutional factors, including resourcing and senior management buy-in, also determine the efficacy of an intervention at reducing rates of sexual perpetration, as well as the longevity of any treatment gains associated with programme participation (see McMahon et al., 2021). To contextualise earlier findings and help identify additional gaps in academic understanding of sexual harm prevention strategies, this section will review research examining the effectiveness of US sexual assault programmes, as well as recommendations for future research directions.

As noted earlier, DeGue et al. (2014) conducted a comprehensive systematic review of US outcome evaluations for general population prevention strategies for sexual violence. Of the 140 evaluations they examined, the authors discovered that only 27.9% ( $n = 39$ ) reported that programme participation led to any positive outcome effect. Nearly half of the evaluations (41.4%;  $n = 58$ ) reported mixed findings, whilst roughly one-in-five evaluations (21.4%;  $n = 30$ ) reported that programming had no effect on anticipated outcomes. Worryingly, nine evaluation studies (6.4%) reported that participants exhibited worse outcomes at post-test versus pre-test assessment, suggesting that programme participation led to increases in risk-relevant outcomes targeted by the intervention. Interestingly, DeGue et al. (2014) noted that studies that adopted rigorous evaluation methods (e.g., randomised control trials; RCTs) and included a longitudinal arm were less likely to report positive findings, but more likely to report *valid* findings, than those that relied on pre-post designs only. Likewise, longer interventions – especially those over six-hours in length – returned more consistently positive outcomes than shorter interventions.

When stratifying effectiveness by outcome type, DeGue et al. (2014) discovered that interventions that measured post-programme changes in participants' knowledge, bystander behaviours and intentions, and other relevant harm prevention skills (e.g., interpersonal

communication) typically reported positive participatory effects. Contrariwise, studies that examined post-treatment shifts in participants' proclivity towards, or actual engagement in, sexual aggression tended to report null or mixed findings. Surprisingly, there were no noteworthy differences in intervention effects for studies that assessed changes in participants' affect or arousal to violence or broader offence-related attitudes following programming, even though most of the interventions included in the review evaluated these outcomes. The authors ascribed these inconsistent research findings to poor programme design and evaluation and encouraged future researchers to develop and appraise interventions more in line with best-practice guidelines.

In their appraisals of sexual harm prevention strategies on US university campuses, both Banyard (2014) and Paul and Gray (2011) noted several additional methodological issues associated with programme design and implementation which, they suggested, hampered programme effectiveness. These included the use of unrepresentative samples to evaluate intervention success (e.g., students from one university only), a lack of randomised control and long-term assessment of programme outcomes, a failure to incorporate empirical understanding of sexual aggression during programme design, and a propensity by researchers to assess shifts in attitudinal versus behavioural outcomes. More recently, McMahon et al. (2019) underlined the importance of investigating the impact of harm prevention programming on *proclivity* to perpetrate sexual offences (as a proxy for later offending; see Gidycz et al., 2011), as well as the factors linked to programme engagement and completion. Whilst emerging evidence highlights a shift towards more robust methods of harm prevention programming on US university campuses (see Bonar et al., 2022), the routine adoption of best-practice programme design and evaluation is still lacking.

### **Prevention at UK Universities: The Story so Far**

Established high rates of sexual perpetration on university campuses, as well as recent media and public interest in sexual harm prevention, have impelled UK universities to develop sexual harm prevention interventions for use with incoming or current male students (see Bows et al., 2015). This move has been accelerated through effective student activism, as well as feminist grassroots movements designed to eliminate GBV (see Bovill et al., 2021).

Unlike in the US – where most universities are mandated to deliver student-focused prevention programmes for sexual aggression – university-based sexual harm prevention work in the UK is still in its infancy. A recent report published by UUK (2016) – an advocacy organisation for HE providers in the UK – encouraged universities across the country to prioritise tackling GBV to quell rising rates of sexual victimisation. This included recommendations to develop robust and evidence-based prevention initiatives to help reduce high rates of sexual aggression on campuses nationally. This call-to-action was supplemented by catalyst funding awarded to 63 universities by the Office for Students – England’s independent HE regulator – to develop more efficacious strategies to tackle sexual perpetration and victimisation (Higher Education Funding Council for England, 2017).

In 2017, UUK published a ‘directory of case studies’ which showcased sexual harm prevention initiatives being adopted by various HEIs across the UK (UUK, 2017). The report highlighted that several universities were already taking proactive steps to protect students from sexual harm perpetration by implementing preventative campus-wide interventions. However, it also underscored a disparity between universities in the approaches they were taking to tackle the issue, as well as a lack of an evidence-base for effective programme development. This was repeated by UUK (2018), who noted that “it is not evident that the design and roll-out of preventative strategies is based on good management information derived from the analysis of data within individual [universities]” (pg. 32). This is concerning given that the research reviewed earlier in this chapter showed that the most effective

interventions for university-based sexual aggression are those with strong theoretical foundations, which are empirically supported and developed using relevant data.

It is worth noting that some effective prevention programmes do exist in the UK. For example, several universities across the country have implemented bystander programmes – a popular form of community-based prevention intervention used on US campuses (see Kettrey & Marx, 2019; Jouriles et al., 2018; Katz & Moore, 2013) – to help reduce rates of sexual perpetration (see Chantler et al., 2019; UUK, 2016, 2018, 2019). Noteworthy examples of bystander programmes exist (e.g., *The Intervention Initiative*, Fenton et al., 2014) which have been shown to produce positive short-term shifts in students' behaviours and attitudes (e.g., Fenton & Mott, 2018; Roberts & Marsh, 2021). However, as previously mentioned, these programmes place the onus on the broader university community – not solely perpetrators – to reduce GBV. As Camp et al. (2018) note, this means that current bystander interventions likely do not target those individuals most at risk of offending. Likewise, Labhardt et al. (2017) highlight that several bystander programmes used by UK universities are modelled on US data that may not generalise to UK students given noteworthy differences in university culture, climate, geography, and history between both countries. Whilst I support the use of bystander interventions as part of a multi-pronged approach to tackling university-based sexual aggression in the UK, it will be argued in this thesis that more innovative, empirically informed perpetrator-focussed programmes need to be developed based on UK data to reduce offence potential amongst those students most at risk of sexual offending. Likewise, longer-term evaluations need to be conducted to assess the longevity of any behavioural and attitudinal shifts resulting from UK students' participation in prevention programming.

## **Conclusion**

Whilst empirical research into the socio-ecological risk factors associated with male students' sexual perpetration is useful for understanding the aetiology of university-based

sexual aggression, evidence-based primary prevention programmes are necessary to bring about changes in students' attitudes and behaviours that, without intervention, put them at risk of sexual perpetration.

As highlighted in Chapters 1 and 2, the US is at the forefront of academic knowledge generation in the field of intervention development – other countries, particularly the UK, are notably behind. However, despite decades worth of research into 'what works' in sexual harm prevention, most primary prevention programmes currently adopted by US universities are not designed or evaluated in line with best practice guidelines. Key issues identified in the literature include a lack of long-term outcome assessment, the infrequent adoption of robust evaluation designs (as one example, RCTs), programme content that is not informed by theoretical or empirical understanding of sexual aggression, the use of unrepresentative samples to assess intervention effectiveness, and a lack of focus on established cognitive factors associated with students' sexual offending behaviours. Based on the established finding that most male students will not engage in sexual aggression during their studies, it is also a shortcoming that most US programmes do not assess outcomes related to students' proclivity towards sexual perpetration – a reliable proxy for future offending behaviours (see Gidycz et al., 2011). Collectively, these issues have created a gap in academic understanding related to effective sexual harm prevention programming on university campuses, which is hampering future intervention design.

The research reviewed in this chapter, alongside the subsequent empirical studies, will form the basis of Study 6, in which I develop, implement, and evaluate as part of an RCT the short and longer-term effectiveness of *The Pathways Programme* – a novel evidence-based online self-help intervention for university-based sexual aggression, designed around empirical academic understanding of UK male students' sexual perpetration (derived from Studies 1 and 2) and informed by the shortcomings of US prevention programming. It is

hoped that the outcome evaluation data presented in Study 6 encourage UK researchers and policymakers to consider the advantages of more innovative approaches to sexual assault programming on university campuses and catalyse additional research into university-based sexual aggression prevention in the UK.

## **CHAPTER 4**

### **Rationale and Research Agenda**

#### **Rationale of this Thesis**

As shown in Chapter 1, male-on-female university-based sexual aggression is a pervasive public health and social justice issue that is associated with numerous negative, long-term outcomes. The literature reviewed thus far in this thesis has demonstrated that most research on the topic has emanated from the US, which has been at the forefront of academic knowledge generation relevant to GBV within HE for well over 60-years. As highlighted in Chapter 2, this research has been very successful at uncovering the myriad socio-ecological risk and protective factors that are associated with male students' sexual perpetration, which have been validated across diverse groups of university males for several decades. These data have provided useful foundations for the development of robust multi-factorial theories of university-based sexual aggression that have sought to explain the aetiology of students' offending behaviours. They have also allowed researchers to empirically assess various 'pathways' to perpetration, as well as the heterogeneity of sexually aggressive male students as a population of forensic interest.

Beyond theory generation, US socio-ecological research into university-based sexual aggression has enabled researchers and policymakers to develop evidence-based harm prevention strategies to tackle GBV on their campuses. As highlighted in Chapter 3, these strategies vary in scope and breadth; however, effective programmes are empirically informed, underpinned by strong psychological theory, and seek to either tackle known risk factors associated with male students' sexual aggression or encourage pro-social behaviours or attitudes that are hypothesised to decrease a student's likelihood of offending. In particular, expert-led interactive classroom-based workshops have been shown to engender positive long-term shifts in US male students' behaviours and attitudes related to university-

based sexual aggression. However, issues with cost, implementation, accessibility, and resource allocation limit the viability and efficacy of these interventions in certain instances. To this end, several outcome evaluations have supported the use of online self-help programmes, which offer a cost-effective means of tackling sexual aggression across diverse student groups in a timely manner. Studies have shown that these programmes are well-received by participants and recent empirical data suggest that they perform equally as well as more traditional prevention interventions. Given recent global developments – particularly, the COVID-19 pandemic – easy-to-access online interventions present a viable alternative to ‘gold-standard’ face-to-face workshops, which many students and facilitators may be reluctant to participate in due to health and safety concerns.

Unfortunately, despite established high rates of sexual victimisation on campuses across the globe, academic research relating to university-based sexual aggression amongst non-US students has not received significant empirical attention. This is evident particularly in the UK, where there is a notable gap in academic understanding regarding the prevalence, heterogeneity, and psychological characteristics associated with sexual perpetration by university students, as well as limited insights into the feasibility and efficacy of (novel) harm prevention interventions at reducing risk of sexual aggression amongst potential and known offenders. Unfortunately, given noteworthy differences in university culture, climate, geography, and history between both countries, it is unlikely that empirical knowledge relating to university-based sexual aggression amongst US students will generalise to students in the UK. To this end, domestic research is required to understand more about sexual perpetration at UK universities, which can reliably inform harm prevention planning.

### **Research Agenda**

This thesis positively contributes to the embryonic research landscape on university-based sexual aggression in the UK by presenting a series of novel empirical studies that

forensically examine the causes and possible prevention approaches for sexual harm perpetration by male students across the country. Six original studies will be presented that help fill current gaps in academic knowledge. Study 1 examines the psychological characteristics of self-reported sexually aggressive male students studying at one university in South East England and contrasts these to non-offending male students. Study 2 naturally follows by assessing how well findings from Study 1 generalise across a national sample of male university students studying in either England, Scotland, Wales, or Northern Ireland. Study 3 further probes the findings of Studies 1 and 2 by examining whether self-identified sexually aggressive male students in the UK comprise a psychologically homogenous group, based on the key risk factors associated with their recent harmful sexual behaviours. Studies 4 and 5 extend research beyond the ‘individual level’ to determine the relationship, situational, community, and institution-level indicators associated with UK male students’ past offending behaviours. Finally, Study 6 brings together the findings of earlier studies to evaluate the feasibility and efficacy of *The Pathways Programme* – a novel online psychoeducation-based sexual harm prevention intervention designed around established theory and empirical findings from Studies 1 and 2 – at reducing the short-term and longer-term risk of sexual perpetration amongst a sample of UK male university students who report harmful sexual proclivities. Across several studies, prevalence of university-based sexual aggression in the UK is estimated based on collected data, thus contributing useful information on the breadth and scope of university male students’ harmful sexual behaviours.

To the best of my knowledge, the findings presented in this thesis offer the first comprehensive empirical examination of university-based sexual aggression perpetration in the UK, as well as the only known assessment of online prevention programming as a means of tackling UK male students’ proclivity towards sexual offending. It is hoped that the findings presented herein will help future researchers and policymakers to develop more

effective harm prevention strategies for tackling the high rates of sexual perpetration on campuses across the UK, as well as encourage universities to consider more the benefit of working collaboratively with (potential or known) perpetrators to further help reduce incidences of GBV across the UK HE sector.

## CHAPTER 5

### **Studies 1 and 2 – Individual-Level Risk Factors Associated with University-Based Sexual Aggression Perpetration at UK Universities**

**This chapter is a re-worked version of the following journal article:** Hales, S. T., & Gannon, T. A. (2021). Understanding Sexual Aggression in UK Male University Students: An Empirical Assessment of Prevalence and Psychological Risk Factors. *Sexual Abuse*. Advance online publication. <https://doi.org/10.1177/10790632211051682>

As highlighted in Chapter 1, recent national climate surveys in the UK have found that over a quarter of female students self-report sexual aggression victimisation at university (NUS, 2011). A further eight percent of students disclose that they were raped (Revolt Sexual Assault, 2018) – notably higher than the 3.4% of females in the wider community who report victimisation each year (Office for National Statistics, 2018). Consistent with international findings (e.g., AAU, 2019; Krahe & Berger, 2013; Schuster & Krahe, 2019), these surveys highlight that perpetrators are often known male students studying at their victim’s university (NUS, 2011; Revolt Sexual Assault, 2018). However, despite its frequency, there have been no formal estimates of the prevalence of university-based sexual aggression perpetration in the UK, nor any empirical assessments of the risk factors associated with students’ proabuse behaviours (see Jones et al., 2020a). This is surprising given researchers’ established understanding of student perpetrators of sexual aggression in other countries (e.g., D’Abreu & Krahe, 2014; Salazar et al., 2018; Tomaszewska & Krahe, 2018a), as well as incarcerated individuals who have perpetrated sexual aggression across the wider community (e.g., Fisher et al., 1999; Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2005; Mann et al., 2010).

#### **Empirical Work Examining the Individual-Level Characteristics of University-Based Sexual Aggression**

As highlighted in Chapter 2, sexual perpetration research in other countries has demonstrated that there are specific psychological predictors of male students’ sexual

aggression (e.g., Abbey & McAuslan, 2004; D'Abreu & Krahé, 2014; Gidycz et al., 2007; M. P. Thompson et al., 2013; Tomaszewska & Krahé, 2018a). These “individual-level” indicators can be divided into attitudinal, personality, and experiential risk factors (Abbey et al., 2001; Dills et al., 2016; J. O'Connor et al., 2021) and are considered strong markers for students' later offending behaviours (see McMahon et al., 2019). Empirical studies examining the risk factors associated with university-based sexual aggression typically adopt a between-groups design to assess differences in scores on psychological measures between perpetrators and non-perpetrators, which are then inputted into predictive statistical models to establish how well they predict past sexual aggression (e.g., Gidycz et al., 2007; Salazar et al., 2018). These studies have shown that risk factors often coalesce and interact with other risk and protective factors to encourage or suppress sexual aggression (e.g., Malamuth et al., 2021; Martín et al., 2005).

As reviewed earlier in this thesis, a notable body of US work suggests that male university students' sexual aggression can be explained by their negative views about women. For example, several studies have highlighted strong links between sexually aggressive behaviours in male university students and typical indices of hostile masculinity, including rape myth acceptance and hostility toward women (e.g., Abbey et al., 2001; Trottier et al., 2021; Vogel, 2000), as well as problematic sexual fantasies that centre on coercive, controlling, or illicit sexual behaviours (Greendlinger & Byrne, 1987; Malamuth et al., 1995; Williams et al., 2009). These findings have been validated by researchers in other countries (e.g., Chan, 2021a; Čvek & Junaković; Martín et al., 2005; Tomaszewska & Krahé, 2018a), suggesting that hostile masculinity constitutes a strong predictor of sexual aggression across male students globally.

There is also strong support internationally for the prognostic value of less gendered attitudinal factors in predicting university-based sexual aggression. Examples include low

self-esteem (e.g., Good et al., 1995; Schuster & Krahe, 2019), deficits in emotion regulation (e.g., Pickett et al., 2016), and non-sexual aggression (e.g., Kingree & M. P. Thompson, 2015; Rapaport & Burkhart, 1984). These factors have also been identified as key markers of incarcerated males' harmful sexual behaviours (see Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2005; Mann et al., 2010), to the extent that they form central elements of established theories of general sexual offending (e.g., Marshall & Barbaree, 1990; Ward & Beech, 2006). However, to date, no empirical research has considered their combined ability to predict sexual aggression with male university students, thus limiting the development of effective harm prevention interventions.

Other established risk factors that have been linked to sexually aggressive behaviours amongst incarcerated males, but which have not been explored extensively as predictors of university-based sexual aggression, include assertiveness and self-efficacy in romantic relationships (see Fisher et al., 1999; Marshall et al., 1997; Seto & Lalumière, 2010), as well as loneliness (Ward & Beech, 2006). Researchers have proposed that these intimacy and social functioning deficits represent critical risk factors for incarcerated males who have sexually harmed, who often lack meaningful interpersonal relationships, possess attachment issues, and report unfulfilling past romantic relationships (see Marshall, 2010). Assessing the prognostic value of psychosocial variables such as these could help refine academic understanding of the psychological characteristics of sexually aggressive male university students, as well as the aetiology and maintenance of their offending behaviours.

Of course, not all male university students are susceptible to the diathesis of sexual aggression (see Abbey & McAuslan, 2004). It is believed that this is because there is a developmental sequence for sexual aggression, in which personality characteristics and experiential factors establish a precondition for sexual aggression, which are then liberated in the presence of specific contextual variables (see Abbey et al., 2001). Key examples include

alcohol consumption (for a review, see Abbey, 2022; Chan, 2021a; Čvek & Junaković, 2020), sports participation, and fraternity membership (for a review, see Murnen & Kohlman, 2007).

### **Purpose of Studies 1 and 2**

Despite a broad knowledge base in other countries, the literature review in Chapter 2 underlined the lack of empirical research assessing the psychological characteristics of UK male students who perpetrate university-based sexual aggression (see Jones et al., 2020a). Moreover, it highlights a key limitation of previous US work in this area; namely, a failure to assess multiple psychological factors, including those that reliably predict sexual aggression amongst incarcerated persons (i.e., intimacy and social functioning deficits).

Guided by previous international research, this chapter presents two empirical studies that extend the knowledge base relevant to university-based sexual aggression and capture the nuances of sexual aggression amongst UK male university students. In Study 1, I establish through univariate analyses the multiple individual-level risk factors that differentiate sexually aggressive from non-sexually aggressive male students from one large plate glass university in the UK. I also examine using logistic regression modelling which factors most reliably predict students' past sexual offending behaviours. Study 2 methodologically replicates Study 1 though uses a more diverse sample of male students from across the UK. This study allowed me to externally validate findings from Study 1, whilst also assessing the degree to which they generalise across the broader UK male student body.

It is worth noting that research has long demonstrated that university-based sexual aggression is multi-faceted and those who engage in it are often responding to various levels of influence on behaviour (for a review, see Tharp et al., 2013; Dills et al., 2016). Given the gap in academic understanding regarding UK university students' proabuse behaviours, in these studies I made a purposeful decision to only assess individual-level indicators of sexual aggression. This allowed me to examine in-depth the psychological characteristics of

perpetrators, which will help guide the development of my evidence-based harm prevention intervention in Study 6. I will assess in Studies 4 and 5 how more macro-level indicators (i.e., relationship, situational, and community/institution-level factors) influence students' harmful sexual behaviours, to further refine academic understanding of perpetration.

To encourage transparent and scientifically robust research practices, I pre-registered prior to data collection the hypotheses, research design, and data cleaning and analysis plans for both Studies 1 and 2 via the Open Science Framework (OSF.io) – a free, open-source project management site designed to encourage reproducible scientific practises (see Foster & Deardoff, 2017). These are publicly available via the following links, where you will also find copies of relevant materials, surveys, and raw data: <https://osf.io/4ht8m/> (Study 1) and <https://osf.io/n73wy/> (Study 2).

### **Study 1**

In Study 1, I assessed the proabuse behaviours and psychological characteristics of sexually aggressive male students at a select university in South East England. This was a purposeful decision based on the dearth of university-based sexual aggression research in the UK and allowed me to assess in-depth the perpetration behaviours and specific individual-level factors relevant to students at one HEI, which I could then compare to students studying at other institutions in Study 2.

Based on previous research and theory, there were two hypotheses for this study. First, that the prevalence of sexual aggression would be higher amongst my sample compared to non-university males within the community, as reported in previous literature (i.e., Krahe et al., 2014). This hypothesis was based on the findings of recent climate surveys in the UK which evidenced increased rates of sexual assault and rape victimisation amongst female university students versus non-students in the community (e.g., Brook, 2019; NUS, 2011; Revolt Sexual Assault, 2018), as well as research examining the perpetration behaviours of

male university students in other countries (e.g., Anderson et al., 2021; Krahe & Berger, 2013; Martín et al., 2005; Schuster & Krahe, 2019). Second, that there would be a difference in scores across psychological measures between male university students who had recently engaged in sexual aggression versus their non-offending peers. Specifically, based on the literature reviewed in Chapter 2, I predicted that perpetrators would display greater non-sexual aggression, alcohol consumption, hostility toward women, loneliness, rape myth acceptance, and sports involvement; lower assertiveness, emotion regulation, self-efficacy in romantic relationships, and self-esteem; and more atypical or problematic sexual fantasies.

Given that research with students (e.g., Abbey & Jacques-Tiura, 2011; Malamuth et al., 1995, 2021; Zinzow & M. P. Thompson, 2015) and non-students (e.g., Abracen & Looman, 2004; Prentky & Knight, 1991; Ward & Beech, 2006) has shown that risk factors for sexual violence often interact in a synergistic manner to encourage individual proabuse behaviours, I further wanted to examine the combined influence of significant risk factors at predicting past sexual aggression. Therefore, I also explored in the analyses whether logistic regression modelling would (a) highlight the risk factors that most reliably predict past sexual aggression amongst my sample and (b) be able to discriminate between students who had and had not offended at a greater-than-chance level.

## **Method**

### ***Participants***

Participants were adult students enrolled at a plate glass university in South East England who identified as heterosexual males. They were recruited through opportunity sampling via dedicated participant recruitment channels (e.g., the university's research participation scheme) and a tailored marketing campaign (e.g., targeted e-mails), and reimbursed for their time with course credits or entered into a prize draw for a substantial prize. In total,  $N = 259$  students successfully completed my online survey entitled *The*

*Psychological and Behavioural Characteristics of University Males* (see my publicly available pre-registration for data cleaning exclusion criteria). The age of participants ranged from 18 to 68 years ( $M = 22.9$ ,  $SD = 6.6$ ; see Table 2, pg. 110).<sup>9</sup> The majority identified as White British ( $n = 151$ ; 58.3%) and reported their highest educational attainment as A-Level or equivalent ( $n = 152$ ; 58.7%). Fifty-six participants (21.6%) were psychology students who accessed the survey through an internal research participation site.

### ***Measures***

The measures administered to participants in this study comprised validated self-report instruments that assessed characteristics relevant to sexual aggression amongst either male university students in other countries or incarcerated males (see Fisher et al., 1999; Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2005; Mann et al., 2010; Marshall et al., 1997). These measures mapped onto key themes identified in the general sexual offending literature as being associated with sexual aggression; namely, inappropriate sexual interests, intimacy and social functioning deficits, offense-supportive cognitions, and self/emotional regulation issues.

Following a review of Ziegler et al. (2014), and to help reduce the likelihood of attentional fatigue in participants, I made a purposeful decision to include, where possible, validated short-form or brief psychological survey instruments as part of my battery of administered measures. Whilst short-form measures have been criticised for their weak psychometric properties (for a review, see Krueger et al., 2013), the brief scales I administered had been shown to demonstrate either strong convergence with their full-scale counterparts or high levels of discriminant or construct validity. Subsequently, I am content that the measures included in my battery allowed for the valid assessment of the intended psychological traits.

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<sup>9</sup> Given that older male students are also susceptible to the socio-ecological risk factors associated with university-based sexual aggression perpetration, I decided early on not to exclude participants from any of my studies based on their self-reported age. This decision was supported by my data, which showed that several mature participants self-reported recent harmful sexual behaviour.

To assess the internal consistency of measures, I calculated Cronbach's alpha ( $\alpha$ ) scores for continuous measures (see Table 3, pg. 111). I interpret these across studies using the following criteria recommended by George and Mallery (2016):  $\alpha \geq .90$  = "Excellent" internal consistency,  $\alpha \geq .80$  = "Good" internal consistency,  $\alpha \geq .70$  = "Acceptable" internal consistency,  $\alpha \geq .60$  = "Questionable" internal consistency,  $\alpha \geq .50$  = "Poor" internal consistency, and  $\alpha < .50$  = "Unacceptable" internal consistency.<sup>10</sup> Following a review of Clark and Watson (1995), it was decided that items that produced low (i.e.,  $< .25$ ) corrected item-total correlations across groups – a reliable indicator of poor construct measurement – should be removed to increase scale reliability.<sup>11</sup> This cut-off is less conservative than the one noted in my publicly available pre-registration (i.e., .30) and ensured that I avoided masking possible predictive factors.

### **History of Sexual Aggression Perpetration**

*Sexual Experiences Survey – Short Form: Perpetration (SES-SFP; Koss et al., 2007)*. A modified version of the SES-SFP was used to assess whether participants had recently perpetrated any sexually aggressive acts (see Appendix A, pg. 320). The measure asked participants to self-report the number of times (0, 1, 2, or 3+ times) in the past 24-months they had engaged in each of 35 sexual outcome/tactic strings. This timeframe was chosen to ensure that I only captured acts that had occurred since the legal age of consent for sexual activity in the UK (currently 16 years) based on the lowest possible age of participants across my studies (i.e., 18 years). Each outcome/tactic string represented either an aberrant or illegal sexual behaviour. Overall, there were seven outcomes (non-consensual sexual touching, oral sex, attempted oral sex, vaginal sex, attempted vaginal sex, anal sex, and attempted anal sex) and five tactics (verbal pressure, verbal criticism, incapacitation, physical

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<sup>10</sup> DeVellis and Thorpe (2021) suggest that a scale possesses adequate psychometric properties if it returns an alpha score of .70 or higher. Across studies, overall alpha scores for scales surpass this benchmark.

<sup>11</sup> From Study 1, items 3, 5, and 15 on the SFQ-R-SV, items 3 and 5 on the SERR, item 5 on the SRAS-SF, item 13 on the DERS-SF, and item 14 on the BIDR-6-IM were excluded. From Study 2, item 6 on the SFQ-R-SV, item 5 on the SRAS-SF, items 13, 14, and 15 on the DERS-SF, and item 10 on the BIDR-6-IM were excluded.

threats, and physical force). I adopted this approach – of asking participants to report their history of engaging in *specific* harmful sexual behaviours – as it has been shown to yield more accurate estimates of past perpetration compared to measures that rely on broader questions using summary labels such as ‘sexual assault’ or ‘rape’ (see Cook et al., 2011). An example outcome is “I had oral sex with someone or had someone perform oral sex on me without their consent by...” and an example tactic is “...threatening to physically harm them or someone close to them”. A follow-up item asked self-reported sexually aggressive participants the sex of their victim(s). I did not include SES-SFP items asking participants their age or gender, as this information was collected in the demographic survey. Likewise, to avoid subject shaming, I dropped an item from the original SES-SFP that asked participants whether they had raped someone.

Based on their responses to specific items on the SES-SFP, participants could be classed into up to four mutually exclusive categories of sexual perpetration. The first category, “unwanted sexual contact”, is defined as the non-consensual touching of the private areas of a victim’s body or the removal of a victim’s clothes against their will. The second category, “sexual coercion”, is defined as the use of verbally coercive tactics or threatening language to pressure a victim into penetrative sexual activity. The third category, “rape/attempted rape”, is defined as penetrative sexual activity against a victim achieved via incapacitation, threats of physical harm, or use of physical force or a weapon. The fourth category, “none”, comprised participants who did not self-report any recent sexually aggressive behaviours (Koss et al., 2007).

As suggested by Anderson et al. (2017) in their psychometric evaluation of the SES-SFP, the survey is most reliable when a dichotomous scoring agenda is used to measure participants’ responses. This is particularly the case in low *N* studies such as mine (see Sim & Wright, 2005), where sample sizes were never going to be sufficient enough to warrant the

analysis of individual sexual behaviours or outcomes. Subsequently, I divided participants into two groups based on their responses: those who emphatically rejected survey items 1-7 were classed as “non-sexual aggressors” (NSAs), whilst those who provided any non-zero response to these items were classed as “sexual aggressors” (SAs). This approach (of dichotomising participants into a perpetrator and non-perpetrator group) is frequently adopted in sexual offending research, particularly in studies assessing the psychological characteristics of (actual or potential) sexual aggressors within the community (e.g., Alleyne et al., 2014; Bohner et al., 1998; Briere & Runtz, 1989; A. O’Connor & Gannon, 2021).

As a measurement tool, the SES-SFP has demonstrated good to excellent internal consistency with university males internationally (e.g., de Heer et al., 2020; Sigré-Leirós et al., 2013), as well as non-university males in the general population (Abbey et al., 2021; Johnson et al., 2017).<sup>12</sup> Scores on the SES-SFP have also been shown to significantly correlate with established measures of non-sexual aggression and rape empathy amongst US male students (e.g., Anderson et al., 2017), as well as self-reported levels of rape myth acceptance and hostility towards women in broader community samples (e.g., Abbey et al., 2021; Davis et al., 2014; Johnson et al., 2017). Moreover, Johnson et al. (2017) showed that the SES-SFP correlates highly with the original *Sexual Experiences Survey – Perpetration* (Koss et al., 1987) and demonstrates good test-retest reliability over a two-week period. In Study 1 and 2, internal consistency for the SES-SFP was “good” and “excellent,” respectively.

### **Inappropriate Sexual Interests**

*Sexual Fantasy Questionnaire Revised – Short Version (SFQ-R-SV; Bartels & Harper, 2018)*. Developed from Gray et al.’s (2003) popular *Sexual Fantasy Questionnaire*, I

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<sup>12</sup> It is worth noting that Cronbach’s alpha is best used as a measure of internal consistency for *latent* measures (see Diamantopoulos et al., 2008). However, as noted by Anderson et al. (2017), there is currently no clear alternative metric for assessing the internal consistency of *formative* measures such as the SES-SFP. Subsequently, researchers are left with no choice other than to report Cronbach’s alpha as an indicator of reliability.

used a modified version of Bartels and Harper's (2018) SFQ-R-SV to assess participants' problematic sexual fantasies. The full SFQ-R-SV comprises 37 items divided into six distinct fantasy themes, which describe either typical, atypical, or inappropriate fantasies. In this study, only items from the "Masochistic," "Sadistic," "Impersonal," and "Pre/Tactile Courtship Disorder" clusters were administered (27 items in total) – the "Romantic" and "Bodily Functions" clusters were not included as the authors report that they are not regularly endorsed by community samples. Likewise, given the comprehensive nature of the measure, I decided to drop two follow-up questions that asked respondents to describe any additional sexual fantasies they have recently experienced. Participants reported how often they had fantasised about each of the sexual behaviours described using a 5-point Likert scale that ranged from 0 (*Have never fantasised about*) to 4 (*Have fantasised about very frequently*). Scores were summed across clusters and could therefore range from 0 to 108, with higher scores indicating greater endorsement of described fantasies. Example items from each cluster include "Being physically attacked" (Masochistic), "Torturing others" (Sadistic), "Sex whilst watching hard pornography" (Impersonal), and "Making obscene phone calls" (Pre/Tactile Courtship Disorder).

The internal consistency of the SFQ-R-SV has not formally been tested; however, Bartels and Harper did report "good" to "excellent" alphas for the Masochistic ( $\alpha = .97$ ), Sadistic ( $\alpha = .95$ ), Impersonal ( $\alpha = .88$ ), and Pre/Tactile Courtship Disorder ( $\alpha = .86$ ) clusters amongst a community sample. In my studies, internal consistency for the whole questionnaire was also "good".

### **Intimacy and Social Functioning Deficits**

*De Jong Gierveld Loneliness Scale (DJGL; De Jong Gierveld & Van Tilburg, 2006)*. The DJGL is a short-form scale comprising 6-items (three of which are reverse-coded) that assess three types of loneliness: overall, emotional, and social loneliness. In this study,

the measure was used to assess overall loneliness only. Participants respond to items using a novel, but psychometrically validated, response format anchored by 1 (*No!*) and 5 (*Yes!*). Typically, scores on the DJGL are dichotomised; however, given previous critiques of this method (e.g., van Baarsen et al., 2001), total sum scores are used in this study. Therefore, scores can range from six to 30, with higher scores indicating greater perceived loneliness. An example item is “I miss having people around”.

Psychometric analyses of the DJGL with adults across the community has shown that the measure typically possesses “acceptable” internal consistency (De Jong Gierveld & Van Tilburg, 2006). Across my two studies, the DJGL also returned an “acceptable” internal consistency.

***Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979)***. The RSE comprises 10-items (five of which are reverse-coded) that assess the construct of global self-esteem. Participants responded to items using a 4-point Likert scale from 1 (*Strongly agree*) to 4 (*Strongly disagree*). Originally, the RSE was scored using a Guttman-style technique; however, for several years it has been considered best practice to use the total sum score (Wallace, 1988). As such, scores can range from ten to 40, with higher scores indicating greater self-esteem. An example item is “At times, I think I am no good at all”.

For decades, there has been fervent debate amongst psychologists as to whether the RSE measures self-esteem as a unidimensional construct or whether it is underpinned by more complex factor models (for a review, see Marsh et al., 2010). Psychometric analyses of the scale in this study supported the latter argument and suggested the presence of two factors: one measuring negative self-esteem (which mapped onto the reverse-coded items) and one measuring positive self-esteem (which mapped onto the non-reverse-coded items). Therefore, similar to previous studies with UK university students (e.g., Dhingra, 2013), the

RSE in my studies was split into two distinct scales – the RSE<sub>neg</sub> and RSE<sub>pos</sub> – and treated as such during analyses.

Previous analysis of the RSE<sub>neg</sub> and RSE<sub>pos</sub> has shown that both scales demonstrate “acceptable” internal consistency with university students in the UK (Dhingra, 2013), as well as “acceptable” to “good” internal consistency amongst incarcerated males (Boduszek et al., 2012). In my studies, both scales performed markedly better, returning “good” alpha scores.

*Self-Efficacy in Romantic Relationships scale (SERR; Riggio et al., 2013).* The SERR comprises 12-items (nine of which are reverse-coded) which measure general feelings of relationship self-efficacy, independent of actual romantic relationships or intimate partnerships. Participants respond to items on a 9-point Likert scale from 1 (*Strongly disagree*) to 9 (*Strongly agree*). Scores can therefore range from 12 to 108, with higher scores indicating greater self-efficacy in romantic relationships. An example item is “Romantic relationships are very difficult for me to deal with”.

The authors of the scale report that it possesses “good” to “excellent” internal consistency with university students in the US, as well as high discriminant and predictive validity with other indicators of relationship satisfaction and self-efficacy (Riggio et al., 2013). Alpha scores in my studies ranged from “good” (Study 1) to “excellent” (Study 2).

*Simple Rathus Assertiveness Schedule – Short Form (SRAS-SF; Jenerette & Dixon, 2010).* A revised and condensed version of Rathus’ (1973) *Assertiveness Schedule*, the SRAS-SF consists of 19-items (11 of which are reverse-coded) that collectively assess individual feelings of assertiveness. Participants responded to items on a 6-point Likert scale that is anchored by 1 (*Very much unlike me*) and 6 (*Very much like me*). Total scores on the schedule range from 19 to 114, with higher scores indicating greater levels of assertiveness. An example item is “Most people stand up for themselves more than I do”.

The SRAS-SF has received positive psychometric evaluations, having displayed “good” internal consistency amongst university students (Wann & Ostrander, 2017) and non-students in the broader community (Barrowcliffe & Gannon, 2015). In Studies 1 and 2, alpha scores were also “good”.

### **Offense-Supportive Cognitions**

***Hostility Toward Women Scale (HTW; Lonsway & Fitzgerald, 1995).*** A modified version of Check et al.’s (1985) *Hostility Toward Women* scale, Lonsway and Fitzgerald’s (1995) HTW comprises 10-items (two of which are reverse-coded) that measure men’s endorsement of hostile and sexist beliefs about women. Participants responded to items using a 7-point Likert scale anchored by 1 (*Strongly disagree*) and 7 (*Strongly agree*). Scores can range from 10 to 70, with higher scores indicating greater levels of hostility. An example item is “Generally, it is safer not to trust women”.

The HTW has been psychometrically validated across several samples of male university students internationally, where it has displayed “acceptable” to “good” internal consistency (e.g., Forbes et al., 2006; Martín et al., 2005; Testa et al., 2015). In both of my studies, the HTW also returned a “good” alpha score.

***Illinois Rape Myth Acceptance Scale – Revised (IRMA-R; McMahon & Farmer, 2011).*** An updated and shortened version of Payne et al.’s (1999) popular scale, the IRMA-R is a 19-item measure designed to assess subtle rape myths in the general population. Items comprising the scale can be classified into four categories of rape myth, termed “She asked for it,” “It wasn’t really rape,” “He didn’t mean to,” and “She lied”. Participants responded to each item on a 5-point Likert scale that ranges from 1 (*Strongly agree*) to 5 (*Strongly disagree*). Responses across items are summed and therefore can range from 19 to 95, with higher scores reflecting a greater likelihood of an individual accepting rape myths. An example item is “If both people are drunk, it can't be rape”.

Psychometric evaluations of the IRMA-R have shown that the scale typically displays “acceptable” internal consistency with university male students (e.g., Palmer et al., 2021). In my studies, the IRMA-R performed markedly better, returning “good” (Study 1) and “excellent” (Study 2) alpha scores, respectively.

### **Self/Emotional Regulation Issues**

#### ***Short-Form Buss-Perry Aggression Questionnaire (BPAQ; Bryant & Smith, 2001).***

The BPAQ is a 12-item measure designed to examine individual tendency towards general (non-sexual) aggression. A derivative of Buss and Perry’s (1992) *Aggression Questionnaire*, the measure comprises four subscales that each map onto separate forms of aggression: physical aggression, verbal aggression, anger, and hostility. Participants respond to items on a 6-point Likert scale anchored by 1 (*Extremely uncharacteristic of me*) and 6 (*Extremely characteristic of me*). Items across each subscale are merged to form an additive index; therefore, scores on the measure can range from 12 to 72, with higher scores indicating greater feelings of general aggression. An example item is “I have threatened people I know”.

The BPAQ has undergone robust psychometric evaluation, where it has shown convergent validity with measures of self-reported violent attitudes (Kalmoe, 2015), as well as discriminant validity (Bryant & Smith, 2001). In terms of internal consistency, the BPAQ has returned mixed results amongst university students in the US, with alpha scores ranging from “questionable” (Barnett & Powell, 2016) to “good” (Kalmoe, 2015). In both of my studies, the BPAQ performed well, returning “good” internal consistency scores.

***Daily Drinking Questionnaire (DDQ).*** The DDQ in this study was an adapted version of the questionnaire used by Collins et al. (1985) in their landmark report on alcohol consumption. The measure asks respondents to report the average number of alcoholic drinks they have consumed each day of the week over the past three months. Alcoholic drinks are split into ten categories based on their respective unit composition, as outlined on the

National Health Service (NHS) website (NHS, 2018). An example category would be “alcopop (ABV 5.5%)”.

In this study, the average total units consumed by a participant per week were calculated by adding together the number of drinks consumed per day for each of the ten drink categories, and then multiplying these by the category’s respective unit multiplier. These units were then summed. Given its design, the DDQ allows researchers to assess the average volume, quantity, and frequency of alcohol consumed by an individual over any given time period. The measure also includes a qualitative item that allows respondents to report any additional alcoholic drinks they regularly consume, which were not captured by the earlier categories.

*Difficulties in Emotion Regulation Scale – Short Form (DERS-SF; Kaufman et al., 2016).* The DERS-SF comprises 18-items (three of which are reverse-coded) that together assess emotion regulation deficits amongst adults. Items are divided into six subscales that assess difficulties in impulse control, emotional clarity, and achieving goals; the non-acceptance of negative emotional responses; lack of emotional awareness; and access to emotion regulation strategies. Participants respond to scale items using a 5-point Likert scale that ranges from 1 (*Almost never*) to 5 (*Almost always*). Items across each subscale are merged to form an additive index; therefore, scores can range from 18 to 90 with higher scores indicating greater deficits in emotion regulation. An example item is “When I’m upset, I have difficulty controlling my behaviour”.

Psychometric analyses have shown that the DERS-SF demonstrates “good” to “excellent” internal consistency with university students in the UK (Akram et al., 2020). In my research, alpha scores were also “good” (Study 1) and “excellent” (Study 2).

### **Additional Measures**

***Athletic Involvement Measure (AIM)***. I used a modified version of Koss and Gaines' (1993) recognised measure to assess participants' level of sports participation. This asked respondents which of four descriptions best suited their current participation level: "I do not participate in any sports," "I only participate in sports informally (i.e., I play sports, but I am not a member of a sports club or sports society)," "I am a member of and play for one sports club or sports society," or "I am a member of and play for more than one sports club or sports society". Each item accrues one mark; therefore, scores can range from 0 to 3 with higher scores indicating greater sports involvement. As it comprised only one item, internal consistency could not be calculated for the AIM.

***Balanced Inventory of Desirable Responding – Version 6 (BIDR-6-IM; Paulhus, 1988)***. Several researchers have suggested that perpetrators of sexual aggression regularly under-report their proabuse behaviours so as to present themselves in a socially desirable manner (e.g., Bell & Naugle, 2007; Visschers et al., 2017). Therefore, to assess (and potentially control for) participants' tendency to inflate positively their self-image – an indicator of possible biased responding to the SES-SFP – I administered to participants alongside psychological measures the "Impression Management" scale from Paulhus' (1988) established BIDR-6. On this measure, participants responded to 20 items using a 7-point Likert scale anchored by 1 (*Strongly disagree*) and 7 (*Strongly agree*). Scores could range from 20 to 140, with higher scores indicating a greater tendency toward socially desirable self-presentation. An example item is "I always obey laws, even if I'm unlikely to get caught".

Psychometric analyses of the BIDR-IM have returned mixed results with community males in the UK. For example, Alleyne et al. (2014) demonstrated that the scale exhibits "questionable" internal consistency scores with male university students (derived from the same plate glass university as participants in Study 1), whilst Barrowcliffe and colleagues

report “acceptable” to “good” internal consistency with males across the broader community (Barrowcliffe et al., 2022; Barrowcliffe & Gannon, 2015). In my studies, alpha scores were also “acceptable”.

### ***Procedure***

Ethical approval was granted by the relevant research ethics committee at the University of Kent (Ref: 201815460056315287). Participants accessed my survey online through Qualtrics in their own time, either via an institutional research participation site or by entering the study URL directly. A screening measure was included at the start of the study to assess a participants’ eligibility to take part. Participants then read an information sheet detailing the main aims of the study and their obligations were they to take part, as well as a consent form and a demographic survey. Participants then completed each of the measures presented above – starting with the SES-SFP – which were administered as a battery. Four attention checks were included to assess individual concentration and participants were assured of their anonymity at every stage of the study. To ensure a complete response set across groups, the survey was set up so that participants were required to respond to every item. After completing the study, participants were fully debriefed and provided with the contact details for Stop It Now! UK & Ireland (<https://www.stopitnow.org.uk>) – a website and helpline dedicated to supporting past, current, and potential sexual aggressors – as well as the local branch of Rape Crisis and information on the university’s Student Support and Wellbeing services.

**Demographic Survey.** The demographic measure that participants completed at the start of the survey collected relevant non-identifiable personal data that I could use to assess the representativity of my sample. Specifically, participants were asked questions related to their age, ethnicity, and highest educational achievement – data collected annually by the plate glass university that the sample derived from. Ethnicity categories were taken from the

2011 Census in England and Wales, whilst highest education achievement categories were taken from the Gov.uk (2018) website. To help participants to answer the latter question, a link was included in the survey to a webpage detailing the different qualification levels recognised by UK educational authorities.

### *Analysis Plan*

Statistical analyses were conducted on SPSS v.24 for Windows (IBM, 2015). Given that the majority of administered measures assessed either psychological deficits or abnormalities, I decided to recode scores on scales that assessed ‘typical’ behaviours (i.e., healthy psychological functioning) so that higher scores also reflected non-conformity. Specifically, I reverse-coded participants’ scores on the SERR and SRAS-SF so that higher scores reflected lower levels of self-efficacy in romantic relationships and assertiveness, respectively.

As recommended by Tabachnick and Fidell (2013), data that were not normally distributed or that displayed non-monotonic relationships across either or both groups were transformed. This helped to ensure that my data met the assumptions for parametric testing, whilst also mitigating against invalid research findings across inferential analyses. Specifically, I applied a logarithmic transformation to data on the DERS-SF and the SFQ-R-SV (owing to a strong positive skew for both SAs and NSAs), as well as a square root transformation to data on the HTW (owing to a slight positive skew for NSAs). Subsequently, I present in my results the ratio of the difference in mean scores for SAs and NSAs on these three transformed measures, versus actual mean scores.

Univariate outliers were detected by reviewing the standardised sum scores across continuous measures for both the SA and NSA groups. These were confirmed through visual inspection of boxplots. Using Van Selst and Jolicouer’s (1994)  $z$ -score criterion for outlier exclusion, 20 possible univariate outliers were identified. Of these cases, three were retained

(unadjusted) and five were excluded. The remaining 12 cases were winsorised – that is, extreme values were replaced by the minimum or maximum value for each measure – so that the distribution of scores approximated the normal distribution (see Dixon, 1960). This process of outlier management reduced distributional problems within the dataset whilst maintaining the relative order of the data, and improved the mean and five percent trimmed mean scores across relevant scales.

Unfortunately, reviewing responses to the DDQ showed that a notable number of participants self-reported their cumulative, not average, daily alcohol intake over the past three months, resulting in several unreasonably inflated scores. As I could not differentiate between those participants who did and did not respond correctly to the measure, I had to exclude the DDQ from analyses.

## **Results**

### ***Representativity of the Sample***

To assess whether my analytic sample were representative of the target population, demographic data collected from participants were compared to centrally held data on the male student body from the aforementioned plate glass university. Non-parametric tests were used due to violations of assumptions for both independent samples *t*-tests and Chi-square tests of homogeneity (see Cochran, 1954). Participants in this study could not be statistically differentiated from the target population on the variables of age or ethnicity; however, there was a notable difference in multinomial probability distributions between groups with regards to highest educational attainment,  $p < .001$  (see Table 2, pg. 110). To investigate these differences, post-hoc pairwise comparisons were conducted using multiple Fisher's exact tests (2 x 2). A Bonferroni correction was applied to reduce the likelihood of a Type I error (adjusted  $p < .01$ ). Results revealed that, relative to the target population, participants in this study were more likely to report their highest educational attainment as being either a

Bachelor's degree (21.2% versus 8.5%) or a Postgraduate degree (17.0% versus 6.2%), and less likely to report it as being an A-Level qualification (58.7% versus 83.0%),  $p < .001$ . There were no differences between groups on the GCSE or Other categories.

### ***Sexual Aggression: Prevalence and Features***

In total, 33 participants (12.7% of the entire sample) self-reported having perpetrated 106 sexually aggressive acts over the past 24-months. Sexual coercion comprised the largest category of reported act (representing 41.5% of all self-reported acts), having been perpetrated by 14 SAs (5.4% of the entire sample). This was followed by unwanted sexual contact (representing 34.9% of all self-reported acts) and rape/attempted rape (representing 23.6% of all self-reported acts), which were perpetrated by 8.9% ( $n = 23$ ) and 5.4% ( $n = 14$ ) of the entire sample, respectively. Most SAs ( $n = 13$ ; 39.4% of the SA sample) committed two sexually aggressive acts in total, although a considerable number ( $n = 11$ ; 33.3% of the SA sample) reported three or more acts. Only nine SAs (27.3% of the SA sample) reported committing one sexually aggressive act. There were two notable exceptions in the SA group: one male student who had reported 14 sexually aggressive acts and another who had reported 20 acts. In terms of victim characteristics, a majority of SAs ( $n = 27$ ; 81.8% of the SA sample) self-reported female victims only, though five SAs (representing 15.2% of the SA sample) reported both female and male victims, and one SA (representing 3.0% of the SA sample) reported a male victim.

In terms of tactics used to achieve desired sexual outcomes, SAs relied mostly on verbal pressure and incapacitation, which accounted for 37.7% and 36.8% of all self-reported tactics, respectively. Verbal criticism was less commonly used by SAs, accounting for approximately one-fifth (19.8%) of tactics only. The least common tactics adopted by SAs were physical force (representing 3.8% of all self-reported tactics) and physical threats (representing 1.9% of all self-reported tactics). Put another way, verbal tactics and

incapacitation were the most common self-reported tactics used to coerce sexually aggressive behaviours (accounting for 94.3% of all self-reported tactics), whilst physical tactics were less frequently adopted (accounting for only 5.7% of all self-reported tactics).

It is worth noting that participants who responded “3+” to any of the outcome/tactic strings on the SES-SFP were recorded as having committed only three sexually aggressive acts – an approach commonly adopted in sexual aggression research using the SES-SFP (e.g., M. P. Thompson et al., 2013). Therefore, the above figures likely represent conservative estimates of prevalence, as some participants who responded “3+” may have offended more than three times.

### ***Group Comparisons***

The survey responses of SAs and NSAs were compared to assess which psychological variables should enter the logistic regression model. I also evaluated group differences on demographic variables based on their established link with sexual aggression perpetration amongst US university students (e.g., Palmer et al., 2021; Porta et al., 2017; Walsh et al., 2021), as well as incarcerated persons (see Hanson & Bussière, 1998). This approach – of including as predictor variables only those measures that differentiate between groups – is recommended by Tabachnick and Fidell (2013) as a way of increasing the power of multivariate analyses. Due to the novelty of the research question and to avoid concealing any possible predictive factors, multiple test corrections were not applied.

**Demographic Variables.** Ostensibly, there were demographic similarities between SAs and NSAs (see Table 4, pg. 112). For example, White British males were represented considerably more than any other ethnicity, comprising 48.5% of the SA group and 59.7% of the NSA group. High levels of formal education were apparent across both groups, with most participants reporting their highest level of academic achievement as being either further education (SA: 60.6%; NSA: 58.4%) or higher education (SA: 39.9%; NSA: 38.5%).

Moreover, there was little variation in mean age between both SAs ( $M = 22.0$ ,  $SD = 4.0$ ) and NSAs ( $M = 23.0$ ,  $SD = 6.9$ ), despite notable disparities in age ranges between both groups (19 to 36-years for SAs versus 18 to 68-years for NSAs).

Univariate analyses run on demographic data could not statistically differentiate between SAs and NSAs on their self-reported age or highest level of education. However, multinomial probability distributions for ethnicity were not equal across groups,  $p = .048$ , highlighting differences on this variable. Specifically, post-hoc pairwise comparisons showed that SAs were more likely than NSAs to identify as Asian - Other (18.2% versus 2.2%),  $p < .001$  (adjusted  $p < .003$ ; see Table 4, pg. 112). Given recent contentions that ethnicity may explain sexual aggression through social or cultural norms (Palmer et al., 2021; see also Paludi et al., 2006; Pryor et al., 1997), as well as evidence that ethnic background is linked to past sexual aggression amongst US male university students (e.g., Porta et al., 2017; Voller & Long, 2010), I decided to include this variable in the logistic regression model.

**Psychological Measures.** Descriptive statistics were computed separately for SAs and NSAs (see Table 3, pg. 111). Owing to significant differences in group sizes, a series of Welch  $t$ -tests were run to determine whether participants in both groups could be statistically differentiated by their responses across administered psychological measures. Results showed that SAs and NSAs could only be differentiated by their scores on the HTW ( $M_{ratio} = 0.2$ , 95% CI [0.03 to 0.51],  $t(46.52) = 3.18$ ,  $p = .003$ ,  $d = 0.51$ ), SFQ-R-SV ( $M_{ratio} = 0.6$ , 95% CI [0.30 to 1.05],  $t(56.57) = 4.30$ ,  $p < .001$ ,  $d = 0.52$ ), and IRMA-R ( $M = 6.8$ , 95% CI [2.48 to 11.06],  $t(39.31) = 3.19$ ,  $p = .003$ ,  $d = 0.66$ ).

To determine whether there were group differences on responses to the AIM, a Chi-square test of homogeneity was run. Adequate sample size was established using the criteria proposed by Cochran (1954). The two multinomial probability distributions were equal in the population,  $\chi^2(3) = 3.38$ ,  $p = .336$ .

**Impression Management.** To assess whether socially desirable responding impacted on participants' self-reported history of sexual aggression, BIDR-6-IM scores were correlated with SES-SFP scores for the SA group. Due to violation of the assumption of linearity between variables, the non-parametric Spearman's rank-order correlation was run. Results showed that there was no statistically significant relationship between the two variables, suggesting that SAs' responses to the SES-SFP were not biased by impression management.

### *Classifying Sexual Aggressors*

To assess their ability to predict past sexual aggression, the variables that differentiated between SAs and NSAs (i.e., the HTW, IRMA-R, and SFQ-R-SV, as well as participants' self-reported ethnicity) were force-entered into a binomial logistic regression model. Dichotomised SES-SFP scores were entered as the dependent variable and the NSA group was selected as the reference group. As it contained multiple cell counts less than five, I followed the recommendation of Hair et al. (2013) and dichotomised ethnicity into a "White British" and a "minority ethnicity" category.<sup>13</sup>

Assumption testing was performed to ensure that data were appropriate for multivariate testing. First, I assessed the assumption of linearity using Box and Tidwell's (1962) procedure, as recommended by Hosmer and Lemeshow (1989). A Bonferroni correction was applied to correct for multiple test comparisons, as per the suggestion of Tabachnick and Fidell (2013), and significance was therefore accepted at the  $p < .006$  level. This process highlighted that there was a linear relationship between the three continuous predictor variables and the logit transformation of the dependent variable. Second, I assessed for multicollinearity between continuous predictor variables using linear regression. Findings

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<sup>13</sup> Hair et al. (2013) note that logistic regression models that include non-metric predictor variables with small cell counts often struggle to converge and reach a solution. Therefore, whilst I accept that contrasting a "White British" and "minority ethnic" group does not allow for an assessment of differences in sexual aggression between participants who did and did not self-identify as "Asian – Other" (the ethnic group that significantly differentiated SAs from NSAs in my earlier group comparisons), given the distribution of responses to the ethnicity item in the demographic survey, it is the best available proxy.

showed that all tolerance and VIF values surpassed the recommended benchmarks (Menard, 1995; Myers, 1990), evidencing that there were no high intercorrelations between variables. Finally, I assessed for multivariate outliers and high leverage points by reviewing the standardised residuals of individual cases. Here, a case was considered a potential multivariate outlier if it returned a standardised residual greater than  $\pm 3$  standard deviations (see Aljandali, 2017; Wiggins, 2000).<sup>14</sup> This process highlighted nine SAs (27.3% of the SA sample) as possible multivariate outliers as they displayed high scores across all three continuous predictor variables. Inspecting each case individually showed that there were only minor deviations in total HTW, IRMA-R, and SFQ-R-SV scores between four of the cases; therefore, to avoid unnecessarily removing data from my dataset and to safeguard against having an under-powered model, I decided to retain these participants. The remaining five cases were omitted from the model.

To ensure an accurate predictive model, I followed the recommendations of Nakas et al. (2012) and calculated Youden's Index ( $J$ ) to derive an optimum cut-off for model construction. The index was calculated using the following equation, with values taken from an initial receiver operating characteristic (ROC) curve analysis:

$$J = \text{sensitivity} + \text{specificity} - 1$$

This suggested a value of .088. A model based on this cut-off was significant,  $\chi^2(4) = 25.82, p < .001$ , and explained between 9.7% (Cox & Snell  $R^2$ ) and 19.3% (Nagelkerke  $R^2$ ) of variance in sexual aggression. Hosmer and Lemeshow's goodness of fit test was not significant,  $\chi^2(8) = 2.54, p = .96$ , indicating that the model was not a poor fit. Overall, the model correctly classified 65.0% of all cases into either the SA or NSA group, with specificity (true negative) and sensitivity (true positive) scores of 62.8% and 82.1%, respectively. The positive predictive value of the model was 21.5% whilst the negative

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<sup>14</sup> Note that, according to the empirical rule, 99.7% of all data points typically fall within  $\pm 3$  standard deviations of the mean. Therefore, I considered this a reasonable cut-off for outlier identification.

predictive value was 96.6%. Of the predictor variables that entered the model, only the IRMA-R and SFQ-R-SV made a significant contribution (see Table 5, pg. 113).

To evaluate the ability of the model to discriminate between SAs and NSAs, I also calculated the area under the ROC curve.<sup>15</sup> This revealed that the model could discriminate between SAs and NSAs at better-than-chance level; area under the curve (AUC) = .77,  $p < .001$ , 95% CI [.68, .85], corresponding to a large Cohen's  $d$  effect size of approximately 1.04 (Rice & Harris, 2005) and an "acceptable" discrimination according to Hosmer et al. (2013).<sup>16</sup>

Whilst there are no formal standards regarding minimum sample size when conducting a binomial logistic regression analysis, several researchers rely on Long's (1997) established rule-of-thumb which suggests a minimum of ten events per variable per outcome event. According to this benchmark, my model may be slightly underpowered due to a disproportionately low number of self-reported SAs in this study. Therefore, I urge readers to consider the results of this initial model as tentative at this stage and requiring validation.

## Study 2

Study 2 was pre-registered as a replication of Study 1 with minor modifications. Most notably, I used a broader independent sample of male students from across UK universities to assess sexual aggression. This approach allowed me to examine the psychological characteristics of SAs nationally, as well as the generalisability of findings from Study 1. Owing to my new recruitment method, I also modified the methodology in the ways described below to increase the validity of my findings. Hypotheses remained unchanged from Study 1.

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<sup>15</sup> The AUC value is equal to the concordance probability ( $c$ ) – a common metric used to assess the ability of generalised linear models (such as logistic regression models) to discriminate between participants who are classed as possessing the outcome of interest versus those who do not (see Steyerberg, 2009).

<sup>16</sup> A model excluding participants who failed attention check items ( $n = 22$ ) and which contained IRMA-R, SFQ-R-SV, and HTW scores was also significant,  $\chi^2(4) = 16.40$ ,  $p = .003$ , and highlighted IRMA-R and SFQ-R-SV scores as significant predictor variables ( $p = .03$  and  $p = .03$ , respectively). However, this model had a worse fit,  $\chi^2(8) = 7.13$ ,  $p = .52$ , than the full model.

## **Method**

### ***Participants***

Participants were recruited on the crowdsourcing platform Prolific (see Palan & Schitter, 2018), which allowed access to a large pool of eligible participants from across the UK. I chose Prolific as recent evaluations have shown that users of the site generate high-quality and accurate data and are often more naïve than participants on other crowdsourcing platforms (Peer et al., 2017, 2021). Prolific also overcomes the drawbacks of more traditional data collection methods when it comes to assessing stigmatising sexual behaviours, such as those assessed in my studies (see Ó Ciardha et al., 2021).

To ensure that only eligible participants could access my survey, pre-screening filters were set on Prolific to capture users who were adult university students residing in the UK and who identified as heterosexual males. This resulted in a possible pool of  $N = 688$  participants. To maximise the constraint of my final model's parameters and to ensure that analyses were adequately powered, I purposively recruited more participants here than in Study 1. Subsequently, the final sample comprised  $N = 295$  students (42.9% of the eligible target population on Prolific; see my pre-registration for data cleaning exclusion criteria). The age of participants in the sample ranged from 18 to 75 years ( $M = 25.1$ ,  $SD = 8.3$ ; see Table 6, pg. 114). As in Study 1, the majority identified as White British ( $n = 208$ ; 70.5%) and reported their highest level of educational achievement as A-Level or equivalent ( $n = 135$ ; 45.8%). Overall, students from 100 (out of 161) UK universities participated in the study, meaning that the sample represented a broad demographic of student from across the country.

### ***Measures and Procedure***

Study 2 was ethically approved by the relevant research ethics committee at the University of Kent (Ref: 201915651873045842). Participants completed the survey as in Study 1. Two new items were included: one in the demographic survey that asked for

university affiliation and another at the end of the SES-SFP that asked SAs for their relationship to their victim(s) (see Appendix A, pg. 320). Based on findings from Study 1, the completion time for the survey was set at 25-minutes and the maximum allowed time as 60-minutes. Participants received fair compensation at a pro-rated rate of £5.00 per hour, which was granted after they submitted a valid response set on Prolific. Demographic survey data were used to corroborate participants' responses to the pre-screening filters, as done in the previous study. As shown in Table 3 (pg. 111), internal consistency scores across measures were markedly better than in Study 1.

### ***Analysis Plan***

Statistical analyses were conducted as in Study 1. A square root transformation was applied to data on the HTW (owing to a moderately positive skew for NSAs) and a logarithmic transformation to data on the SFQ-R-SV (owing to a strong positive skew across both groups). Subsequently, I present in my results the ratio of the difference in mean scores for SAs and NSAs on these measures, versus actual mean scores. Using the methods described in Study 1, 18 possible univariate outliers were identified; of these, three were retained (unadjusted), one was excluded, and 14 were winsorised, which resulted in positive statistical outcomes.

## **Results**

### ***Representativity of the Sample***

Where possible, demographic data collected from participants were compared to national HE statistics from the *Higher Education Student Statistics: UK, 2017/18 Survey* (Higher Education Statistics Agency [HESA], 2019) – an annual report that details the characteristics of the UK's current university student body (see Table 6, pg. 114). Both groups could not be statistically differentiated on the variables of age or ethnicity; however, a Fisher's exact test revealed that multinomial probability distributions were not equal between

groups in terms of highest educational attainment,  $p = .004$ , or university country,  $p = .008$ . Post-hoc analyses involved pairwise comparisons using multiple Fisher's exact tests. Again, a Bonferroni correction was applied, and significance was accepted at the  $p < .007$  and  $p < .01$  level, respectively. Results revealed that, relative to the UK male student body, participants in this study were more likely to report their highest educational attainment as a Postgraduate degree (17.3% versus 8.1%),  $p < .007$ . There were no significant differences between groups on any of the remaining pairwise comparisons.<sup>17</sup>

### ***Sexual Aggression: Prevalence and Features***

In total, 30 participants (10.2% of the entire sample) self-reported having perpetrated 145 sexually aggressive acts over the past 24-months (though, as noted earlier, this could be a conservative estimate due to the way the SES-SFP was scored). As in Study 1, sexual coercion comprised the largest category of reported act (representing 37.9% of all self-reported acts), having been perpetrated by 18 participants (6.1% of the entire sample). This was followed by rape/attempted rape (representing 35.9% of all self-reported acts; notably higher than Study 1) and unwanted sexual contact (representing 26.2% of all self-reported acts), which were perpetrated by 5.4% ( $n = 16$ ) and 4.7% ( $n = 14$ ) of the sample, respectively. Unlike Study 1, most SAs ( $n = 12$ ; representing 40.0% of the SA sample) reported having committed three or more sexually aggressive acts over the past two years. Eleven SAs (representing 36.7% of the SA sample) reported committing one sexually aggressive act and seven SAs (representing 23.3% of the SA sample) reported committing two acts. There were three notable outliers: one student who reported perpetrating 16 sexually aggressive acts, another who reported 23 sexually aggressive acts, and a final student who reported 26 sexually aggressive acts.

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<sup>17</sup> It is likely that the conservative Bonferroni correction used in this study prevented the follow-up Fisher's exact test from identifying significant post-hoc differences for university country.

In terms of tactics used to achieve desired sexual outcomes, SAs relied mostly on incapacitation, verbal criticism, and verbal pressure, which accounted for 28.3%, 27.6%, and 24.1% of all self-reported tactics, respectively. Physical threats and physical force were less commonly used by SAs, accounting for only 10.3% and 9.7% of all self-reported tactics. Similar to Study 1, results showed that verbal tactics and incapacitation were the most common self-reported tactics used to coerce sexually aggressive behaviours (representing 80.0% of all self-reported tactics), whilst physical tactics were more infrequently adopted (representing 20.0% of all self-reported tactics only).

In terms of victim characteristics, the majority of offences (66.7%) were perpetrated against another student who the perpetrator knew. Relatively few SAs (13.3%) reported perpetrating offences against a student who they did not know. In only 6.7% of cases were victims reported to be strangers. Mirroring Study 1 findings, a majority of perpetrators (86.7%) reported that their offences were committed against female victims.

### ***Group Comparisons***

**Demographic Variables.** As in Study 1, there were demographic similarities between SAs and NSAs in this study (see Table 4, pg. 112). For example, participants across both groups were typically younger students: 23.3% of SAs and 32.1% of NSAs reported being aged 20 or under, whilst 56.7% of SAs and 50.9% of NSAs reported being aged 21-30. Again, White British males were represented considerably more than any other ethnicity, comprising 66.7% of the SA group and 70.9% of the NSA group. High educational attainment was apparent across groups also, with most SAs (53.3%) and NSAs (49.8%) reporting that they had completed some form of university education. Consistent with national statistics, the majority of SAs (70.0%) and NSAs (73.2%) reported that they attended a HEI in England. Put another way, across both studies, samples displayed a preponderance

toward younger, highly educated students who identified as White British and who attended a university in England.

Univariate analyses were again run using demographic data to assess whether SAs and NSAs could be differentiated by their self-reported age, ethnicity, highest level of education, or university country. Unlike Study 1, no significant differences were found (all  $p$ s > .05).

**Psychological Measures.** As previously, descriptive statistics were computed separately for both SAs and NSAs (see Table 3, pg. 111). Univariate analyses were again run to assess whether participants in both groups could be discriminated based on their responses to each measure. As in Study 1, SAs could be differentiated from NSAs by their scores on the HTW ( $M_{ratio} = 0.7$ , 95% CI [0.30 to 1.26],  $t(40.37) = 5.83$ ,  $p < .001$ ,  $d = 0.94$ ), SFQ-R-SV ( $M_{ratio} = 0.8$ , 95% CI [0.35 to 1.30],  $t(42.43) = 4.30$ ,  $p < .001$ ,  $d = 0.70$ ), and IRMA-R ( $M = 8.5$ , 95% CI [3.73 to 13.34],  $t(34.46) = 3.61$ ,  $p < .001$ ,  $d = 0.76$ ). Unlike Study 1, group differences in scores were also apparent on the BPAQ ( $M = 6.6$ , 95% CI [3.14 to 10.11],  $t(37.44) = 3.85$ ,  $p < .001$ ,  $d = 0.69$ ), SERR ( $M = 6.8$ , 95% CI [0.24 to 13.42],  $t(37.26) = 2.10$ ,  $p = .04$ ,  $d = 0.38$ ), and DERS-SF ( $M = 3.8$ , 95% CI [0.12 to 7.46],  $t(40.74) = 2.09$ ,  $p = .04$ ,  $d = 0.33$ ). No significant differences between groups were found on the remaining psychological measures.

**Impression Management.** As in Study 1, univariate testing highlighted that there was no significant relationship between BIDR-6-IM and SES-SFP scores for SAs, suggesting that participants' responses were not affected by an impression management bias.

### *Classifying Sexual Aggressors*

Owing to a low  $n$  in the SA group (which would reduce the power of my logistic regression analyses), I followed the recommendations of Field (2013) and ran an initial hierarchical logistic regression model to assess which of the six significant variables from my

univariate tests best could predict sexual aggression and thus should be carried forward to the main analysis. Variables were entered individually in blocks based on their  $p$ -values (with highest scoring variables being entered first). This initial hierarchical model highlighted that IRMA-R, SERR, and DERS-SF scores did not significantly improve the model's fit and should therefore be excluded from the main analysis.

To assess their ability to predict past sexual aggression, the remaining three variables (i.e., the BPAQ, HTW, and SFQ-R-SV) were force entered into a binomial logistic regression model, as in Study 1. Assumption testing highlighted seven SAs as potential multivariate outliers; following a review, these were omitted from the analyses. Youden's Index was again calculated and suggested a classification cut-off value of  $J = .113$ . A final logistic regression model based on this cut-off was significant,  $\chi^2(3) = 57.63, p < .001$ , and explained between 18.1% (Cox & Snell  $R^2$ ) and 42.5% (Nagelkerke  $R^2$ ) of variance in sexual aggression. Hosmer and Lemeshow's goodness of fit test was not significant,  $\chi^2(8) = 4.81, p = .78$ , indicating that the model was not a poor fit. Overall, the model correctly classified 85.1% of all cases into either the SA or NSA group, with specificity (true negative) and sensitivity (true positive) scores of 84.5% and 91.3%, respectively. The positive predictive value of the model was 33.9% whilst the negative predictive value was 99.1%. Unlike in Study 1, all predictor variables made a significant contribution (see Table 5, pg. 113). ROC curve analysis revealed that the model could discriminate between groups at better-than-chance level;  $AUC = .93, p < .001$ , 95% CI [.89, .96], corresponding to a large Cohen's  $d$  effect size of approximately 2.09 (Rice & Harris, 2005) and an "outstanding" discrimination according to Hosmer et al. (2013).<sup>18</sup>

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<sup>18</sup> A model excluding participants who failed attention check items ( $n = 14$ ) and which similarly contained HTW, SFQ-R-SV, and BPAQ scores was also significant,  $\chi^2(3) = 51.56, p < .001$ , and highlighted all three measures as significant predictor variables ( $p < .001, p < .001, and p = .005$ , respectively). Whilst the model had a marginally better fit,  $\chi^2(8) = 4.55, p = .80$ , than the full model, it explained less variation in sexual aggression scores (17.2% [Cox & Snell  $R^2$ ] and 41.1% [Nagelkerke  $R^2$ ]).

Based on Long's (1997) established rule-of-thumb of ten events per variable per outcome event, the sample size in this study was sufficient for an adequately powered logistic regression model. Therefore, I am confident in the validity of my findings.

### **Discussion**

The two studies presented in this chapter represent the first empirical assessment of the individual-level risk factors associated with university-based sexual aggression in the UK and offer the first reported estimate of the prevalence of sexual aggression perpetrated by UK male university students. They extend past US research by examining the combined influence of both new and established psychological variables on male students' proabuse behaviours, including those associated with sexual assault perpetration amongst incarcerated persons. Taken together, findings highlight that male university students in the UK with a history of sexual aggression comprise a distinct forensic population, who can be differentiated from their non-offending peers by various psychological indicators associated with their past proabuse behaviours.

Across both studies, 11.4% ( $n = 63$ ) of the combined sample ( $n = 554$ ) self-reported having committed at least one sexually aggressive act in the past 24-months, for a total of 251 illegal sexual acts overall. These findings mirror those reported in large US studies into campus sexual assault, where between 11.5% and 17.9% of male university students disclose having engaged in sexually aggressive behaviours recently (see Abbey & McAuslan, 2004; Gidycz et al., 2007; Mouilso & Calhoun, 2016). They are also comparable to estimates of prevalence from research conducted with male students in other European countries, including Germany (13.3% prevalence; Krahe & Berger, 2013), Poland (11.7% prevalence; Tomaszewska & Krahe, 2018b), and Spain (15.3% prevalence; Martín et al., 2005). As highlighted in the earlier literature review, no analogous research has been conducted in the UK; however, the prevalence of self-reported sexual aggression is notably higher amongst

my participants compared to non-university males in the community, where 7.3% disclose a history of such behaviours (Krahé et al., 2014). This supports prior contentions (e.g., Bloom et al., 2021) that universities are a breeding ground for sexual aggression and emphasises the critical need for better harm-prevention initiatives on campuses, including more evidence-based psychological interventions for male students who are at risk of offending.

Findings also support my hypotheses that there would be differences in scores across psychological measures between SAs and NSAs. While descriptive comparisons of mean scores between groups support this prediction, inferential analyses differentiated between individuals who had and who had not recently perpetrated sexual aggression on select variables only; specifically, measures of hostility toward women, problematic sexual fantasies, rape myth acceptance, and ethnicity (in Study 1), and hostility toward women, problematic sexual fantasies, rape myth acceptance, non-sexual aggression, self-efficacy in romantic relationships, and difficulties in emotion regulation (in Study 2). When entered into a logistic regression model, only problematic sexual fantasies and rape myth acceptance (in Study 1), and hostility toward women, problematic sexual fantasies, and non-sexual aggression (in Study 2) predicted sexual aggression. In support of my hypotheses, both models could discriminate between SAs and NSAs at greater-than-chance level; however, the model in Study 2 correctly classified more cases.

My findings support campus sexual assault studies from other countries, which have highlighted key psychological differences between males who have and have not engaged in recent sexual aggression in terms of the specific attitudinal and personality-related risk factors associated with their harmful sexual behaviours (e.g., Abbey et al., 2001; Čvek & Junaković, 2020; D'Abreu & Krahé, 2014; M. P. Thompson et al., 2013). Given arguments that male sexual aggression is driven by hypermasculinity and adversarial sexual beliefs (see Abbey & McAuslan, 2004; Chan, 2021a; Čvek & Junaković, 2020; Martín et al., 2005;

Trottier et al., 2021), it is unsurprising that high levels of hostility toward women, rape myth acceptance, and problematic sexual fantasies predicted past engagement in the behaviour in my sample. To this end, my findings support the confluence model (Malamuth et al., 2021), which proposes that hostile masculinity – a pronounced obedience to traditional gender role beliefs for men – forms one of two key pathways to sexual aggression. Literature has also shown that increased non-sexual aggression in males is a precursor to sexually aggressive expressions of behaviour (see Kingree & M. P. Thompson, 2015; Rapaport & Burkhart, 1984), thus accounting for the ability of BPAQ scores to predict sexual aggression in Study 2.

### **Limitations and Future Directions**

Taken together, my studies offer a preliminary insight into the prevalence of, and individual-level risk factors associated with, sexual aggression amongst male university students in the UK. Whilst findings have exciting implications for the design of effective evidence-based harm prevention initiatives (as evidenced in Study 6), I urge readers to consider them in the context of my studies' limitations, described below.

First, I assessed only individual-level risk factors (i.e., attitudinal and personality-related indicators) associated with participants' proabuse behaviours. This was a purposeful decision based on the lack of academic research into sexual aggression on UK campuses (see Jones et al., 2020a, 2020b) and my desire to examine in-depth the personal characteristics of SAs. However, it is well-established that university-based sexual aggression is multi-faceted in nature and often the result of many levels of influence on behaviour (e.g., Dills et al., 2016; Tharp et al., 2013). To this end, I will examine in Studies 4 and 5 the influence of known and hypothesised relationship, situational, community, and institution-level risk factors on UK male students' proabuse behaviours. Understanding more about the complex interplay between these factors will guide campus sexual harm prevention work, as well as the development of more effective interventions for students at risk of perpetration.

Second, data were cross-sectional and assessed the psychological characteristics of SAs at one time point only. This meant that I precluded assumptions about temporal sequencing and the possibility that risk factors interact in an ordered fashion during sexual aggression perpetration. Research examining male-perpetrated campus sexual assault in the US has demonstrated that there are time-varying risk factors associated with sexual aggression (e.g., M. P. Thompson et al., 2015); therefore, it would be expedient for future researchers to conduct longitudinal investigations with male students in the UK.

Third, while I met minimum sample size recommendations for my inferential tests and most of my logistic regression models (see Long, 1997), some analyses – particularly the model in Study 1 – could have benefited from additional power. Low power was a result of there being more NSAs than SAs within the sample (a common issue in sexual aggression research; see Swartout et al., 2011). I encourage future researchers to consider this limitation when designing study protocols to ensure the validity of their findings. Particularly, follow-up studies adopting broader samples would be useful to test the generalisability of my results, which may have been impacted by unbalanced group sizes.

Fourth, it is worth considering the influence that my research design had on participants' responses to the SES-SFP. In my studies, I attempted to offset any biased responding patterns by administering an anonymous self-report survey (as recommended by Abbey, 2005; Langhaug et al., 2010) alongside a well-validated measure of impression management (i.e., the BIDR-6-IM) to probe participants' proclivity towards positive self-presentation. Whilst these measures are likely to have set the conditions for some SAs to accurately report their past offending behaviours, other participants may have purposively failed to disclose historic harmful sexual behaviour under fear of negative reprisals. This is a well-known issue noted across the university-based sexual aggression literature (e.g., Carr & VanDeusen, 2004; Palmer et al., 2021) and one that is difficult to fully safeguard against.

Subsequently, I encourage readers to interpret my reported prevalence rates as representing conservative estimates of sexual perpetration by UK male students.

Finally, predictors of sexual aggression differed between Studies 1 and 2, suggesting possible disparities in the psychological characteristics of SAs at different universities. Replication studies adopting a broader sample would be valuable for confirming this finding and providing more robust assessments of the key psychological predictors associated with sexual aggression amongst male university students in the UK. To this end, future researchers may find it sensible to employ a range of data collection methods to ensure they recruit a representative sample of participants (e.g., those from minority groups or without access to online crowdsourcing platforms).

**Table 2**

*Demographic Comparisons between the Study 1 Sample and the Male Student Body at the Selected University, as Reported by Centrally Held University Data*

| Variable                                      | Study sample<br>( <i>N</i> = 259) |      | University male<br>student body <sup>a</sup><br>( <i>N</i> = 9,100) |      |
|---|-----------------------------------|------|---|------|
|   | <i>n</i>                          | %    | <i>n</i>  | %    |
|   | Age                               |      |   |      |
| 20 and under                                  | 112                               | 43.2 | 3,700   | 40.7 |
| 21-30   | 125                               | 48.3 | 4,725   | 51.9 |
| 31-40   | 13                                | 5.0  | 405   | 4.5  |
| 41-50   | 5                                 | 1.9  | 180   | 2.0  |
| 51-60   | 3                                 | 1.2  | 60  | 0.7  |
| 61-70   | 1                                 | 0.4  | 30  | 0.3  |
| Ethnicity <sup>b c</sup>                      |                                   |      |   |      |
| White   | 189                               | 73.0 | 5,520   | 62.5 |
| Black African                                 | 14                                | 5.4  | 910   | 10.3 |
| Black Caribbean                               | 3                                 | 1.2  | 150   | 1.7  |
| Mixed White/Asian                             | 6                                 | 2.3  | 170   | 1.9  |
| Mixed White/Black African                     | 1                                 | 0.4  | 60  | 0.7  |
| Mixed White/Black Caribbean                   | 2                                 | 0.8  | 85  | 1.0  |
| Mixed - Other                                 | 6                                 | 2.3  | 195   | 2.2  |
| Arab  | 3                                 | 1.2  | 100   | 1.1  |
| Bangladeshi                                   | 3                                 | 1.2  | 95  | 1.1  |
| Chinese                                       | 6                                 | 2.3  | 415   | 4.7  |
| Indian  | 11                                | 4.3  | 420   | 4.8  |
| Pakistani                                     | 2                                 | 0.8  | 135   | 1.5  |
| Asian - Other                                 | 11                                | 4.3  | 405   | 4.6  |
| Any - Other                                   | 2                                 | 0.8  | 175   | 2.0  |
| Highest educational attainment <sup>b c</sup> |                                   |      |   |      |
| GCSE or equivalent                            | 4                                 | 1.5  | 75  | 0.9  |
| A-Level or equivalent                         | 152***                            | 58.7 | 6,855   | 82.8 |
| B.A. or equivalent                            | 55***                             | 21.2 | 715   | 8.6  |
| Postgraduate degree or equivalent             | 44***                             | 17.0 | 510   | 6.2  |
| Other   | 4                                 | 1.5  | 125   | 1.5  |

*Note.* Figures may not add up to 100% due to rounding.

<sup>a</sup> Data rounded to the nearest five students.

<sup>b</sup> Due to missing data and “Prefer not to answer” responses, totals in the *University* column may not always equal 9,100.

<sup>c</sup> Due to University data collection methods, some categories have been collapsed.

\*\*\**p* < .001

**Table 3***Internal Consistency and Mean Scores between SAs and NSAs across Studies 1 and 2 for each Administered Measure*

| Measure                      | Study 1                          |                                  |                                    | Study 2                          |                                  |                                    | Range <sup>a</sup> |
|------------------------------|----------------------------------|----------------------------------|------------------------------------|----------------------------------|----------------------------------|------------------------------------|--------------------|
|                              | Cronbach's $\alpha$<br>(SA, NSA) | SAs ( $n = 33$ )<br>$M$ ( $SD$ ) | NSAs ( $n = 226$ )<br>$M$ ( $SD$ ) | Cronbach's $\alpha$<br>(SA, NSA) | SAs ( $n = 30$ )<br>$M$ ( $SD$ ) | NSAs ( $n = 265$ )<br>$M$ ( $SD$ ) |                    |
| Measure of sexual aggression |                                  |                                  |                                    |                                  |                                  |                                    |                    |
| SES-SFP                      | .82                              |                                  |                                    | .91                              |                                  |                                    |                    |
| Continuous measures          |                                  |                                  |                                    |                                  |                                  |                                    |                    |
| BIDR-6-IM                    | .77 (.59, .77)                   | 63.2 (12.6)                      | 77.4 (14.6)                        | .77 (.76, .77)                   | 70.4 (14.2)                      | 73.4 (15.3)                        | 20-140             |
| BPAQ                         | .85 (.83, .83)                   | 33.4 (9.5)                       | 31.6 (9.7)                         | .86 (.77, .86)                   | 37.4 (8.8)***                    | 30.8 (9.7)                         | 12-72              |
| DERS-SF                      | .88 (.90, .88)                   | 39.2 (11.5)                      | 39.8 (11.1)                        | .91 (.80, .92)                   | 37.8 (9.1)*                      | 34.1 (11.8)                        | 18-90              |
| DJGL                         | .78 (.80, .78)                   | 17.1 (5.0)                       | 16.0 (4.7)                         | .79 (.70, .80)                   | 16.7 (4.5)                       | 15.9 (4.8)                         | 6-30               |
| HTW                          | .85 (.80, .85)                   | 30.0 (7.6)**                     | 25.7 (8.6)                         | .88 (.78, .88)                   | 34.9 (8.3)***                    | 26.2 (9.4)                         | 10-70              |
| IRMA-R                       | .89 (.88, .88)                   | 44.1 (11.6)**                    | 37.3 (10.0)                        | .90 (.88, .90)                   | 46.0 (12.4)***                   | 37.4 (11.1)                        | 19-95              |
| RSE <sub>neg</sub>           | .83 (.83, .83)                   | 12.8 (3.2)                       | 13.0 (3.3)                         | .87 (.79, .88)                   | 12.5 (3.0)                       | 11.9 (3.5)                         | 5-20               |
| RSE <sub>pos</sub>           | .86 (.88, .86)                   | 10.5 (2.9)                       | 10.1 (2.7)                         | .87 (.81, .87)                   | 14.8 (2.7)                       | 14.5 (2.8)                         | 5-20               |
| SERR <sup>b</sup>            | .89 (.82, .89)                   | 61.2 (13.6)                      | 59.4 (16.3)                        | .90 (.87, .90)                   | 56.2 (16.7)*                     | 49.4 (18.2)                        | 12-108             |
| SFQ-R-SV                     | .82 (.82, .82)                   | 10.3 (7.6)***                    | 7.0 (6.1)                          | .87 (.90, .85)                   | 12.9 (9.3)***                    | 8.0 (6.8)                          | 0-108              |
| SRAS-SF <sup>b</sup>         | .83 (.82, .84)                   | 61.4 (13.2)                      | 62.6 (14.2)                        | .83 (.75, .84)                   | 65.7 (11.1)                      | 64.0 (13.8)                        | 19-114             |
| Categorical measure          |                                  | <i>Mdn</i>                       | <i>Mdn</i>                         |                                  | <i>Mdn</i>                       | <i>Mdn</i>                         |                    |
| AIM                          |                                  | 2                                | 2                                  |                                  | 2                                | 2                                  | 1-4                |

*Note.* SA = sexual aggressor; NSA = non-sexual aggressor; SES-SFP = Sexual Experiences Survey – Short Form: Perpetration; IRMA-R = Illinois Rape Myth Acceptance Scale – Revised; SFQ-R-SV = Sexual Fantasy Questionnaire Revised – Short Version; DJGL = De Jong Gierveld Loneliness scales; HTW = Hostility Toward Women scale; RSE<sub>neg</sub> = Rosenberg Self-Esteem scale (negative); RSE<sub>pos</sub> = Rosenberg Self-Esteem scale (positive); BPAQ = Short-Form Buss-Perry Aggression Questionnaire; SERR = Self-Efficacy in Romantic Relationships scale; SRAS-SF = Simple Rathus Assertiveness Schedule – Short Form; DERS-SF = Difficulties in Emotion Regulation Scale – Short Form; BIDR-6-IM = Balanced Inventory of Desirable Responding – Version 6; AIM = Athletic Involvement Measure.

<sup>a</sup> Ranges have not been edited to reflect dropped items (see Footnote 11, pg. 80). <sup>b</sup> These scales were recoded so that higher scores reflected non-conformity.

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

**Table 4***Demographic Comparisons between SAs and NSAs in Studies 1 and 2*

| Variable                              | Study 1             |                       | Study 2             |                       |
|---------------------------------------|---------------------|-----------------------|---------------------|-----------------------|
|                                       | SA ( <i>n</i> = 33) | NSA ( <i>n</i> = 226) | SA ( <i>n</i> = 30) | NSA ( <i>n</i> = 265) |
|                                       | <i>n</i> (%)        | <i>n</i> (%)          | <i>n</i> (%)        | <i>n</i> (%)          |
| <b>Age</b>                            |                     |                       |                     |                       |
| 20 and under                          | 13 (39.4)           | 99 (43.8)             | 7 (23.3)            | 85 (32.1)             |
| 21-30                                 | 18 (54.6)           | 107 (47.4)            | 17 (56.7)           | 135 (50.9)            |
| 31-40                                 | 2 (6.1)             | 11 (4.9)              | 6 (20.0)            | 30 (11.3)             |
| 41-50                                 | 0                   | 5 (2.2)               | 0                   | 8 (3.0)               |
| 51-60                                 | 0                   | 3 (1.3)               | 0                   | 4 (1.5)               |
| 61+                                   | 0                   | 1 (0.4)               | 0                   | 3 (1.1)               |
| <b>Ethnicity</b>                      |                     |                       |                     |                       |
| White British                         | 16 (48.5)           | 135 (59.7)            | 20 (66.7)           | 188 (70.9)            |
| White Irish                           | 1 (3.0)             | 5 (2.2)               | 0                   | 1 (0.4)               |
| White - Other                         | 3 (9.1)             | 29 (12.8)             | 3 (10.00)           | 21 (7.9)              |
| Black African                         | 1 (3.0)             | 13 (5.8)              | 2 (6.7)             | 9 (3.4)               |
| Black Caribbean                       | 1 (3.0)             | 2 (0.9)               | 0                   | 2 (0.8)               |
| White/Asian                           | 0                   | 6 (2.7)               | 0                   | 1 (0.4)               |
| White/Black African                   | 0                   | 1 (0.4)               | 1 (3.3)             | 4 (1.5)               |
| White/Black Caribbean                 | 0                   | 2 (0.9)               | 0                   | 1 (0.4)               |
| Mixed - Other                         | 1 (3.0)             | 5 (2.2)               | 0                   | 3 (1.1)               |
| Arab                                  | 1 (3.0)             | 2 (0.9)               | 1 (3.3)             | 0                     |
| Bangladeshi                           | 0                   | 3 (1.3)               | 1 (3.3)             | 3 (1.1)               |
| Chinese                               | 0                   | 6 (2.7)               | 0                   | 8 (3.0)               |
| Indian                                | 2 (6.1)             | 9 (4.0)               | 0                   | 9 (3.4)               |
| Pakistani                             | 1 (3.0)             | 1 (0.4)               | 1 (3.3)             | 4 (1.5)               |
| Asian - Other                         | 6 (18.2)***         | 5 (2.2)               | 1 (3.3)             | 7 (2.6)               |
| Any - Other                           | 0                   | 2 (0.9)               | 0                   | 1 (0.4)               |
| <b>Highest educational attainment</b> |                     |                       |                     |                       |
| GCSE or equivalent                    | 0                   | 4 (1.8)               | 1 (3.3)             | 8 (3.0)               |
| A-Level or equivalent                 | 20 (60.6)           | 132 (58.4)            | 13 (43.3)           | 122 (46.0)            |
| B.A. or equivalent                    | 9 (27.3)            | 46 (20.4)             | 10 (33.3)           | 87 (32.8)             |
| M.A. or equivalent                    | 2 (6.1)             | 37 (16.4)             | 5 (16.7)            | 40 (15.1)             |
| Ph.D. or equivalent                   | 1 (3.0)             | 4 (1.8)               | 1 (3.3)             | 5 (1.9)               |
| Other                                 | 1 (3.0)             | 3 (1.3)               | 0                   | 1 (0.4)               |
| <b>University country</b>             |                     |                       |                     |                       |
| England                               |                     |                       | 21 (70.0)           | 194 (73.2)            |
| Scotland                              |                     |                       | 4 (13.3)            | 21 (7.9)              |
| Wales                                 |                     |                       | 2 (6.7)             | 17 (6.4)              |
| Northern Ireland                      |                     |                       | 0                   | 2 (0.8)               |
| Open University                       |                     |                       | 1 (3.3)             | 23 (8.7)              |

*Note.* Figures may not add up to 100% due to rounding or participants providing “Prefer not to answer” responses. SA = sexual aggressor; NSA = non-sexual aggressor.

\*\*\**p* < .001

**Table 5**

*Final Logistic Regression Models for Studies 1 and 2 Predicting the Likelihood of Self-Reported Sexual Aggression*

| Measure   | $\beta$ | SE   | Wald  | df | p     | OR   | 95% CI for OR |      |
|-----------|---------|------|-------|----|-------|------|---------------|------|
|           |         |      |       |    |       |      | LL            | UL   |
| Study 1   |         |      |       |    |       |      |               |      |
| HTW       | 0.01    | 0.03 | 0.06  | 1  | .81   | 1.01 | 0.95          | 1.07 |
| IRMA-R    | 0.08    | 0.03 | 8.48  | 1  | .004  | 1.08 | 1.03          | 1.14 |
| SFQ-R-SV  | 0.07    | 0.03 | 6.07  | 1  | .01   | 1.08 | 1.02          | 1.14 |
| Ethnicity | 0.27    | 0.44 | 0.36  | 1  | .55   | 1.31 | 0.55          | 3.10 |
| Constant  | -6.32   | 1.07 | 34.73 | 1  | <.001 | 0.00 |               |      |
| Study 2   |         |      |       |    |       |      |               |      |
| BPAQ      | 0.11    | 0.04 | 10.33 | 1  | .001  | 1.12 | 1.05          | 1.20 |
| HTW       | 0.14    | 0.03 | 18.51 | 1  | <.001 | 1.15 | 1.08          | 1.22 |
| SFQ-R-SV  | 0.12    | 0.03 | 13.33 | 1  | <.001 | 1.12 | 1.06          | 1.20 |
| Constant  | -12.51  | 2.11 | 35.09 | 1  | <.001 | 0.00 |               |      |

*Note.* OR = odds ratio; CI = confidence interval; LL = lower limit; UL = upper limit; HTW = Hostility Toward Women scale; IRMA-R = Illinois Rape Myth Acceptance Scale – Revised; SFQ-R-SV = Sexual Fantasy Questionnaire Revised – Short Version; BPAQ = Short-Form Buss-Perry Aggression Questionnaire.

**Table 6**

*Demographic Comparisons between the Study 2 Sample and the UK University Male Student Body, as Reported by the Higher Education Student Statistics: UK, 2017/18 Survey (Higher Education Statistics Agency, 2019)*

| Variable                                      | Study sample<br>( <i>N</i> = 295) |       | UK male student<br>body<br>( <i>N</i> = 1,007,730) |       |
|---|-----------------------------------|-------|--|-------|
|   | <i>n</i>                          | %     | <i>n</i>   | %     |
| Age <sup>a</sup>                              |                                   |       |  |       |
| 20 and under                                  | 92                                | 31.2  | 415,923  | 41.3  |
| 21-24   | 103                               | 34.9  | 281,719  | 28.0  |
| 25-29   | 41                                | 13.9  | 111,513  | 11.1  |
| 30+   | 59                                | 20.0  | 198,482  | 19.7  |
| (Did not respond)                             | (0)                               | (0)   | (97)   | (0)   |
| Ethnicity <sup>a,b</sup>                      |                                   |       |  |       |
| White   | 233                               | 79.0  | 609,802  | 75.2  |
| Black   | 14                                | 4.8   | 57,455   | 7.1   |
| Asian   | 35                                | 11.9  | 86,697   | 10.7  |
| Mixed   | 9                                 | 3.1   | 31,110   | 3.8   |
| Other   | 1                                 | 0.3   | 12,683   | 1.6   |
| (Did not respond)                             | (3)                               | (1.0) | (12,782)   | (1.6) |
| Highest educational attainment <sup>a,c</sup> |                                   |       |  |       |
| No formal qualification                       | 0                                 | 0     | 5,785  | 1.7   |
| GCSE or equivalent and below                  | 9                                 | 3.1   | 7,423  | 2.2   |
| A-Level or equivalent                         | 135                               | 45.8  | 178,346  | 53.5  |
| B.A. or equivalent                            | 97                                | 32.9  | 109,205  | 32.7  |
| Postgraduate degree or equivalent             | 51**                              | 17.3  | 27,098   | 8.1   |
| Other   | 1                                 | 0.3   | 2,770  | 0.8   |
| (Did not respond)                             | (2)                               | (0.7) | (2,972)  | (0.9) |
| University country <sup>d</sup>               |                                   |       |  |       |
| England                                       | 215                               | 79.3  | 824,835  | 81.9  |
| Scotland                                      | 25                                | 9.2   | 101,940  | 10.1  |
| Wales   | 19                                | 7.0   | 57,775   | 5.7   |
| Northern Ireland                              | 2                                 | 0.7   | 23,180   | 2.3   |
| (Did not respond)                             | (10)**                            | (3.7) |  |       |

*Note.* Figures may not add up to 100% due to rounding.

<sup>a</sup> Due to HESA's (2019) data collection methods, some categories have been altered.

<sup>b</sup> The HESA only collect ethnicity data for UK-domiciled students.

<sup>c</sup> Only select HEIs collected data on highest level of educational attainment for the HESA.

<sup>d</sup> The HESA do not collect data for the Open University, so this category was removed.

\*\**p* < .01

## CHAPTER 6

### Study 3 – Empirically Examining the Heterogeneity of University-Based Sexual Aggression Perpetrators in the UK

As noted in Chapter 2, risk factors for male university students' sexually aggressive behaviours vary substantially at the individual level. Though there are certain risk factors that are hypothesised to drive most incidents of sexual perpetration on university campuses (e.g., hostile masculinity; see Malamuth et al., 2021), there is currently no 'one-size-fits-all' explanation that captures the nuances of every male students' sexual offending behaviours.

In particular, typological research from the US has been helpful at highlighting that sexually aggressive male students – much like their convicted counterparts – comprise a heterogeneous offending group who can be classified into distinct subgroups based on their responses to individual-level measures of risk (for a review, see Robertiello & Terry, 2007; Wojcik & Fisher, 2019). As noted in Chapter 2, various typologies of sexually aggressive university males have been derived based on students' personality characteristics, motivations, and offending styles (e.g., Foubert et al., 2020; Murnen & Kohlman, 2007; Swartout et al., 2015a, 2015b; M. P. Thompson et al., 2013). This research has expanded US researchers' understanding of the psychological characteristics of male students who engage in harmful sexual behaviours and has assisted in the development of tailored sexual harm prevention interventions for US students who have perpetrated, or are at risk of perpetrating, sexual offences (see Banyard & Potter, 2018).

However, despite their academic utility, the US typologies noted above are limited in that they derived subgroups of perpetrator based on standalone individual-level risk factors or offence characteristics only. As noted in Chapter 2, university-based sexual aggression is a product of various levels of influence on a student's behaviour (e.g., Bonar et al., 2022; Dahlberg & Krug, 2002; Jones et al., 2020b; McMahon et al., 2021); therefore, to reliably

inform campus harm prevention work, more comprehensive typological systems are required which derive typologies based on multiple – not standalone – factors linked to risk. This approach would allow for a greater understanding of male students who engage in harmful sexual activities and would help researchers to develop more effective strategies for tackling their proclivity towards offending.

### **Purpose of Study 3**

To understand more about the psychological characteristics of UK university males who have engaged in sexually aggressive behaviours, as well as to assess whether individualised harm-prevention interventions are likely necessary to help reduce their harmful sexual proclivities, Study 3 extends Studies 1 and 2 by examining in greater depth the psychological profiles of self-reported SAs across my research studies. Specifically, using combined data from Studies 1, 2, and 4, I will explore whether hierarchical cluster analysis procedures derive meaningful subgroups of SAs based on the key risk factors associated with their sexual perpetration (as identified in the previous chapter).<sup>19</sup> Based on socio-ecological understanding of university-based sexual aggression, I expand on previous typological work from the US by deriving cluster profiles based on multiple (versus single) psychological factors associated with students' self-reported offending behaviours. This will allow me to better examine the heterogeneity of sexually aggressive university male students in the UK, which will help inform my later sexual harm prevention research in Study 6.

Given the exploratory nature of hierarchical clustering, it is not appropriate to hypothesise *a priori* the expected number of clusters I expect to derive during the analysis, nor the descriptive characteristics of anticipated cluster profiles (see Beauchaine & Beauchaine, 2002; Rapkin & Luke, 1993).

### **Method**

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<sup>19</sup> Study 3 was originally conducted with Study 1 and 2 data only; however, the analyses were underpowered owing to a low *N* in the SA group. I therefore collected more data in Study 4 to enable the analyses to be re-run. Please consult Study 4 for more information on data collection methods in this study.

As for Studies 1 and 2, I pre-registered the hypotheses, methods, and analysis plan for this study on OSF.io prior to data collation and analysis. This document is publicly available online at <https://osf.io/rj78t/> with copies of my survey instruments and raw data.

## **Participants**

The sample in this study comprised university male students from the UK who provided at least one non-zero response on the SES-SFP (and thus were classed as SAs) in either Study 1 ( $n = 33$ ), Study 2 ( $n = 30$ ), or Study 4 ( $n = 40$ ), but who had not been excluded during data cleaning. To avoid possible duplicate responses, participants from Study 4 who reported taking part in Study 2 ( $n = 2$ ) were removed from the dataset. Also removed were Study 4 participants who did not recall taking part in Study 2 but who actually submitted a response set ( $n = 2$ ). The final analytic sample therefore comprised  $N = 103$  self-reported SAs.<sup>20</sup> For a description of the demographic characteristics of the SAs in this study, readers should refer to the relevant tables in Studies 1, 2, and 4.

As in logistic regression model building, there are no formal rules regarding minimum sample size when using clustering algorithms. Several researchers rely on Formann's (1984) well-established rule-of-thumb, which recommends at least  $5 \times 2^d$  participants (where  $d$  corresponds to the number of variables in the segmentation base). Other standards have been suggested that are also based on the number of parameters due to be estimated per cluster group (e.g., Everitt et al., 2011; Hastie et al., 2008) though these have not been formally validated. Assuming that Formann's (1984) equation provides a reliable standard, my sample is large enough to avoid dimensionality issues during the clustering process.

## **Cluster Derivation Measures**

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<sup>20</sup> In my pre-registration for this study, I report that the sample will comprise  $N = 105$  self-reported SAs. The discrepancy between this figure and the  $N = 103$  figure reported in-text arises from the fact that I did not account for the two participants from Study 6 who (incorrectly) stated that they did not take part in Study 2 but who did submit a response set.

Participants' responses to seven measures were used to derive and validate my cluster profiles. These measures comprised psychological self-report instruments that differentiated between SAs and NSAs in Studies 1 and 2 and thus likely represent key psychological risk factors for university-based sexual aggression amongst male university students in the UK. To derive a cluster solution, I harnessed SA's responses to Lonsway and Fitzgerald's (1995) *Hostility Toward Women Scale* (HTW), McMahon and Farmer's (2011) *Illinois Rape Myth Acceptance Scale – Revised* (IRMA-R), and Bartels and Harper's (2018) *Sexual Fantasy Questionnaire Revised – Short Version* (SFQ-R-SV). As part of the cluster validation process, I further used participants' responses to Bryant and Smith's (2001) *Short-Form Buss-Perry Aggression Questionnaire* (BPAQ), Kaufman et al.'s (2016) *Difficulties in Emotion Regulation Scale – Short Form* (DERS-SF), and Riggio et al.'s (2013) *Self-Efficacy in Romantic Relationships Scale* (SERR), as well as their self-reported ethnicity. Full versions of scales were used, and relevant items were reverse coded prior to data screening.<sup>21</sup>

Full descriptions of all six psychological measures, as well as my demographic survey (which collected ethnicity data), are available in Study 1. Descriptive statistics and internal consistency scores for the scales used in this study can be found in Table 7 (pg. 134; for measures used to derive a cluster solution) and Table 8 (pg. 135; for measures used as part of the cluster validation process). As in my earlier studies, Cronbach's alpha values for each scale surpassed the recommended benchmark for adequate internal consistency.

### **Analysis Plan**

The cluster analysis and follow-up inferential tests were conducted on SPSS v.28 for Windows (IBM, 2021).<sup>22</sup> Data from self-reported SAs were inputted from original data files exported from Qualtrics, which ensured that scoring keys and response formats were the

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<sup>21</sup> Please consult Study 1 for a list of the reverse-coded items comprising each of the clustering variables.

<sup>22</sup> I stated in the pre-registration document for this study that I would use SPSS v.24 for Windows (IBM, 2015) to conduct analyses, however this version was unavailable at the time.

same across measures for all participants (who were derived from three different studies). Unlike in Studies 1 and 2, responses on the SERR were not recoded so that higher scores reflected non-conformity. This helped to mitigate against possible researcher error and ensured that my results were easily interpretable to readers.

### ***Hierarchical Cluster Analysis***

To assess whether my sample comprised meaningful subgroups of sexually aggressive UK male student, I conducted a hierarchical cluster analysis – a stepwise procedure in which distinct groups of objects (in this case, self-reported SAs) are sequentially created through the systematic merging of homogenous clusters (see Hair et al., 2013). As the potential number of subgroupings within my dataset was unknown, I adopted an agglomerative process to generate cluster profiles. This iterative procedure represents a bottom-up approach to cluster formation and is recommended in instances where researchers wish to find the optimal number of clusters within a given sample (Blashfield, 1976).

Psychological measures that could statistically differentiate between SAs and NSAs in both Studies 1 and 2 (i.e., the HTW, IRMA-R, and the SFQ-R-SV) were chosen as clustering variables given their strong link to sexual aggression perpetration amongst male university students in the UK. To minimise the confounding effect of differences in variance between scales, the clustering procedure was run on standardised  $z$ -scores for each measure. The squared Euclidian distance was used to assess similarity between subgroups, owing to its acute sensitivity to detect elevations in cluster profiles over other distance measures (see Aldenderfer & Blashfield, 1984; Randolph & Myers, 2013). Meanwhile, the between-groups method (commonly referred to as the unweighted pair-group method using arithmetic averages) was adopted as the linkage measure given its proven ability to generate clusters with small within-cluster variation and similar within-group variance (see Hair et al., 2013).

## **Results**

## **Initial Cluster Determination and Respecification**

In the absence of any formal stopping rules for hierarchical cluster analyses (see Bratchell, 1989), I initially determined an appropriate cut-off point for the clustering procedure by incorporating information from the agglomeration schedule and scree plot generated during the analysis. This showed a large increase in distance coefficients after the 96<sup>th</sup> step of the clustering procedure and suggested that a seven-cluster solution best fitted my data. This was confirmed by visual inspection of a dendrogram. A review of the determined cluster profiles highlighted two large cluster groups (comprising  $n = 97$  SAs overall) and four smaller cluster groups (comprising  $n = 6$  SAs overall). Following inspection, it was determined that the smaller clusters represented four distinct entropy groups – observations that were independent from other meaningful clusters – and therefore should be removed from the dataset. The cluster analysis was then re-run with the remaining participants ( $N = 97$ ) and a six-cluster solution was provided.

## **Stability Testing**

A vital part of the cluster analysis process is evaluating whether derived cluster profiles represent secure groups within a population (see Hair et al., 2013). Therefore, to assess the stability of my findings, I re-ran the cluster analysis procedure using Ward's method – another linkage measure – and specifying a six-cluster solution. Unlike the between-groups method, Ward's method works by joining data points in such a way as to minimise increases in error sum of squares. This optimises the minimum variance within clusters and maximises the homogeneity between them (Aldenderfer & Blashfield, 1984). My analysis showed that both the between-groups method and Ward's method were able to categorise all participants into viable clusters. In total, there were 15 disagreements in cluster assignment, representing 15.5% of participants. According to Hair et al. (2013), this alludes to a “stable” cluster solution, although indicates that a portion of my sample may not be

easily classifiable. As shown in Figure 2 (pg. 136), there were similarities between the six cluster profiles generated by both methods in terms of their average scores on the three cluster derivation measures. This suggests that SAs responded consistently in six different ways to the HTW, the IRMA-R, and the SFQ-R-SV.

As recommended by several researchers (e.g., Everitt et al., 2011; Hair et al., 2013), I further evaluated the stability of my six-cluster solution using split-sample validation. Here, my sample was randomly divided by row number into two sub-samples ( $n = 49$  and  $n = 48$ , respectively). These sub-samples were compared through cross-classification to evaluate the validity of my derived cluster solution and individual cluster profiles. Predominantly, these analyses confirmed the results of my main analysis as cluster membership was correctly reconstructed in 80 cases (representing 82.5% of the sample), again indicative of a “stable” solution (Hair et al., 2013). Moreover, visual inspection of the cluster groups derived during the split-sample validation highlighted descriptive similarities with the groups established during whole-sample testing. Findings from this cross-classification exercise thus support the validity of a six-cluster solution within the dataset, though suggests that a minority of cases ( $n = 17$ ; 17.5% of the sample) may not adhere exclusively to one cluster grouping.

### **Cluster Interpretation**

Overall, the results of my stability testing confirmed the findings of my initial cluster analysis and suggested that my clustering procedure was robust against random fluctuations in my dataset. Therefore, I settled on a six-cluster solution. Univariate analyses were used to compare each of my determined cluster profiles in terms of differences in scores on the three clustering variables. Assumption testing for a one-way ANOVA revealed that data on the IRMA-R and SFQ-R-SV were not normally distributed (as evidenced by significant Shapiro-Wilks scores) and highlighted several high-leverage points across both measures. To avoid transforming data, I therefore decided to use the Kruskal-Wallis  $H$  test – a non-parametric

alternative to the one-way ANOVA that is less receptive to violations of normality and outliers. This allowed me to explore whether there were differences in the median scores of groups across the three cluster derivation measures. In instances where a significant difference was found, post-hoc pairwise comparisons were conducted using Dunn's (1964) procedure. A Bonferroni correction was applied for multiple comparison testing to reduce the risk of Type I errors. Subsequently, statistical significance was accepted at the  $p < .003$  level.

Table 7 (pg. 134) contains the unstandardised mean scores for the HTW, IRMA-R, and SFQ-R-SV alongside the results of my univariate comparisons. As can be seen from this table, the six cluster profiles could be statistically differentiated on all three of the clustering variables. This indicates that each cluster possesses somewhat distinct characteristics that distinguishes it from other clusters. Below, I describe each of my six cluster profiles extracted using the between-groups method and preliminarily define them in terms of their average scores on the three clustering variables. To aid interpretation of my results, I also present in Figure 3 (pg. 137) mean-centred scores for each cluster across the three main clustering variables.

#### ***Cluster 1 (n = 25)***

The largest derived subgroup of SAs within my dataset, Cluster 1 represents the most stable of my six clusters. Participants within this cluster were most distinguishable by their extremely low scores across all three clustering variables, which were, on average, lower than those of participants within any of the other five clusters. Therefore, participants within Cluster 1 could be considered to diametrically oppose Cluster 6 participants, who demonstrate higher-than-average scores across the HTW, IRMA-R, and SFQ-R-SV. Interestingly, Cluster 1 was one of only two clusters that returned depressed scores on the HTW (along with Cluster 3 participants) and one of three clusters that returned depressed scores on the IRMA-R (along with Cluster 2 and Cluster 5 participants). Taken together,

these findings suggests that the sexually aggressive behaviours of SAs within this subgroup were not guided by their hostile attitudes towards women, their acceptance of prevalent rape myths, or their preponderance towards problematic sexual fantasies, but likely by other socio-ecological risk factors not assessed in this study. I have therefore termed Cluster 1 SAs “Non-Dominant Aggressors” based on their normative scores across the clustering measures.

### ***Cluster 2 (n = 24)***

Comprising the second largest group of SAs within my dataset, participants within Cluster 2 are best characterised by their low scores on the IRMA-R (which were surpassed only by Cluster 1 participants). Participants within this group were rather unremarkable in terms of their levels of hostility towards women and their preponderance towards problematic sexual fantasies, as demonstrated by their scores on both the HTW and the SFQ-R-SV which centred around the whole-sample mean average. Put another way, SAs within Cluster 2 largely rejected common myths pertaining to rape and sexual assault, though they are indifferentiable from other SAs on their negative sexist attitudes and their self-reported sexual fantasies. Based on this latter point – and my finding from Studies 1 and 2 that SAs possessed significantly higher scores than their non-offending peers on both the HTW and the SFQ-R-SV – I termed participants within Cluster 2 “Hostile Fantasists”. Given that it contains nearly a quarter of all SAs in this study, Cluster 2 is likely a stable cluster.

### ***Cluster 3 (n = 21)***

SAs comprising Cluster 3 can be defined by their unremarkable scores across all three of my clustering variables, which centred around the whole-sample average for each measure. On the HTW and IRMA-R, only Cluster 5 participants returned more typical scores (i.e., scores nearer the whole-sample average), whilst on the SFQ-R-SV, only Cluster 2 participants returned more typical scores. Despite their nondescript responses across all three clustering measures, participants in Cluster 3 still displayed higher scores on average than

NSAs in Studies 1 and 2; subsequently, I describe participants within Cluster 3 as possessing “Multiple Dysfunctions”. Like Clusters 1 and 2, this subgroup is likely to be quite stable given that it contains a sizeable number of SAs.

#### ***Cluster 4 (n = 14)***

Cluster 4 participants are most notable for possessing the highest average scores on the HTW and the IRMA-R. Reviewing specific scores highlights that Cluster 4 participants accept rape myths at a similar rate to Cluster 6 participants – the second highest scoring subgroup on the IRMA-R and the HTW. Unlike Cluster 6 participants, they self-report substantially more negative views towards women. In terms of their self-reported sexual fantasies, Cluster 4 participants returned lower-than-average scores on the SFQ-R-SV, which were surpassed only by Cluster 1 participants. Collectively, these findings suggest that Cluster 4 participants’ sexually aggressive behaviours were likely influenced by their negative sexist attitudes towards women and their agreement with rape-excusing myths versus a desire to enact their problematic sexual fantasies. Based on their descriptive characteristics, I termed SAs within this subgroup “Hostile Excusers”.

#### ***Cluster 5 (n = 7)***

Cluster 5 was the second smallest of my derived cluster profiles, comprising much less than one-in-ten SAs within my dataset. Participants in this cluster were best characterised by their mean scores on the SFQ-R-SV, which were the highest of all six cluster groups and substantially higher than those of Cluster 6 participants (the second highest scoring subgroup on the SFQ-R-SV). Less notable were their scores on the HTW and IRMA-R, which centred around the whole-sample mean average for both measures. Cluster 5 participants could therefore be considered the opposite of Cluster 4 participants, who were characterised by their inflated scores on the HTW and IRMA-R, as well as their relatively low scores on the SFQ-R-SV. Taken together, these findings suggest that the sexually aggressive behaviours of

SAs within Cluster 5 were best predicted by their problematic sexual fantasies over-and-above their self-reported hostile views towards women or their likelihood to accept common rape myths. Subsequently, I have termed SAs in this cluster “Sexual Fantasists”. Due to the low number of participants within this subgroup, I urge readers to view this cluster as tentative and in need of further validation.

### ***Cluster 6 (n = 6)***

Most notable for being the smallest of all my derived subgroups, Cluster 6 comprises very few self-reported SAs from across my studies. Participants within this cluster are best defined by their elevated mean scores on both the IRMA-R and the SFQ-R-SV, which were surpassed only by participants within Cluster 4 and Cluster 5, respectively. Similar to Cluster 2, participants within Cluster 6 displayed relatively average scores on the HTW (compared to my overall SA sample). Based on their high rates of rape myth acceptance and their preponderance towards problematic sexual fantasies, I termed participants within this cluster “Fantasist Excusers”. Like Cluster 5, I exhort readers to view this cluster as tentative and requiring further validation owing to its small size.

### **Evaluating Criterion Validity**

As noted earlier, clustering is an exploratory procedure and the basis for determining precise clustering algorithms is largely atheoretical (see Hair et al., 2013). Subsequently, whilst the results of my stability tests allude to cluster validation, they are not in themselves a sufficient determinant of validity (see Aldenderfer & Blashfield, 1984). To explore whether my findings were robust against sampling error and to further profile my derived subgroups, I therefore examined the relationships between each of my six clusters and the four variables that differentiated between SAs and NSAs in either Study 1 or Study 2, but which were not used in my main cluster analysis. These included participants’ scores on the BPAQ, DERS-SF, and SERR, as well as their self-reported ethnicity (dichotomised into “White British” and

“minority ethnic” due to low cell counts across certain ethnic groups; see Footnote 13, pg. 96). For continuous data, differences in median scores were again assessed using Kruskal-Wallis *H*-tests. For categorical data, Fisher’s exact test was used. Post-hoc pairwise comparisons were conducted using Dunn’s (1964) procedure (for continuous variables) or via a series of Fisher’s exact tests (for categorical variables). A Bonferroni correction was applied across all post-hoc tests and statistical significance was accepted at the  $p < .003$  level.

As in my main cluster evaluation, participants across the six cluster groups could be differentiated by their responses across all four cluster validation variables, thus providing evidence of criterion validity. Inspecting my findings showed that Cluster 1 participants were notable for displaying the lowest average score across all six clusters on both the BPAQ and DERS-SF, as well as the highest score on the SERR. On the BPAQ, Cluster 1 participants were the only SAs to return an average score below the whole-sample average. Contrariwise, they were the only participants to score above the whole-sample average on the SERR. Cluster 1 could therefore be considered to diametrically opposes Cluster 6, where participants displayed the highest average scores on the BPAQ and the DERS-SF, as well as the second-lowest average score on the SERR. Cluster 3 participants were distinguishable for their unremarkable scores across the BPAQ, DERS-SF, and SERR, which all centred around the whole-sample average. This contrasts to Cluster 2 participants, who were notable for returning the lowest average score on the SERR, as well as the second highest average scores across both the BPAQ and the DERS-SF. Cluster 5 participants were definable by their somewhat inflated scores on the BPAQ and the DERS-SF, as well as their depressed scores on the SERR. These participants are somewhat similar to those in Cluster 4, who displayed similar scores on the BPAQ and SERR, but relatively lower scores on the DERS-SF. Despite a significant univariate test result, post-hoc testing revealed that there were no significant

differences with regards to self-reported ethnicity across any of my cluster pairings.<sup>23</sup> Table 8 (pg. 135) describes in-depth my findings, which offer preliminary evidence of cluster validation. Again, Clusters 5 and 6 should be viewed with caution owing to a low  $n$  within these groups.

It is worth underscoring that, whilst these follow-up tests provide empirical support for the criterion validity of my cluster solution, it would not be appropriate to define any of my derived cluster profiles based on the above cluster validation variables. This is because BPAQ, DERS-SF, and SERR scores, as well as participants' self-reported ethnicity, only differentiated between SAs and NSAs in *either* Study 1 or 2. Put another way, unlike the main cluster variables, these variables were not able to reliably discern past sexual perpetration across *all* participants in this study. To this end, I would encourage readers to focus on the data presented in the previous section to interpret cluster profiles rather than extrapolate from findings derived in this cluster validation exercise.

## Discussion

Study 3 extends findings from Studies 1 and 2 by providing additional insight into the characteristics of UK male university students who have recently engaged in sexually aggressive behaviours. It also extends previous US work by establishing typologies of sexually aggressive student based on multiple (versus single) psychological risk factors. Specifically, results from my hierarchical cluster analysis demonstrate that self-reported SAs comprise a heterogeneous offending group who can be reliably classified into six psychologically-meaningful clusters based on their self-reported levels of hostility towards women, RMA, and problematic sexual fantasies – psychological risk factors identified in Studies 1 and 2 as key individual-level indicators of UK male students' harmful sexual

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<sup>23</sup> There can be various reasons why a Fisher's exact test will return a significant result, but follow-up comparisons will be non-significant. In this study, it is likely the case that my conservative Bonferroni correction made it hard for my multiple post-hoc comparisons to reach significance at the  $p < .003$  level.

behaviours. My findings have exciting implications for future UK academic research and harm prevention work by suggesting that ‘one-size-fits-all’ approaches to intervention are unlikely to be as effective at reducing UK male students’ sexual offending behaviours as more tailored initiatives that tackle the exact risk factors associated with an individual’s harmful sexual proclivities.

Following best-practice procedures (see Hair et al., 2013), the clusters in this study were derived from, and then profiled against, participants’ responses to measures that reliably differentiated between self-reported SAs and NSAs in both Studies 1 and 2. Resultantly, six distinct subgroups were identified. Based on their descriptive characteristics, they were termed *Non-Dominant Aggressors* ( $n = 25$ ), *Hostile Fantasists* ( $n = 24$ ), *Multiple Dysfunctions* ( $n = 21$ ), *Hostile Excusers* ( $n = 14$ ), *Sexual Fantasists* ( $n = 7$ ), and *Fantasia Excusers* ( $n = 6$ ).

My largest extracted cluster – tentatively labelled *Non-Dominant Aggressors* – comprised male students who were most distinguishable by their extremely low scores across all three clustering variables, which were, on average, lower than those of participants within any of the other five clusters. This means that the sexually aggressive behaviours of SAs within this subgroup were likely not guided by their hostile attitudes towards women, their acceptance of prevalent rape myths, or their preponderance towards problematic sexual fantasies, but rather by other socio-ecological risk factors not assessed in this study.

My second largest cluster, termed *Hostile Fantasists*, was made up of SAs who displayed depressed scores on the IRMA-R, but average scores on the HTW and SFQ-R-SV. Put another way, participants in this group typically rejected common myths pertaining to rape and sexual assault but were indistinguishable from the other SAs in my sample in terms of their negative sexist attitudes and their self-reported sexual fantasies.

Similar in size to the previous two clusters was my *Multiple Dysfunctions* group, which comprised a sizable number of SAs who displayed unremarkable scores (that centred around the whole-sample average) across all three clustering variables. Though participants in this group displayed higher-than-average scores on the HTW, IRMA-R, and SFQ-R-SV than self-reported NSAs in Studies 1 and 2, this cluster was hard to define (compared to other clusters) based on my measured variables. The descriptive characteristics of participants within this group are likely to be better explained by other individual-level risk factors not assessed in this study.

My fourth extracted cluster was tentatively called *Hostile Excusers*. Participants in this group were most notable for possessing the highest average scores on the HTW and the IRMA-R, as well as relatively low scores on the SFQ-R-SV. These findings suggest that the sexually aggressive behaviours of students within this cluster were likely influenced by their negative sexist attitudes towards women and their endorsement of rape myths – established indicators of ‘hostile masculinity’ (see Ray & Parkhill, 2021) – versus a desire to act out their problematic sexual fantasies.

The second smallest cluster in my solution was termed *Sexual Fantasists* and comprised participants who were distinguishable by their extreme scores on the SFQ-R-SV versus their (unremarkable) scores on both the HTW and IRMA-R. These findings imply that the sexually aggressive behaviours of the SAs within this cluster were mostly guided by their problematic sexual fantasies over-and-above their self-reported hostile views towards women or their agreement with common rape myths. Owing to its small size, I would encourage readers to interpret this cluster as tentative and requiring further validation.

Finally, participants in my smallest cluster – labelled *Fantasia Excusers* – were best characterised by their heightened scores on both the IRMA-R and the SFQ-R-SV, as well as their unremarkable scores on the HTW. Put another way, participants in this group self-

reported high levels of rape myth acceptance and a preponderance towards problematic sexual fantasies but maintained only a minimal level of hostility towards women. Again, readers should interpret this cluster with caution owing to its small size.

Given the exploratory nature of hierarchical clustering, and to evaluate whether my findings were robust against sampling error, I also assessed whether participants in my proposed six cluster profiles could be distinguished by their responses to the BPAQ, DERS-SF, and SERR, as well as their self-reported ethnicity – variables that differentiated between SAs and NSAs in either Study 1 or Study 2, but which were not used in my main cluster analysis. Results showed that participants across the six cluster groups could be discerned based on their responses to all four cluster validation variables, thus providing evidence of criterion validity. As in my main analyses, there were noteworthy response patterns across groups; for example, participants in my *Non-Dominant Aggressors* and *Fantasia Excusers* groups again displayed depressed and inflated scores across measures, respectively, whilst participants in the *Multiple Dysfunctions* group displayed more normative scores, as in my main analysis. These findings provide additional descriptive information on each of my six cluster profiles and signal to cluster stability.

In terms of its links with previous academic research, it is difficult to directly compare the findings from this study to the US typological work reviewed earlier in the chapter, which sought to derive cluster groupings based on standalone individual-level risk factors associated with university-based sexual aggression only (e.g., Swartout et al., 2015a, 2015b; M. P. Thompson et al., 2013). However, there are obvious similarities between my configurations and more general sexual offending typologies, as proposed by Wojcik and Fisher (2019). For example, there are clear parallels between the authors' proposed "sadistic typology" – which describes sexually aggressive men who are motivated by their aggressive sexual desires – and my *Sexual Fantasists* and *Fantasia Excusers* clusters, both of which were characterised by

their high scores on the SFQ-R-SV and BPAQ. Likewise, the nuanced offending styles of perpetrators in Wojcik and Fisher's "anger typology" align well with the descriptive characteristics of sexually aggressive male students in my *Hostile Excusers* group, in that both groups display high levels of non-sexual aggression and hostility towards women but self-report few problematic sexual fantasies. These parallels are interesting inasmuch as they suggest that my SAs – who were recruited from a non-forensic community sample – possess similar psychological characteristics to incarcerated sexual aggressors and therefore are also likely to require tailored treatment to reduce their risk of perpetrating future sexual harm.

### **Limitations and Future Directions**

This study represents the first empirical attempt to statistically examine the heterogeneity of self-reported sexually aggressive UK male university students. Following stability testing and cluster validation, I uncovered six meaningful subgroups of SAs who could be differentiated based on their average response patterns across several psychological measures associated with university-based sexual aggression. Whilst findings have exciting implications for both academic and harm prevention work in the UK, I urge readers to consider them alongside the methodological limitations of the study, outlined below.

First, as a data reduction technique, clustering algorithms will derive a set of cluster solutions regardless of whether distinct groups actually exist within a dataset. Therefore, it is up to the researcher to determine whether a proposed cluster solution is appropriate based on their theoretical and empirical understanding of the construct at hand (in this case, sexual aggression perpetration), as well as the findings derived during the cluster validation process (for a discussion, see Hair et al., 2013). In this study, I anticipated that there would be distinct and meaningful subgroups of sexually aggressive UK male student within my sample given the established academic finding that convicted sexual offenders comprise a heterogeneous forensic group (e.g., Robertiello & Terry, 2007; Wojcik & Fisher, 2019), as well as recent

literature on the typologies of sexually aggressive university males in the US (e.g., Swartout et al., 2015a, 2015b; M. P. Thompson et al., 2013). The results of my cluster analysis support this claim by proposing that there are six subgroups of sexually aggressive UK male students who can be classified based on their psychological characteristics across my three clustering variables. Though this cluster solution was validated through various methods, it is worth noting that other cluster solutions may exist within my dataset that prove to be more meaningful (theoretically or clinically). Therefore, I would strongly encourage future researchers to assess alternative cluster solutions with different groups of self-reported sexually aggressive UK male students to further validate my proposed profiles. This is of critical importance to those researchers who are looking to develop tailored sexual harm prevention interventions for university student groups, who may be confined by limited resources and thus favour a more parsimonious (i.e., reduced) cluster solution.

Second, whilst my analyses derived six meaningful subgroups of sexually aggressive UK male student, it would be short-sighted to assume that my configurations represent an all-encompassing typology of perpetrators. As Gannon et al. (2012) noted in their cluster evaluation of child sexual offenders, there will undoubtedly be heterogeneity between participants within individual clusters despite them having been grouped together. For example, inspecting findings shows that 57.14% ( $n = 4$ ) of the SAs in the *Sexual Fantasists* group – which comprised participants who were characterised by their high levels of problematic sexual fantasies – displayed scores on the SFQ-R-SV that were below the mean average for the cluster as a whole. Subsequently, it would be incorrect to assume that the harmful sexual behaviours of SAs classified into this group are necessarily guided by their problematic sexual fantasies. To this end, those working therapeutically with male students who have sexually aggressed should not blindly follow the results of my cluster analysis – nor assume that every male student with a history of sexual perpetration can be categorised

into one of my six proposed clusters – as this may lead to wrongful judgements about risk and treatment. Rather, professionals should seek to uncover the exact risk factors associated with a student’s harmful sexual proclivities – possibly using the results of my cluster analysis as a starting point – and then develop appropriate treatment strategies based on their assessments.

Despite these limitations, it is worth reiterating that the purpose of this study was not to assess *what* subgroups of SA, if any, existed within my sample, but rather to evaluate whether my SA sample comprised a homogenous offending group. This was with the overarching aim of evaluating whether one-size-fits-all harm prevention interventions are likely to be effective at reducing UK male students’ preponderance towards sexually aggressive behaviours or, rather, whether more tailored initiatives are necessary to reduce their risk. Based on these aims, my findings are valuable inasmuch as they suggest that my sample contains psychologically distinct clusters of SAs who possess diverse motivations for sexually offending. Subsequently, my proposed six-cluster solution offers a useful delineation of SAs that vary in their levels of hostility towards women, their adherence to traditional rape myths, as well as their preponderance towards problematic sexual fantasies. These findings provide good foundations for academics interested in assessing the nuances of UK male students’ sexually aggressive behaviours, as well as administrators and policymakers looking to develop strategies to reduce the high rates of GBV on UK campuses.

**Table 7***Unstandardised Mean Scores for each of the Three Cluster Derivation Measures across the Six Cluster Profiles*

| Measure  | $\alpha$ | Cluster 1:<br>Non-Dominant<br>Aggressors<br>( <i>n</i> = 25) | Cluster 2:<br>Hostile<br>Fantasists<br>( <i>n</i> = 24) | Cluster 3:<br>Multiple<br>Dysfunctions<br>( <i>n</i> = 21) | Cluster 4:<br>Hostile<br>Excusers<br>( <i>n</i> = 14) | Cluster 5:<br>Sexual<br>Fantasists<br>( <i>n</i> = 7) | Cluster 6:<br>Fantasist<br>Excusers<br>( <i>n</i> = 6) | $\chi^2$ | <i>p</i> | $\eta^2$ |
|----------|----------|--|---|--|---|---|--|----------|----------|----------|
|          |          | <i>M</i> ( <i>SD</i> )                                       | <i>M</i> ( <i>SD</i> )                                  | <i>M</i> ( <i>SD</i> )                                     | <i>M</i> ( <i>SD</i> )                                | <i>M</i> ( <i>SD</i> )                                | <i>M</i> ( <i>SD</i> )                                 |          |          |          |
| HTW      | .78      | 21.32 (4.22)   | 34.92 (4.53) <sub>ab</sub>                              | 30.90 (3.78) <sub>b</sub>                                  | 43.86 (5.35) <sub>a</sub>                             | 31.86 (5.70) <sub>ab</sub>                            | 36.50 (5.32) <sub>ab</sub>                             | 70.26    | <.001    | 0.72     |
| IRMA-R   | .89      | 33.40 (6.89) <sub>a</sub>                                    | 35.79 (5.31) <sub>a</sub>                               | 51.43 (5.75) <sub>b</sub>                                  | 60.50 (4.67) <sub>b</sub>                             | 44.00 (8.10) <sub>ab</sub>                            | 59.67 (5.61) <sub>b</sub>                              | 71.86    | <.001    | 0.74     |
| SFQ-R-SV | .87      | 7.96 (4.90) <sub>a</sub>                                     | 13.71 (6.87) <sub>bd</sub>                              | 11.62 (4.46) <sub>abd</sub>                                | 8.79 (4.14) <sub>ab</sub>                             | 42.14 (2.73) <sub>c</sub>                             | 27.00 (4.34) <sub>cd</sub>                             | 43.30    | <.001    | 0.42     |

*Note.* Read horizontally, groups that share subscripts are not significantly different from one another using Dunn's (1964) follow-up test with a Bonferroni correction (adjusted  $p < .003$ ). I report the test statistic as  $\chi^2$  versus *H* as I used the asymptotic *p*-value across my tests.  $\alpha$  = Cronbach's alpha; HTW = Hostility Toward Women scale; IRMA-R = Illinois Rape Myth Acceptance Scale – Revised; SFQ-R-SV = Sexual Fantasy Questionnaire Revised – Short Version.

**Table 8***Validation of the Six Cluster Profiles using Additional Demographic and Psychological Data*

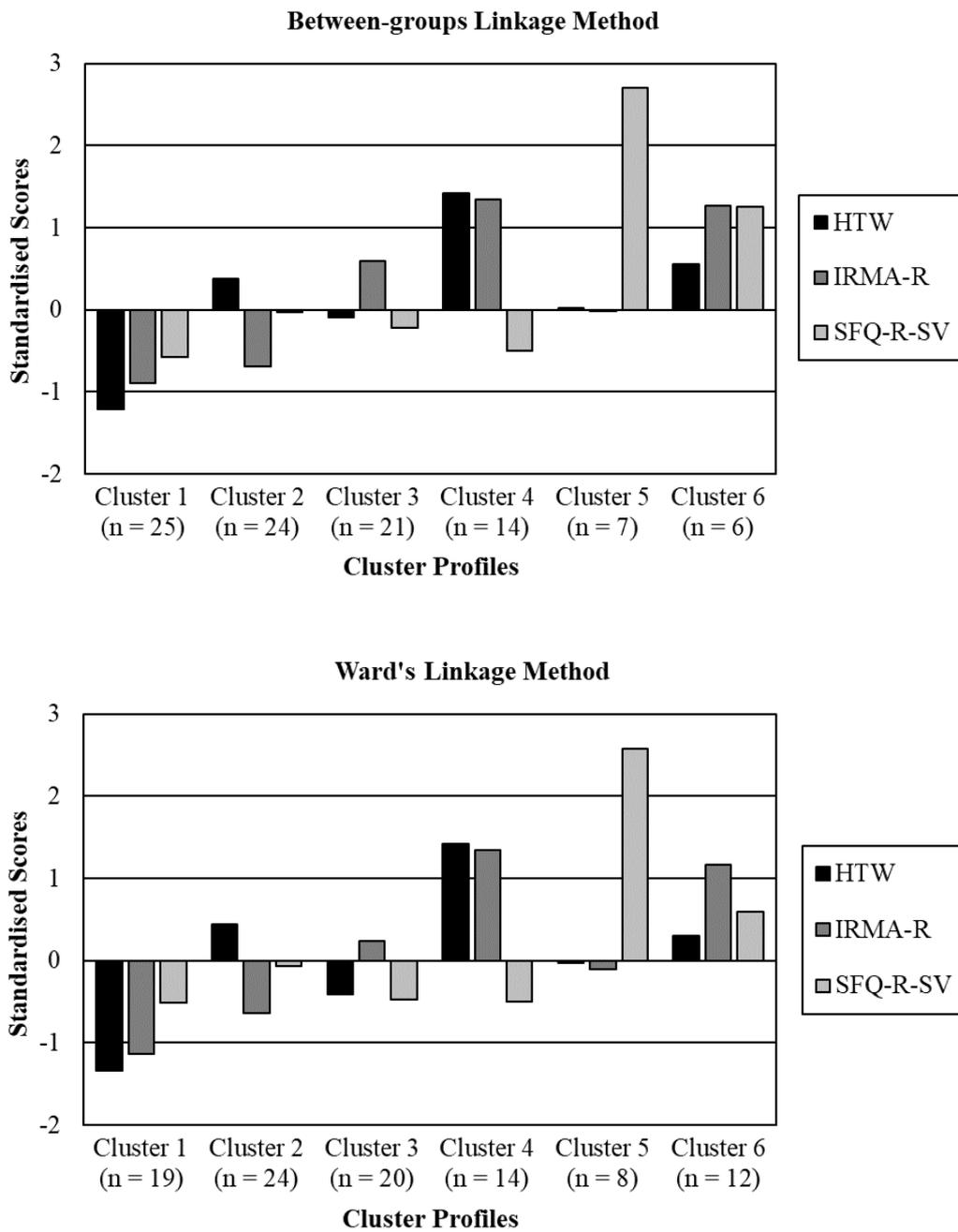
| Measure                       | $\alpha$ | Cluster 1:<br>Non-Dominant<br>Aggressors<br>( <i>n</i> = 25) | Cluster 2:<br>Hostile<br>Fantasists<br>( <i>n</i> = 24) | Cluster 3:<br>Multiple<br>Dysfunctions<br>( <i>n</i> = 21) | Cluster 4:<br>Hostile<br>Excusers<br>( <i>n</i> = 14) | Cluster 5:<br>Sexual<br>Fantasists<br>( <i>n</i> = 7) | Cluster 6:<br>Fantasist<br>Excusers<br>( <i>n</i> = 6) | $\chi^2$ | <i>p</i> | <i>V</i> |
|-------------------------------|----------|--|---|--|---|---|--|----------|----------|----------|
|                               |          | % ( <i>n</i> )   | % ( <i>n</i> )  | % ( <i>n</i> )   | % ( <i>n</i> )  | % ( <i>n</i> )  | % ( <i>n</i> )   |          |          |          |
| <i>Demographic measures</i>   |          |  |   |  |   |   |  |          |          |          |
| Ethnicity                     |          |  |   |  |   |   |  |          |          |          |
| White British                 | -        | 68.00 (17)   | 75.00 (18)  | 42.86 (9)  | 28.57 (4)   | 28.57 (2)   | 16.67 (1)  | 15.62    | .006     | .41      |
| Minority ethnic               | -        | 32.00 (8)  | 25.00 (6)   | 57.14 (12)   | 71.43 (10)  | 71.43 (5)   | 83.33 (5)  |          |          |          |
| <i>Psychological measures</i> |          |  |   |  |   |   |  |          |          |          |
|                               |          | <i>M</i> ( <i>SD</i> )                                       | <i>M</i> ( <i>SD</i> )                                  | <i>M</i> ( <i>SD</i> )                                     | <i>M</i> ( <i>SD</i> )                                | <i>M</i> ( <i>SD</i> )                                | <i>M</i> ( <i>SD</i> )                                 | $\chi^2$ | <i>p</i> | $\eta^2$ |
| BPAQ                          | .85      | 28.44 (8.69) <sub>a</sub>                                    | 39.38 (9.59) <sub>b</sub>                               | 36.52 (9.50) <sub>ab</sub>                                 | 38.93 (9.27) <sub>b</sub>                             | 38.29 (8.26) <sub>ab</sub>                            | 42.00 (8.22) <sub>ab</sub>                             | 21.06    | <.001    | 0.18     |
| DERS-SF                       | .84      | 38.68 (8.05) <sub>a</sub>                                    | 49.00 (10.62) <sub>ab</sub>                             | 43.81 (10.36) <sub>ab</sub>                                | 41.00 (13.17) <sub>b</sub>                            | 45.43 (11.16) <sub>ab</sub>                           | 50.50 (6.12) <sub>ab</sub>                             | 15.77    | .008     | 0.12     |
| SERR                          | .83      | 78.80 (10.43) <sub>a</sub>                                   | 63.88 (16.40) <sub>ab</sub>                             | 69.95 (17.24) <sub>ab</sub>                                | 67.86 (15.45) <sub>b</sub>                            | 68.71 (7.97) <sub>ab</sub>                            | 66.00 (11.70) <sub>ab</sub>                            | 13.34    | .020     | 0.09     |

*Note.* Figures may not add up to 100% due to rounding. Read horizontally, groups that share subscripts are not significantly different from one another using Dunn's (1964) follow-up test with a Bonferroni correction (adjusted  $p < .003$ ). I report the test statistic as  $\chi^2$  versus  $H$  as I used the asymptotic  $p$ -value across my tests.  $\alpha$  = Cronbach's alpha;  $V$  = Cramer's  $V$ ; BPAQ = Short-Form Buss-Perry Aggression Questionnaire; DERS-SF = Difficulties in Emotion Regulation Scale – Short Form; SERR = Self-Efficacy in Romantic Relationships scale.

**Figure 2**

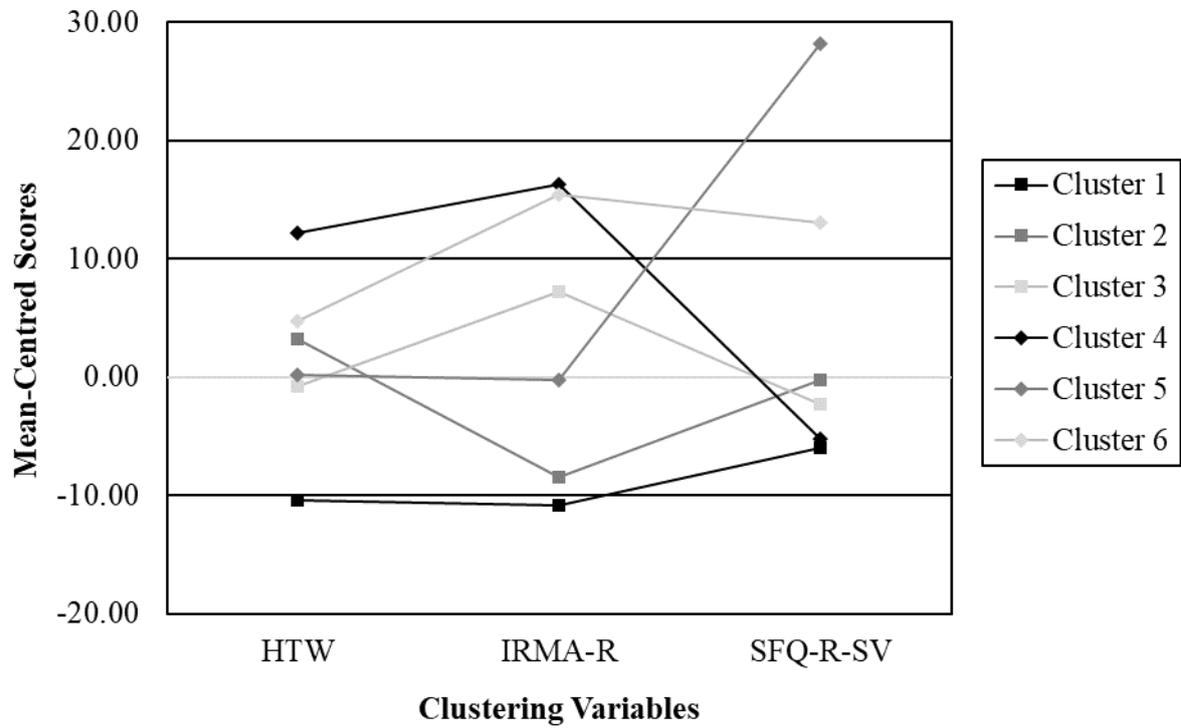
*Standardised Mean Scores on the Three Clustering Variables across the Six Cluster Profiles*

*(Derived using the Between-Groups Method and Ward's Method)*



**Figure 3**

*Mean-Centred Scores on the Three Cluster Derivation Measures across Cluster Profiles*



## CHAPTER 7

### **Study 4 – Situation-Relevant and Relationship-Level Risk Factors Associated with University-Based Sexual Aggression Perpetration at UK Universities**

Studies 1 and 2 provided the first empirical assessment of the individual-level risk factors associated with male university-based sexual aggression in the UK. Study 3 then extended findings by examining the heterogeneity of self-reported perpetrators based on the risk factors that dependably differentiated SAs from NSAs across both studies. However, as noted in Chapter 2, university-based sexual aggression is the product of multiple levels of influence on a perpetrator's behaviour. Though individual-level characteristics are often considered reliable indicators of male students' harmful sexual behaviour (see Abbey et al., 2001), studies have underlined that researchers need to consider the influence of broader socio-ecological risk factors when appraising university-based sexual aggression perpetration (e.g., Bonar et al., 2022; McMahon et al., 2019; Walsh et al., 2021). This is based on the established finding that there is a developmental sequence for sexual perpetration in which personality characteristics and experiential factors establish a precondition for sexual aggression, which is then liberated in the presence of more macro-level factors (Abbey et al., 2001). Further, that several studies have shown that a worrying number of male students self-report a willingness to commit sexual assault if assured they would face no negative consequences (e.g., Casey & Lindhorst, 2009; Palmer et al., 2021; Zounlome & Wong, 2019) implies that conditions promoting university-based sexual aggression exist beyond the individual level. To this end, assessing the psychological and personal characteristics of perpetrators alone is not sufficient for understanding their harmful sexual behaviours.

As noted in Chapter 2, recent socio-ecological research in the US has identified several relationship-level factors that represent key indicators of risk for university-based

sexual aggression amongst male students. For example, many studies have demonstrated that US students' perceptions of their peers' attitudes towards harmful sexual behaviours, as well as their friends' history of engaging in sexually violent acts, are strong predictors of their own sexual perpetration (e.g., DeKeseredy & Kelly, 1995; Goodson et al., 2021; M. P. Thompson & Morrison, 2013; M. P. Thompson et al., 2013). Likewise, alcohol consumption – a problematic social behaviour that university students engage in at hazardous levels (see Karam et al., 2007) – is also a strong indicator of university-based sexual aggression amongst male students in the US, given its negative inhibitory effects (e.g., Goodson et al., 2021; Kirwan et al., 2019; Parkhill & Abbey, 2008; Testa & Cleveland, 2017; Walsh et al., 2021).

Though empirical work into the broader socio-ecological risk factors associated with sexual aggression at UK universities is comparatively limited, several studies have highlighted that male students who associate with transgressive “laddish” peers (typically, male students who engage in heavy drinking behaviours, party culture, and ‘high risk’ sports such as rugby or football) are at increased risk of displaying problematic sexual behaviours (e.g., Jackson & Sundaram, 2020; Jeffries, 2020; Phipps & Young, 2013; Phipps et al., 2018). Positive evaluations of bystander interventions at UK universities (e.g., Fenton & Mott, 2018; Hennelly et al., 2019), along with recent qualitative work into students' perceptions of bystander initiatives (e.g., Davies et al., 2022), also suggest that students' relationships with their peers dictate their willingness to intervene to prevent sexual assault perpetration and thus may influence their own sexually aggressive behaviours.

Given the finding from Study 3 that a noteworthy proportion of self-reported SAs across my studies (particularly Clusters 1 and 3) could not be accurately defined based on their responses to my primary or secondary clustering variables, it would also be valuable to examine whether ‘situation-relevant’ indicators – conceptualised in this study as socio-ecological risk factors that are likely to induce sexual perpetration if specific environmental

provisions are met – would help characterise university-based sexual aggression in the UK. Examples derived from established US work include an individual’s level of self-control, their proclivity towards compulsive sexual behaviours and novel sexual encounters, and their inability to correctly interpret sexual cues (e.g., Abbey et al., 1998; Gaither & Sellbom, 2003; T. T. Lee et al., 2009; Monks et al., 2010; Testa & Cleveland, 2017).<sup>24</sup>

Furthermore, given that findings from Studies 1 and 2 suggested that there are similarities between incarcerated sexual offenders and UK university males in terms of the individual-level risk factors associated with their sexual perpetration, there are also valid theoretical grounds in this study to assess the ability of recent substance use, individual sex drive, and sexual media consumption as determinants of university-based sexual aggression amongst UK students. These are factors that have been identified in the broader international sexual offending literature as strong predictors of community males’ sexual perpetration, as well as the harmful sexual behaviours of justice-involved persons (e.g., Bonino et al., 2006; Jewkes et al., 2006; Malamuth et al., 1995). Examining the prognostic value of these variables will allow for a more comprehensive assessment of UK male students’ sexual aggression, which can guide future prevention and treatment work.

#### **Purpose of Study 4**

This study extends Studies 1 and 2 by assessing the influence of broader socio-ecological risk factors for university-based sexual aggression in the UK. These include a variety of situation-relevant and relationship-level variables that have been shown to predict the sexual offending behaviours of university males, non-student males in the community, or incarcerated sexual offenders internationally, and thus warrant academic attention with male students in the UK. Methodologically, this study replicates Study 2 by using logistic

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<sup>24</sup> Whilst these variables span socio-ecological strata, I have examined them as ‘situation-relevant’ risk factors as they are likely to encourage sexual perpetration under certain environmental conditions. For example, a male student with poor self-control and a compulsion towards sex may not be at risk of sexually assaulting a person in their day-to-day life, but if they are placed in an intimate situation with a non-consenting sexual partner, they may struggle to resist sexual aggression as a means to achieve sexual fulfilment.

regression modelling to assess the prognostic ability of hypothesised risk factors across a representative sample of UK male university students recruited online through the crowdsourcing site Prolific. Though the findings of this study do not directly feed into Study 6 (my intervention study), it is hoped that results help provide a more holistic assessment of the profiles of sexually aggressive male university students in the UK. Also, it is hoped that findings assist future researchers to characterise better the extracted Clusters 1 and 3 from Study 3, who were hard to define based on the individual-level risk factors which were used to group them.

Consistent with previous studies, the hypotheses, method, and data analysis plan for this study (along with Study 5) were pre-registered with OSF.io prior to data collection. My pre-registration document is publicly available at <https://osf.io/je23d/>, where readers can also access copies of the materials and raw data used in this study.

## **Method**

### **Participants**

To allow for a representative sample of male university students from across the UK and encouraged by my positive user experiences in Study 2, I again recruited participants from the crowdsourcing platform Prolific (Palan & Schitter, 2018). As previously, participants were pre-screened before being given access to the survey to ensure that they met eligibility requirements.<sup>25</sup> Setting pre-screening filters identified a total participant pool of  $N = 1,028$  students. Following a review of the regression analyses from Study 2– which were adequately powered (see Long, 1997) but could have benefited from more data to maximise the constraint of my final model’s parameters – I purposively recruited a larger sample in this study than earlier. Moreover, as I was collecting in this survey the bulk of data for Studies 5

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<sup>25</sup> Filters were set for age (over 18-years only), sex (male only), sexual orientation (heterosexual only), student status (students only), current education level (undergraduate, graduate, and doctoral-level only), and country of residence (UK only).

and 6, recruiting more participants also meant that I also had a sufficient sample for my future analyses. Therefore, my final analytic sample comprised  $N = 448$  students (43.6% of the eligible target population on Prolific).

Reviewing demographic survey responses showed that the age of participants in this study ranged from 18 to 78-years ( $M = 25.4$ ,  $SD = 7.8$ ; see Table 9, pg. 165).<sup>26</sup> As in Studies 1 and 2, and concurrent with official statistics on the personal characteristics of UK university students at the time (HESA, 2022), the majority of participants identified as “White British” ( $n = 261$ ; 58.3%). Likewise, most participants reported their current level of university study as “Undergraduate (or equivalent)” ( $n = 289$ ; 64.5%), though there were a notable proportion who self-reported being postgraduate (i.e., masters or doctoral level) students ( $n = 145$ ; 32.4%). In terms of relationship status, the majority of participants disclosed that they were “Single or self-partnered” ( $n = 216$ ; 48.2%), though a noteworthy proportion did self-report that they were in a relationship or common law partnership ( $n = 178$ ; 39.7%) or married ( $n = 48$ ; 10.7%). Overall, participants from 107 different UK universities were represented in this study, including 86 universities in England ( $n = 342$ ; 76.3%), 12 in Scotland ( $n = 41$ ; 9.2%), eight in Wales ( $n = 24$ ; 5.4%), two in Northern Ireland ( $n = 4$ ; 0.9%), and the Open University ( $n = 37$ ; 8.3%).

## Measures

The measures used in this study comprised established self-report instruments that assessed various situation-relevant and relationship-level risk factors for sexual aggression. As in previous studies, these factors had either been shown by research with community or incarcerated males to encourage or discourage sexual aggression or had been theoretically linked to men’s harmful sexual behaviours. Measures could be apportioned into those that

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<sup>26</sup> For reasons discussed in earlier chapters, I did not exclude older student participants. This approach is supported by findings from Studies 1 and 2, which showed that SAs and NSAs could not be differentiated based on their age and that a minority of mature SAs also reported recent sexual offending behaviours.

assessed participants' sex-related behaviours, their perceptions of others' sex-related behaviours, their self-control, and their substance use. To discourage attentional fatigue, psychometrically validated short-form or simplified versions of measures were again adopted where possible. To ensure their comprehension by UK participants, certain items were also rephrased (e.g., use of the word "college" was changed to "university" in measures developed in the US).

Cronbach's alpha ( $\alpha$ ) scores for each measure are shown in Table 10 (pg. 167) and interpreted below using George and Mallery's (2016) established rule-of-thumb (see Study 1 for more information). Across all measures, overall alpha scores met the recommended benchmark for adequate internal consistency (i.e.,  $\geq .70$ ; see DeVellis & Thorpe, 2021; Kline, 2005). As previously, to ensure high internal consistency across measures, items that generated corrected item-total correlations less than .25 across groups were dropped.<sup>27</sup>

### ***History of Sexual Aggression Perpetration***

**Sexual Experiences Survey – Short Form: Perpetration (SES-SFP; Koss et al., 2007).** A modified version of the SES-SFP was again used to probe participants' recent history of sexual aggression perpetration. As in Studies 1 and 2, a timeframe of 24-months was used to ensure that I captured harmful sexual acts that were committed since the legal age of sexual consent in the UK (i.e., 16-years) based on the youngest possible age of participants (i.e., 18-years). However, unlike previously, I made two additional alterations to the measure to further increase the veracity of participants' disclosures.

First, I used a *tactics-first* version of the SES-SFP, in which each of the five tactics strings were crossed with each of the seven sexual outcomes (see Appendix B, pg. 322). This meant that the content of the 35 compound items used in this study was the same as those used in Studies 1 and 2 (which both used an *outcome-first* version of the SES-SFP); however,

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<sup>27</sup> In this study, only item 1 of the SMS (i.e., "Magazines with sexual content") was dropped. Removing this item had positive psychometric implications, with overall  $\alpha$  for the SMS improving from .66 to .74.

rather than each item leading from an outcome (i.e., a sexually violent behaviour) to a tactic (i.e., an inappropriate means of achieving that behaviour), they proceeded from a tactic to an outcome. This approach was adopted following a review of work into the effects of item wording on self-reported sexual aggression perpetration (e.g., Abbey et al., 2005, 2021; Schuster et al., 2021), which has demonstrated that leading with tactics (versus outcomes) facilitates greater cognitive retrieval of non-consensual sexual behaviours amongst community males, thus leading to more accurate estimates of their past harmful sexual behaviour. An example item from the tactics-first version of the SES-SFP is “I have threatened to physically harm a person or someone close to them [*tactic*], in order to have oral sex with them or have them perform oral sex on me without their consent (and this successfully occurred) [*outcome*]”.

Second, based on the work of Rueff and Gross (2017), I further amended the scale so that certain items did not require an analysis by participants of their victims’ desire for sexual contact. This was done by removing the phrase “after they said they didn’t want to” from the end of tactics one and two. Adopting this approach meant that I removed ambiguity from these items, which the authors had shown increases university male students’ reports of non-consensual sexual touching and sexual intercourse. As in Studies 1 and 2, follow-up questions were used to examine in greater depth participants’ self-reported perpetration. Specifically, items probed the sex of any victims, their relationship to the participant, and whether the participant or their victim(s) were intoxicated at the time of their offending.

Based on best practice recommendations (e.g., Anderson et al., 2017, 2021; R. A. E. Anderson, personal communication, September 14, 2021), scoring procedures mirrored those from Studies 1 and 2. Participants again self-reported the number of times (0, 1, 2, or 3+ times) they had engaged in each tactic/outcome string in the past 24-months and, based on their responses, were classified as either a sexual aggressor (SA) or a non-sexual aggressor

(NSA). Participants in the former group were defined as those who provided at least one non-zero response on the measure (indicating a recent history of sexual perpetration), whilst participants in the latter group were those who emphatically rejected all survey items (indicating the non-perpetration of recent sexual aggression). Again, SAs could be classed into up to four mutually exclusive categories of sexual aggression perpetration based on their precise response patterns; namely, “none,” “unwanted sexual contact,” “sexual coercion,” and “rape/attempted rape”.

Psychometric evaluations of similar tactics-first versions of the SES-SFP have shown that the measure delivers “excellent” internal consistency with community males (Abbey et al., 2021). Likewise, research has shown that the measure correlates highly with other established measures of sexual aggression (see Anderson et al., 2021), as well as established situation-relevant and relationship-level risk factors for sexual assault perpetration (e.g., friends’ approval for forced sex, alcohol consumption; Abbey et al., 2021) thus providing evidence of convergent validity. The tactics-first SES-SFP used in this study yielded an “excellent” internal consistency score of .94 – a marked improvement on the outcomes-first SES-SFP used in Studies 1 and 2 (where  $\alpha = .82$  and  $.91$ , respectively).

### ***Sex-Related Behaviours***

**Compulsive Sexual Behavior Inventory-13 (CSBI-13; Miner et al., 2017).** This 13-item inventory was used to assess the core features of ‘compulsive sexual behaviour disorder’ (CSBD; colloquially termed ‘sex addiction’) – an ICD-11 listed impulse control disorder characterised by “a persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behaviour” that causes “marked distress or significant impairment in [...] important areas of functioning” (World Health Organization, 2019, “6C72 Compulsive sexual behaviour disorder” section). Participants responded to the inventory using a 5-point scale ranging from 1 (*Never*) to 5 (*Very frequently*). Scores were summed

across items for a total score that could range from 13 to 65, with higher scores indicating an increased tendency towards compulsive sexual behaviours. An example item is “How often have you used sex to deal with problems?”. Prior analyses of the CSBI-13 as a screening tool suggest that respondents who score  $\geq 35$  are likely to meet diagnostic criteria for CSBD (Miner et al., 2017).

Psychometric analysis of the measure highlight that it possesses “excellent” internal consistency with university males (T. T. Lee et al., 2009), as well as adequate criterion validity amongst males in the community (Miner et al., 2017). In this study, the inventory demonstrated “good” internal consistency.

**Sex Drive Questionnaire (SDQ; Ostovich & Sabini, 2004).** This brief 4-item questionnaire assesses the intensity of an individual’s sex drive unconfounded with sociosexual orientation. That is to say, the questionnaire does not rely on respondents having an intimate or romantic sexual partner. Response formats differ across items, which use either 6-point or 7-point Likert-type scales. Subsequently, scores are standardised (into  $z$ -scores) and then averaged across items for a single composite score. Higher scores indicate an increased sex drive. An example item is “How often do you masturbate in the average month?”.

Previous evaluations have shown that the SDQ possesses “good” internal consistency and test-retest reliability with university males, and correlates highly with other indicators of sex drive (Ostovich & Sabini, 2004). In this study, internal consistency was also “good”.

**Sexual Media Scale (SMS; Salazar et al., 2018).** To assess pornography consumption, I used an amended version of the 4-item SMS. The scale asked participants to rate the frequency with which they looked at each of four different types of sexual media during an average week in the past 12-months. Items included “Magazines with sexual content”, “Videos that show sexual suggestive material but no visual sexual intercourse”,

“Videos that show sexual penetration, violence, or fetishes”, and “Homemade sex videos, celebrity sex tapes, hidden cameras, etc.”. The wording of some items was amended slightly from the original source to cater for UK audiences. Participants responded on a 7-point scale that progressed from 1 (*Not at all*) to 7 (*More than 10 times*). Total scores were generated and could range from 4 to 28, with higher scores indicating more frequent pornography consumption.

Whilst there have been no formal psychometric evaluations of the SMS, researchers who have adopted analogous measures of sexual media use have reported questionable internal consistency scores amongst university males (e.g., Simons et al., 2012). In this study, the SMS performed markedly better, demonstrating “acceptable” internal consistency.

**Sexual Sensation Seeking Scale (SSSS; Kalichman & Rompa, 1995).** This 11-item scale assesses individual propensity towards novel sexual experiences and the attainment of optimal levels of sexual excitement. Participants responded to the SSSS using a 4-point scale anchored by 1 (*Not at all like me*) and 4 (*Very much like me*). Based on the recommendations of the authors, composite scores were generated to assess mean endorsement of items, with higher scores reflecting a greater propensity towards sexual sensation seeking. An example item from the scale is “I enjoy the sensation of intercourse without a condom”.

Past research has shown that the SSSS possesses “good” internal consistency with university male students (Gaither & Sellbom, 2003), which was replicated in this study.

### ***Perceptions of Others’ Sex-Related Behaviours***

**Friends’ Approval and Pressure for Coerced and Forced Sex Measure (FAPCSM; Abbey et al., 2001).** This 6-item measure comprises two subscales that, together, examine perceived peer norms related to sexual aggression. The first subscale asks respondents to rate the extent to which their friends would approve of getting a woman drunk to have sex with her, lying to a woman to have sex with her, and forcing a woman to have

sex. The second subscale then asks respondents to rate how much pressure they have felt from their friends to engage in those three behaviours. Ratings are made on a scale anchored by 1 (*Not at all*) and 5 (*Very much*). To mask the true aim of the measure, four filler items are also presented that describe inappropriate non-sexual behaviour (e.g., “getting drunk and causing trouble”). As they have been shown to correlate highly with one another (A. Abbey, personal communication, November 5, 2020), scores from both subscales are combined into a single index and can therefore range from 6 to 30, with higher scores indicating greater perceived peer acceptance of sexual aggression.

Various psychometric evaluations of the FAPCSM have shown that the scale possesses “acceptable” to “good” internal consistency amongst university males (e.g., Abbey & McAuslan, 2004; M. P. Thompson et al., 2011; M. P. Thompson & Morrison, 2013), as well as strong convergent validity amongst males in the wider community (Abbey et al., 2021). In this study, I achieved “acceptable” internal consistency.

**Misperception of Sexual Intent Measure (MSIM; Abbey et al., 1998).** This single item measure asks respondents to report the number of times that they have misinterpreted a woman’s friendliness as an invitation to engage in sexual behaviour. The response option is open-ended; therefore, it is not appropriate to report Cronbach’s alpha for the measure. However, the MSIM has shown good criterion validity in several studies with university males through its strong positive association with sexual aggression perpetration (e.g., Abbey et al., 2001) – a result that has been validated across international male student samples (e.g., Tulliao et al., 2019).

### ***Self-Control***

**Brief Self-Control Scale (BSCS; Tangney et al., 2004).** Comprising 13 items (nine of which are reverse-coded), the BSCS assesses an individual’s self-perceived level of control over their own behaviour. Participants respond to items using a 5-point Likert-type

scale that ranges from 1 (*Not at all*) to 5 (*Very much*). Scores on individual items are summed for a total score that can range from 13 to 65, with higher scores indicating a greater sense of self-control. An example item from the scale is “I am good at resisting temptation”.

The BSCS has returned “good” internal consistency scores in studies of sexual aggression perpetration with university males in the US (Cleveland et al., 2019; Testa & Cleveland, 2017). Amongst student participants in other countries, the scale displays “acceptable” to “good” scores (e.g., Hagger et al., 2021; Liang et al., 2022; Papanikolopoulos et al., 2021). In this study, internal consistency was also “good”.

It is worth noting that, despite conceptual overlaps (see Paschke et al., 2016), self-control is distinct from ‘emotion regulation’ – defined as the ability to control, intentionally or otherwise, the valence or intensity of one’s emotions in accordance with personal preferences or social cues – which was examined in Studies 1 and 2.

### ***Substance Use Behaviours***

**Alcohol Use Disorders Identification Test – Consumption (AUDIT-C; Bush et al., 1998).** Comprising the initial three items from the 10-item AUDIT (Saunders et al., 1993), the AUDIT-C is a commonly used alcohol screener that can help identify alcohol use disorders and hazardous drinking behaviours. Items assess frequency of alcohol consumption, average alcohol intake per drinking session, and binge drinking behaviours (defined as having six or more drinks in one sitting). The initial two items are presented alongside six possible response options (ranging from 0 to 4) whilst the last item is presented alongside five possible responses options (also ranging from 0 to 4). Overall AUDIT-C scores are an aggregate of scores across these three items and can range from 0 to 12, with higher scores representing a greater propensity towards problematic drinking behaviours. Assessments of the AUDIT-C as a screening tool have suggested that male university students who score  $\geq 7$

on the measure are considered to be at-risk of problematic drinking behaviours (DeMartini & Carey, 2012).

Psychometric evaluations of the AUDIT-C have shown that the measure typically generates a “good” level of internal consistency with university students in both the US (Campbell & Maisto, 2018) and the UK (Zhou et al., 2015). The measure has also exhibited high concurrent validity with breath alcohol concentration scores – an objective measure of alcohol consumption – as well as stability amongst US university students (Barry et al., 2015). In this study, internal consistency was also “good”.

**Substance Use over the Past 30-Days Measure (SU; Substance Abuse and Mental Health Services Administration [SAMHSA], 2015).** To measure participants’ recent substance use behaviours, I adopted an amended version of the 10-item drug use protocol included as part of the *2015 National Survey on Drug Use and Health* (SAMHSA, 2015). The first nine items name various superordinate categories of drugs (e.g., “Sedatives and tranquilisers”) and list examples of controlled substances comprising that category (e.g., “Barbiturates”). Participants are required to read each item and report how many days they have used at least one of the noted substances without having a medical prescription to do so. Responses are made on an 8-point Likert-type scale that ranges from 1 (*Never used*) to 8 (*All 30 days*). Two minor adaptations were made to the measure to encourage valid responding. First, to ensure a comprehensive assessment of recent drug use, I added in additional substances from Salazar et al.’s (2018) drug use measure. Second, to ensure that the measure was accessible to participants, common UK ‘street names’ for certain substances were also included (e.g., “barbs” for barbiturates).

The above nine items are presented alongside an open-response format tenth item that asks respondents to report the name of any other controlled substances, illegal drugs, or “legal highs” that they have used in the past 30-days without a prescription. Reviewing

participants' responses to this item showed that all reported substances could be classified into other categories; therefore, the item was dropped. Subsequently, total scores on the SU could range from 9 to 72, with higher scores indicating more recent substance use behaviours.

Given that the SU is not assumed to assess a latent construct and that patterns of drug use behaviours will differ significantly across participants, it is not appropriate to report Cronbach's alpha. However, that the measure is included as part of the PhenX Toolkit – a repository of 'gold standard' instruments designed for use in epidemiological and clinical research – highlights that it has been deemed by subject matter experts as providing a reliable means of assessing recent drug use (see Hamilton et al., 2011).

## **Procedure**

This study was ethically approved by the University of Kent's Research Ethics Committee as part of a broader ethics application that covered Studies 4 through 6 (Ref: 202116177037806935). As in Study 2, participants accessed my survey through Prolific and responded to items on Qualtrics. Initially, participants completed a screening measure (to corroborate their responses to Prolific's pre-screening filters), read an information sheet, and responded to an ethics consent form, before completing a demographic survey and then my measures. As noted earlier, data in this study were collected as part of a broader research project entitled "*Promoting Healthy Sexual Behaviours on Campus: A Longitudinal Assessment of a Novel Self-help Intervention*" (i.e., Study 6); therefore, alongside situation-relevant and relationship-level measures, participants also completed self-report measures for Studies 3, 5, and 6.

As previously, the survey was set up so that participants had to respond to every item. To mitigate against the effects of response bias, the order that measures were presented in was randomised with the exception of the SES-SFP (the primary outcome variable in this study, as well as Studies 3 and 5) and Zounlome and Wong's (2019) *Self-Perceived*

*Likelihood Scale* (the primary outcome variable in Study 6) which were presented at the start and the end of the survey, respectively. Once they had completed the study, participants were appropriately debriefed and again provided with the details of Stop It Now! UK & Ireland (<https://www.stopitnow.org.uk>) – a sexual harm prevention helpline that works with past, current, and potential offenders. Following a review of Study 2 data, the completion time for this survey was set at 35-minutes and the maximum allowed time as 97-minutes.<sup>28</sup> Participants were fairly compensated for their time at a pro-rated rate of £5.40 per hour.

### ***Demographic Survey***

To provide a more useful insight into the demographic characteristics of my sample (particularly SAs), demographic survey items were amended from Studies 1 and 2. Items that asked participants to self-report their age and university affiliation were retained, though minor amendments were made to phrasing to remove ambiguity. Likewise, to ensure that comparisons could be made with data from my earlier studies, I still asked participants to report their ethnicity using response categories from the *2011 Census of Population and Housing in England and Wales* (ONS, 2011). Items that probed the sex and sexual orientation of participants were dropped to avoid replicating data collected during Prolific's pre-screening process. Similarly, to allow for more accurate comparisons with pre-existing perpetrator data (from the US), the item that asked participants their highest level of educational achievement was dropped in favour of an item that asked participants their current level of university study. So as to allow for a more in-depth demographic assessment of my sample, a new item was added in that invited participants to report their current relationship status and whether they had participated in Study 2 (of which  $n = 7$  had). Participants were not excluded based on their responses to the latter question, which was included to help examine the efficacy of participant recruitment via Prolific.

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<sup>28</sup> This differs to the time reported in my pre-registration (which is 110-minutes), as Prolific removed the function for researchers to input their own maximum allowed time after I uploaded my pre-registration.

So as not to marginalise certain groups or deter potential respondents, participants were able to respond “Other / Prefer to self-describe” to items that assessed ethnicity and relationship status. Most participants who selected this option could be classified into pre-existing categories (e.g., participants who reported their relationship status as “Engaged” were recategorised as being “In a relationship or Common law partnership”).

### **Analysis Plan**

Statistical analyses were conducted on SPSS v.28 for Windows (IBM, 2021).<sup>29</sup> In a deviation from my pre-registration for this study, I decided against recoding scores on measures that assessed ‘typical’ behaviours (i.e., the BSCS) to reflect non-conformity. Put another way, higher scores on the BSCS still represent higher rates of perceived self-control. This helped to mitigate against possible researcher error and meant that my results were easily interpretable to readers.

To ensure accuracy, data were screened prior to analysis. As in previous studies, univariate outliers were removed pre-analysis to avoid artificially inflating results. This was done using the steps recommended by Tabachnick and Fidell (2013). Again, Van Selst and Jolicouer’s (1994) *z*-score criterion for outlier exclusion was used to determine cut-off scores for outlier exclusion for both SAs (cut-off:  $\pm 2.47$ ) and NSAs (cut-off:  $\pm 2.50$ ) based on the relative sizes of both groups. In total, 46 possible outliers were identified based on participants’ responses across seven (out of nine) of my measured predictor variables, which were confirmed using boxplots. Of these, ten cases were retained (unadjusted), three were excluded (one SA and two NSAs), and the remaining 30 were winsorised (see Dixon, 1960). As in Studies 1 and 2, this process reduced distributional problems in my dataset whilst maintaining the relative order of the data and improved both the mean and five percent

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<sup>29</sup> I stated in my pre-registration that I would use SPSS v.24 for Windows (IBM, 2015) to conduct analyses; however, this version was unavailable at the time.

trimmed mean scores across scales. My final analytic sample therefore comprised 448 participants.

## Results

### Sexual Aggression: Prevalence and Features

In total, 43 participants (9.60% of the overall sample) self-reported having perpetrated 218 sexually aggressive acts over the past 24-months – proportionally fewer participants than in either Studies 1 or 2. As in earlier studies, sexual coercion comprised the largest category of self-reported act (43.6% of all reported acts), having been perpetrated by 25 participants (5.6% of the overall sample). This was followed by rape/attempted rape (33.9% of all reported acts) and unwanted sexual contact (22.5% of all reported acts), which were perpetrated by 3.3% ( $n = 15$ ) and 4.7% ( $n = 21$ ) of the overall sample, respectively. As in Study 2, most SAs ( $n = 22$ ; 51.2% of the SA sample) self-reported three or more sexually aggressive acts. Relatively few SAs reported engaging in only one sexually aggressive act ( $n = 14$ ; 32.6% of the SA sample), evidencing that a majority of SAs in this study were repeat offenders.

In terms of tactics, SAs relied mostly on verbal pressure (38.5% of all reported acts) to achieve desired sexual outcomes. Comparatively fewer SAs relied on incapacitation (19.7%), criticism, anger, and displeasure (16.1%), or threats of physical harm (15.1%). Use of physical force or a weapon to instigate desired sexual outcomes was the least frequently endorsed tactic (10.6%). Again, for reasons discussed in earlier chapters, it is worth underlining that these figures are likely to represent conservative estimates of prevalence.

In terms of victim characteristics, most SAs ( $n = 27$ ; 62.8% of the SA sample) offended against females, though one SA (2.3% of the SA sample) reported both female and male victims. SAs reported that victims were typically other students who they knew ( $n = 18$ ; 41.9% of the SA sample) or, in relatively few cases, someone who they knew who was not a

student ( $n = 6$ ; 14.0% of the SA sample). In only two cases (representing 4.7% of the SA sample) were victims complete strangers. Finally, regarding substance use, most SAs ( $n = 13$ ; 41.9% of the SA sample) reported that neither they nor their victim(s) had consumed alcohol or drugs prior to the offence. However, in 12 cases (27.9% of the SA sample), SAs did report that either they, their victim(s), or both they and their victim(s) were intoxicated when the sexually aggressive act occurred.

### **Group Comparisons**

As in Studies 1 and 2, the responses of SAs and NSAs were statistically compared to assess which measures could differentiate between participants in both groups and should therefore enter my logistic regression model. Again, given the established link between certain demographic characteristics and sexual aggression (as highlighted in Chapter 2), participants' responses to my demographic survey were also examined. To avoid masking potential predictors of sexual aggression, I did not apply multiple test corrections in my univariate analyses (for justification, see Perneger, 1998).

Based on the recommendations of Rosenthal (1994), who notes that non-parametric tests typically violate the underlying assumptions of Cohen's  $d$ , I report  $r$  as the effect size metric across my Mann-Whitney  $U$  tests. This was calculated using the following equation, where  $z$  corresponds to the test statistic and  $N$  to the overall sample size:

$$r = \frac{z}{\sqrt{N}}$$

In their comprehensive review of effect size estimates, Fritz et al. (2012) suggest that an  $r$  value of  $\approx 0.1$  corresponds to a small effect size, a value of  $\approx 0.3$  corresponds to a medium effect size, and a value of  $\approx 0.5$  or more corresponds to a large effect size.

### ***Demographic Variables***

As in Studies 1 and 2, there were notable similarities between SAs and NSAs in this study (see Table 9, pg. 165). For example, there was a preponderance across both groups

towards young, highly educated, White British participants. Similar to Study 2 findings, most participants also reported studying at a university in England. When subjected to univariate analyses, SAs from NSAs could not be statistically differentiated on any of my measured demographic variables (all  $ps > .05$ ).

### ***Situation-Relevant and Relationship-Level Measures***

Descriptive statistics for the situation-relevant and relationship-level measures were computed separately for SAs and NSAs (see Table 10, pg. 167). The assumption of normality for the independent  $t$ -test was violated across most of my measured variables, as determined by significant Shapiro-Wilks scores for the SA group and through visual inspection of normal Q-Q plots and histograms for the NSA group. Relevant transformations were applied according to Tabachnick and Fidell (2013), however these did not improve normality. Subsequently, to assess for differences between SA and NSA's scores on my situation-relevant and relationship-level measures, I conducted a series of Mann-Whitney  $U$  tests.

As part of the assumption testing process for the Mann-Whitney  $U$  test, population pyramids were generated to examine the distribution of scores for SAs and NSAs across my measured variables. Visual inspection of these graphs highlighted dissimilarities in dispersion patterns; therefore, I assessed differences in distributions and mean ranks of scores versus differences in median scores. Likewise, due to several participants having the same total scores across my measured variables, I report on the asymptotic (versus exact) significance level (see Dinneen & Blakesley, 1973). The results of these tests showed that SAs and NSAs could only be differentiated by their scores on the BSCS ( $U = 6033.00, z = -3.315, p < .001, r = .157$ ), CSBI-13 ( $U = 5149.50, z = -4.412, p < .001, r = .208$ ), and SSSS ( $U = 7047.00, z = -2.060, p = .039, r = .097$ ).<sup>30</sup>

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<sup>30</sup> Mean rank scores were as follows: for the BSCS, NSAs = 231.10 and SAs = 162.30; for the CSBI-13, NSAs = 215.71 and SAs = 307.24; and for the SSSS, NSAs = 220.40 and SAs = 263.12.

In terms of diagnostic screening, I discovered that 10 SAs (23.3% of the SA sample) and 33 NSAs (8.1% of the NSA sample) surpassed the suggested clinical cut-off point for the detection of CSBD, having scored  $\geq 35$  on the CSBI-13. Likewise, 12 SAs (27.9% of the SA sample) and 78 NSAs (19.3% of NSA sample) surpassed the clinical cut-off for diagnosing problematic drinking behaviours, having scored  $\geq 7$  on the AUDIT-C.

### **Classifying Sexual Aggressors**

As in Studies 1 and 2, measures that differentiated between SAs and NSAs (i.e., BSCS, CSBI-13, and SSSS scores) were simultaneously force-entered as predictors into a binomial logistic regression model to determine whether they could reliably predict past sexual aggression. Dichotomised SES-SFP scores were entered as the dependent variable. Again, the NSA group was selected as the reference group.

Assumption testing was performed to ensure that data were appropriate for multivariate testing. This process showed that my data did not violate the assumption of linearity (all  $ps > .007$ ) or multicollinearity; however, it did reveal 14 SAs (32.6% of the SA sample) as possible multivariate outliers for having standardised residuals greater than  $\pm 3$  standard deviations. Inspecting each of these cases individually showed that there were only minor deviations in total BSCS, CSBI-13, and SSSS scores between participants; therefore, to avoid unnecessarily removing data from my dataset and to safeguard against having an under-powered model, I decided not to omit these cases.

As in earlier studies, an optimal cut-off point for model construction was determined by inspecting sensitivity and specificity values (generated as part of an initial ROC curve analysis) and calculating Youden's index. This suggested a value of  $J = .097$ . A model based on this cut-off was significant,  $\chi^2(3) = 26.17, p < .001$ , and explained between 5.7% (Cox & Snell  $R^2$ ) and 12.1% (Nagelkerke  $R^2$ ) of variance in sexual aggression. Hosmer and Lemeshow's goodness of fit test was not significant,  $\chi^2(8) = 6.46, p = .60$ , indicating that my

model was not a poor fit. In terms of classificatory ability, 70.3% of all cases were correctly categorised as either belonging to the SA or the NSA group. Sensitivity (i.e., true positive) and specificity (i.e., true negative) scores were 67.4% and 70.6%, respectively, whilst the positive predictive value of the model was 19.6% and the negative predictive value was 95.3%.

Of the three predictor variables that entered the model, only CSBI-13 scores made a significant contribution,  $p < .001$  (see Table 11, pg. 168). ROC curve analysis revealed that the model could discriminate between SAs and NSAs at better-than-chance level;  $AUC = .72$ ,  $p < .001$ , 95% CI [.64, .81], corresponding to a large Cohen's  $d$  effect size of approximately 0.84 (Rice & Harris, 2005) and an "acceptable" discrimination according to Hosmer et al. (2013).

## Discussion

Study 4 extends findings from Studies 1 and 2 by offering the first formal empirical assessment of the situation-relevant and relationship-level risk factors associated with UK male students' harmful sexual behaviours. By examining the influence of these broader socio-ecological factors, my findings offer additional contextual insights into university-based sexual aggression perpetration in the UK. These insights are useful for many reasons. First, they may help to characterise the *Non-Dominant Aggressors* and *Multiple Dysfunctions* clusters extracted in Study 3, who were difficult to define based on their responses to the individual-level clustering variables used to group them. Second, findings can assist university administrators and policymakers in the development of more robust sexual harm prevention strategies on university campuses across the country, which are currently limited by a lack of a UK evidence base. Finally, by highlighting that risk factors for UK male students' harmful sexual behaviours exist beyond the individual-level, findings offer a strong foundation for follow-up research assessing the influence of broader socio-ecological factors

(i.e., those spanning the community, institutional, and societal levels) on university-based sexual aggression in the UK, which may further refine academic understanding of the issue.

In terms of prevalence, 9.60% of my sample in this study self-reported having engaged in sexually aggressive behaviours over the past two-years, for a total of 218 acts of sexual perpetration overall. Though this still signals to a worrying pattern of violence on UK campuses, it is interesting to note that this incidence rate is much lower than the cumulative 11.4% prevalence derived in Studies 1 and 2, particularly as several changes were made to my outcome measure to encourage reporting by participants. There are two likely explanations for this unexpected decline in prevalence. The first explanation is that participants did not respond truthfully to the amended tactics-first version of the SES-SFP used in this study, which led to suppressed perpetration rates. I examine this argument in depth in my General Discussion chapter. The second explanation is that my amendments to the SES-SFP *did* lead to desired outcomes but that the prevalence of sexual aggression was simply lower amongst this sample than the Study 1 and 2 samples. This is the more probable option given that data collection for this study (as well as Studies 3, 5, and 6) occurred during the COVID-19 pandemic – a period which research has shown had an inhibitory effect on the sexual behaviours of young adults in the UK (e.g., Mercer et al., 2021; Wignall et al., 2021).

Findings from this study also supported my hypothesis that there would be differences between self-reported SAs and NSAs in their scores on measures of situation-relevant and relationship-level risk factors associated with university-based sexual aggression. Whilst descriptive statistics showed that self-reported perpetrators scored higher than non-perpetrators across all assessed variables – minus my measure of self-control, where they scored lower (as predicted) – inferential testing could only differentiate between both groups on their proclivity towards compulsive sexual behaviours (measured using the CSBI-13) and novel sexual experiences (measured using the SSSS), as well as their levels of self-control

(measured using the BSCS). When inputted into a logistic regression model, only participants' CSBI-13 scores made a significant contribution. As in Studies 1 and 2, the model could discriminate between SAs and NSAs at greater-than-chance level.

My findings positively extend past literature on university-based sexual aggression, which has only tangentially examined the link between students' sexual compulsivity and their harmful sexual behaviours. For example, T. T. Lee et al. (2009) reported in their study a strong positive correlation between US male university students' scores on the CSBI (an earlier version of the CSBI-13) and their past sexually aggressive behaviours; specifically, their reports of physical and verbal coercion in sexual situations. Similarly, M. P. Thompson et al. (2015) discovered that self-reported levels of sexual compulsivity could differentiate US male students who followed different sexual aggression risk trajectories. To this end, my findings contribute preliminary evidence that a compulsion towards, or an addiction to, sexual activity may constitute a valid psychological indicator of university-based sexual aggression amongst UK university males. Targeted epidemiological research would be useful to further probe this finding and confirm whether the sexual proclivities of male students in the UK positively influence their harmful sexual behaviours.

Though they were not significant predictors in my logistic regression model, it is worth noting that self-control and sexual sensation seeking behaviours – variables which differentiated SAs and NSAs in this study – have been proposed as risk markers for male students' sexual perpetration in the US. For example, Franklin et al. (2012) found that students in their study who reported lower levels of self-control were more likely to possess histories of sexual perpetration than students without such deficits. Likewise, the authors discovered that perpetrators' self-reported ability to control their behaviours was significantly correlated with their adherence to traditional masculine ideologies, sexual media consumption, and (their perceptions of) their peers' attitudes supportive of sexual violence –

known risk factors for university-based sexual aggression. Similar findings were reported by Bouffard and Goodson (2017), providing further support for self-control as an explanatory factor for male students' harmful sexual behaviours.

Though I do not know of any studies that have assessed whether a proclivity towards seeking out novel sexual encounters constitutes a risk factor for university-based sexual aggression, several US researchers have offered evidence that a high proportion of male university students express a preference for novel or intense sexual experiences versus more typical experiences (e.g., Gaither & Sellbom, 2003; Gullette & Lyons, 2005; Perry et al., 2007). It would be of academic value for future researchers to assess whether students who express an interest in these extreme sexual behaviours are at increased risk of perpetrating an offence, which could help guide university harm prevention planning.

It is interesting to note that none of my assessed relationship-level risk factors differentiated between self-reported SAs and NSAs in this study. While it would be short-sighted to infer that my participants' sexually aggressive behaviours were not influenced by factors at this level, my findings do suggest that UK male students' sexual perpetration is guided more by situational and environmental cues than their proximal social relationships. This is a surprising preliminary finding given the overwhelming number of studies showing that US male students' harmful sexual behaviours are heavily influenced by their (perceptions of their) peers' attitudes and behaviours (e.g., DeKeseredy & Kelly, 1995; Goodson et al., 2021; Humphrey & Kahn, 2000; M. P. Thompson & Morrison, 2013; M. P. Thompson et al., 2013), as well as the broad academic knowledge base relevant to UK male students' harmful relationships with transgressive 'laddish' peers (e.g., Jeffries, 2020; Phipps & Young, 2013).

Finally, though its in-depth exploration falls outside the remit of this thesis, it is worth noting that a worrying proportion of SAs in this study ( $n = 10$ ; 23.3%) met the diagnostic criteria for sexual compulsivity – characterised by intense sexual urges that cause marked

distress or significant impairment in daily functioning – having surpassed the clinical cut-off point for the disorder on the CSBI-13. A similar proportion of SAs ( $n = 12$ ; 27.9%) were also highlighted as possessing problematic drinking behaviours, having scored above the clinical cut-off on the AUDIT-C. In both instances, SAs scored higher than NSAs (where 8.1% and 19.3% met clinical thresholds, respectively). From a student safety perspective, these findings warrant urgent academic attention as they signal to other public health issues on UK university campuses. Given the aforementioned link between sexual perpetration and both sexual compulsivity and problematic drinking behaviours, it is likely that increasing efforts to tackle male students' sexual addiction and alcohol addiction will also lead to reductions in their sexually violent behaviours. To this end, I encourage universities to allocate resources to tackling all three issues concurrently.

### **Limitations and Future Directions**

As with Studies 1 and 2, this study extended academic understanding of university-based sexual aggression by examining the prognostic value of various established or hypothesised situation-relevant and relationship-level indicators of UK male students' sexual perpetration. As previously, though, I urge readers to consider my findings alongside the study's limitations, outlined below.

First, as noted earlier in the chapter, readers should be cognisant of the global situation during the period that this study was running. At the point of data collection, university campuses in the UK were shut down and strict COVID-19-related social distancing rules were in place across the country. Emerging research has evidenced the wide-reaching effects that these actions had on the behaviours and mental wellbeing of UK university students (e.g., Evans et al., 2021), as well as the sexual behaviours of young people generally (Mercer et al., 2021; Wignall et al., 2021). Though no study has, to date, empirically tested the effect of COVID-19 restrictions on UK male students' *harmful* sexual behaviours,

international research has highlighted increasing rates of GBV during the pandemic (see Mittal & Singh, 2020) and thus suggests that there would be shifts in university males' sexual perpetration also. To this end, readers should understand that my results may not be generalisable beyond the period of COVID-19 restrictions. Future research is needed to establish the temporal validity of my findings.

Second, as with Studies 1 and 2, I empirically examined only a limited number of possible situation-relevant and relationship-level risk factors for university-based sexual aggression in this study. Factors assessed were chosen based on either established US research into male students' sexual perpetration or findings from the broader sexual offending literature. To allow for a comprehensive socio-ecological assessment of university-based sexual aggression in the UK, it would be advantageous for future researchers to examine the predictive ability of additional factors not assessed in this study. Particularly, I would encourage researchers to assess a more diverse range of relationship-level risk factors – including those related to family history, environment, and relationships, as well as delinquent peer associations – given that these were non-significant in this study but constitute established indicators of perpetration amongst US male students (see Tharp et al., 2013; O'Connor et al., 2021).

Linked to the above point, it would be of academic value to assess whether relationship-level protective factors derived from empirical work with university males in the US also reduce the risk of sexual perpetration amongst UK male students. Though comparatively few studies have examined the link between relationship-level protective factors (compared to risk factors) and sexual aggression (see Tharp et al., 2013), available evidence suggests that peer network density (i.e., the strength of relationships amongst a male students' close friends), peer social support, parenting style, and family functioning may buffer against university males' harmful sexual behaviours (see Forbes & Adams-Curtis,

2001; Salazar et al., 2018; Swartout, 2013). Examining protective factors such as these will offer useful academic insights into the relationship-level factors that discourage male students' sexual perpetration, which can help guide the development of more effective evidence-based harm prevention strategies for use on university campuses.

**Table 9***Demographic Comparisons between SAs and NSAs in this Study*

| Variable   | SA (n = 43) | NSA (n = 405) |
|--|-------------|---------------|
|  | n (%)       | n (%)         |
| Age <sup>a</sup>   |             |               |
| 20 and under   | 14 (32.6)   | 112 (27.7)    |
| 21-30  | 18 (41.9)   | 219 (54.1)    |
| 31-40  | 8 (18.6)    | 55 (13.6)     |
| 41-50  | 1 (2.3)     | 14 (3.5)      |
| 51-60  | -           | 4 (1.0)       |
| 61-70  | 2 (4.7)     | -             |
| 71-80  | -           | 1 (0.3)       |
| Ethnicity  |             |               |
| White - English / Welsh / Scottish / Northern Irish / British      | 18 (41.9)   | 243 (60.0)    |
| White - Irish  | -           | 5 (1.2)       |
| White - Gypsy or Irish Traveller                                   | -           | -             |
| White - Any other background                                       | 5 (11.6)    | 48 (11.9)     |
| Mixed / Multiple ethnic groups - White and Black Caribbean         | -           | 4 (1.0)       |
| Mixed / Multiple ethnic groups - White and Black African           | -           | 3 (0.7)       |
| Mixed / Multiple ethnic groups - White and Asian                   | 3 (7.0)     | 6 (1.5)       |
| Mixed / Multiple ethnic groups - Any other background              | 1 (2.3)     | 2 (0.5)       |
| Asian / Asian British - Indian                                     | 5 (11.6)    | 19 (4.7)      |
| Asian / Asian British - Pakistani                                  | 2 (4.7)     | 11 (2.7)      |
| Asian / Asian British - Bangladeshi                                | 3 (7.0)     | 5 (1.2)       |
| Asian / Asian British - Chinese                                    | 1 (2.3)     | 8 (2.0)       |
| Asian / Asian British - Any other background                       | 2 (4.7)     | 17 (4.2)      |
| Black / African / Caribbean / Black British - African              | 3 (7.0)     | 21 (5.2)      |
| Black / African / Caribbean / Black British - Caribbean            | -           | 3 (0.7)       |
| Black / African / Caribbean / Black British - Any other background | -           | -             |
| Arab   | -           | 8 (2.0)       |
| Other / Prefer to self-describe                                    | -           | 2 (0.5)       |
| Current level of university study                                  |             |               |
| Foundation stage or equivalent                                     | 3 (7.0)     | 11 (2.7)      |

|  |           |            |
|--|-----------|------------|
| Undergraduate or equivalent                  | 28 (65.1) | 261 (64.4) |
| Master's or equivalent                       | 9 (20.9)  | 93 (23.0)  |
| PhD / Doctoral or equivalent                 | 3 (7.0)   | 40 (9.9)   |
| Other <sup>b</sup>                           | -         | -          |
| Relationship status                          |           |            |
| Single or Self-partnered                     | 24 (55.8) | 192 (47.4) |
| In a relationship or Common law partnership  | 12 (27.9) | 166 (41.0) |
| Married                                      | 6 (14.0)  | 42 (10.4)  |
| In a civil partnership                       | 1 (2.3)   | 2 (0.5)    |
| Divorced                                     | -         | 1 (0.3)    |
| Separated                                    | -         | 1 (0.3)    |
| Widowed                                      | -         | 1 (0.3)    |
| Other / Prefer to self-describe <sup>b</sup> | -         | -          |
| University country                           |           |            |
| England                                      | 35 (81.4) | 307 (75.8) |
| Scotland                                     | 2 (4.7)   | 39 (9.6)   |
| Wales  | 2 (4.7)   | 22 (5.4)   |
| Northern Ireland                             | -         | 4 (1.0)    |
| Open University                              | 4 (9.3)   | 33 (8.2)   |

*Note.* Figures may not add up to 100% due to rounding. SA = sexual aggressor; NSA = non-sexual aggressor.

<sup>a</sup> For ease of reading, participants' ages have been grouped. Age was analysed as a continuous measure in my analyses.

<sup>b</sup> Participants who responded "Other / Prefer to self-describe" to these items were categorised into pre-existing groups.

**Table 10***Internal Consistency and Mean Scores for SAs and NSAs across each Administered Measure*

| Measure                      | Cronbach's $\alpha$<br>(SA, NSA) | SAs ( $n = 43$ )<br>$M (SD)$ | NSAs ( $n = 405$ )<br>$M (SD)$ | Range <sup>a</sup> |
|------------------------------|----------------------------------|------------------------------|--------------------------------|--------------------|
| Measure of sexual aggression |                                  |                              |                                |                    |
| SES-SFP                      | .94                              | -                            | -                              | -                  |
| Predictor variables          |                                  |                              |                                |                    |
| AUDIT-C                      | .82 (.90, .81)                   | 4.1 (3.3)                    | 3.9 (2.8)                      | 0 - 12             |
| BSCS                         | .87 (.84, .87)                   | 36.8 (9.8)***                | 41.8 (9.6)                     | 13 - 65            |
| CSBI-13                      | .89 (.88, .88)                   | 29.7 (9.9)***                | 23.1 (7.5)                     | 13 - 65            |
| FAPCSM                       | .76 (.77, .76)                   | 7.2 (1.9)                    | 6.9 (1.7)                      | 6 - 30             |
| MSIM                         | -                                | 2.2 (2.7)                    | 2.0 (2.7)                      | -                  |
| SDQ <sup>b</sup>             | .82 (.67, .83)                   | 17.2 (3.5)                   | 16.9 (4.0)                     | 4 - 26             |
| SMS                          | .74 (.66, .75)                   | 11.2 (5.7)                   | 9.7 (5.5)                      | 4 - 28             |
| SSSS <sup>c</sup>            | .85 (.83, .85)                   | 2.4 (0.6)*                   | 2.2 (0.6)                      | 1 - 4              |
| SU                           | .83 (.86, .81)                   | 13.0 (5.5)                   | 11.6 (3.5)                     | 9 - 72             |

*Note.* SA = sexual aggressor; NSA = non-sexual aggressor; SES-SFP = Sexual Experiences Survey – Short Form: Perpetration; AUDIT-C = Alcohol Use Disorders Identification Test – Consumption; BSCS = Brief Self-Control Scale; CSBI-13 = Compulsive Sexual Behavior Inventory-13; FAPCSM = Friends' Approval and Pressure for Coerced and Forced Sex Measure; MSIM = Misperception of Sexual Intent Measure; SDQ = Sexual Drive Questionnaire; SMS = Sexual Media Scale; SSSS = Sexual Sensation Seeking Scale; SU = Substance Use over the Past 30-days Measure.

<sup>a</sup> Ranges are displayed in their original formats and have not been edited to reflect dropped items (see Footnote 27, pg. 143).

<sup>b</sup> As in Ostovich and Sabini's (2004) paper, I present here unstandardised total SDQ scores.

<sup>c</sup> As in Kalichman and Rompa's (1995) paper, I present here composite SSSS scores.

\* $p < .05$  \*\*\* $p < .001$

**Table 11***Logistic Regression Model Predicting the Likelihood of Self-Reported Sexual Aggression*

| Measure  | $\beta$ | SE   | Wald  | df | p     | OR   | 95% CI for OR |      |
|----------|---------|------|-------|----|-------|------|---------------|------|
|          |         |      |       |    |       |      | LL            | UL   |
| BSCS     | -0.03   | 0.02 | 2.80  | 1  | .09   | 0.97 | 0.93          | 1.00 |
| CSBI-13  | 0.07    | 0.02 | 13.73 | 1  | <.001 | 1.08 | 1.04          | 1.12 |
| SSSS     | 0.06    | 0.31 | 0.04  | 1  | .85   | 1.06 | 0.58          | 1.93 |
| Constant | -3.07   | 1.22 | 6.30  | 1  | .01   | 0.05 | -             | -    |

*Note.* OR = odds ratio; CI = confidence interval; LL = lower limit; UL = upper limit; BSCS = Brief Self-Control Scale; CSBI-13 = Compulsive Sexual Behavior Inventory-13; SSSS = Sexual Sensation Seeking Scale.

## CHAPTER 8

### **Study 5 – Community / Institution-Level Risk Factors Associated with University-Based Sexual Aggression Perpetration at UK Universities**

Study 4 highlighted that risk factors for UK male students' harmful sexual behaviours exist beyond the individual level and findings offered preliminary empirical support for several potential situation-relevant and relationship-level indicators associated with participants' past sexual perpetration. To further refine the profiles of self-reported sexually aggressive males at UK universities, and to provide additional insight into the socio-ecological factors associated with their propensity towards sexual offending, this chapter will extend research by assessing the predictive value of various hypothesised community and institution-level factors on male students' harmful sexual behaviours.

As shown in Chapter 2, there has been an increase in recent years in the number of empirical studies – again, mostly emanating from the US – that have assessed how the proximal communities and environments in which students live and learn guide their sexual behaviours (see Tashkandi et al., 2022). In terms of university-based sexual aggression, most of this research has focussed on the influence of institution-level risk factors – defined here as the (actual or perceived) rules, regulations, management strategies, policies, and informal structures of individual universities that either prevent or encourage students' harmful sexual behaviours (e.g., Moylan & Javorka, 2020; Tashkandi et al., 2022; Tredinnick, 2022) – on sexual victimisation. This research has highlighted that many universities (inadvertently) encourage sexual victimisation by failing to put in place sufficient safeguards to prevent or discourage students from engaging in harmful sexual behaviours.

In particular, climate surveys – which seek to examine the prevalence of students' sexual victimisation alongside their perceptions of general campus culture – have provided researchers with useful insights into the campus-level factors associated with university-

based sexual aggression. For example, findings from two of the largest published surveys, conducted by Krebs et al. (2016) and McMahon et al. (2015), showed that a student's sense of campus safety, their perceptions of campus supportiveness of sexual aggression, and their trust in campus resources (e.g., campus police, administrators) to tackle GBV were all associated with their risk of experiencing sexual assault during their studies. Krebs et al.'s (2016) findings further suggested a link between a student's sexual victimisation and their perceptions of their university leadership climate for sexual assault prevention, in that self-reported rates of assault were higher at universities where students perceived that senior leaders did not support victims and were unconcerned with student wellbeing.

Beyond climate survey research, studies have also begun to explore the influence of campus-level factors on students' willingness to support those who have been sexually victimised (e.g., Cusano & McMahon, 2021), as well as their propensity to intervene when they witness a sexual assault taking place (e.g., McMahon, 2015). These studies have provided additional evidence that students' behaviours are guided by various institution-level factors, including their perceptions of their university's responsiveness to sexual misconduct incidents, their sense of connectedness to their campus, and their own beliefs supportive of university-based sexual aggression (which are believed to be shaped by the previous two factors).

Interestingly, in their study of sexual assault prevention amongst US student athletes – a particularly high-risk group for university-based sexual aggression perpetration (see Young et al., 2017) – Tredinnick (2022) reported that their participants' own engagement in sexual assault prevention activities positively impacted their perceptions of their institution's prevention and response efforts for sexual assault, as well as their awareness of their own school's sexual misconduct policies and resources. Given that a university's sexual harm prevention offering is a sensible proxy for their prioritisation of campus safety, it would be

worthwhile to explore whether this finding generalises to UK male students and positively impacts their sexual behaviours.

### **Purpose of Study 5**

This study extends academic understanding generated in earlier chapters by offering the first formal empirical assessment of the community and institution-level risk factors associated with UK male students' sexually aggressive behaviours. These include several factors highlighted by recent climate survey researchers as indicators of US students' sexual victimisation, which, I hypothesise, will also guide male students' perpetration given that victims and perpetrators occupy the same social environments and likely possess similar perceptions of their university's approach to sexual harm prevention. This study further extends scientific knowledge by appraising the prognostic value of UK male students' participation in sexual assault prevention activities (as a proxy of their university's prioritisation of sexual harm prevention), as well as their personal acceptance of sexual misconduct, which past US research suggests is guided by their institution's response to sexual victimisation (e.g., Cusano & McMahon, 2021; Krebs et al., 2016).

As for Study 4, the findings from this study do not directly feed into Study 6 (my intervention study). However, it is hoped that findings positively contribute to current academic understanding of university-based sexual aggression by highlighting the influence of community and institution-level risk factors on UK male students' harmful sexual behaviours. As noted by Tashkandi et al. (2022), studies that probe the campus characteristics associated with sexual perpetration are likely to be useful for sexual harm prevention experts wishing to develop robust, empirically informed primary prevention strategies for sexual assault, who are currently restricted by a lack of available evidence base.

As noted in the previous chapter, this study was pre-registered on OSF.io prior to data collection. My pre-registration document – which also covers Study 4 – is publicly available at <https://osf.io/je23d/>, alongside copies of my materials and raw data.

## Method

### Participants

The sample in this study comprised  $N = 451$  participants (43.9% of the eligible target population on Prolific). These included all the male students analysed in Study 4 ( $N = 448$ ), plus three additional participants who were removed during the outlier elimination process (two NSAs and one SA). Of the participants in this study,  $n = 407$  were classed as NSAs and  $n = 44$  were classed as SAs based on their responses to my tactics-first SES-SFP described in the previous chapter.

Given the similarities between both groups and to avoid replicating information available elsewhere in this thesis, I will not report here on the demographic characteristics of the current sample and instead refer readers to the previous chapter where a lengthy description of the Study 4 sample is available.

### Measures

The measures used in this study consisted of self-report instruments that assessed various (proposed) institution-level risk factors that have been theoretically or empirically associated with university students' sexually aggressive behaviours (Moylan & Javorka, 2020; see also Herres et al., 2021; Hollister et al., 2017; Krebs et al., 2016; Tredinnick, 2022).<sup>31</sup> Several measures – particularly those pertaining to campus climate-related factors – were taken from large-scale US climate surveys, including the Bureau of Justice Statistics' pioneering *Campus Climate Survey Validation Study* (Krebs et al., 2016). Again, short-form

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<sup>31</sup> Given the unique socio-cultural environments that universities nurture, I conceptualise in this study institutional risk factors as a distinct subset of broader community-level risk factors associated with sexual violence (see Dahlberg & Krug, 2002).

measures were prioritised to help mitigate against cognitive fatigue in participants and the wording of certain items was amended so they were accessible to UK participants. Given the paucity of academic literature exploring the influence of macro-level risk factors on male sexual aggression, I did not believe it to be appropriate to categorise measures into superordinate groups (as in Studies 1, 2, and 4).

As in previous studies, I report Cronbach's alpha ( $\alpha$ ) as a measure of internal consistency across scales (see Table 12, pg. 187). Alpha scores are again interpreted using George and Mallery's (2016) criteria, which are reported fully in Study 1. As previously, all overall alpha scores surpassed the recommended standard for adequate internal consistency (i.e.,  $\geq 70$ ) proposed by DeVellis and Thorpe (2021) and Kline (2005). In contrast to previous studies, no items in this study returned corrected item-total correlations less than .25. Subsequently, I present below full versions of each administered measure.

### ***History of Sexual Aggression Perpetration***

**Sexual Experiences Survey – Short Form: Perpetration (SES-SFP; Koss et al., 2007).** As noted elsewhere, data for this study were collected along with data for Study 4 as part of the first wave of Study 6. Subsequently, I refer readers to Study 4 for a description of the tactics-first SES-SFP used in this study, including its psychometric properties.

### ***Predictor Variables***

**Campus Connectedness Scale (CCS; Summers et al., 2005).** Based on R. M. Lee and Robbins' (1995) established *Social Connectedness Scale*, the CCS comprises 14 items (eight of which are reverse-coded) that tap into a student's personal sense of attachment to their campus and campus community. Responses to items are made on a 6-point Likert-type scale that is anchored by 1 (*Strongly disagree*) and 6 (*Strongly agree*). Total scores can range from 14 to 84, with higher scores reflecting a greater feeling of campus attachment. An example item is "I can relate to my fellow classmates at my university".

The scale has demonstrated “excellent” internal consistency across several studies with university students (e.g., Hollister et al., 2014, 2017; Sulkowski, 2011), as well as convergent validity with the *Trust in College Support System Scale* described below (Sulkowski, 2011). Internal consistency was also “excellent” in this study.

**Feelings of Safety on Campus Scale (FSCS; Hollister et al., 2014).** The FSCS contains two related items (both reverse coded) that examine a student’s perceptions of campus safety. The items are “I feel safe on campus during the day” and “I feel safe on campus at night”. Participants respond to each item using a 5-point scale that ranges from 1 (*In all areas*) to 5 (*In no areas*). Responses to both items are summed for a total score that can range from 2 to 10. As both items are reverse-coded, higher scores indicate greater feelings of personal safety on campus.

Due to common variability in students’ perceptions of campus safety, as well as the scale comprising only two items, the FSCS typically returns “acceptable” internal consistency (e.g., Hollister et al., 2014, 2017). In this study, internal consistency was also “acceptable”.

**Participation in Sexual Assault Prevention Scale (PSAPS; Tredinnick, 2022).** I used an expanded 7-item version of Tredinnick’s (2022) PSAPS to examine whether participants had taken part in any sexual harm prevention training offered by their current university. Specifically, participants were asked to report whether they had attended any assemblies, workshops, or classes that covered either the definition of sexual assault or sexual consent; their university’s sexual assault policy, reporting procedures, or support services; bystander interventions; or other strategies for preventing sexual assault. Items were taken from Krebs et al.’s (2016) *Participation in Training Measure*. Participants responded either 0 (*No/Not sure*) or 1 (*Yes*) to each item. Total scores could range from 0 to 7, with higher scores indicating greater participation by a student in sexual assault prevention programmes.

As the response format for the PSAPS was binary, internal consistency was assessed using KR-20 – a special case of Cronbach’s alpha designed for scales using dichotomous response sets (see Kuder & Richardson, 1937). This showed that the scale possessed “good” internal consistency.<sup>32</sup> As it was created specifically for use in this study, there are no comparable estimates of internal consistency for the measure.

**Perceptions of School Leadership Climate for Sexual Assault Prevention Scale (PLC; Krebs et al., 2016).** This 7-item measure tapped into students’ perceptions of their university’s responses to sexual assault allegations, as well as their university leaderships’ efforts related to sexual harm prevention. Responses to items are made on a 4-point Likert-type scale anchored by 0 (*Strongly disagree*) and 3 (*Strong agree*). Total scores can range from 0 to 21, with higher scores indicating more positive perceptions of institutional approaches to preventing and responding to sexual assault. An example item is “My university is doing a good job of investigating incidents of sexual assault”.

The PLC has demonstrated “excellent” internal consistency with university students in the US (e.g., Krebs et al., 2016; Tredinnick, 2022), which was replicated in this study.

**Personal Acceptance of Sexual Misconduct Scale (PASM; Krebs et al., 2016).** The PASM comprises seven items (one of which is reverse-coded) that, collectively, assess the degree to which an individual tolerates or excuses sexual aggression. Participants respond to items using a 4-point Likert scale that ranges from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Scores are summed for a total score that can range from 7 to 28. Higher scores indicate a greater tolerance of sexual aggression. An example item is “It doesn’t really hurt anyone to post sexual comments or photos of people without their consent through e-mail, text, or social media”.

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<sup>32</sup> As a special case of Cronbach’s alpha, KR-20 scores can also be interpreted using George and Mallery’s (2016) criteria.

The authors of the scale report that it possesses “good” internal consistency with university students (Krebs et al., 2016). In this study, the PASM returned an “acceptable” alpha score.

**Student Supportiveness of Sexual Violence Scale (SSSV; McMahon et al., 2015).**

Adapted from the Defense Equal Opportunity Management Institute’s (DEOMI; Department of Defense, 2014) *Organizational Climate Survey*, this scale contains three items (all of which are reverse-coded) that examine a student’s perceptions of how supportive their peers would be of an individual who has reported sexual violence victimisation. Items are presented alongside a scale that ranges from 1 (*Very unlikely*) to 5 (*Very likely*). Overall scores on the SSSV are a composite of participants’ responses to the three items and can therefore range from 1 to 5, with higher scores indicating more positive perceptions of student supportiveness towards victims of sexual violence. An example item is “Other students at my university would have a hard time supporting the person who made the report”.

The authors report that, despite large variations in their respondents’ scores across the measure, the SSSV demonstrates “good” internal consistency with US university students (McMahon et al., 2015). In this study, the measure returned an “acceptable” alpha score.

**Trust in College Support System Scale (TICSSS; Sulkowski, 2011).** The TICSSS contains 6 items (two of which are reverse-coded) that assess a student’s perception of how well their university would react were their students’ safety compromised in some way. Responses to each item are made on a 4-point Likert-type scale that ranges from 1 (*Strongly disagree*) to 4 (*Strongly agree*). A composite score is generated to assess a respondents’ average endorsement to each item, which can range from 1 to 4. Higher scores on the measure indicate more positive perceptions of a university’s handling of crises. An example item is “If a crisis happened at my university, the university would manage it well”.

As noted earlier, the scale has demonstrated convergent validity with Summers et al.'s (2005) CCS, as well as good discriminant validity with a measure of recent delinquent behaviours (Sulkowski, 2011). The author also reports that the TICSSS returns “good” internal consistency with university students (Sulkowski, 2011), though in other studies alpha has been markedly lower (e.g., Paulk et al., 2017; Rizzo et al., 2021). In this study, the scale returned an “acceptable” internal consistency score.

**University Responsiveness to Reports of Sexual Violence Scale (URRSV; McMahon et al., 2015).** Also adapted from the DEOMI's (Department of Defense, 2014) *Organizational Climate Survey*, this 7-item scale taps into a student's beliefs about their university's handling of sexual assault. Items are presented alongside a 5-point Likert-type scale anchored by 1 (*Very unlikely*) and 5 (*Very likely*). Total scores on the scale can range from 7 to 35, with higher scores reflecting more positive perceptions of a university's responsiveness to reports of sexual violence. An example item is “My university would take the report seriously”.

The authors of the URRSV report that it possesses “excellent” internal consistency with university students (McMahon et al., 2015), which was replicated in this study.

## **Procedure**

As noted in Study 4, data for this study were gathered as part of the initial data collection process for Study 6 – my outcome evaluation of a novel online self-help intervention for sexual aggression. Therefore, I refer readers to the previous chapter for an in-depth explanation of how data were collected in this study.

## **Analysis Plan**

Ostensibly, the analysis plan for this study replicated the procedure outlined in the previous chapter. As in Study 4, I again decided against recoding scores on measures that assessed ‘typical’ behaviours to reflect non-conformity. Though this was a deviation from my

public pre-registration, this decision helped to mitigate against possible researcher error and ensured that my results were easily interpretable to readers. Univariate outliers were managed as previously, using the same  $z$ -score criteria for outlier exclusion noted in the previous chapter. In total, 36 possible outliers were identified based on participants' responses across four (out of eight) of my measured variables, which were confirmed using boxplots. Of these, 24 cases were retained (unadjusted) and the remaining 12 were winsorised (see Dixon, 1960), which led to positive statistical gains. No participants were removed from the dataset for being univariate outliers.

## **Results**

As noted earlier, my final sample in this study comprised the same participants as in Study 4 plus three additional participants (two NSAs and one SA). Therefore, for the sake of brevity and to avoid duplicating information, I have not included below a *Sexual Aggression: Prevalence and Features* section. Instead, I would refer readers to the previous chapter for information on the breadth and scope of harmful sexual behaviours self-reported by my participants (which almost perfectly replicate those reported by my participants in this study).

### **Group Comparisons**

As in Study 4, univariate analyses were conducted to compare the responses of SAs and NSAs to my demographic survey and measures of institution-level risk factors. This was with the aim of determining which predictor variables should enter my logistic regression model. Again, multiple test corrections were not applied to avoid masking potential predictors.

### ***Demographic Variables***

As in previous chapters, there were notable similarities between self-reported SAs and NSAs in this study, in that most participants across both groups self-reported being younger, well educated, White British students enrolled on a course at a university in England. For

brevity, I have not included a table describing the demographic characteristic of self-reported SAs and NSAs. Instead, I refer readers to Table 9 (pg. 165) in the previous chapter.

Univariate analyses showed that both groups could not be differentiated on most demographic variables assessed in this study (all  $ps > .05$ ). However, in a surprise deviation from Study 4 but similar to findings from Study 1, they did highlight a significant difference between SAs and NSAs with regards to their self-reported ethnicity,  $p = .027$ . Post-hoc analyses involved conducting multiple Fisher's exact tests to assess for differences across ethnic subgroups. A Bonferroni correction was applied, and statistical significance was accepted at the  $p < .003$  level. All pairwise comparisons were non-significant; however, the proportion of participants who reported their ethnicity as "Asian / Asian British – Bangladeshi" was notably higher for SAs ( $n = 4$ ; 9.1% of the SA sample) than NSAs ( $n = 5$ , 1.2% of the NSA sample), a result which was approaching significance,  $p = .007$ .<sup>33</sup> As in Study 1, I decided to retain ethnicity as a possible predictor given its hypothesised link to sexual aggression through cultural norms (see Palmer et al., 2021; Porta et al., 2017).

### ***Institution-Level Measures***

As in earlier studies, mean and standard deviation scores were computed separately for SAs and NSAs across each measure (see Table 12, pg. 187). Due to violations of normality across all variables – determined using the methods described in the previous chapter – and to avoid transforming data, I conducted a series of Mann-Whitney  $U$  tests to assess for differences in scores between SAs and NSAs across my measures. As in Study 4, inferences were made about differences in distributions and mean ranks between groups (versus differences in median scores) due to there being different shaped dispersion patterns between groups. Likewise, for the reasons noted in the previous chapter, I report on the asymptotic (versus exact) significance level. The results of my Mann-Whitney  $U$  tests

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<sup>33</sup> This was likely a result of my conservative Bonferroni correction, which made it hard for my post-hoc comparisons to reach significance at the  $p < .003$  (see Footnote 23, pg. 127).

showed that SAs and NSAs could only be differentiated by their scores on two measures: the PASM ( $U = 6227.00$ ,  $z = -3.335$ ,  $p < .001$ ,  $r = .157$ ) and the PSAPS ( $U = 7009.50$ ,  $z = -2.510$ ,  $p = .012$ ,  $r = .118$ ).<sup>34</sup>

### **Classifying Sexual Aggressors**

As in previous studies, measures that differentiated between SAs and NSAs (i.e., PASM and PSAPS scores, as well as participants' self-reported ethnicity) were simultaneously force-entered as predictors into a binomial logistic regression model to determine whether they could reliably predict past sexual aggression. As in Study 1, I followed the recommendations of Hair et al. (2013) and dichotomised ethnicity into a "White British" and a "minority ethnic" category due to there being multiple cell counts less than five across ethnic subcategories (see Footnote 13, pg. 96). Dichotomised SES-SFP scores were again entered as the dependent variable and the NSA group was selected as the reference group.

Assumption testing highlighted no issues in my dataset with regards to linearity (all  $ps > .008$ ) or multicollinearity. Reviewing the standardised residuals of cases highlighted 23 SAs (52.3% of the SA sample) as possible multivariate outliers as they had high scores across the PASM and PSAPS. Reviewing responses highlighted that these high leverage points likely reflected honest responding patterns; subsequently, to avoid unnecessarily removing data from my dataset, I retained these 23 SAs.

Youden's index was calculated as previously and suggested a cut-off value of  $J = .081$ . A model based on this cut-off was significant,  $\chi^2(3) = 22.58$ ,  $p < .001$ , and explained between 4.9% (Cox & Snell  $R^2$ ) and 10.3% (Nagelkerke  $R^2$ ) of variance in sexual aggression. Hosmer and Lemeshow's goodness of fit test was not significant,  $\chi^2(8) = 5.30$ ,  $p = .73$ , indicating that my model was not a poor fit. In terms of classificatory ability, 56.8% of all

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<sup>34</sup> Mean rank scores were as follows: for the PASM, NSAs = 219.30 and SAs = 287.98; and for the PSAPS, NSAs = 221.22 and SAs = 270.19.

cases were correctly categorised as either belonging to the SA or the NSA group. Sensitivity and specificity scores were 77.3% and 54.5%, respectively, whilst the positive predictive value of the model was 15.5% and the negative predictive value was 95.7%.

Of the three predictor variables that entered the model, only PASM and PSAPS scores made a significant contribution (see Table 13, pg. 188). ROC curve analysis revealed that the model could discriminate between SAs and NSAs at better-than-chance level;  $AUC = .70$ ,  $p < .001$ , 95% CI [.62, .78]. This can be classed as “acceptable discrimination” according to Hosmer et al. (2013) and corresponds to a medium Cohen’s  $d$  effect size of approximately 0.74 (Rice & Harris, 2005).

### **Discussion**

Study 5 extends Studies 1, 2, and 4 by providing preliminary empirical support for a range of theoretically derived community and institution-level risk factors associated with UK male students’ harmful sexual behaviours. These included several factors associated with US university students’ sexual victimisation experiences, which have not been scientifically assessed as risk factors for sexual perpetration. By assessing the influence of these broader socio-ecological factors on male students’ sexual behaviours, my findings provide researchers with useable insights into the outer-level mechanisms that facilitate university-based sexual aggression in the UK and contribute useful data for the development of harm prevention strategies on campuses.

As in previous chapters, the results of my statistical tests supported many of my hypotheses in this study. For example, across most administered measures, descriptive analyses showed that there were differences in mean scores between self-reported SAs and NSAs. However, inferential testing based on these scores could only differentiate between both groups on their responses to the PASM (measuring personal acceptance of sexual misconduct) and the PSAPS (measuring participation in sexual assault prevention), as well as

their self-reported ethnicity. When these three variables were entered into a logistic regression model to assess their ability to predict past sexual perpetration, only PASM and PSAPS scores made a significant contribution. That is to say, greater acceptance of sexual misconduct and increased participation in sexual harm prevention activities were both associated with higher rates of self-reported sexual aggression. I will discuss these findings in turn.

In terms of PASM scores, it is unsurprising based on past research that students who either reported a greater approval of, or who could more easily excuse, sexual aggression were significantly more likely to disclose recent sexual perpetration than their peers who condemned such behaviours. For nearly three decades, empirical work into university-based sexual aggression has shown that US male students who report either an acceptance of (sexual) violence (e.g., Abbey & McAuslan, 2004; Christopher et al., 1993; Hogben et al., 2001) or a willingness to engage in sexual violence (e.g., Abbey et al., 1998; Carr & VanDeusen, 2004) are more likely to disclose histories of harmful sexual behaviours than those with less problematic attitudes. In their empirical validation of Malamuth et al.'s (1991) confluence model for sexual aggression, Hall et al. (2005, 2006) showed that the association between acceptance of violence and sexual perpetration amongst university students is often mediated by other risk factors for sexual aggression, such as hostile masculinity. The authors also reported that this association varies across ethnic groups, suggesting that the predictive validity of self-reported acceptance of violence is contingent on a student's demographic characteristics and perhaps influenced by broader community or societal factors.

The measure developed by Krebs et al. (2016) that was used to assess personal acceptance of sexual misconduct in this study has not yet been applied to the assessment of sexual perpetration; however, published findings from climate surveys using the measure to examine sexual victimisation have highlighted noteworthy differences in response patterns

between male and female student participants, which help contextualise my findings. For example, Krebs et al. (2016) noted that 34% of male respondents in their study reported “extremely negative climate scores” (pg.164) on the PASM, compared to only 14% of female respondents. Similar trends were highlighted by Rasmussen et al. (2017), whose findings also showed that scores were notably higher on the measure for male students who participated in intercollegiate or recreational athletic activities (an established risk factor for university-based sexual aggression; see Chapter 2) versus non-athletes and female students. Though differences in research questions mean that direct comparisons cannot be made between the findings from these two studies and my study, they do imply that there are similarities between US and UK male university students in terms of their ability to tolerate or excuse sexual aggression, which are likely to influence their own sexual behaviours.

That PSAPS scores significantly contributed to my predictive model is a more surprising finding, given that my descriptive results showed that SAs scored higher than NSAs on the measure. This defies common-sense predictions that participating in sexual assault prevention activities will reduce a student’s likelihood of reporting recent sexual perpetration. There are two likely explanations for this finding. First, it may be the case that SAs in this study who reported participating in harm prevention interventions engaged in sexually aggressive activities *before* taking part in any programming. Were this the case, it would mean that, at the time of their offending, SAs may not have taken part in any formal prevention work to reduce their proclivity towards sexual perpetration; thus, their criminal trajectory remained undisturbed. Unfortunately, I did not collect data in this study to examine the temporal sequencing of these events; however, this explanation would help to explain the prognostic ability of the PSAPS measure in my regression model.

Second, it could be the case that PSAPS scores predicted recent sexual aggression because the sexual assault prevention activities that participants took part in *increased* their

proclivity towards harmful sexual behaviours. In support of this suggestion, several recent US studies have discovered that some male university students who engage in sexual harm prevention programming score higher on risk-related measures at post-intervention versus pre-intervention testing (e.g., Bosson et al., 2015; Elias-Lambert & Black, 2016; Spikes & Sternadori, 2018; Stephens & George, 2009). In their recent article, Malamuth et al. (2018) propose that these “boomerang reactance effects” (also known as backlash effects) are often exhibited by high-risk university males (i.e., those who possess general antisocial tendencies and personality characteristics linked to sexual perpetration) who, the authors claim, purposively resist harm prevention work as they feel entitled to have sex with women and therefore respond negatively when faced with opposing evidence. Malamuth and colleagues propose that this “hostile reactance” is a leading cause of failure for many university harm prevention interventions in the US and, for certain high-risk male students, can increase their likelihood of sexual perpetration. Worryingly, follow-up work by Spikes and Sternadori (2018) provided evidence that low-risk US male students may also be susceptible to this iatrogenic effect, though more work is required to validate this claim.

To date, no research has comprehensively examined boomerang reactance effects amongst UK university students. In their outcome evaluation of *The Intervention Initiative*, Fenton and Mott (2018) reported that an undefined number of their UK student participants displayed negative shifts in their scores on measures associated with sexual harm prevention following programme participation. Likewise, Burrell (2021) noted that a subgroup of the UK male student athletes they interviewed reported resistance to GBV prevention campaigns on their campus, including a lack of willingness to engage appropriately in sexual assault prevention programming. Though it cannot be empirically tested based on the available data, it is possible that the significant contribution of PSAPS scores in my regression model may

be accounted for by a subset of high-risk UK male students in my SA group who do not support campus-based sexual harm prevention work.

### **Limitations and Future Directions**

By assessing the influence of several hypothesised community and institution-level factors on UK male students' sexually aggressive behaviours, this study has provided useful empirical insights into the role that broader socio-ecological risk factors play when it comes to sexual perpetration on UK campuses. Despite its positive contribution to sexual harm prevention literature, I would encourage readers to consider findings alongside the study's limitations, detailed below.

First, I acknowledge that this study took a high-level view of the community and institution-level indicators associated with university-based sexual aggression and did not consider individual-level differences in institutional culture and ecology that were likely to influence my participants' scores on administered measures (see Moylan & Javorika, 2020). Predominantly, this was a consequence of sample size limitations – though I had enough participants in my SA and NSA groups to run adequately powered headline analyses, I would not have had sufficient statistical power to examine in this study the influence of campus-level factors on findings. To facilitate greater academic understanding of the link between institution-level characteristics and university males' sexual perpetration, it would be of academic value for future researchers to investigate whether my findings in this study apply equally across all UK HEIs, or rather if they are limited to certain institutions only. Based on the recent work of Tashkandi et al. (2022), useful characteristics to assess are likely to include institution type, demographics, and climate, as well as a university's educational and financial characteristics.

Second, it would have been useful to assess the association between the specific forms of sexual harm prevention programming measured by the PSAPS and participants' self-

reported sexual aggression. Again, sample size constraints meant this was not possible in this study; however, given the significant contribution of PSAPS scores to my regression model, this assessment would have offered useful empirical data on the types of harm prevention activities that positively impact UK male students' sexual perpetration, as well as those that may increase risk of offending. Greater examination of this finding could feed into future harm prevention planning and strategising, for example, by encouraging more robust, evidence-based programme design, implementation, and evaluation.

Finally, to ensure that valid arguments can be made about cause-and-effect, I would encourage future researchers seeking to replicate this study's findings to administer expanded versions of the SES-SFP and PSAPS that ask respondents *when* they participated in sexually aggressive behaviours and sexual harm prevention activities, respectively. Collecting these data would allow researchers to make more valid inferences about the association between students' engagement in harm prevention interventions and their sexual perpetration, which could help refine current programming to ensure that it delivers desirable outcomes. Temporal data could also contribute towards the creation of a descriptive pathway model for university-based sexual aggression, which could provide useful information on the developmental trajectories for UK male students' sexual perpetration and highlight areas for primary prevention.

**Table 12***Internal Consistency and Mean Scores for SAs and NSAs across each Administered Measure*

| Measure                      | Cronbach's $\alpha$<br>(SA, NSA) | SAs ( $n = 44$ )<br>$M (SD)$ | NSAs ( $n = 407$ )<br>$M (SD)$ | Range   |
|------------------------------|----------------------------------|------------------------------|--------------------------------|---------|
| Measure of sexual aggression |                                  |                              |                                |         |
| SES-SFP                      | .94                              | -                            | -                              | -       |
| Predictor variables          |                                  |                              |                                |         |
| CCS                          | .95 (.94, .95)                   | 53.4 (15.8)                  | 55.5 (16.1)                    | 14 – 84 |
| FSCS                         | .78 (.43, .79)                   | 8.9 (1.2)                    | 8.6 (1.9)                      | 2 – 10  |
| PASM                         | .73 (.79, .71) <sup>a</sup>      | 13.7 (3.6)***                | 11.8 (3.1)                     | 7 – 28  |
| PSAPS                        | .89 (.86, .89)                   | 2.8 (2.5)*                   | 1.9 (2.4)                      | 0 – 7   |
| PLC                          | .91 (.92, .91)                   | 14.1 (4.5)                   | 13.5 (4.1)                     | 0 – 21  |
| SSSV <sup>b</sup>            | .70 (.81, .68)                   | 3.7 (0.9)                    | 3.9 (0.8)                      | 1 – 5   |
| TICSSS <sup>c</sup>          | .79 (.68, .80)                   | 2.7 (0.5)                    | 2.6 (0.5)                      | 1 – 4   |
| URRSV                        | .92 (.91, .92)                   | 29.0 (4.8)                   | 29.1 (5.0)                     | 7 – 35  |

*Note.* SA = sexual aggressor; NSA = non-sexual aggressor; SES-SFP = Sexual Experiences Survey – Short Form: Perpetration; CCS = Campus Connectedness Survey; FSCS = Feelings of Safety on Campus; PASM = Personal Acceptance of Sexual Misconduct; PSAPS = Participation in Sexual Assault Prevention; PLC = Perceptions of School Leadership Climate for Sexual Assault Prevention; SSSV = Student Supportiveness of Sexual Violence; TICSSS = Trust in College Support System Scale; URRSV = University Responsiveness to Reports of Sexual Violence.

<sup>a</sup> I report here the KR-20 score for the PASM.

<sup>b</sup> As in McMahon et al.'s (2015) report, I present here composite SSSV scores.

<sup>c</sup> As done in several papers (e.g., Paulk et al., 2017; Rizzo et al., 2021), I present here composite TICSSS scores.

\* $p < .05$  \*\*\* $p < .001$

**Table 13***Logistic Regression Model Predicting the Likelihood of Self-Reported Sexual Aggression*

| Measure   | $\beta$ | SE   | Wald  | df | p     | OR   | 95% CI for OR |      |
|-----------|---------|------|-------|----|-------|------|---------------|------|
|           |         |      |       |    |       |      | LL            | UL   |
| PASM      | 0.17    | 0.05 | 12.03 | 1  | <.001 | 1.18 | 1.08          | 1.30 |
| PSAPS     | 0.16    | 0.06 | 5.86  | 1  | .02   | 1.17 | 1.03          | 1.33 |
| Ethnicity | 0.62    | 0.33 | 3.43  | 1  | .06   | 1.85 | 0.96          | 3.54 |
| Constant  | -5.04   | 0.72 | 49.14 | 1  | <.001 | .01  | -             | -    |

*Note.* OR = odds ratio; CI = confidence interval; LL = lower limit; UL = upper limit; PASM = Personal Acceptance of Sexual Misconduct; PSAPS = Participation in Sexual Assault Prevention Scale.

## CHAPTER 9

### Study 6 – Developing the First Behavioural Self-Help Intervention for Male Perpetrators of University-Based Sexual Aggression in the UK

**This chapter has been submitted for publication:** Hales, S. T., & Gannon, T. A. (2022). *Empirically Assessing the Effectiveness of The Pathways Programme: An Online Self-Help Intervention for Male Sexual Aggression at UK Universities* [Manuscript under review]. School of Psychology, University of Kent.

Studies 1, 2, 4, and 5 highlighted that a noteworthy proportion of university male students in the UK self-report recent sexual aggression. Consistent with international research findings, Studies 1 and 2 also highlighted three key individual-level risk factors for participants' harmful sexual behaviours – namely, their hostile attitudes towards women, RMA, and problematic sexual fantasies – which could be used to reliably classify them into distinct offending clusters in Study 3. Supporting recent work with UK students (e.g., Hills et al., 2020; Wignall et al., 2022), findings from Studies 1 and 2 also suggest that many university males in the UK possess a misguided understanding of sexual consent – a known risk factor for sexual aggression amongst US students (e.g., Salazar et al., 2018; Walsh et al., 2021; Zinzow & M. P. Thompson, 2019) – which puts them at risk of offending.

In Chapter 3, it was shown that the most effective interventions used with university students to prevent them from (re)engaging in sexually aggressive behaviours are those that (a) tackle known individual-level risk factors for sexual aggression, including students' proclivity towards sexual offending, (b) are evidence-based, theoretically informed, and designed using relevant empirical data, (c) are targeted appropriately across representative samples, and (d) are longitudinally evaluated using robust research designs to assess their effectiveness at reducing offence potential. Unfortunately, as noted earlier in this thesis, recent reviews of sexual harm prevention work at UK universities (e.g., Bows et al., 2015; UUK, 2017, 2018) have highlighted that very few programmes meet these standards. For

example, Labhardt et al. (2017) note that many interventions currently used at UK universities are modelled on data derived from work with male students in the US, which likely does not generalise to UK students due to differences in university history, culture, and geography between both countries. Of those interventions that have been developed based on work with UK university students (e.g., *The Intervention Initiative*; Fenton et al., 2014), most adopt a bystander approach to intervention which places the onus on the broader university community – not solely perpetrators – to reduce GBV (see Camp et al., 2018). These programmes are also costly to implement and can only be delivered on a small-scale due to resourcing issues (e.g., sourcing trained facilitators and spaces to deliver classes), which hampers their scalability and accessibility. As such, there is a notable chasm in academic knowledge relating to effective approaches to tackle university-based sexual aggression in the UK, which has limited intervention development.

### **Purpose of Study 6**

This study contributes to the current gap in UK university-based sexual harm prevention research by evaluating the feasibility and efficacy of *The Pathways Programme* – a novel, accessible, and scalable online self-help intervention for university male sexual aggression designed using psychological theory and empirical evidence (derived from Studies 1 and 2) relevant to university-based sexual aggression perpetration by UK male students. The programme overcomes several of the limitations of current sexual harm prevention interventions adopted by UK universities by being hosted online and accessible to participants ‘on the go’ from a variety of electronic devices. It also overcomes criticisms of past US programmes which have failed to assess using robust evaluation designs the longer-term ability of university-based sexual aggression interventions to affect cognitive risk factors and self-reported sexual proclivity across representative student samples.

### ***Aims and Hypotheses***

The primary aim of this study was to evaluate the short and longer-term effectiveness of *The Pathways Programme* at reducing participants' self-reported proclivity to engage in sexually aggressive behaviour. Proclivity was considered my primary outcome measure as research has shown that it is a more reliable indicator of future offending behaviours than past perpetration, which only identifies male students with a history of harmful sexual behaviours (versus those who are at risk of offending but who have not yet done so; see Palmer et al., 2021). Likewise, proclivity is more proximal to sexual perpetration than my secondary outcome measures (described below), which signal broader attitudinal and behavioural risk factors for university-based sexual aggression. Whilst self-reported proclivity is not a perfect indicator of future sexual perpetration, several studies have established a strong link between both factors amongst male university students (e.g., Malamuth et al., 1995; Palmer et al., 2021; Zounlome & Wong, 2019) thus making it an appropriate primary outcome measure in this study.

Further to my primary aim, I also sought to assess the degree to which *The Pathways Programme* could engender positive treatment shifts across three psychological outcomes highlighted in both Studies 1 and 2 as key risk factors for UK male university sexual perpetration. These secondary outcome measures included students' self-reported hostility towards women, RMA, and problematic sexual fantasies. Based on the well-reported issue of high student drop-out rates across longitudinal sexual aggression studies (e.g., Salazar et al., 2014; Wong et al., 2020), I further explored predictors of participant retention in my intervention using Ajzen's (1991) *Theory of Planned Behaviour (TPB)*.

## **Method**

This study adopted a randomised control trial (RCT) design to assess the short-term (i.e., pre/post) and longer-term (i.e., 3-month) effectiveness of *The Pathways Programme*. This research design allowed me to evaluate the feasibility and efficacy of the programme

across a cohort of UK male university students in both a timely and cost-effective manner. Assessing participants' scores 3-months after they took part in the programme also allowed for the assessment of any *rebound effects* – an established phenomenon associated with sexual harm prevention interventions in which participants display large attitudinal shifts immediately post-intervention but not over longer periods (see DeGue et al., 2014).

Data collection took place in waves between April and November-2021. The project comprised four standalone studies which ran sequentially: a pre-test survey, the intervention (completed by half of the sample), a post-test survey, and a 3-month follow-up survey. My hypotheses, method, and data analysis plan were pre-registered at <https://osf.io/b79n3/>, where readers can access copies of my intervention, study materials, and raw data.<sup>35</sup>

## **Participants**

Based on my positive user experience in earlier studies, participants were again recruited through Prolific (Palan & Schitter, 2018). As noted in Study 4, pre-screening filters used in this study identified an eligible target population of  $N = 1,028$  students. A priori power analyses showed that, based on an  $\alpha$  error level of .05 and 80% power, at least  $N = 80$  participants were required overall to detect a medium effect size in my planned mixed model analyses. Given the established high rates of attrition in sexual harm prevention studies (e.g., Salazar et al., 2014; Wong et al., 2020), as well as the low number of UK male students who report sexual aggression (cf. Studies 1, 2, 4, and 5), I recruited more participants than suggested by my power analysis. In total,  $N = 452$  participants took part in my pre-test survey, entitled “*Promoting Healthy Sexual Behaviours on Campus: A Longitudinal Assessment of a Novel Self-Help Intervention*”. Of these,  $n = 198$  reported no likelihood of sexual aggression and were unable to progress further as they would likely not benefit from

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<sup>35</sup> Initially, the pre-registration for this study covered only pre/post-intervention evaluation. However, additional funding was later located which enabled the follow-up arm to this study to be run. At this point, an amended pre-registration was uploaded to OSF.io.

my programme; therefore, my final sample in this study comprised  $N = 254$  participants (see my CONSORT diagram in Figure 4, pg. 219).

There were descriptive similarities between the demographic characteristics of my participants and the broader UK male student body at the time (see HESA, 2022). Participants' ages ranged from 18 to 78-years ( $M = 25.77$ ,  $SD = 7.93$ ; see Table 14, pg. 211). The majority identified as White British ( $n = 138$ ; 54.3%) and reported their current level of university study as undergraduate or equivalent ( $n = 162$ ; 63.8%). In terms of relationship status, most participants reported that they were single or self-partnered ( $n = 133$ ; 52.4%), though a noteworthy proportion did disclose having a partner or wife ( $n = 120$ ; 47.2%). Overall, participants from 91 different UK universities were represented in this study.

## **Measures**

Across surveys, participants completed four validated self-report measures relevant to the primary and secondary study outcomes. Two additional measures were also administered to participants who took part in the intervention to ascertain their research motivations and perceptions of the intervention. I relied on validated short form measures where possible to mitigate against participant fatigue. Select items were rephrased to increase their relevance for UK students (e.g., “college” was changed to “university”).

Cronbach's alpha ( $\alpha$ ) was calculated as a measure of internal consistency and scores were interpreted using George and Mallery's (2016) criteria (see Study 1). Test-retest reliability was computed for participants who did not complete the intervention (and thus were not expected to display any treatment shifts) using intraclass correlation coefficients (ICC), which were based on a mean-rating ( $k = 3$ ), absolute-agreement, two-way mixed-effects model. ICC scores were interpreted using Koo and Li's (2016) guidelines. Across studies, all measures displayed “excellent” test-retest reliability (i.e.,  $> .90$ ).

### ***Primary Outcome Measure***

**Self-Perceived Likelihood Scale (SPLS; Zounlome & Wong, 2019).** I used a modified version of the SPLS to assess participants' self-perceived likelihood of sexual aggression. The SPLS comprised six items, describing a specific sexually aggressive act (e.g., "Raping an adult female").<sup>36</sup> These were presented alongside ten non-sexual filler items (e.g., "Driving 130 mph on the motorway"). Using a 5-point Likert scale anchored by 1 (*Very unlikely*) and 5 (*Very likely*), participants rated how likely they would be to engage in each behaviour if they could be assured that there would be no consequences. Responses were averaged across items for a single composite score that ranged from 1 to 5. Higher scores reflected an increased likelihood of sexual perpetration.

The authors of the SPLS report that it demonstrates acceptable to excellent internal consistency with undergraduate male students in the US (Wong et al., 2020; Zounlome & Wong, 2019). Likewise, it converges with measures of past sexual aggression and known indicators of UK male students' sexual perpetration (Zounlome & Wong, 2019). In this study, internal consistency scores for the SPLS were good at all three testing points ( $\alpha = .82-.87$ ). The ICC score was .92, 95% CI [.89 to .94].

### ***Secondary Outcome Measures***

**Hostility Toward Women scale (HTW; Lonsway & Fitzgerald, 1995).** Participants' endorsement of hostile and sexist attitudes towards women were assessed using the 10-item HTW, described fully in Study 1. Responses were made on a 7-point Likert scale anchored by 1 (*Strongly disagree*) and 7 (*Strongly agree*). Sum scores were generated for a total score that could range from 10 to 70. Higher scores reflect more hostile perceptions of women. In this study, internal consistency scores for the HTW were good to excellent at all three testing points ( $\alpha = .88-.91$ ). The ICC score was .95, 95% CI [.94 to .97].

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<sup>36</sup> Nondescript SPLS items were changed so that participants knew that victims were adult females. Likewise, to reflect UK law, the item "Having sex with someone who is not sober" was amended to "Having sex with an adult female who is incapacitated".

**Illinois Rape Myth Acceptance scale – Revised (IRMA-R; McMahon & Farmer, 2011).** The 19-item IRMA-R was used to assess participants’ endorsement of subtle myths pertaining to rape and sexual assault. Responses were made using a 5-point Likert scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*) and were summed for a total score that could range from 19 to 95. Higher scores reflect greater acceptance of rape myths. In this study, internal consistency scores for the IRMA-R were excellent at all three testing points ( $\alpha = .91-.94$ ). The ICC score was .93, 95% CI [.91 to .95].

**Sexual Fantasy Scale Revised – Short Version (SFQ-R-SV; Bartels & Harper, 2018).** To examine problematic sexual fantasies, participants responded to 27 items from the Masochistic, Sadistic, Impersonal, and Pre/Tactile Courtship Disorder subscales of the SFQ-R-SV, as in Study 1. Responses were made on a 5-point Likert scale from 0 (*Have never fantasised about*) to 4 (*Have fantasised about very frequently*). Total scores could range from 0 to 108, with higher scores indicating greater endorsement of described fantasies. In this study, internal consistency scores for the SFQ-R-SV were good to excellent at all three testing points ( $\alpha = .88-.90$ ). The ICC score was .93, 95% CI [.91 to .95].

### ***Participant Engagement***

**Theory of Planned Behaviour Questionnaire (TPBQ; Wojtowicz et al., 2013).** To examine psychological factors associated with intervention completion, I administered a modified version of the Wojtowicz et al.’s (2013) TPBQ to participants who took part in *The Pathways Programme* (see Appendix C, pg. 324). The measure comprised ten items (four of which were reverse-coded) apportioned across four subscales that quantitatively assessed each domain of the TPB (i.e., attitudes, intentions, perceived behavioural control, and subjective normative beliefs). Participants responded to items on a 7-point Likert-type scale and composite scores were generated for each subscale. As such, subscale scores could range from 1 to 7. To mask its aims, the TPBQ was presented as a “user engagement survey”.

Wojtowicz et al. (2013) did not report internal consistency for the TPBQ in their study. In this study, internal consistency was good overall ( $\alpha = .81$ ) and questionable to acceptable for each subscale ( $\alpha = .63-.78$ ).

### ***User Feedback***

**User Feedback Measure (M. P. Thompson et al., 2021).** Participants' perceptions of *The Pathways Programme* were assessed using a feedback measure adapted from M. P. Thompson et al. (2021). The measure comprised 15 items (one of which was reverse-coded) that participants responded to on a 7-point Likert-type scale anchored by 1 (*Not at all true*) and 7 (*Very true*). A composite score was calculated which could range from 1 to 7, with higher scores reflecting more positive user feedback. A follow-up item asked participants for qualitative feedback. In this study, internal consistency for the user feedback measure was excellent ( $\alpha = .94$ ).

### **The Intervention**

*The Pathways Programme* is a psychological self-help intervention designed to reduce UK male university students' proclivity towards engaging in harmful sexual behaviours. The intervention is predominantly psychoeducation-based, though includes cognitive behavioural activities designed to stimulate positive behaviour change. The intervention is modular in format and self-administered by participants online via the secure survey-hosting site Qualtrics. Module content reflects current academic understanding of UK male perpetrators of university-based sexual aggression (as uncovered in Studies 1 and 2), as well as effective sexual harm prevention strategies (e.g., Bonar et al., 2022; DeGue et al., 2014; Vladutiu et al., 2011).

*The Pathways Programme* comprises six core modules and one optional module that users work through sequentially (for an overview, see Appendix D, pg. 326). The first three modules reflect the key treatment target of the intervention (i.e., sexual harm proclivity)

whilst the last three modules map onto known psychological risk factors for sexual aggression amongst UK university males (as reported in Studies 1 and 2). An optional module on mindfulness meditation is offered at the end of the intervention to alleviate any psychological distress.

In terms of design, modules are mostly text-based and follow a workbook format that includes psychoeducation, interactive quizzes, links to further resources, and applied activities. Quizzes assess participants' understanding of module content, whilst activities encourage participants to apply their learning to real-world scenarios. Quizzes are multiple-choice and provide participants with instant feedback. A spotlight section is included during each module to help reaffirm key lessons. Modules are 10 to 20-minutes in length, though can be much longer if participants engage fully with the further resources.

## **Procedure**

### ***Pre-Test Survey***

Eligible participants accessed my pre-test survey, hosted on Qualtrics, via their Prolific dashboard. Participants initially completed a screening measure to corroborate their responses to Prolific's pre-screening filters, before responding to a demographic survey and then my primary and secondary outcome measures. With the exception of the SPLS (which was presented last), measures were presented randomly. To ensure a complete response set at each wave, the survey was set up so that participants had to respond to all items.

At several points, participants' SPLS responses were reviewed. As they would not benefit from the intervention, participants who rejected all six SPLS items (i.e., they did not self-report a harmful sexual proclivity) were excluded from the study. Data collection then continued, following this iterative process, until an appropriate sample size was reached.

### ***Intervention Period***

As part of my RCT design, participants were randomly, but equally, allocated to either a treatment group (TG) or a waitlist control group (WCG) using free online software (<https://www.random.org/lists>). TG participants received immediate access via a private link to *The Pathways Programme*, which they had four weeks to complete. Conversely, WCG participants were thanked for their participation in my pre-test survey and told that they had been placed on a waitlist for the “heavily subscribed” intervention. The intervention was presented as “a novel intervention that is being trialled to provide education to help promote healthy sexual behaviours on campus”.

### ***Post-Test Survey***

After four-weeks, participants in both groups re-completed each of my primary and secondary outcome measures. WCG participants were told that the purpose of this survey was to re-assess their eligibility to take part in *The Pathways Programme*, whilst TG participants were told that the survey was designed to assess programme effectiveness.

### ***Follow-Up Survey***

After three months, TG and WCG participants were contacted one final time and asked to re-complete the post-test survey. Participants were told that the purpose of this survey was to assess shifts in their behaviours and attitudes over time.

### **Ethics Statement**

This study was ethically approved by the Research Ethics Committee at the University of Kent (Ethics ID: 202116177037806935). Detailed participant information sheets and ethics consent forms were presented to participants at the start of each survey, whilst a comprehensive debrief form was presented at the end of each survey. Support was made available to participants in the form of contact details for Stop It Now! UK & Ireland (<https://www.stopitnow.org.uk>) – a sexual harm prevention helpline. Participants were also

able to contact the researcher anonymously via Prolific with any concerns or questions. Participation was compensated at a rate commensurate with study completion time.

### **Analysis Plan**

Analyses were conducted using SPSS v.28 for Windows (IBM, 2021). Consistent with my pre-registration, intervention quiz scores were reviewed prior to analysis to ensure each participant surpassed the 70% threshold for acceptable user engagement. One participant who scored less than 70% across quizzes was removed from my dataset.<sup>37</sup>

Intervention effectiveness was examined in three ways. First, to assess the ability of *The Pathways Programme* to influence participants' scores across each outcome measure over time, I conducted a series of two-way mixed models that accounted for the repeated measures design of my research. Group allocation was defined as the between-subjects factor and testing point was defined as the within-subjects factor. Partial eta squared was used as a measure of effect size and scores were interpreted using Cohen's (1988) guidelines. Significant interaction effects were assessed via a series of Wilcoxon signed-rank tests.

The second criterion for evaluating efficacy was clinical significance (see Jacobson et al., 1984), which allowed for the examination of individual-level changes in self-reported proclivity towards harmful sexual activity amongst participants in both the TG and WCG.<sup>38</sup> A participant was classed as exhibiting clinically significant change if their composite SPLS score shifted from >1 (reflecting a non-zero endorsement of at least one SPLS item) at pre-test to 1 (reflecting an emphatic rejection of all SPLS items) at either post-test or follow-up.

Finally, reliable change indices (RCI) were calculated as per Jacobson and Truax (1992) to assess whether the effects of *The Pathways Programme* were reliable at each

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<sup>37</sup> The participant's pre-test responses were retained; however, consistent with ITT principles, their post-test and follow-up responses were imputed as they did not take part in these studies having scored less than 70% in the intervention.

<sup>38</sup> I have not reported in this paper clinical significance or RCI scores for the secondary outcome measures, as they were not primary treatment targets of the intervention.

testing point. Reliable changes in pre-test to post-test or follow-up SPLS scores were evaluated for TG and WCG participants using the following formula:

$$RCI = (X_{pre} - X_{post}) / SE_{diff} \text{ where } SE_{diff} = SD_{pre} \times \sqrt{1 - r_{xx}}$$

where  $X_{pre}$  = pre-test score;  $X_{post}$  = post-test or follow-up score;  $SE_{diff}$  = standard error of differences;  $SD_{pre}$  = standard deviation at pre-test; and  $r_{xx}$  = Cronbach's alpha.

Participants were classified into one of four categories of clinically reliable change based on clinical significance and their RCI score: "Recovered" (i.e., they displayed a positive reliable and clinically significant change in SPLS scores), "Improved" (i.e., they displayed a positive reliable, but not clinically significant, change in SPLS scores), "Unchanged" (i.e., they displayed no reliable or clinically significant change in SPLS scores), or "Deteriorated" (i.e., they displayed a negative reliable change in SPLS scores). Chi-square analyses compared the proportion of participants in each group between testing points.

To ensure a full response set in this study, I followed an intention-to-treat (ITT) approach when analysing data. Whilst I inspected for and responded to unusual data points across statistical tests, I did not remove outliers *a priori*.<sup>39</sup> As such, my final sample comprised all 254 participants from my pre-test survey. Concurrent with ITT principles, missing data were imputed using the expectation maximisation approach. Across outcome measures, data were found to be missing completely at random using Little's (1988) omnibus test,  $\chi^2(12) = 16.71, p = .161$ .

## Results

### Adherence and Attrition

Attrition rates were recorded overall and for the TG and WCG across testing points (see Figure 4, pg. 219). Attrition was defined as the number of participants who withdrew

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<sup>39</sup> My pre-registration stated that I would remove outliers prior to statistical testing. However, to avoid unnecessarily removing data and having underpowered analyses, I decided instead to assess for outliers as part of the assumption testing process for each test.

from the study, were lost to follow-up, or were excluded since pre-test. Results showed that overall attrition was 26.4% ( $n = 67$ ) at post-test and 50.8% ( $n = 129$ ) at follow-up. Thus, roughly half (49.2%;  $n = 125$ ) of my pre-test sample completed the study in full. Drop-out rates at follow-up did not significantly differ between groups,  $p = .26$ .

I examined possible differences between completers and non-completers in baseline scores across demographic and outcome variables. Results revealed differences between groups in self-reported age ( $U = 6384.00$ ,  $z = -2.88$ ,  $p = .004$ ), current level of university study ( $p = .03$ , Fisher's exact test), and baseline HTW scores ( $U = 9397.00$ ,  $z = 2.28$ ,  $p = .02$ ) and IRMA-R scores ( $U = 9402.00$ ,  $z = 2.29$ ,  $p = .02$ ).

Consistent with CONSORT guidelines for RCTs (Moher et al., 2010), I did not include participants' baseline HTW or IRMA-R scores as covariates in my mixed model tests. However, I did control for participants' age and current level of university study, given their established link to students' sexual aggression (e.g., Abbey et al., 2001; Porta et al., 2017; M. P. Thompson et al., 2013).

### **Baseline Equivalence Between Groups**

Despite randomisation, analyses revealed group differences in pre-test scores on the SPLS ( $U = 6835.00$ ,  $z = -2.13$ ,  $p = .03$ ), IRMA-R ( $U = 6877.50$ ,  $z = -2.03$ ,  $p = .04$ ), and the SFQ-R-SV ( $U = 6619.00$ ,  $z = -2.47$ ,  $p = .01$ ). Following CONSORT RCT guidelines (Moher et al., 2010), I did not control for these baseline imbalances in my mixed model tests.

### **Primary Intervention Outcomes**

Table 15 (pg. 213) contains descriptive statistics for the SPLS (individual items and overall scale) between TG and WCG participants across each testing point. Results of my Wilcoxon signed-rank tests are shown in Table 16 (pg. 214). Across significant tests,  $r$  was used as an effect size.

### ***Group × Time Interaction***

To establish whether there was a difference in SPLS scores between groups over each of the three testing points, a two-way mixed ANCOVA was run with participants' age and current level of university study specified as covariates.<sup>40</sup> Mauchly's test indicated that the assumption of sphericity was violated for the two-way interaction,  $\chi^2(2) = 90.76, p < .001$ ; subsequently, a Greenhouse-Geisser correction was applied.

Whilst there were no significant between or within-subjects effects, results showed a significant interaction between group allocation and time on SPLS scores,  $F(1.53, 383.01) = 11.94, p < .001, \varepsilon = .77, \text{partial } \eta^2 = .05$  (a small effect size). This indicates that variations in participants' SPLS scores over time were determined by the group they were allocated to. Shifts were probed through a series of pairwise comparisons, which showed that TG participants displayed a moderate significant decline in their SPLS scores between pre-test and post-test, and also between post-test and follow-up. This suggests that TG participants' proclivity towards sexual aggression was positively impacted by their participation in the intervention and that these treatment shifts continued for several months after the intervention ended. Pairwise comparisons also showed that WCG participants exhibited a significant decline in their SPLS scores between pre-test and post-test (albeit to a lesser degree than TG participants); however, unlike their counterparts, this trend did not continue beyond post-test.

### ***Clinically Reliable Change***

As shown in Table 17 (pg. 215), a "recovered" or "improved" status was achieved for the majority of TG and WCG participants at both post-test and follow-up. Relatively few participants in either group were classified as "unchanged" or "deteriorated" following the intervention. Inferential analyses showed that the proportion of TG and WCG participants across each status did not statistically differ at either post-test or follow-up.

### **Secondary Intervention Outcomes**

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<sup>40</sup> I also conducted mixed model analyses excluding age and current level of university study as covariates. This generated similar headline findings.

Table 18 (pg. 216) displays the mean scores of TG and WCG participants on secondary outcome measures across testing points. Wilcoxon signed-rank tests are shown in Table 16 (pg. 214).

### ***Group × Time Interaction***

Three separate two-way mixed ANCOVAs were run to establish whether there was a difference in mean HTW, IRMA-R, and SFQ-R-SV scores between groups over each of the three testing points. Participants' age and current level of university study were again entered as covariates. The assumption of sphericity was violated for both the IRMA-R,  $\chi^2(2) = 38.35$ ,  $p < .001$ , and the SFQ-R-SV,  $\chi^2(2) = 80.47$ ,  $p < .001$ ; therefore, significance levels were interpreted with a Greenhouse-Geisser correction applied.

Results showed a significant interaction effect of group allocation and time across all three secondary outcome variables:  $F(2, 500) = 3.07$ ,  $p = .047$ , partial  $\eta^2 = .01$  for the HTW,  $F(1.75, 437.54) = 13.99$ ,  $p < .001$ ,  $\epsilon = .88$ , partial  $\eta^2 = .05$  for the IRMA-R, and  $F(1.57, 391.80) = 4.38$ ,  $p = .02$ ,  $\epsilon = .78$ , partial  $\eta^2 = .02$  for the SFQ-R-SV. This indicates that variations in participants' scores on these measures over time were determined by group allocation. Shifts were probed through a series of pairwise comparisons, which showed that TG participants displayed small to large significant declines in their scores on all three measures between pre-test and follow-up, as well as small to moderate significant declines between both pre-test and post-test, and post-test and follow-up. Whilst WCG participants also displayed a small reduction in their HTW and IRMA-R scores between pre-test and follow-up, only select pairwise comparisons were significant between pre-test and post-test, and post-test and follow-up. On the SFQ-R-SV, WCG participants only exhibited a small significant decline in their scores between post-test and follow-up.

Beyond interaction effects, there were no simple main effects of group across any of the three measures, nor a simple main effect of time for either the HTW or SFQ-R-SV.

However, there was a significant effect of time on IRMA-R scores for the TG,  $F(1.56, 193.61) = 4.71, p = .02, \varepsilon = .78, \text{partial } \eta^2 = .04$ . Effect sizes were small across all tests.

### **Factors Predicting Intention to Complete the Intervention**

A standard multiple regression was run to assess whether TG participants' responses across the attitudes, subjective normative beliefs, and perceived behavioural control subscales of the TPBQ could predict their self-reported intention to complete the intervention (see Table 19, pg. 217). The resulting model was significant,  $F(3, 98) = 22.42, p < .001, f^2 = 0.69$ .  $R^2$  for the overall model was 40.7% and adjusted  $R^2$  was 38.9%, a large effect size according to Cohen (1988). Of the variables that entered the model, only attitudes and perceived behavioural control scores made a significant contribution ( $p < .001$  and  $p = .01$ , respectively). All participants who completed the TPBQ fully participated in the intervention.

### **Perceptions of the Intervention**

Table 20 (pg. 218) provides an overview of responses to my user feedback measure. Though some participants found *The Pathways Programme* to be “common sense” and “repetitive” – a common complaint submitted by male students' who participate in harm prevention interventions (see Graham et al., 2021) – most responded positively to it. Many participants said they were more confident engaging in healthy sexual activity following their participation in the programme. Many also supported making the programme mandatory for students at their university. Helpful suggestions to improve the intervention included embedding more examples of harmful sexual activity across exercises and including more challenging quizzes to reinforce module content.

## **Discussion**

Contemporary research examining sexual harm prevention at UK universities has shown that, despite recent scholarly advances, few interventions have been developed based on academic understanding of sexual perpetration by UK male students. Of the evidence-

based interventions that do exist, most adopt a community-based approach to sexual harm prevention (e.g., bystander programmes) and are developed using US data. My paper contributes to the evolving research landscape by providing preliminary evidence for the feasibility and efficacy of a novel online self-help intervention for sexual aggression that is grounded in academic understanding of university-based sexual aggression in the UK. Below I discuss my findings alongside recent work in the field.

### **Primary Outcome Analyses**

My findings showed that UK male students report varying levels of proclivity to engage in harmful sexual behaviours. To illustrate, participants typically rejected SPLS items regarding explicit forms of sexual aggression (e.g., rape) in favour of items that reflected (what they likely perceived to be) lower-level sexually aggressive behaviours (e.g., having sex with a flirtatious female who has not verbally agreed to sex). These patterns mirror those reported by Wong et al. (2020) and support recent contentions that many male UK students are uncertain of the key hallmarks of valid sexual consent (e.g., Hills et al., 2020; Wignall et al., 2022).

Consistent with my hypothesis, mixed model testing showed that participating in *The Pathways Programme* led to reductions in participants' self-reported likelihood to engage in sexual aggression over time. Specifically, pairwise comparisons highlighted moderate significant declines in SPLS scores at both post-test and follow-up for TG participants relative to notably smaller decline effects for WCG participants. These findings indicate promise for both the short and longer-term capability of my intervention to influence UK male students' harmful sexual proclivities. However, that inferential testing could not differentiate between TG and WCG participants based on their clinically reliable change status suggests that the intervention needs refining to ensure that it promotes clinically important reductions in students' risk of sexual perpetration.

Whilst it is unclear why students in the WCG also exhibited a reduction in their SPLS scores (albeit to a smaller degree) despite not having received my intervention, I posit two likely explanations. First, that taking part in the pre-test survey encouraged participants to reflect on their sexual proclivities, which impacted their later responding. Second, that sexual proclivity naturally decreases as a student progresses through university. Further research is needed to explore these possibilities.

My primary outcome findings mirror those reported in evaluations of online sexual harm prevention programmes for US university males (e.g., Salazar et al., 2014; M. P. Thompson et al., 2021). They also support Wong et al.'s (2020) findings, which illustrated greater positive shifts in SPLS scores amongst US male students who participated in a brief online self-persuasion intervention for sexual aggression compared to those who did not. This evidence suggests that sexual proclivity is a malleable psychological trait that can be influenced through targeted psychological intervention.

Though they did not comprise the majority, it is worth noting that 21 participants in the TG displayed an increase in their SPLS scores at follow-up. As noted in Study 5 when discussing the significant contribution of PSAPS scores to my regression model, one possible explanation for this is offered by Malamuth et al. (2018) who proposed that “high-risk” university males (i.e., those most likely to engage in harmful sexual behaviours) often exhibit hostile reactance when they participate in sexual harm prevention programmes. The authors reason that these students assume entitlement to have sex with women and, therefore, when presented with evidence to the contrary, display anger and hostility, compounding their likelihood of offending. Other university-based researchers have reported similar boomerang

reactance effects amongst UK students (e.g., Fenton & Mott, 2018), suggesting this is a pervasive issue across sexual aggression research.<sup>41</sup>

### **Secondary Outcome Analyses**

Beyond sexual proclivity, I also hypothesised that taking part in *The Pathways Programme* would lead to reductions in participants' hostility towards women, RMA, and problematic sexual fantasies – key risk factors for UK university males' sexually aggressive behaviours derived from Studies 1 and 2. Mixed model analyses confirmed my predictions, showing that the intervention positively impacted participants' HTW, IRMA-R, and SFQ-R-SV scores over time. Specifically, pairwise comparisons showed that TG participants displayed small to large significant declines in their HTW, IRMA-R, and SFQ-R-SV scores at both post-test and follow-up testing. Contrary to predictions, follow-up tests showed that WCG participants also displayed significant reductions in their levels of hostility towards women and RMA at follow-up, though these were smaller shifts than those reported for TG participants. I refer readers to the previous section for possible explanations.

Recent evaluations of other sexual harm programmes in the UK have also reported positive post-intervention shifts in university students' self-reported levels of RMA (e.g., Fenton & Mott, 2018; Roberts & Marsh, 2021; Thomson et al., 2020), suggesting that this is a trait that can be tackled effectively through targeted prevention programming. To the best of my knowledge, there have been no interventions in the UK that have tried to challenge students' hostile views towards women; however, US harm prevention studies have demonstrated promising treatment effects in this domain (e.g., Salazar et al., 2014). Likewise, harm prevention programmes evaluated in the US or UK do not appear to have targeted university students' problematic sexual fantasies.

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<sup>41</sup> Though Fenton and Mott (2018) reported that “no significant backlash was identified” (pg. 645) in their study, they noted that up to 4% of their participants displayed scores that had worsened by more than one standard deviation at post-test. The authors did not report on how many participants' scores worsened over time at a rate smaller than one standard deviation.

## **Programme Completion**

High levels of participant drop-out are common in longitudinal sexual harm prevention studies (e.g., Salazar et al., 2014; Wong et al., 2020). Therefore, alongside my primary and secondary analyses, I also assessed the degree to which TG participants' attitudes, subjective normative beliefs, and perceived behavioural control influenced their intention to complete *The Pathways Programme*. Using multiple regression analyses, I found that participants who possessed more positive attitudes towards intervention completion, as well as greater perceived self-control over their behaviours, reported a stronger intention to fully participate in the programme. These findings suggest that promoting students' self-efficacy – a key component of perceived behavioural control (Ajzen, 1991) – would likely empower them to engage in healthy sexual behaviours, as well as increase their adherence in sexual harm prevention work. Boosting self-efficacy could be achieved by discussing with students the benefits of programme participation and positively reinforcing their willingness to contribute to campus safety (see Wojtowicz et al., 2013).

## **Limitations and Future Directions**

In this paper, I present initial evidence regarding the feasibility and efficacy of *The Pathways Programme* for reducing the proclivity of UK male university students towards harmful sexual behaviours. In doing so, I advance the field by offering empirical evidence in support of psychoeducation-based online self-help programmes as a viable means of tackling university-based sexual aggression in the UK. However, despite this positive contribution, I am mindful that this study possesses some limitations. I briefly outline these below.

First, participants self-selected to take part in the study. Subsequently, there is a chance that I did not capture students who possessed high levels of proclivity towards sexual aggression, who may have purposively avoided my research under fear of negative repercussions. Though I tried to mitigate against self-selection bias by fully anonymising my

survey, this is a well-known issue that afflicts sexual harm prevention work (see Camp et al., 2018; Fenton & Mott, 2018). In practice, it may be beneficial for universities to mandate primary prevention training to capture this evasive group of students.

Second, based on the limited empirical evidence relating to UK male students' harmful sexual behaviours, *The Pathways Programme* focusses only on psychological indicators of sexual perpetration. However, I acknowledge that students operate as part of a multi-layered environment that includes influences from peers, their university, and wider society (see Bonar et al., 2022; McMahon et al., 2019). To this end, I support the proposition of US academics (e.g., Bonar et al., 2022; Brennan et al., 2019; Vladutiu et al., 2011) and UUK (2018) that HE providers need to adopt a multi-pronged socio-ecologically-informed approach to sexual harm prevention that includes a variety of evidence-based strategies to disrupt sexual perpetration by students. Whilst there are currently no recommendations as to what constitutes 'effective prevention planning' in the UK, research supports the use of bystander intervention training (e.g., Fenton & Mott, 2018; Roberts & Marsh, 2021), consent education (NUS, 2015), and social norms alcohol initiatives (e.g., Bewick et al., 2008). Campus-wide marketing and media campaigns have also received positive academic evaluation in the UK (see Camp et al., 2018; Thomson et al., 2020). As noted in Chapter 3, any initiatives need to be longitudinally and robustly evaluated to ensure that they deliver desirable outcomes.

Third, as noted in Chapter 2, US evidence suggests that university males who perpetrate sexual harm are a heterogenous group (e.g., Brennan et al., 2019; Swartout et al., 2015a, 2015b). The preliminary evidence presented in Study 3 supports the generalisability of this claim to UK male students. Subsequently, my 'one-size-fits-all intervention' may not be suitable for all university males who report a proclivity towards sexual perpetration. This may also explain why I did not find superior clinically reliable change indicators of programme

effectiveness for TG versus WCG participants. To this end, future research should consider developing screening tools to help professionals decide which modules potential sexual perpetrators will benefit from participating in, based on the risk factors associated with their harmful sexual proclivities. In the longer-term, these screeners could be embedded into prevention programmes to provide tailored treatment options for students.

Fourth, I did not assess in this study whether there were any moderating variables that influenced programme effectiveness. Whilst this is a common oversight in published outcome evaluations of university harm prevention programmes (see McMahon et al., 2019), I accept that the failure to consider moderators prevents programme designers from fully understanding how their intervention functions across student groups. Example variables worthy of examination include past exposure to prevention campaigns, willingness to engage in harm prevention, and pre-existing subject-matter knowledge (see Banyard, 2014; Paul & Gray, 2011). Likewise, given that Burrell (2021) recently showed that some UK university sportsmen resist efforts to engage in harm prevention efforts, it would be good to assess whether sports participation – an established risk factor for male students’ sexual perpetration in the US (see Murnen & Kohlman, 2007) – negatively affects programme outcomes.

Finally, as in previous studies, there was a preponderance in this study towards younger, White British students who were studying at a university in England. Whilst my sample reflected the wider UK male student body at the time (see HESA, 2022), it would be helpful to evaluate the efficacy of my intervention across more understudied groups (e.g., ethnic minority and mature students) whose risk of sexual perpetration are likely influenced by their demographic characteristics and unique lived experiences (Nagayama Hall et al., 2000; see also Coulter et al., 2017). Thus far, these marginalised groups have been overlooked in university-based sexual aggression literature (see McDermott et al., 2015).

**Table 14***Demographic Comparisons between Treatment Group and Waitlist Control Group**Participants*

| Variable   | TG (n = 127) | WCG (n = 127) |
|--|--------------|---------------|
|  | n (%)        | n (%)         |
| Age <sup>a</sup>   |              |               |
| 20 and under   | 30 (23.6)    | 32 (25.2)     |
| 21-30  | 70 (55.1)    | 66 (52.0)     |
| 31-40  | 20 (15.8)    | 24 (18.9)     |
| 41-50  | 5 (3.9)      | 3 (2.4)       |
| 51-60  | 1 (0.8)      | 2 (1.6)       |
| 61-70  | -            | -             |
| 71-80  | 1 (0.8)      | -             |
| Ethnicity  |              |               |
| White - English / Welsh / Scottish / Northern Irish / British      | 66 (52.0)    | 72 (56.7)     |
| White - Irish  | -            | 3 (2.4)       |
| White - Gypsy or Irish Traveller                                   | -            | -             |
| White - Any other background                                       | 26 (20.5)    | 12 (9.5)      |
| Mixed / Multiple ethnic groups - White and Black Caribbean         | 1 (0.8)      | -             |
| Mixed / Multiple ethnic groups - White and Black African           | 1 (0.8)      | -             |
| Mixed / Multiple ethnic groups - White and Asian                   | 2 (1.6)      | 3 (2.4)       |
| Mixed / Multiple ethnic groups - Any other background              | 1 (0.8)      | 1 (0.8)       |
| Asian / Asian British - Indian                                     | 7 (5.5)      | 9 (7.1)       |
| Asian / Asian British - Pakistani                                  | 2 (1.6)      | 4 (3.2)       |
| Asian / Asian British - Bangladeshi                                | 3 (2.4)      | 3 (2.4)       |
| Asian / Asian British - Chinese                                    | 4 (3.2)      | 2 (1.6)       |
| Asian / Asian British - Any other background                       | 6 (4.7)      | 7 (5.5)       |
| Black / African / Caribbean / Black British - African              | 5 (3.9)      | 6 (4.7)       |
| Black / African / Caribbean / Black British - Caribbean            | -            | 1 (0.8)       |
| Black / African / Caribbean / Black British - Any other background | -            | -             |
| Arab   | 2 (1.6)      | 3 (2.4)       |
| Other / Prefer to self-describe                                    | 1 (0.8)      | 1 (0.8)       |

|   |           |            |
|---|-----------|------------|
| Current level of university study           |           |            |
| Foundation stage or equivalent              | -         | 5 (3.9)    |
| Undergraduate or equivalent                 | 82 (64.6) | 80 (63.0)  |
| Master's or equivalent                      | 32 (25.2) | 29 (22.8)  |
| PhD / Doctoral or equivalent                | 13 (10.2) | 13 (10.2)  |
| Other <sup>b</sup>                          | -         | -          |
| Relationship status                         |           |            |
| Single or Self-partnered                    | 64 (50.4) | 69 (54.3)  |
| In a relationship or Common law partnership | 52 (40.9) | 41 (32.3)  |
| Married                                     | 10 (7.9)  | 16 (12.6)  |
| In a civil partnership                      | 1 (0.8)   | -          |
| Divorced                                    | -         | -          |
| Separated                                   | -         | -          |
| Widowed                                     | -         | 1 (0.8)    |
| Other / Prefer to self-describe             | -         | -          |
| University country                          |           |            |
| England                                     | 96 (75.6) | 100 (78.7) |
| Scotland                                    | 13 (10.2) | 9 (7.1)    |
| Wales                                       | 7 (5.5)   | 8 (6.3)    |
| Northern Ireland                            | -         | 1 (0.8)    |
| Open University                             | 11 (8.7)  | 9 (7.1)    |

*Note.* Figures may not add up to 100% due to rounding. TG = treatment group; WCG = waitlist control group.

<sup>a</sup> For ease of reading, participants' ages have been grouped. Age was analysed as a continuous measure in my analyses.

<sup>b</sup> The one WCG participant who (incorrectly) responded "Other / Prefer to self-describe" to this item was categorised into a pre-existing group.

**Table 15***Mean Composite Scores on the Self-Perceived Likelihood Scale (SD)*

| Item   | Treatment Group ( <i>n</i> = 127) |                               |                               | Waitlist Control Group ( <i>n</i> = 127) |                                |                               |
|--|-----------------------------------|-------------------------------|-------------------------------|--|--------------------------------|-------------------------------|
|  | Pre-test<br>( <i>n</i> = 127)     | Post-test<br>( <i>n</i> = 85) | Follow-up<br>( <i>n</i> = 58) | Pre-test<br>( <i>n</i> = 127)            | Post-test<br>( <i>n</i> = 102) | Follow-up<br>( <i>n</i> = 67) |
| Raping an adult female.  | 1.28 (0.80)                       | 1.16 (0.46)                   | 1.12 (0.33)                   | 1.09 (0.43)                              | 1.15 (0.50)                    | 1.19 (0.68)                   |
| Forcing an adult female to do something sexual that they don't want to do.   | 1.49 (0.93)                       | 1.34 (0.73)                   | 1.21 (0.45)                   | 1.27 (0.61)                              | 1.26 (0.63)                    | 1.34 (0.83)                   |
| Having sex with an adult female who is incapacitated.  | 1.40 (0.88)                       | 1.21 (0.54)                   | 1.19 (0.51)                   | 1.25 (0.70)                              | 1.25 (0.61)                    | 1.31 (0.86)                   |
| Having sex with an adult female you just met who looks like she has been flirting with you but hasn't verbally agreed to it. | 2.44 (1.10)                       | 2.06 (1.16)                   | 1.81 (1.02)                   | 2.46 (1.13)                              | 2.00 (1.11)                    | 2.04 (1.12)                   |
| Having sex with an adult female who hasn't explicitly said no.   | 2.69 (1.04)                       | 2.07 (1.09)                   | 1.95 (0.98)                   | 2.44 (1.11)                              | 2.06 (1.11)                    | 2.15 (1.10)                   |
| Having sex with an adult female who is asleep.   | 1.41 (0.89)                       | 1.26 (0.56)                   | 1.17 (0.50)                   | 1.26 (0.74)                              | 1.28 (0.64)                    | 1.33 (0.88)                   |
| Overall composite score  | 1.78 (0.72)                       | 1.53 (0.48)                   | 1.40 (0.34)                   | 1.63 (0.55)                              | 1.51 (0.58)                    | 1.54 (0.62)                   |

*Note.* Response options ranged from 1 (*Very unlikely*) and 5 (*Very likely*).

**Table 16***Wilcoxon Signed-Rank Tests for Changes in Outcome Scores Over Time*

| Measure         | Median difference ( <i>r</i> ) |                        |                       |
|-----------------|--------------------------------|------------------------|-----------------------|
|                 | Pre-test to post-test          | Post-test to follow-up | Pre-test to follow-up |
| <b>SPLS</b>     |                                |                        |                       |
| TG              | -0.29 (0.34)***                | -0.08 (0.27)***        | -0.28 (0.44)***       |
| WCG             | -0.16 (0.22)***                | 0.02                   | -0.13 (0.23)***       |
| <b>HTW</b>      |                                |                        |                       |
| TG              | -2.00 (0.31)***                | -1.09 (0.28)***        | -2.92 (0.44)***       |
| WCG             | -1.00 (0.17)**                 | -0.36                  | -1.00 (0.25)***       |
| <b>IRMA-R</b>   |                                |                        |                       |
| TG              | -3.50 (0.42)***                | -1.15 (0.25)***        | -5.00 (0.50)***       |
| WCG             | -0.88                          | -1.33 (0.22)***        | -1.00 (0.24)***       |
| <b>SFQ-R-SV</b> |                                |                        |                       |
| TG              | -1.00 (0.18)**                 | -0.84 (0.20)**         | -1.06 (0.22)***       |
| WCG             | 0.00                           | -0.85 (0.20)**         | 0.00                  |

*Note.* SPLS = Self-Perceived Likelihood Scale; TG = treatment group; WCG = waitlist control group; HTW = Hostility Toward Women scale; IRMA-R = Illinois Rape Myth Acceptance Scale – Revised; SFQ-R-SV = Sexual Fantasy Questionnaire Revised – Short Version.

\*\*  $p < .01$  \*\*\*  $p < .001$

**Table 17***Clinically Reliable Change for the Self-Perceived Likelihood Scale*

| Status       | Treatment Group ( <i>n</i> = 127) |                       | Waitlist Control Group ( <i>n</i> = 127) |                       | Pre-test to post-test <sup>a</sup> |          | Post-test to follow-up <sup>a</sup> |          |
|--------------|-----------------------------------|-----------------------|--|-----------------------|------------------------------------|----------|-------------------------------------|----------|
|              | Pre-test to post-test             | Pre-test to follow-up | Pre-test to post-test                    | Pre-test to follow-up | $\chi^2$                           | <i>V</i> | $\chi^2$                            | <i>V</i> |
|              | <i>n</i> (%)                      | <i>n</i> (%)          | <i>n</i> (%)                             | <i>n</i> (%)          |                                    |          |                                     |          |
| Recovered    | 25 (19.7)                         | 19 (15.0)             | 28 (22.0)                                | 15 (11.8)             | 0.22                               | .03      | 0.54                                | .05      |
| Improved     | 58 (45.7)                         | 77 (60.6)             | 54 (42.5)                                | 70 (55.1)             | 0.26                               | .03      | 0.79                                | .06      |
| Unchanged    | 9 (7.1)                           | 10 (7.9)              | 18 (14.2)                                | 14 (11.0)             | 3.36                               | .12      | 0.74                                | .05      |
| Deteriorated | 35 (27.6)                         | 21 (16.5)             | 27 (21.3)                                | 28 (22.0)             | 1.37                               | .07      | 1.24                                | .07      |

*Note.* Figures may not add up to 100% due to rounding. *V* = Cramer's *V*.

<sup>a</sup> All pairwise comparisons were non-significant at the  $p < .05$  level.

**Table 18***Mean Scores across Secondary Outcome Measures (SD)*

| Time      | HTW              |                 | IRMA-R           |                  | SFQ-R-SV         |                  |
|-----------|------------------|-----------------|------------------|------------------|------------------|------------------|
|           | TG               | WCG             | TG               | WCG              | TG               | WCG              |
| Pre-test  | 29.53<br>(11.03) | 27.53<br>(9.68) | 40.37<br>(13.58) | 36.65<br>(10.99) | 20.19<br>(14.92) | 15.72<br>(11.32) |
| Post-test | 27.77<br>(10.47) | 26.31<br>(9.31) | 36.59<br>(12.18) | 36.51<br>(11.97) | 18.79<br>(13.00) | 16.47<br>(9.60)  |
| Follow-up | 26.49<br>(9.61)  | 25.92<br>(8.68) | 35.42<br>(12.29) | 34.88<br>(10.70) | 17.72<br>(12.09) | 15.66<br>(10.35) |

*Note.* HTW = Hostility Toward Women scale; IRMA-R = Illinois Rape Myth Acceptance Scale – Revised; SFQ-R-SV = Sexual Fantasy Questionnaire Revised – Short Version; TG = treatment group; WCG = waitlist control group.

**Table 19***Factors Predicting Intention to Complete the Intervention amongst Treatment Group**Participants (n = 102)*

| Subscale                      | B     | SE B    | $\beta$ | $sr^2$ | 95% CI for B |      |
|-------------------------------|-------|---------|---------|--------|--------------|------|
|                               |       |         |         |        | LL           | UL   |
| Attitude                      | 0.40  | 0.08*** | 0.56    | 0.15   | 0.24         | 0.55 |
| Perceived behavioural control | 0.18  | 0.07**  | 0.22    | 0.04   | 0.04         | 0.32 |
| Subjective normative beliefs  | -0.03 | 0.07    | -0.04   | 0.00   | -0.16        | 0.11 |
| Constant                      | 3.07  | 0.40    | -       | -      | 2.27         | 3.87 |

*Note.* CI = confidence interval; B = unstandardised coefficient; SE B = standard error of the coefficient;  $\beta$  = standardised coefficient;  $sr^2$  = squared semi-partial correlation coefficient; LL = lower limit; UL = upper limit.

\*\*  $p < .01$  \*\*\*  $p < .001$

**Table 20***Treatment Group Participants' Responses to the User Feedback Measure (n = 102)*

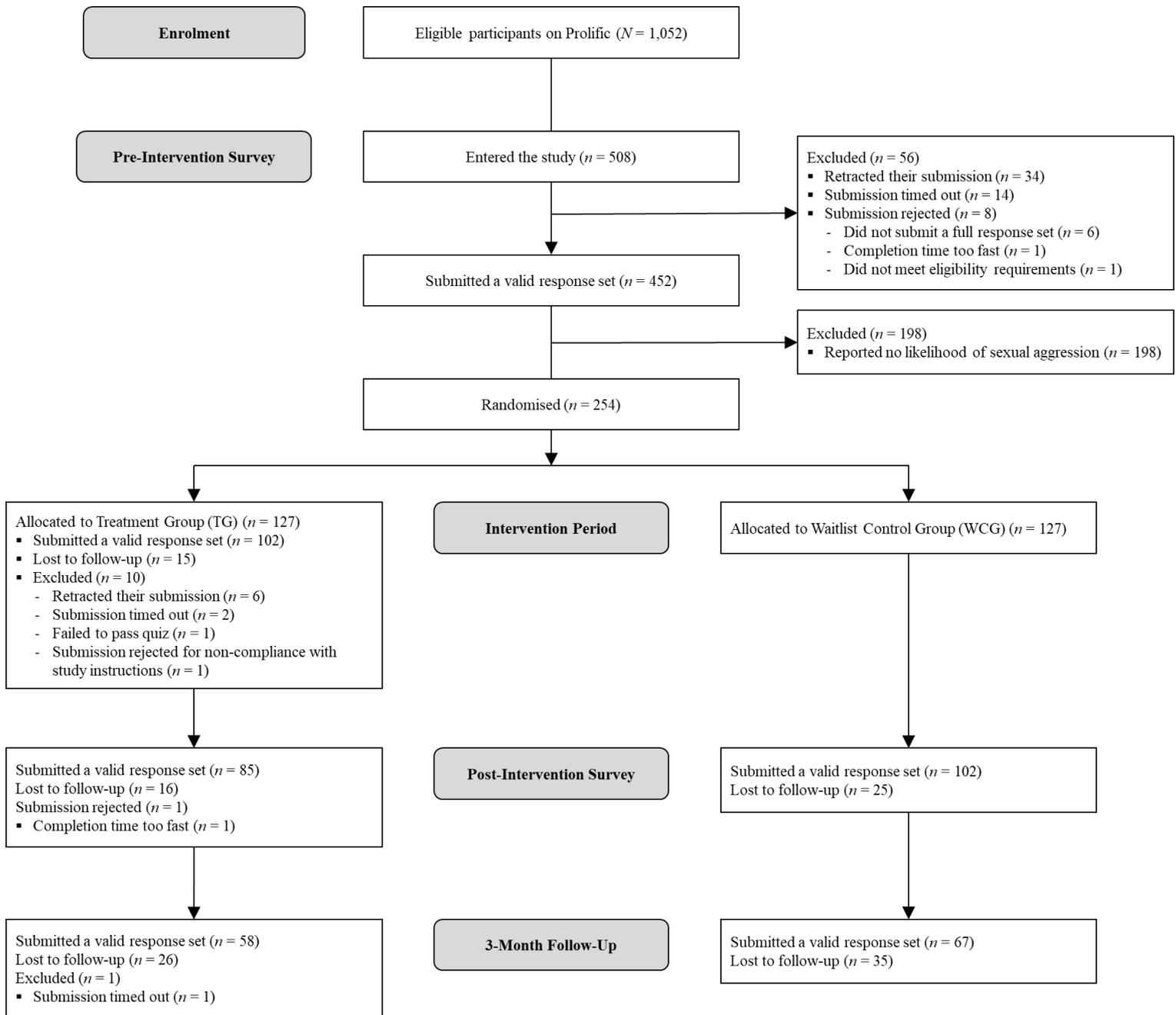
| Item  | <i>M</i> (SD) | <i>Mdn</i> |
|---|---------------|------------|
| This intervention could help educate students about healthy sexual behaviours.                                | 6.28 (0.91)   | 6.50       |
| I think this is an important intervention.  | 6.20 (1.23)   | 7.00       |
| This intervention is good for starting conversations about how to promote healthy sexual behaviours.          | 6.20 (0.95)   | 6.00       |
| I would want other students studying at my university to take part in this intervention.                      | 6.13 (1.23)   | 7.00       |
| I feel more confident in how to engage in healthy sexual behaviours after completing this intervention.       | 5.57 (1.61)   | 6.00       |
| I believe doing this intervention could be beneficial to me.  | 5.19 (1.71)   | 6.00       |
| I would want my university to implement this intervention with its students.                                  | 5.90 (1.35)   | 6.00       |
| I think this intervention is important to take part in because it can help me prevent others from being hurt. | 5.65 (1.43)   | 6.00       |
| This intervention made me think.  | 5.92 (1.25)   | 6.00       |
| I think taking part in this intervention is useful for developing healthy sexual relationships.               | 6.04 (1.10)   | 6.00       |
| I think that taking part in this intervention could help me to avoid being involved in a sexual assault.      | 5.20 (1.76)   | 6.00       |
| I thought this was a boring intervention. <sup>a</sup>  | 2.72 (1.63)   | 2.00       |
| I enjoyed taking part in this intervention.   | 5.25 (1.41)   | 6.00       |
| This intervention was interesting to do.  | 5.76 (1.10)   | 6.00       |
| This intervention was fun to do.  | 4.75 (1.44)   | 5.00       |

*Note.* Response options ranged from 1 (*Not at all true*) to 7 (*Very true*).

<sup>a</sup> This item was reverse-coded. Presented here are un-recoded scores

**Figure 4**

*A CONSORT Diagram Detailing the Flow of Participants through the Study*



## CHAPTER 10

### General Discussion

University-based sexual aggression is a harmful, prevalent, and growing public health and social justice issue endemic to HE systems internationally (Fedina et al., 2018; see also Dworkin et al., 2021; Koss et al., 2022; Muehlenhard et al., 2017; Steele et al., 2021a). US researchers, who have been at the forefront of academic knowledge generation in this field for well over six decades, have tendered useful empirical data highlighting the specific markers associated with students' sexual perpetration, the nuances of their offending behaviours, and the efficacy of various sexual harm prevention strategies at reducing their risk of sexual aggression (see Bonar et al., 2022; McDermott et al., 2015; McMahan et al., 2019). This research has been strengthened, in part, by robust legislation and educational policy relevant to sexual harm prevention at US universities (e.g., Title IX and the Campus SaVE Act 2013), as well as recent feminist grassroots movements (e.g., #MeToo and Time's Up) that have focussed public consciousness on the high rates of sexual assault on campuses (see McDermott et al., 2015).

Though recent UK climate surveys (e.g., Brook, 2019; NUS, 2011; McCarry et al., 2021; Revolt Sexual Assault, 2018) have provided insights into the breadth and scope of sexual victimisation on university campuses in England, Scotland, Wales, and Northern Ireland, including useful data on the demographic characteristics of perpetrators, there is currently no dominant psychological research agenda relevant to university-based sexual aggression in the UK (Donaldson et al., 2018; Jones et al., 2020a). Consequently, academic understanding regarding the psychological profiles of the individuals who engage in harmful sexual behaviours on UK campuses is underdeveloped (see Jones et al., 2020a) and research has provided only fragmentary insights into the aetiology and risk factors associated with perpetration (see Jones et al., 2020b). This means that, at the time of writing, there is only a

limited evidence base that programme designers can rely on to develop effective sexual harm prevention strategies to reduce UK students' sexually violent behaviours (see UUK, 2018, 2019). In particular, this knowledge deficit has hampered the development of robust and scalable *novel* primary prevention interventions in the UK for male students at risk of university-based sexual aggression (see Bows et al., 2015; UUK, 2017, 2018). These interventions have demonstrated success with US student cohorts (see Vladutiu et al., 2011) and thus may help to reduce high rates of sexual perpetration on campuses in the UK too.

The purpose of this thesis was to help catalyse research into university-based sexual aggression in the UK by forensically examining the psychological characteristics of the most common perpetrators – heterosexual male university students – alongside the broader socio-ecological factors associated with their offending behaviours. By assessing the heterogeneity of self-reported perpetrators as a specialist offending group, this thesis also aimed to provide usable academic insights into the individual-level differences between UK male students with recent histories of sexually aggressive behaviours. Finally, to encourage researchers towards more innovative approaches to sexual harm prevention on UK campuses, this thesis contributed original research that described the development, implementation, and evaluation of *The Pathways Programme* – a novel evidence-based, online self-help intervention for university-based sexual aggression grounded in established sexual violence theory and empirical understanding of UK male students' sexual perpetration.

### **Review of Study Findings**

The below section provides readers with a synopsis of the main research findings from each of my six empirical studies. These are stratified by the three aforementioned research questions; subsequently, findings from Studies 1, 2, 4, and 5 are initially presented, followed by findings from Study 3 and then Study 6. Links between key findings and the extant

literature will be reviewed later in this chapter, where I discuss the implications of my work for UK research and professional practice.

### ***Risk Factors for University-Based Sexual Aggression amongst Male Students in the UK***

One of the central aims of this thesis was to contribute empirical data to help develop academic understanding of the aetiology of UK male students' sexual perpetration. It was hoped that collected data could provide useful insights into the specific socio-ecological factors associated with students' harmful sexual behaviours, which university policymakers could rely on to develop effective harm prevention programmes and sexual misconduct policies to reduce rates of sexual assault on their campuses.

Based on the literature reviewed in Chapter 2, which demonstrated that male university students' sexual perpetration is the product of multiple levels of influence on their behaviour (for a review, see Moylan & Javorka, 2020), a socio-ecological approach guided my investigations (see Dahlberg & Krug, 2002). Specifically, I adopted Wagman et al.'s (2020) expanded version of the socio-ecological model, which conceptualises the social ecology as comprising five distinct levels: the individual level, the situational level, the relationship level, the community level (which incorporates institutional factors), and the societal level. Given the lack of empirical research examining UK male students' harmful sexual behaviours, Wagman et al.'s (2020) framework provided the means through which to holistically examine the factors associated with university-based sexual aggression. This included the situational contexts and immediate environment in which offences are perpetrated, which have only tentatively been explored to date (Khan et al., 2020; see also Abbey et al., 2001; Lofgreen et al., 2021).

**Overview of Study 1.** Study 1 had two overarching aims: first, to provide a comprehensive summary of the breadth and scope of male-perpetrated sexual aggression across a representative sample of male students from one UK plate glass university, and

second, to offer initial psychological insight into the possible individual-level risk factors associated with UK male students' harmful sexual behaviours. These aims derived from the literature reviewed in Chapters 1 and 2, which underlined the lack of empirical research into the prevalence of, as well as the individual-level risk markers associated with, UK male students' sexually aggressive behaviours.

Risk factors examined in this study mapped onto key themes identified by US researchers as being associated with university-based sexual aggression. These included participants' inappropriate sexual interests, offence-supportive cognitions, and self/emotional regulation issues. Moreover, this study extended past US work by examining the prognostic ability of factors related to intimacy and social functioning deficits, which have been highlighted as reliable markers of incarcerated persons' sexual offending behaviours but never empirically examined as predictors of male university students' sexual perpetration. Consistent with best practice recommendations at the time (e.g., Anderson et al., 2017; Johnson et al., 2017), an outcomes-first version of Koss et al.'s (2007) established *Sexual Experiences Survey – Short Form: Perpetration* was used to measure sexual aggression.

In terms of prevalence, results from this study showed that 33 (12.7%) of my 259 male student participants from the select university self-reported having engaged in sexually aggressive behaviours over the past 24-months, for 106 sexually aggressive acts overall. Descriptive analyses highlighted that sexual coercion comprised the largest category of self-reported act (representing 41.5% of all acts), having been perpetrated by 14 SAs (5.4% of my sample). This was followed by unwanted sexual contact (representing 34.9% of all acts) and rape/attempted rape (representing 23.6% of all acts), which were perpetrated by 8.9% ( $n = 23$ ) and 5.4% ( $n = 14$ ) of my sample, respectively. In terms of tactics used to achieve desired sexual outcomes, results showed that SAs relied mostly on verbal pressure and incapacitation,

which accounted for 37.7% and 36.8% of all self-reported tactics, respectively. Most SAs ( $n = 13$ ; 39.4% of my SA sample) reported perpetrating two sexually aggressive acts overall.

In terms of the individual-level risk factors associated with participants' recent sexual aggression, univariate analyses highlighted that SAs could be differentiated from NSAs based on their self-reported levels of hostility towards women, rape myth acceptance, and problematic sexual fantasies, as well as their self-identified ethnicity. When these four variables were inputted into a logistic regression model, results showed that only scores on my measures of rape myth acceptance and problematic sexual fantasies were able to reliably predict students' past sexual offending behaviours. Consistent with hypotheses, the model performed at better-than-chance levels, meaning that it offered a reliable insight into the individual-level risk factors associated with the harmful sexual behaviours of male students at the select UK university.

**Overview of Study 2.** Whilst Study 1 offered useful academic insight into the prevalence of, and individual-level risk factors associated with, the sexually aggressive behaviours of male students studying at one UK university, the findings were not generalisable to students studying at other UK HEIs. To this end, Study 2 extended Study 1 by examining whether findings replicated across a nationally representative sample of UK university males.

Study 2 was a methodological replication of Study 1; however, minor changes were made to research design to ensure that findings were reliable. For example, findings from Study 1 were negatively affected by a low number of self-reported SAs, which restricted the statistical power of the logistic regression model. Therefore, I purposively recruited additional participants in Study 2 to ensure that analyses were adequately powered and findings robust. Additionally, rather than using a targeted marketing campaign to recruit male students (as done in Study 1), participant recruitment for Study 2 took place using Prolific –

an established crowdsourcing platform that allowed access to a diverse, highly-engaged target audience who have been shown to respond positively to studies on sensitive sexual topics (see Ó Ciardha et al., 2021; Palan & Schitter, 2018).

In terms of prevalence, 30 (10.2%) of my 295 male student participants in this study self-reported having engaged in sexually aggressive behaviours over the past 24-months, for 145 sexually aggressive acts overall. As in Study 1, descriptive analyses highlighted that sexual coercion comprised the largest category of self-reported act (representing 37.9% of all acts), having been perpetrated by 18 participants (6.1% of my sample). This was followed by rape/attempted rape (representing 35.9% of all acts; notably higher than Study 1) and unwanted sexual contact (representing 26.2% of all acts), which were perpetrated by 5.4% ( $n = 16$ ) and 4.7% ( $n = 14$ ) of my sample, respectively. In terms of tactics, SAs relied mostly on incapacitation and verbal criticism, which accounted for 28.3% and 27.6% of all self-reported tactics, respectively. Unlike Study 1, most SAs ( $n = 12$ ; 40.0% of my SA sample) reported having committed three or more sexually aggressive acts over the past two years. The majority of these offences (66.7%) were perpetrated against a known student.

In terms of the individual-level risk factors associated with participants' sexual aggression, univariate analyses highlighted that SAs and NSAs could be differentiated by their self-reported levels of hostility towards women, rape myth acceptance, and problematic sexual fantasies (as in Study 1), as well as their self-perceived non-sexual aggression, self-efficacy in romantic relationships, and difficulties in emotion regulation. When entered into a logistic regression model, only participants' self-reported non-sexual aggression, hostility towards women, and problematic sexual fantasies made a significant contribution, highlighting that these variables were able to reliably predict students' self-reported sexual aggression. As in Study 1, the model discriminated between groups at better-than-chance level.

**Overview of Study 4.** Whilst Studies 1 and 2 offered preliminary empirical insights into the individual-level risk factors associated with university-based sexual aggression in the UK, the research reviewed in Chapter 2 underlined that students' harmful sexual behaviours are the product of multiple levels of influence on their behaviour (Jones et al., 2020b; Moylan & Javorka, 2020). Study 4 therefore aimed to provide additional contextual insights into university-based sexual aggression in the UK by examining the prognostic ability of broader socio-ecological risk factors associated with male students' sexual perpetration. These included a variety of situation-relevant and relationship-level factors that had been shown to predict the sexual offending behaviours of university males, non-student males in the community, or incarcerated sexual offenders in other countries and thus warranted academic attention with male students in the UK. In this study, examined risk factors could be apportioned into four categories: those relevant to participants' sex-related behaviours, their perceptions of others' sex-related behaviours, their self-control, and their past substance use.

Unlike in Studies 1 and 2, a modified tactics-first version of the SES-SFP was adopted in this study to measure participants' sexual aggression. This was based on the recommendations of Abbey et al. (2005, 2021) and Schuster et al. (2021), who showed that leading with tactics (versus outcomes) when probing community males' history of sexual aggression facilitates greater cognitive retrieval of non-consensual sexual behaviours, thus leading to more accurate prevalence estimates. For the same reason, I further amended the SES-SFP so that items did not require an analysis by participants of their victims' desire for sexual contact (see Rueff & Gross, 2017).

Interestingly, despite the aforementioned changes to my outcome measure, only 43 (9.60%) of my 448 participants self-reported having engaged in sexually aggressive acts over the past 24-months – proportionally fewer participants than in Studies 1 or 2 – for 218 acts overall. As in earlier studies, sexual coercion comprised the largest category of self-reported

act (representing 43.6% of all acts), having been perpetrated by 25 participants (5.6% of my sample). This was followed by rape/attempted (33.9% of all acts) and unwanted sexual contact (22.5% of all acts), which were perpetrated by 3.3% ( $n = 15$ ) and 4.7% ( $n = 21$ ) of my sample, respectively. In terms of tactics, SAs relied mostly on verbal pressure (38.5% of all acts) to achieve desired sexual outcomes. As in Study 2, most SAs ( $n = 22$ ; 51.2% of the SA sample) self-reported three or more sexually aggressive acts. These were mostly perpetrated against other known students ( $n = 18$ ; 41.9% of the SA sample). Countering a popular narrative, most SAs ( $n = 13$ ; 41.9% of the SA sample) reported that neither they nor their victim(s) had consumed alcohol or drugs prior to the offence taking place.

In terms of the situation-relevant and relationship-level risk factors associated with students' recent sexual aggression, inferential testing showed that SAs and NSAs in this study could only be differentiated by their self-reported levels of compulsive sexual behaviours and self-control, as well as their propensity towards novel sexual experiences. When these scores were inputted into a logistic regression model, only participants' compulsive sexual behaviours made a significant contribution – an unsurprising finding given that 10 SAs (23.3% of the SA sample) surpassed the suggested clinical cut-off point for the detection of compulsive sexual behaviour disorder. As in previous studies, the model performed at greater-than-chance levels, suggesting that this risk factor is a reliable indicator of students' recent sexual offending history.

**Overview of Study 5.** Study 4 highlighted that risk factors for UK male students' harmful sexual behaviours exist beyond the individual level and findings offered preliminary empirical support for potential situation-relevant indicators associated with participants' past sexual perpetration. To further refine the profiles of self-reported sexually aggressive UK university males, as well as to provide additional insight into the socio-ecological factors associated with their sexual offending behaviours, Study 5 extended research by assessing the

predictive value of various hypothesised community and institution-level factors on male students' sexual perpetration. These included factors that assessed students' participation in sexual assault prevention programming (a proxy of a university's prioritisation of campus safety), their personal acceptance of sexual misconduct, as well as campus climate-related factors linked with sexual victimisation in recent large-scale US climate surveys (e.g., Krebs et al., 2016; McMahon et al., 2015; Rasmussen et al., 2017).

In terms of community and institution-level factors associated with participants' recent harmful sexual behaviours, univariate testing highlighted that self-reported SAs in this study could be differentiated from their non-offending peers based on their personal acceptance of sexual misconduct and participation in sexual assault prevention programming. Like Study 1, participants could also be differentiated by their self-identified ethnicity. When these factors were entered into a logistic regression model to assess their ability to predict participants' recent sexual aggression, only scores on administered measures of personal acceptance of sexual misconduct and participation in sexual assault prevention programming made a significant contribution. This was an interesting finding given that self-reported SAs engaged, on average, in more sexual assault interventions than NSAs and suggests that male students' risk of sexual perpetration may increase as a result of their participation in harm prevention programming. As previously, the model performed at better-than-chance levels.

Given that my sample in this study comprised all 448 participants from Study 4, as well as three additional participants removed during the outlier elimination process, I did not examine the breadth or scope of self-reported sexual aggression in this study.

### ***The Heterogeneity of Sexually Aggressive UK Male Students***

Typological research from the US has highlighted that sexually aggressive university male students, much like their convicted counterparts (see Robertiello & Terry, 2007), comprise a heterogeneous offending cohort who can be classified into distinct subgroups

based on their responses to individual-level measures of risk (e.g., Foubert et al., 2020; Murnen & Kohlman, 2007; Swartout et al., 2015a, 2015b; M. P. Thompson et al., 2013). Study 3 harnessed data from my Studies 1, 2, and 6 to assess whether similar patterns exist amongst self-reported sexually aggressive male students in the UK, based on the key individual-level risk factors associated with their offending behaviours (as identified in Studies 1 and 2). This study therefore contributes useful additional insights into the characteristics of UK male students who engage in harmful sexual behaviours, which can help guide the development of effective sexual harm prevention interventions on UK campuses. It also broadens past academic research by establishing typologies of sexually aggressive student based on multiple (versus standalone) psychological factors associated with their risk of sexual perpetration – a notable limitation of past US work.

**Overview of Study 3.** In Study 3, a hierarchical cluster analysis was conducted to assess whether meaningful subgroups of self-reported sexually aggressive UK male students could be derived based on the key individual-level risk factors associated with their sexual perpetration. These risk factors consisted of the three measures that differentiated between SAs and NSAs in both Studies 1 and 2; namely, Lonsway and Fitzgerald's (1995) *Hostility Toward Women Scale* (HTW), McMahon and Farmer's (2011) *Illinois Rape Myth Acceptance Scale – Revised* (IRMA-R), and Bartels and Harper's (2018) *Sexual Fantasy Questionnaire Revised – Short Version* (SFQ-R-SV). To ensure an adequately powered analysis, the sample in this study comprised participants who provided at least one non-zero response on the SES-SFP (and thus were classed as SAs) in Studies 1, 2, or 6, but who had not been excluded during data cleaning ( $N = 97$ ).

Given that the potential number of subgroupings within my dataset was unknown, I followed best practice recommendations and adopted an agglomerative process to generate cluster profiles (see Blashfield, 1976). This process identified six distinct clusters within my

dataset. Descriptive statistics were generated to help define each cluster and inferential tests were performed to assess whether clusters statistically differed from one another in terms of their average scores across my three clustering variables. Findings from these tests showed that derived cluster profiles could be differentiated on all three variables, indicating that each cluster possessed distinct characteristics that distinguished it from other clusters. The six clusters were tentatively defined based on their descriptive characteristics:

- **Cluster 1 ( $n = 25$ )** – Termed “Non-Dominant Aggressors”, participants within this cluster were most distinguishable by their extremely low scores across all three clustering variables, which were, on average, lower than those of participants within any of the other five clusters.
- **Cluster 2 ( $n = 24$ )** – Termed “Hostile Fantasists”, participants in this group were best characterised by their low scores on the IRMA-R (which were surpassed only by Cluster 1 participants), as well as their above-average scores (compared to non-sexual aggressors in Studies 1 and 2) on the HTW and SFQ-R-SV.
- **Cluster 3 ( $n = 21$ )** – Termed “Multiple Dysfunctions”, participants in this group were best defined by their unremarkable scores across all three of my clustering variables, which centred around the whole-sample average for each measure.
- **Cluster 4 ( $n = 14$ )** – Termed “Hostile Excusers”, participants in this group were most notable for possessing the highest average scores on the HTW and the IRMA-R.
- **Cluster 5 ( $n = 7$ )** – Termed “Sexual Fantasists”, participants in this group were best characterised by their scores on the SFQ-R-SV, which were the highest of all six cluster groups. Owing to its size, I urge readers to interpret this cluster with caution.
- **Cluster 6 ( $n = 6$ )** – Termed “Fantasist Excusers”, participants in this group were best defined by their elevated mean scores on both the IRMA-R and the SFQ-R-SV. Again, I urge readers to interpret this cluster with caution due to its size.

To further profile each of my cluster groupings and to assess the criterion validity of my determined cluster solution, derived cluster profiles were validated against the four measures that differentiated SAs and NSAs in either Study 1 or 2, but which were not used in my main cluster analysis. These included Bryant and Smith's (2001) *Short-Form Buss-Perry Aggression Questionnaire* (BPAQ), Kaufman et al.'s (2016) *Difficulties in Emotion Regulation Scale – Short Form* (DERS-SF), and Riggio et al.'s (2013) *Self-Efficacy in Romantic Relationships Scale* (SERR), as well as participants' self-identified ethnicity. Similar to earlier inferential testing, findings showed that my six cluster profiles could be differentiated based on participants' responses across all four cluster validation measures.

Finally, to evaluate whether derived cluster profiles represent secure groups within my sample, data underwent stability testing. Results from this process supported the validity of a six-cluster solution and suggested that my clustering procedure was robust against random fluctuations in my dataset. However, this process did highlight that a small proportion of my sample (between 15.5% and 17.5%) either did not adhere exclusively to one cluster grouping or were not easily classifiable.

### ***Tackling University-Based Sexual Aggression using a Novel Online Sexual Harm Prevention Intervention***

Contemporaneous research examining sexual harm prevention work at UK universities has shown that, despite recent scholarly advances, few interventions have been developed based on academic understanding of UK students' harmful sexual behaviours (Bows et al., 2015; UUK, 2017, 2018, 2019). Of the evidence-based interventions that do exist, most either adopt a community-based approach to sexual harm prevention (e.g., bystander programmes; see Chantler et al., 2019; UUK, 2016, 2018, 2019), are developed using US data (see Labhardt et al., 2017), or are implemented across students from one university only (e.g., Fenton & Mott, 2018; Roberts & Marsh, 2021). As highlighted in

Chapter 3, most interventions have also not been longitudinally evaluated using robust research designs; thus, their ability to bring about long-term shifts in students' behaviours and attitudes can only be assumed. This defies best practice guidelines regarding effective intervention design (e.g., DeGue et al., 2014; Newlands & O'Donohue, 2016; Vladutiu et al., 2011) and may help to explain why certain researchers report boomerang reactance effects when evaluating intervention outcomes with UK students (e.g., Fenton & Mott, 2018).

Based on the limitations of current programming, Study 6 positively contributes to the evolving research landscape by providing preliminary evidence in favour of the feasibility and efficacy of *The Pathways Programme* – a novel online self-help sexual harm prevention intervention designed around established theory and empirical understanding of university-based sexual aggression in the UK – at reducing the short-term and longer-term risk of sexual perpetration across a nationally representative sample of UK male university students who report harmful sexual proclivities.

**Overview of Study 6.** *The Pathways Programme* is a psychological self-help intervention designed to reduce UK male university students' proclivity towards engaging in harmful sexual behaviours (the primary treatment target of the programme), as well as their levels of hostility towards women, rape myth acceptance, and problematic sexual fantasies (secondary treatment targets) – key individual-level risk factors identified in Studies 1 and 2 as reliable indicators of UK university males' past sexual aggression. The intervention is predominantly psychoeducation-based though includes cognitive behavioural activities designed to stimulate positive behaviour change and is self-administered by participants online.

As part of a four-wave RCT, I assessed the efficacy of *The Pathways Programme* at bringing about short-term (i.e., pre/post) and longer-term (i.e., 3-month) behavioural and attitudinal shifts amongst treatment group (TG) participants who were assigned to take part in

the intervention ( $n = 127$ ). These shifts were assessed using relevant self-report measures and contrasted with those displayed by a waitlist control group (WCG;  $n = 127$ ) who did not take part in the intervention and thus were not anticipated to display any changes in their attitudes or behaviours. Measures were also completed by TG participants to ascertain their research motivations and perceptions of the programme. An ITT protocol was adopted to mitigate against the effects of participant attrition, which was recorded as 26.4% ( $n = 67$ ) at post-test and 50.8% ( $n = 129$ ) at follow-up.

Primarily, intervention effectiveness was assessed through a series of two-way mixed models that accounted for the repeated measures design of my research. These models highlighted a significant interaction between group allocation and time on participants' scores across primary and secondary outcome measures, indicating that their behavioural and attitudinal shifts over time were determined by whether they were allocated to the TG or the WCG. Post-hoc pairwise comparisons probed these findings and showed that, compared to their WCG counterparts, TG participants displayed markedly larger reductions in their scores at all three testing points.

Intervention effectiveness was also examined by calculating whether participants displayed clinically reliable change in their proclivity scores over time (see Jacobson et al., 1984). This allowed for the examination of more individual-level changes in participants' scores on my primary outcome measure, which were not captured by my mixed model tests. Findings from these tests showed that most TG participants displayed either a reduction or a recovery in their self-reported proclivity to engage in sexual aggression following participation in the intervention. Contrary to expectations, many WCG exhibited similar outcomes.

Finally, a multiple regression model was run to evaluate the factors associated with TG participants' intention to complete of *The Pathways Programme*. Examined factors were

based on Ajzen's (1991) established *Theory of Planned Behaviour*. Of the variables that entered the model, results highlighted that only participants' self-reported attitudes towards intervention completion, as well as their perceived control over their ability to complete the intervention, significantly predicted their behavioural intentions.

### **Implications of Findings**

Given the novelty of my research – which, I believe, provides the most comprehensive assessment to date of UK male university students' harmful sexual behaviours – it is likely that my findings will have positive implications for academic research, policy, and professional practice in the UK. Select findings – particularly those from my Studies 3, 4, and 5 – will also contribute to the evolving international research landscape relevant to university-based sexual aggression, which has not tendered strong evidence thus far on the macro-level socio-ecological factors associated with male students' sexual perpetration, nor the heterogeneity of self-reported perpetrators as a specialist offending group.

To help integrate my findings into the UK academic research and policy landscapes, I outline below the potential implications of my work across each of my three main research strands. I refer readers to my empirical chapters for more nuanced discussions about the link between individual study findings and the extant international knowledge base on sexual violence.

### ***Socio-Ecological Risk Factors Associated with University-Based Sexual Aggression***

As highlighted in Chapter 2, there have been no formal assessments to date of the socio-ecological risk factors associated with UK male university students' sexually aggressive behaviours. However, since the NUS' (2011) landmark *Hidden Marks* climate survey – the first valid assessment of sexual victimisation rates amongst female university students in the UK – there has been a growing body of (mainly qualitative) work examining

the influence of ‘lad culture on UK male students’ sexual offending behaviours. These studies provide academic evidence in favour of some of my research findings, particularly those from Studies 1 and 2 which sought to identify the individual-level risk factors associated with UK male students’ sexual perpetration.

For example, in their ground-breaking *That’s What She Said* report, Phipps and Young (2013) highlighted that many UK university campuses are plagued by a divisive, gendered ‘lad culture’ characterised by “a group or ‘pack’ mentality residing in activities such as sport and heavy alcohol consumption, and ‘banter’ which [is] often sexist, misogynist and homophobic” (pg. 28). Having carried out interviews with female university students who had witnessed or experienced ‘laddish’ behaviours, the authors posited that lad culture encourages male students to exhibit toxic masculine traits and behaviours associated with sexual violence. These include the sexual objectification and sexual assault of female students, hostile sexism, and rape-supportive attitudes. There are obvious links between these findings and my findings from Studies 1 and 2, which showed that the self-reported sexually aggressive behaviours of UK male university students are reliably predicted by their scores on established measures of rape myth acceptance and hostility towards women.

Though they have not examined ‘lad culture’ *per se*, it is interesting to note findings from recent quantitative studies that have highlighted high proportions of UK male university students who exhibit hostile masculine traits linked with university-based sexual aggression. For instance, Samji and Vasquez (2020) reported in a recent empirical study strong links between UK male students’ rape myth acceptance, hostility towards women, and use of sexual objectification. Other studies have provided academic support for indicators such as non-sexual aggression (Bhogal & Corbett, 2016), hostile sexism (Davies et al., 2012), and rape myth acceptance (e.g., Bhogal & Corbett, 2016; Camp et al., 2018; Davies et al., 2012) amongst university male students in the UK. This includes findings from Revolt Sexual

Assault's (2018) climate survey, which showed that over half of respondents did not emphatically reject common false beliefs about rape and sexual assault.

Beyond hostile masculine traits, findings from Studies 1 and 2 also highlighted that participants' self-reported problematic sexual fantasies – defined in this thesis as those that are either harmful, atypical, or problematic in nature – were reliable indicators of their past sexual aggression. Unfortunately, empirical studies examining the sexual fantasies of male university students in the UK are scant and, of the studies that do exist, most are limited in their scope or constrained by small sample sizes (e.g., Gray et al., 2003). Perhaps the most insightful studies are those from Bartels and colleagues, whose research has highlighted that a large proportion of community males in the UK report problematic sexual fantasies that map onto either paraphilic sexual interests (e.g., Henek & Bartels, 2020) or sadistic sexual behaviours, including sexual assault (Bartels et al., 2020). This includes a study by Bartels and Gannon (2009) who showed that 'rape-prone' UK community males – men who self-reported some likelihood of perpetrating rape – typically report sexual thoughts about coercion and dominance, which are influenced by their rape supportive attitudes. Unfortunately, Bartels and colleagues' studies rely on combined data from student and non-student participants; thus, they are negatively affected by contamination bias and provide only a fragmentary insight into UK university males' sexual fantasies.

Given the paucity of US academic work underlined in Chapter 2 examining the macro-level factors associated with sexual aggression (see Moylan & Javorika, 2020), it will be unsurprising to readers that – to the best of my knowledge – there has been no empirical research published examining how situational, community, and institutional factors coalesce to either encourage or discourage UK male students' sexual perpetration. 'Lad culture' research studies have provided academic insight into the influence of broader socio-ecological risk factors associated with university-based sexual aggression – for example,

Phipps and Young (2013) suggested that male students' laddish behaviours are reinforced by poor university leadership and corporate institutional climates – however, these claims are typically based on interview research with female students and have not been substantiated by empirical work with university males.

Notwithstanding issues pertaining to subjectivity, it is interesting to note that follow-up studies have supported Phipps and Young's (2013) claims. For example, in their qualitative examination of hostile masculinity at UK universities, Jeffries (2020) discovered that many UK male students believe that lad culture is ubiquitous to university life and struggle to manage their 'laddish' behaviours in fear of social exclusion. Additionally, Gunby et al. (2017) suggested that communities that condone hypermasculinity can also encourage male students' harmful sexual behaviours as they create a culture in which sexual violence is permissible. The authors noted that licenced drinking venues – for example, pubs, clubs, and sports bars – are often microcosms of these harmful social norms as they tend to attract dominant, aggressive, and competitive custom. Both studies support the supposition that risk factors for UK male students' harmful sexual behaviours exist beyond the individual level and thus emphasise the need for researchers to move their focus beyond psychological and demographic factors when examining the causes of university-based sexual aggression.

### ***The Heterogeneity of Self-Reported Perpetrators***

Perhaps unsurprisingly, Chapter 2 underlined that there have been no known empirical assessments of the heterogeneity of UK university males who self-report sexual perpetration. Perhaps more surprising, though, was the identified lack of comprehensive typological sexual aggression research emanating from the US, which has been generating academic knowledge into students' harmful sexual behaviours for well over six decades. Whilst studies exist that have probed whether there are mutually exclusive classes of sexually aggressive US male student, these have classified perpetrators based either on standalone risk

factors – for example, sports participation or fraternity membership (Murnen & Kohlman, 2007; Testa & Cleveland, 2017) – or a specific feature of their offending behaviour (e.g., repeat offending patterns; Foubert et al., 2020; Lisak & Miller, 2002; Zinzow & M. P. Thompson, 2015). Therefore, these studies seemingly ignore the established research finding that university-based sexual aggression is the product of multiple levels of influence on a student’s behaviour (e.g., CDC, 2014b; Jones et al., 2020b; Khan et al., 2020; McMahon et al., 2021; Walsh et al., 2021).

The work of Swartout et al. (2015a, 2015b) provides arguably the most empirically robust insight into the heterogeneity of US male students who have engaged in harmful sexual behaviours. In their work, the authors demonstrated that US university males with a history of sexual aggression can be classified into four typologies based on the frequency of their perpetration behaviours during their studies; namely, those who perpetrate sexual aggression at “low”, “moderate”, “decreasing”, and “increasing” frequencies over time. Whilst follow-up work by M. P. Thompson et al. (2015) showed that trajectory membership was related to changes in individual-level risk factors associated with perpetration (e.g., impulsivity, hostility towards women, sexual compulsivity, and rape myth acceptance), the fact that typologies were initially constructed based on one factor only means that Swartout et al.’s (2015a, 2015b) findings cannot provide useable insight into the risk markers associated with students’ sexual aggression. Subsequently, the authors’ findings cannot reliably inform the design of harm prevention strategies based upon these markers.

Given the aforementioned criticisms of past typological work, my findings are academically lucrative and help propel forward psychological understanding of the male students who perpetrate sexual crimes on UK university campuses. Specifically, by demonstrating that sexually aggressive UK university males can be classified into one of six meaningful offending clusters based on the key individual-level risk factors associated with

their sexual perpetration, findings from Study 3 highlight that a ‘one-size-fits-all’ approach cannot be adopted to help understand university-based sexual aggression in the UK. Rather, academic researchers need to use more holistic frameworks – as one example, the socio-ecological model (adopted in this thesis) – to fully assess and comprehend the aetiology of, and risk and protective factors associated with, male students’ harmful sexual behaviours. As noted by Wight et al. (2015) in their ‘what works’ in intervention development guide, socio-ecological models can also provide useful insights into the specific mechanisms of change (that is, the processes or factors that lead to a desirable therapeutic outcome) associated with the effective treatment of UK male students’ harmful sexual proclivities. These insights, in turn, can guide the development of more robust, evidence-based, theoretically driven sexual harm prevention strategies, which research shows are associated with the most positive treatment outcomes amongst male university students (e.g., Nation et al., 2003; Newlands & O’Donohue, 2016; Vladutiu et al., 2011).

### ***The Efficacy of Novel Sexual Harm Prevention Programming***

Beyond risk factors and typologies associated with UK male students’ offending behaviours, the literature reviews at the start of this thesis underlined the lack of published empirical work that has described and evaluated the development and implementation of primary prevention strategies for university-based sexual aggression in the UK. In particular, Chapter 3 emphasised the paucity of UK outcome evaluations examining the efficacy of novel evidence-based online self-help programmes for sexual aggression – cost-effective, scalable harm prevention interventions that have demonstrated good effectiveness at reducing both the indicators associated with, as well as actual displays of, sexual violence amongst US university males (e.g., Gidycz et al., 2011; Salazar et al., 2014, 2019). As noted earlier in this chapter, findings from Study 6 provide preliminary empirical support for the effectiveness of these programmes at reducing UK male students’ self-reported proclivity towards sexual

aggression, as well as their levels of hostility towards women, rape myth acceptance, and problematic sexual fantasies – individual-level factors identified in Studies 1 and 2 as risk markers for their sexual perpetration. Given the lack of variability in the strategies developed by HE providers to tackle high rates of sexual assault on UK campuses (see Chantler et al., 2019; UUK, 2017, 2018), including the apparent lack of investment by universities in designing innovative evidence-based programmes for students’ harmful sexual behaviours (see UUK, 2018), these are critical findings.

As reported by Chantler et al. (2019), the majority of universities in the UK rely on bystander interventions – a popular form of community-based prevention intervention in the US (see Kettrey & Marx, 2019; Jouriles et al., 2018; Katz & Moore, 2013) – to discourage sexual assault on their campuses. Evaluations of these programmes with UK university students have evidenced that they can bring about positive shifts in students’ knowledge of bystander helping behaviours; their understanding of the harms and impacts associated with sexual violence, as well as their own university’s support services and sexual misconduct reporting procedures; and their confidence to intervene in harmful sexual situations (e.g., Roberts & Marsh, 2021). Likewise, recent outcome evaluations have suggested that bystander interventions can also encourage reductions in risk-related domains associated with sexual perpetration. For example, in their evaluation of *The Intervention Initiative* (Fenton et al., 2014) – an evidence-based education programme designed to prevent sexual and domestic abuse on UK university campuses – Fenton and Mott (2018) reported that participants who underwent programming displayed reductions in their endorsements of myths about rape and domestic violence, alongside improvements in their bystander knowledge and intentions.<sup>42</sup>

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<sup>42</sup> It is worth noting that Fenton and Mott (2018) report that their participants’ reductions in their self-reported levels of RMA may have been accounted for by a sexual harm prevention marketing campaign that ran alongside their intervention.

However, despite the positive evaluations of bystander programmes with UK university students, they are limited by the fact that they place the onus on the broader university community – not solely perpetrators – to reduce GBV. As Camp et al. (2018) note, this means that bystander interventions likely do not target those individuals most at risk of offending. Subsequently, whilst they may bring about lower rates of sexual assault on UK campuses through active disruption, it is unlikely that bystander interventions will reduce a (would be) perpetrator’s likelihood of offending at a later point in time. Likewise, Labhardt et al. (2017) highlight that several bystander programmes adopted by UK universities are modelled on US data which may not generalise to UK students given noteworthy differences in university culture, climate, geography, and history between both countries. Whilst findings from the aforementioned outcome evaluations provide some evidence to counter this claim, it is likely that more tailored and better targeted harm prevention strategies would bring about greater significant shifts in participants’ behaviours and attitudes than those which are developed using international data and evaluated with students from one university only.

Based on these critiques of current UK programming efforts, my findings from Study 6 are academically valuable as they support the design and implementation of online self-help primary prevention interventions as effective means of tackling UK male students’ sexually aggressive behaviours. In particular, my outcome evaluation has shown that *The Pathways Programme* demonstrates success at reducing known risk-factors associated with UK male students’ harmful sexual behaviours, as well as their proclivity to engage in sexual aggression – a reliable proxy for their later offending behaviours (Gidycz et al., 2011; McMahon et al., 2019). Though preliminary, these positive findings are likely ascribable to the evidence-based nature of the intervention, as well as the fact that I only targeted students who displayed some likelihood to sexually offend. Whilst acknowledging that *The Pathways Programme* needs to undergo refinement and more long-term evaluation to ensure that it delivers lasting treatment

shifts, I would exhort other researchers and policymakers to examine in greater depth whether accessible and scalable harm prevention strategies – such as online self-help interventions – would form a useful part of their university’s armoury to tackle GBV.

It is worth underlining, as I did in Study 6, that harm prevention efforts do not always lead to desirable outcomes and have been known, on occasion, to increase male students’ risk of sexual assault (see Malamuth et al., 2018). Examples of programmes that elicit boomerang reactance effects are evident across the academic literature (e.g., Fenton & Mott, 2018; Spikes & Sternadori, 2018) and my findings from Study 6 show that *The Pathways Programme* is no exception. Whilst various explanations have been proposed for this phenomenon (see Malamuth et al., 2018), the most rational argument is that university males comprise a heterogenous population and therefore cannot be expected to respond in a similar way to sexual harm prevention efforts – a point that is emphasised nicely by the findings from Study 3. To this end, it would be encouraging to see HE providers invest more in tailored initiatives to reduce rates of university-based sexual aggression, alongside the development of a broader spectrum of prevention strategies. Similar proposals have been made in the general sexual offending literature, where researchers have noted that sexual offending prevention programmes must adopt a flexible approach to delivery to cater for the varying treatment needs of offenders (e.g., Gannon et al., 2012).

### ***Additional Contributions***

Beyond the three main headline findings noted above, my studies also provided useful academic insight into the breadth and scope of UK male students’ sexually aggressive behaviours – a notable gap in current UK literature. Since NUS (2011) published their *Hidden Marks* survey, there have been several climate surveys commissioned that have assessed the prevalence of sexual victimisation at UK universities (Jones et al., 2020a; see also AVA & NUS, 2022; Brook, 2019; McCarry et al., 2021; Revolt Sexual Assault, 2018;

Steele et al., 2021b); however, data into sexual perpetration remains scant. Whilst some studies have shown that certain UK male university students (e.g., Alleyne et al., 2014; Gannon & A. O'Connor, 2011) and broader community males in the UK (e.g., A. O'Connor & Gannon, 2021) self-report a proclivity towards sexual offending, these investigations have not actually tracked participants' offending behaviours. Subsequently, their ability to make inferences about the scope and breadth of sexual perpetration is limited. The only exception to this is a study by Muñoz et al. (2011), who reported that several of their UK male student participants self-disclosed using sexually coercive tactics to initiate sexual activity.<sup>43</sup> However, this work is over a decade old and does not account for contemporary changes in the policy landscape or recent anti-GBV grassroots movements that are likely to have influenced students' sexual behaviours. Likewise, given that nearly two-thirds of the authors' (relatively small) sample ( $N = 150$ ) comprised female students from one university, it is unlikely that their findings generalise to male students studying at HEIs across the UK. To this end, my prevalence data from Studies 1, 2, and 4 are useful in that they provide insight into the pervasiveness of male-perpetrated sexual aggression on UK universities campuses, as well as the precise tactics and outcomes commonly associated with male students' sexual offending behaviours – findings that can help guide policy and prevention efforts.

Beyond prevalence, my studies also offer useful suggestions regarding sexual violence research design and methodology. For example, my findings – in concert with my positive user experiences – provide support for the use of online crowdsourcing platforms as a means to recruit a diverse group of UK male student participants, collect meta-data on sample characteristics and study engagement (e.g., survey completion time), as well as host empirical sexual violence research studies. With the exception of Study 1, which relied on a

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<sup>43</sup> The authors did not report the number of university males in their study ( $N = 54$ ) who self-reported sexual coercion; however, they did report on the percentage of male participants who reported each sexually coercive tactic: sexual arousal and touching (81.5%), emotional manipulation (75.9%), exploiting by intoxication (61.1%), and physical force (37.0%).

targeted local advertising campaign, I used the popular crowdsourcing site Prolific to recruit participants in my studies (see Palan & Schitter, 2018). Prolific has received positive academic evaluation since its inception (e.g., Peer et al., 2017, 2021), including in a recent psychological study by Ó Ciardha et al. (2022) who used the platform to probe the prevalence of community males' illicit sexual proclivities and behaviours. Given the increased reliance on crowdsourcing platforms to conduct empirical research (see Chandler & Shapiro, 2016), it is important to evaluate the use of sites like Prolific as means to collect data on stigmatising research topics.

### **Limitations and Future Research**

The empirical studies reported in this thesis propel forward academic understanding of (a) the breadth and scope of university-based sexual aggression in the UK, (b) the socio-ecological characteristics and heterogeneity of male student perpetrators, and (c) the feasibility and efficacy of online harm prevention programming at reducing students' risk of sexual offending – known gaps in current UK academic understanding (see Jones et al., 2020a). Combined, findings provide perhaps the most comprehensive overview to date of sexual perpetration at UK universities and, it is hoped, can help guide the development of more effective harm prevention strategies – including the design of more *innovative* evidence-based prevention programmes for sexual violence – to reduce the high rates of sexual assault on campuses nationwide. My studies also overcome several of the known limitations of US research into university-based sexual aggression (see Bonar et al., 2022; McMahon et al., 2019; Moylan & Javorika, 2020) and thus add positively to the international knowledge base. However, despite the original contribution of my studies, as well as the

positive implications they have on UK research and policy, I urge readers to consider my findings alongside the key limitations of my work, described below.<sup>44</sup>

First, with the exception of Study 6, I relied on Koss et al.'s (2007) established *Sexual Experiences Survey – Short Form Perpetration* (SES-SFP) to assess participants' history of sexually aggressive behaviours in my studies. Though this measure has undergone intense psychometric scrutiny in recent years (e.g., Abbey et al., 2021; Anderson et al., 2017) – including in several international studies with male university students (e.g., Anderson et al., 2017, 2019; Johnson et al., 2017; Sigre-Leirós et al., 2013) – there are known issues with the survey that may limit its ability to capture all students' offending behaviours. For example, Depraetere et al. (2020) contended that the SES-SFP, which was originally developed in 2006, does not consider recent evolutions in students' sexual behaviours and thus question its efficacy in contemporary research studies. Additionally, despite Koss et al.'s (2007) claim that behaviourally specific items aid memory recall, Testa et al. (2015) report that the length of the SES-SFP make the scale inaccessible to some students, which can lead to attentional fatigue and possible misreporting of past sexual aggression. That other studies (e.g., Anderson et al., 2019; Strang et al., 2013) have noted discrepancies in US male students' responses to the SES and other measures of sexual perpetration (e.g., the *Sexual Strategies Scale*; Strang et al., 2013) – even when item content is controlled for – is also intriguing and may suggest that structural differences in questionnaire content and/or issues with surveys administration further influence participants' responding (see Strang et al., 2013).<sup>45</sup> Given these critiques, I exhort future researchers examining university-based sexual aggression to employ a range of research methods to validate their participants' responses about their past sexual behaviours. Researchers should also familiarise themselves with findings from recent

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<sup>44</sup> The limitations presented in this section are general limitations that afflict all, or many, of my studies. Study-specific limitations are discussed at the end of each empirical chapter.

<sup>45</sup> Interestingly, Strang et al. (2013) reported a 60.6% concordance rate between the SES-SFP and SSS in their study of US male students' sexual aggression – well below recommended clinical guidelines (McHugh, 2012).

work into the measurement of sexual aggression (such as those described in Study 4) to ensure that the research tools they are utilising are best adapted to capture students' sexual perpetration (see Bouffard & Goodson, 2017). These include measures that capture offences not assessed by the SES-SFP, such as non-contact sexual offences and online sexual aggression (see Ehman & Gross, 2022; Malamuth et al., 2021).<sup>46</sup>

Second, as a result of my participant recruitment strategy – in which participants volunteered to take part in my studies having either seen research advertisements on campus (Study 1) or having been invited to participate by Prolific (Studies 2, 4, 5, and 6) – my research may have been negatively affected by self-selection biases. For example, it is possible that my studies, which were marketed as “campus safety research”, attracted an engaged, socially conscious group of male students who support sexual harm prevention. For the same reason, I may have unintentionally discouraged participation from male students who had engaged in harmful sexual behaviours during their studies (thus undermining campus safety) – my intended target population. Though Rosenthal and Freyd (2018) suggested recently that self-selection biases typically do not influence outcomes in campus sexual aggression studies, findings from broader community-based work have highlighted psychological and experiential differences between those individuals who do and do not choose to participate in sexuality-related research (e.g., Saunders et al., 1985; Senn & Desmarais, 2001). Given that it is hard to assess the extent to which self-selection biases affected my research, it would be prudent for readers to consider that (a) my findings may not generalise across all UK male students, and (b) my reported rates of sexual perpetration derived from Studies 1, 2, and 4 may represent conservative estimates of prevalence only. It would be advantageous for future researchers to replicate my studies across more diverse samples of UK students, adopting recommendations from recent methodological research to

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<sup>46</sup> It is worth noting that a revised version of the *Sexual Experience Survey* is currently being developed, which Koss et al. (2022) say will allow for a more in-depth examination of respondents' harmful sexual behaviours.

target more furtive university males (e.g., Jouriles et al., 2022). This would allow me to test the external validity of the findings presented in this thesis and thus draw more secure conclusions about university-based sexual aggression perpetration in the UK.

Third, it is possible that participants did not respond honestly to administered self-report measures – particularly those that assessed sensitive or personal topics (e.g., the SES-SFP or SFQ-R-SV) – to minimise their responsibility for their offending behaviours or their negative views. Given that this is a common issue reported across sexual violence studies with student participants (see McDermott et al., 2015), I put various safeguards in place across my studies to encourage participants’ honesty. For example, I underlined to participants throughout my surveys that their responses were anonymous, would not be analysed individually, and were under no circumstance going to be referred to public protection agencies (e.g., the Police), even if they reported past offending behaviours. Likewise, I selected measures that used either filler items (e.g., the FAPCSM in Study 4 and the SPLS in Study 6) or masking (e.g., the SES-SFP) to disguise their true aims and evaluated the internal consistency of all measures (where possible) to ensure that participants were responding consistently to them. Finally, I administered to participants in early studies an established measure of impression management (i.e., the BIDR-6-IM) to assess their tendency to inflate positively their self-image. Inferential testing showed that scores on this measure were not related to any primary outcomes, suggesting that participants were not susceptible to biased responding in my studies. Notwithstanding these counterbalances, it would be helpful for future university-based sexual aggression studies to adopt more robust measurement methods to probe the scope and breadth of UK male students’ sexual violence, as well as the indicators associated with their past perpetration. Example methods that have been positively evaluated in the sexuality literature include the use of implicit association

tests (Ó Ciardha et al., 2018), virtual reality (Abbey et al., 2018), and the bogus pipeline paradigm (Gannon, 2006; Gannon et al., 2007; Ross et al., 2022).

Fourth, whilst I examined a broad array of socio-ecological factors associated with university-based sexual aggression, I accept that I did not examine the full spectrum of possible risk factors for UK male students' sexual perpetration. Though I am confident based on the established findings of US empirical studies that my predictive variables represent key risk factors for UK university males' harmful sexual behaviours, there is a possibility that other socio-ecological variables not assessed in my studies would have made stronger contributions to my regression models. Examples of unassessed variables include childhood upbringing (e.g., child abuse victimisation, exposure to family conflict; Swartout et al., 2015b; M. P. Thompson & Morrison, 2013), past experiences of sexual assault (Salazar et al., 2018; Walsh et al., 2021), and psychopathology (e.g., primary psychopathy, depression; Muñoz et al., 2011; Walsh et al., 2021). Examining men's implicit biases to dehumanise and objectify women would also be useful, given that these factors correlate positively with men's self-reported proclivity towards sexual aggression (see Blake & Gannon, 2014). Given the lack of sexual violence research that has assessed the outer levels of the socio-ecological model (see Moylan & Javorka, 2020), it would also be academically judicious for future researchers to assess how broader societal factors – for example, social norms pertaining to GBV and masculinity – influence UK male students' sexual behaviours. Unfortunately, it was beyond the scope of my PhD to examine these outer-level mechanisms in this thesis.

Fifth, it is worth considering issues with my sample which may limit the validity and generalisability of my findings. For example, whilst my statistical analyses (minus my logistic regression model in Study 1) were adequately powered according to my *a priori* power calculations or established rules-of-thumb (e.g., Formann, 1984; Long, 1997), some inferential and multivariate tests would have benefited from more participants to ensure that

they could reliably detect smaller effect sizes. This is notably the case in my Studies 1, 2, 4, and 5, where the parameters of my logistic regression models were likely constrained because of the relatively low number of self-reported sexual aggressors (versus non-sexual aggressors) in these studies – a common issue in university-based sexual aggression research (see Swartout et al., 2015c). Whilst my goodness-of-fit tests suggest that my regression models were not a poor fit of my data, it would be advantageous for future researchers seeking to replicate my findings to collect more responses from sexually aggressive male students to discourage overdispersion and deflated standard error estimates in their regression models (see Land et al., 1996).

Beyond issues with sample size, my research is also limited in that my there was a preponderance across my studies towards younger, well-educated White male participants. Though my samples reflected the demographic characteristics of the wider UK male student body at the time of data collection (see HESA, 2019, 2022), this lack of diversity means that my findings are likely not generalisable across all university males in the UK. Again, this is a known issue in etiological sexual violence research (see McDermott et al., 2015), which typically conceptualises sexual aggression as a crime committed by younger White males against younger White females (see Spencer et al., 2022). To counter this problem, follow-up research should consider moving beyond non-probability sampling techniques to ensure that every member of a target population – in this case, UK male students – have an equal chance of being recruited into research. Targeted intersectional research would also be helpful to examine how sexual aggression manifests itself in more marginalised UK communities, as well as the systemic factors that may encourage or help prevent sexual perpetration.

## **Conclusion**

University-based sexual aggression is a growing public health issue that pervades HE systems internationally. In the UK, recent climate surveys have highlighted that upwards of

one-in-four female students will be sexually assaulted whilst at university and that, in most cases, offences are perpetrated by heterosexual male students. The consequences of these offending behaviours for victims are wide-reaching and include long-term issues with physical and mental health, negative academic outcomes, financial loss, and an increased risk of sexual revictimisation.

Worryingly, despite known high rates of offending on campuses nationally, there is currently no authoritative UK research agenda focussed on male students' sexual perpetration behaviours. Rather, many UK academics and policymakers rely on established, yet ungeneralisable, US research to understand more about the causes of, and solutions for, sexual aggression on UK campuses. This approach has hindered the development of effective harm prevention strategies for UK university males' harmful sexual proclivities, which in turn threatens students' safety.

This empirical work presented in this thesis aimed to provide researchers with a better understanding of the prevalence of, and risk factors associated with, university-based sexual aggression in the UK. Consistent with best practice guidance, a socio-ecological framework was adopted which allowed for a comprehensive review of the individual, situational, relationship, and community/institutional risk markers associated with male students' sexual aggression. Cumulatively, findings showed that self-reported perpetrators could be differentiated from their non-offending counterparts across all levels of the social ecology; however, their past offending behaviours were best predicted by their levels of rape myth acceptance, hostility towards women, non-sexual aggression, and problematic sexual fantasies (in Studies 1 and 2), their compulsive sexual behaviours (in Study 4), and their personal acceptance of sexual misconduct and participation in sexual assault prevention initiatives (in Study 5). In terms of prevalence, between 9.6% and 12.7% of my participants professed to engaging in sexually aggressive behaviours in the past 24-months.

Beyond elucidating prevalence and risk factors, my research also sought to assess the heterogeneity of self-reported sexually aggressive UK male students based on the individual-level markers associated with their past offending. This was based on findings from recent typological work into US male students' harmful sexual behaviours, which encouraged more nuanced empirical assessments of university-based sexual aggression perpetration. Findings from Study 3 supported this work by demonstrating that UK male students with harmful sexual histories represent a diverse forensic group who can be categorised into six theoretically meaningful offending clusters. These clusters were tentatively defined based on their key descriptive characteristics.

Finally, my research aimed to appraise the effectiveness of a novel online self-help intervention, called *The Pathways Programme*, at reducing UK male students' likelihood of future sexual aggression. This programme was developed based on established sexual violence theory and decades of research into 'what works' in sexual harm prevention with university males and was targeted at students with a self-report proclivity towards sexual perpetration. Findings from my outcome evaluation showed that participation in *The Pathways Programme* brought about lasting reductions in participants' levels of rape myth acceptance, hostility towards women, and problematic sexual fantasies, as well as significant declines in their self-reported likelihood of offending. These findings were supplemented by positive user feedback, suggesting an appetite amongst at-risk UK male students in sexual harm prevention activities.

Though the academic studies reported in this thesis represent perhaps the most comprehensive assessment to date of UK male students' harmful sexual behaviours, I would caution readers to interpret my findings as preliminary research evidence. Follow-up empirical work is necessary to validate my conclusions and, hopefully, encourage additional

assessments of university-based sexual aggression perpetration in the UK – a critical area of research that has, thus far, evaded academic scrutiny.

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## APPENDIX A

### The Amended Sexual Experiences Survey – Short Form: Perpetration

**Preamble:** The following questions concern sexual experiences. Please **tick the box** showing the number of times each experience has happened. If several experiences occurred on the same occasion – for example, if one night you told some lies and had sex with someone who was drunk – you would check both boxes a and c. For reference, the past 24 months refers to the past two years going back from today. We know these are personal questions, but your responses are **completely anonymous** (i.e., you will not be identifiable). Moreover, please be aware that **under no circumstances** will your responses be passed onto any public protection agencies (e.g., the Police) so please respond truthfully.

For reference, consent in this survey refers to the “expressed permission or agreement provided by another individual for sexual activity to occur”.

---

**1 I fondled, kissed, or rubbed up against the private areas of someone’s body (lips, breast/chest, crotch, or butt) or removed some of their clothes without their consent (but did not attempt sexual penetration) by:**

---

*How many times in  
the past 24-months?*

---

**0    1    2    3+**

---

**a** Telling lies, threatening to end the relationship, threatening to spread rumours about them, making promises about the future I knew were untrue, or continually verbally pressuring them after they said they didn’t want to.

---

**b** Showing displeasure, criticising their sexuality or attractiveness, getting angry but not using physical force after they said they didn’t want to.

---

**c** Taking advantage when they were too drunk or out of it to stop what was happening.

---

**d** Threatening to physically harm them or someone close to them.

---

**e** Using force, for example holding them down with my body weight, pinning their arms, or having a weapon.

---

**2 I had oral sex with someone or had someone perform oral sex on me without their**

---

---

**consent by:**

---

*[Tactics and response format repeated from Question 1]*

---

**3 I put my penis, my fingers, or objects into a woman's vagina without her consent by:**

---

*[Tactics and response format repeated from Question 1]*

---

**4 I put in my penis, my fingers, or objects into someone's butt without their consent by:**

---

*[Tactics and response format repeated from Question 1]*

---

**5 Even though it did not happen, I TRIED to have oral sex with someone or make them have oral sex with me without their consent by:**

---

*[Tactics and response format repeated from Question 1]*

---

**6 Even though it did not happen, I TRIED put in my penis, my fingers, or objects into a woman's vagina without their consent by:**

---

*[Tactics and response format repeated from Question 1]*

---

**7 Even though it did not happen, I TRIED to put in my penis, my fingers, or objects into someone's butt without their consent by:**

---

*[Tactics and response format repeated from Question 1]*

---

**8 If you answered 1, 2, or 3+ to any of questions 1-7, what was the sex of the person(s) with whom you performed the sexual act(s)?**

---

|             |           |                        |                           |
|-------------|-----------|------------------------|---------------------------|
| Female only | Male only | Both females and males | I reported no sexual acts |
|-------------|-----------|------------------------|---------------------------|

---

*[Additional item included in Study 2]*

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**9 If you answered 1, 2, or 3+ to any of questions 1-7, who was the person(s) with whom you performed the sexual act(s)?**

---

|                            |                                    |                     |                           |
|----------------------------|------------------------------------|---------------------|---------------------------|
| Another student who I knew | Another student who I did not know | A complete stranger | I reported no sexual acts |
|----------------------------|------------------------------------|---------------------|---------------------------|

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## APPENDIX B

### The Tactics-First Sexual Experiences Survey – Short Form: Perpetration

**Preamble:** The following questions concern your sexual experiences with other adults (i.e., those aged 18+). Please mark the response option that shows the number of times each experience has happened to you in the past 24-months. If several experiences occurred on the same occasion, please report all of these. For reference, the past 24-months refers to the past two years going back from today. We know these are personal questions, but your responses are **completely anonymous** (i.e., you will not be identifiable based on your responses). Moreover, please be aware that **under no circumstances** will your responses be passed onto any public protection agencies (e.g., the Police) – they will be used only for research purposes. Past research shows that many males report having at least one of these experiences”.

---

|  | <i>How many times?</i> |          |          |           |
|--|------------------------|----------|----------|-----------|
|  | <b>0</b>               | <b>1</b> | <b>2</b> | <b>3+</b> |
| <b>1</b> In the past 24-months, I have told lies to a person, threatened to end my relationship with them, threatened to spread rumours about them, made promises about the future that I knew were untrue, or continually verbally pressured them, in order to... |                        |          |          |           |
| <b>a</b> ...fondle, kiss, or rub up against the private areas of their body (e.g., lips, breast/chest, crotch, or bum) or to remove some of their clothes without their consent (but I did not attempt sexual penetration).  |                        |          |          |           |
| <b>b</b> ...have oral sex with them or have them perform oral sex on me without their consent (and this successfully occurred).  |                        |          |          |           |
| <b>c</b> ...have oral sex with them or have them perform oral sex on me without their consent (though ultimately, my attempts were unsuccessful).  |                        |          |          |           |
| <b>d</b> ...put my penis, my finger(s), or objects into a woman’s vagina without her consent (and this successfully occurred).   |                        |          |          |           |
| <b>e</b> put my penis, my finger(s), or objects into a woman’s vagina without her consent (though ultimately, my attempts were   |                        |          |          |           |

---

|  |                                    |                                      |                           |                    |
|--|------------------------------------|--------------------------------------|---------------------------|--------------------|
| unsuccessful).   |                                    |                                      |                           |                    |
| <b>f</b> ...put my penis, my finger(s), or objects into their bum without their consent (and this successfully occurred).  |                                    |                                      |                           |                    |
| <b>g</b> ...put my penis, my finger(s), or objects into their bum without their consent (though ultimately, my attempts were unsuccessful).  |                                    |                                      |                           |                    |
| <b>2 In the past 24-months, I have shown displeasure, criticised a person's sexuality or attractiveness, or become angry (but <u>not</u> used physical force), in order to...</b>                                  |                                    |                                      |                           |                    |
| <i>[Outcomes and response format repeated from Question 1]</i>   |                                    |                                      |                           |                    |
| <b>3 In the past 24-months, I have taken advantage of a person when they were too drunk or out of it to stop what was happening, in order to...</b>  |                                    |                                      |                           |                    |
| <i>[Outcomes and response format repeated from Question 1]</i>   |                                    |                                      |                           |                    |
| <b>4 In the past 24-months, I have threatened to physically harm a person or someone close to them, in order to...</b>   |                                    |                                      |                           |                    |
| <i>[Outcomes and response format repeated from Question 1]</i>   |                                    |                                      |                           |                    |
| <b>5 In the past 24-months, I have used force (e.g., holding a person down or pinning their arms) or a weapon, in order to...</b>  |                                    |                                      |                           |                    |
| <i>[Outcomes and response format repeated from Question 1]</i>   |                                    |                                      |                           |                    |
| <b>6 If you answered 1, 2, or 3+ to any of questions 1-5: What was the sex of the person(s) with whom you performed the sexual act(s)?</b>   |                                    |                                      |                           |                    |
| Female only  | Male only                          | Both females and males               | I reported no sexual acts |                    |
| <b>7 If you answered 1, 2, or 3+ to any of questions 1-5: Who was the person(s) with whom you performed the sexual act(s)?</b>   |                                    |                                      |                           |                    |
| Another student who I knew   | Another student who I did not know | Someone I knew who was not a student | A complete stranger       | I reported no acts |
| <b>8 If you answered 1, 2, or 3+ to any of questions 1-5: Were either you or the person with whom you performed the sexual act drunk or under the influence of drugs at the time you performed the sexual act?</b> |                                    |                                      |                           |                    |
| Yes, I was   | Yes, the other person was          | Yes, we both were                    | No, neither of us were    | I reported no acts |

## APPENDIX C

### The Modified Theory of Planned Behaviour Questionnaire

*Preamble:* The following survey is designed to help us to understand how participants interact with the intervention. Please make sure to read the questions and response options carefully. Select the response that best describes your opinion.

|           |   |            |                     |                                   |                      |             |                       |
|-----------|---|------------|---------------------|-----------------------------------|----------------------|-------------|-----------------------|
| <b>1.</b> | I intend to complete this online intervention in the next 4 weeks.*   |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Extremely agree   | Agree      | Slightly agree      | Neither agree nor disagree        | Slightly disagree    | Disagree    | Extremely disagree    |
| <b>2.</b> | For me, completing this online intervention over the next 4-weeks is...   |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Extremely worthless   | Worthless  | Slightly worthless  | Neither worthless nor valuable    | Slightly valuable    | valuable    | Extremely valuable    |
| <b>3.</b> | I think that completing this online intervention over the next 4-weeks will improve my understanding of healthy sexual behaviours.* |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Extremely likely  | likely     | Slightly likely     | Neither likely nor unlikely       | Slightly unlikely    | Unlikely    | Extremely unlikely    |
| <b>4.</b> | For me, improving my understanding of healthy sexual behaviours is...*  |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Extremely important   | Important  | Slightly important  | Neither important nor unimportant | Slightly unimportant | Unimportant | Extremely unimportant |
| <b>5.</b> | The important people in my life would want me to complete this online intervention.*  |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Extremely agree   | Agree      | Slightly agree      | Neither agree nor disagree        | Slightly disagree    | Disagree    | Extremely disagree    |
| <b>6.</b> | When it comes to addressing healthy sexual behaviours, how much are you guided by the opinion of important people in your life?     |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Not at all guided   | Unguided   | Slightly unguided   | Neither guided nor unguided       | Slightly guided      | Guided      | Extremely guided      |
| <b>7.</b> | For me, completing this online intervention in the next 4 weeks will be...  |            |                     |                                   |                      |             |                       |
|           | <b>1</b>  | <b>2</b>   | <b>3</b>            | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|           | Completely impossible   | Impossible | Slightly impossible | Neither possible nor impossible   | Slightly possible    | Possible    | Completely possible   |
| <b>8.</b> | How much control do you believe you have over completing this online intervention over the next 4 weeks?                            |            |                     |                                   |                      |             |                       |

| <b>1</b>              | <b>2</b>   | <b>3</b>            | <b>4</b>                       | <b>5</b>     | <b>6</b> | <b>7</b>         |
|-----------------------|------------|---------------------|--------------------------------|--------------|----------|------------------|
| Absolutely no control | No control | Slightly no control | Neither control nor no control | Some control | Control  | Complete control |

**9.** Think of an external factor that would make it difficult for you to complete this online intervention in the next 4 weeks (e.g., university, work, busy schedule, etc.). In the next 4 weeks, I expect that this factor will be...

| <b>1</b>            | <b>2</b>  | <b>3</b>           | <b>4</b>                          | <b>5</b>             | <b>6</b>    | <b>7</b>              |
|---------------------|-----------|--------------------|-----------------------------------|----------------------|-------------|-----------------------|
| Extremely demanding | Demanding | Slightly demanding | Neither demanding nor undemanding | Slightly undemanding | Undemanding | Extremely undemanding |

**10.** In the next 4 weeks, how do you expect the demands of this factor will affect your ability to complete this online intervention?

| <b>1</b>            | <b>2</b>  | <b>3</b>           | <b>4</b>                   | <b>5</b>      | <b>6</b> | <b>7</b>       |
|---------------------|-----------|--------------------|----------------------------|---------------|----------|----------------|
| Extremely difficult | Difficult | Slightly difficult | Neither difficult nor easy | Slightly easy | Easy     | Extremely easy |

\* Responses were reverse coded prior to analysis.

## APPENDIX D

### Structure and Content Overview of The Pathways Programme

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#### User Engagement Survey (*i.e.*, *Theory of Planned Behaviour Questionnaire*)

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##### **Module 1:** What is University-based Sexual Aggression?

- Brief introduction to the intervention
  - The definition of “university-based sexual aggression”
  - The prevalence of sexual aggression on university campuses
  - The consequences of university-based sexual aggression
  - The causes of university-based sexual aggression
  - **Quiz:** Multiple choice quiz (MCQ)
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##### **Module 2:** The Law on Sexual Aggression

- Brief introduction to the law on sexual aggression
  - UK legislation relevant to sexual aggression
  - How are sexually aggressive offences prosecuted?
  - How sexual offences progress through the UK criminal justice system
  - Sexually aggressive behaviours prosecutable under UK law
  - Actus rea and mens rea
  - **Quiz:** Scenario-based MCQ
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##### **Module 3:** What is Consent and Why is it Important?

- What is sexual consent?
  - The hallmarks of valid sexual consent
  - Important considerations when seeking valid sexual consent
  - When is sexual consent not valid?
  - Sexual consent: myths versus realities
  - **Quiz:** Scenario-based MCQ
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##### **Module 4:** Managing Problematic Sexual Fantasies

- What are sexual fantasies?
  - Types of sexual fantasies
  - What are the benefits of sexual fantasies?
  - The dangerous side of sexual fantasies
  - Are problematic sexual fantasies common?
  - Why are problematic sexual fantasies bad?
  - How to assess whether you experience problematic sexual fantasies
  - **Quiz:** Scenario-based MCQ
  - **Activity:** Masturbatory reconditioning (for those with problematic sexual fantasies)
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**Module 5: Promoting Positive Attitudes towards Women**

- Men's hostility towards women
- Examples of hostile sexist beliefs
- Why do some men have hostile sexist beliefs?
- What are the effects of men's hostility towards women?
- Promoting positive attitudes towards women
- **Quiz:** Scenario-based MCQ
- **Activity:** Scenario-based reflection

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**Module 6: Dispelling Rape Myths**

- What are rape myths?
- How prevalent is rape myth acceptance?
- Types of rape myth
- Why do some people accept rape myths?
- The dangerous side of rape myths
- **Quiz:** Rape myth sorting exercise
- **Activity:** Scenario-based reflection

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**[Optional] Module 7: Mindfulness Meditation**

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**User Feedback Measure**

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