EXPLORING SOCIO-DEMOGRAPHIC AND MENTAL HEALTH DIFFERENCES AMONG CONSTRUCTED MALE VICTIM SEVERITY PROFILES.

Joke Depraetere (MS)[1,2], Tom Vander Beken (PhD)[1], Ines Keygnaert (PhD)[3], and Christophe Vandeviver (PhD)[1]

[1] Institute for International Research on Criminal Policy (IRCP), Department of Criminology, Criminal Law and Social Law, Ghent University, Ghent, Belgium.

[2] Research Foundation—Flanders (FWO), Brussels, Belgium.

[3] International Centre for Reproductive Health, Department of Public Health and Primary Care, Ghent University, Ghent, Belgium.

Direct correspondence to: Christophe Vandeviver, Department of Criminology, Criminal Law and Social Law, Ghent University, Universiteitstraat 4, 9000 Ghent, Belgium.

Email: Christophe.Vandeviver@UGent.be

Declaration of interest: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding details: J.D.'s contribution to this work was supported by the Research Foundation - Flanders (FWO) PhD Fellowship funding scheme under Grants 11G0819N and 11G0821N to J.D.

Acknowledgements: We thank dr. Emmanuel Abatih for his statistical consult with Ghent University FIRE (Fostering Innovative Research based on Evidence).

QUICK MENU:

EXPLORING SOCIO-DEMOGRAPHIC AND MENTAL HEALTH DIFFERENCES AMONG CONSTRUCTED MALE VICTIM SEVERITY PROFILES.

ABSTRACT

Background. Stigmas and taboos surrounding male sexual violence, stating that men cannot be sexually victimized and would not experience many adverse effect as a result, continue to shroud the issue of male sexual victimization (SV). Male victims, therefore, remain under recognized in research, policy and treatment provisions. Furthermore, knowledge regarding male SV is severely compromised by studying male victims in convenience samples with a focus on hands-on forms of sexual violence. Finally, severity of SV is often described using a one-dimensional approach based on presumed severity leading to an oversimplified image. This study addresses these various gaps in scientific research by constructing severity profiles of male SV based on self-reported consequences, prevalence and co-occurrence of SV.

Methods. A total of 1,078 male victims were selected from a Belgian nationally representative sample collected between October 2019 and January 2021. Profiles are constructed using latent class analysis. Socio-demographic differences across the profiles are examined through multinomial regression analysis. Finally, differences in current mental health problems across the profiles are assessed.

Results. Four distinct male victim profiles are detected: (1) low severity – low victimization (58.3%), (2) medium severity – hands-off victimization (21.4%), (3) medium severity – poly-victimization (13.3%), and (4) high severity – poly-victimization(7.0%). Group comparisons show how male victims in the high severity class report significantly higher rates of mental health problems such as depression, anxiety and suicide and/or self-harm. Significant differences in class membership were found for age, occupational status, relationship status, sexual orientation and financial status.

Conclusion. This study provides new insights in the patterns of male SV and highlights the presence of poly-victimization among male victims. Additionally, we point out how so-called minor forms of SV (i.e. hands-off SV) can have a large effect on male victims. The study ends with suggestions for care and future research.

Keywords:
Sexual Assault; Male victims; Revictimization; Sexual Harassment; Prevention

INTRODUCTION

Sexual victimization (SV) is continuously portrayed as a gendered issue including a male offender and a female victim (Spiegel, 2013). Male SV is still often surrounded with various stigmas and taboos stating that men cannot be sexually victimized and that if they would experience such an event, would not be harmed by it both physically and emotionally (Chapleau et al., 2008; Turchik & Edwards, 2012). These stereotypical ideas continue to shroud the issue of male SV and lead to an under-recognition of male victims in research, policy and treatment provisions (Davies, 2002; Depraetere et al., 2020; Donne et al., 2018; Keygnaert, 2014; Weiss, 2010).

While research regarding male victims is recently growing (for reviews, see Depraetere et al., 2020; Peterson et al., 2011; Tewksbury, 2007), many studies are biased in their applied operational definition of SV (e.g., only focusing on forms with physical contact or rape) or in their study sample (e.g., focusing on populations at risk or help-seeking populations). This limits the generalizability and scope of the research conclusions (Masho & Alvanzo, 2010; Peterson et al., 2011; Stermac et al., 2004). Results from

these studies may not be representative for all male victims of a broad spectrum of sexual violence (Masho & Alvanzo, 2010; Peterson et al., 2011).

Furthermore, there is a lack of studies providing male victim severity profiles in the general population. Thus far, scholars have mostly examined the severity of SV in a one-dimensional way (Lysova & Dim, 2020). Estimates of the severity of SV are mainly based on either the most 'severe' type of assault and/or the tactics used (Davis et al., 2014; Fiebert & Osburn, 2001; French et al., 2014; Koss et al., 2006, 2007), the experienced injuries (Alempijevic et al., 2007), or the frequency of experienced assaults (Davis et al., 2014; Malamuth et al., 1991). This approach rarely considers all aspects of SV simultaneously, resulting in an oversimplified picture of sexual violence (Lysova & Dim, 2020). Researchers are, however, strongly encouraged to apply multivariate analyses to asses victimization patterns and the influence on the victims mental health outcomes to advance knowledge about SV prevention and counselling (French et al., 2014; Macy et al., 2007)

In this study, we address this research gap in scientific research by constructing male victim severity profiles within a Belgian representative sample. By combining reports of psychological, physical, relational and sexual consequences directly related to the sexual violence (henceforth: self-reported consequences) and the (co)-occurrence of a broad spectrum of sexual violence incidents, male victims subgroups are identified. In a next phase socio-demographic differences between the profiles are examined and differences in male victims current mental health outcomes (i.e. mostly measured in the past two weeks) are assessed providing insights in the potential long-term adverse effects of male SV. In the following, a literature review is provided serving as a background for this study.

Male Sexual Victimization and the Bias in Research Studies

Research is beginning to provide evidence of the presence of male SV and its adverse effects (for reviews, see Depraetere et al., 2020; Peterson et al., 2011; Tewksbury, 2007). A review study by Depraetere et al. (2020) found prevalence rates of male SV ranging between 0.2% up to 66.3% and between 4.5% up to 83.9% for female SV. Particularly, gay and bisexual men seem to have a greater risk of experiencing sexual violence compared to heterosexual men (Bullock & Beckson, 2011; Herkes et al., 2015; Schapansky et al., 2021; Walker et al., 2005b).

However, large variations are visible in these prevalence rates. One reason for this includes inconsistencies in the applied definition of sexual violence. While some scholars (see Depraetere et al., 2020; Krahé et al., 2014; Peterson et al., 2011) apply a broad definition including forms with (i.e. hands-on) and without (i.e. hands-off) physical contact between offender and victim, others apply a narrow definition only including hands-on forms. In addition, some scholars only focus on the most intrusive act, namely rape. These differences in the applied definition not only limit comparisons across studies (Krahé et al., 2014), the choice also impacts the results and thus the conclusions that can be made (Peterson et al., 2011). Broad definitions namely have the advantage of exposing subtle forms of sexual violence that men (and women) may experience. Additionally, broad definitions allow scholars to reveal the adverse consequences that these seemingly 'minor' forms may have on the victims (Peterson et al., 2011).

As such, male SV may induce long-lasting physical and mental health problems (for reviews, see Peterson et al., 2011; Tewksbury, 2007). Results from studies relying on convenience samples of college students (e.g., Banyard et al., 2007; Krahe & Berger, 2017), incarcerated men (Struckman-Johnson & Struckman-Johnson, 2006), rape treatment centers (Kimerling et al., 2002), male veterans seeking psychiatric treatment (Tiet et al., 2006) community samples including the general population or a subpopulation of gay, lesbian and bisexual individuals (Elliott et al., 2004; Heidt et al., 2005), and rape

victims (Walker et al., 2005a, 2005b) highlight that male SV may induce post-traumatic stress disorder (PTSD), suicidal thoughts and attempts, depression, anxiety, alcohol and drug use, poor self-esteem, affect their daily functioning, and result in a damaged masculine identity. In the guidance note of preventing and responding to sexual and domestic violence against men, Watson (2014) provides an overview of common symptoms of men who have survived sexual violence (box 5, p. 16). In addition to the aforementioned adverse effects, male victims may experience a loss of income due to work-drop out, financial difficulties due to medical treatment and costs of relocation, and have social effects due to self-imposed isolation from friends and family and induced antisocial behavior.

This initial understanding of male SV and the consequences they may suffer is, however, severely compromised by predominantly studying male SV in convenience samples among certain subpopulations or specific contexts, such as incarcerated men or men presenting themselves at treatment centers (Masho & Alvanzo, 2010; Peterson et al., 2011; Weiss, 2010). This study focus limits the generalizability and scope of the research conclusions (Masho & Alvanzo, 2010; Peterson et al., 2011; Stermac et al., 2004). While the use of convenience samples may highlight groups that are at particular risk of SV, they are less suitable for understanding male SV in the general population. The characteristics, consequences and help-care need of male victims from certain segments of the population may be different compared to male victims in the general population (Masho & Alvanzo, 2010; Peterson et al., 2011). They may bias results regarding the consequences of male SV since only individuals with high severity consequences may present themselves at care centers and seek out help. Similarly, studies only focusing on the most intrusive acts, such as rape, include participants that are not representative for all male victims of sexual violence (Masho & Alvanzo, 2010; Peterson et al., 2011).

Despite the adverse effect, male SV often remains untreated (Donne et al., 2018; Haegerich & Hall, 2011; Lowe & Balfour, 2015). Given the main focus on female SV in both research and policies, the knowledge regarding male victims is still far behind that of female victims (Artime et al., 2014; Peterson et al., 2011). Care and treatment services are far more advanced for female victims and have limited accessibility for male victims (Depraetere et al., 2020; Watson et al., 2014). Many caregivers, for example, lack training to collect evidence from male victims and do not have sufficient knowledge for providing male-centered support (Davies, 2002; Hendriks et al., 2018). Additionally, sexual assault referral centers are often located in gynecological or maternity wards creating a barrier for male victims when seeking care (Hendriks et al., 2018; Larsen & Hilden, 2016).1 On top of that, many men are reluctant to seek care due to the societal expectations regarding masculinity with a fear of being labelled as weak or gay (Donne et al., 2018; Lowe & Balfour, 2015; Sable et al., 2006). The lack of receiving adequate care may, however, results in additional adverse effect and increase the risk of developing PTSD (Depraetere et al., 2020; Larsen & Hilden, 2016). It is, therefore, important to increase detailed knowledge regarding male victims to increase and adjust treatment provisions directed towards male victims.

Severity Profiles

The various SV experiences and consequences men may suffer may differ for each individual. Tewksbury (2007) concludes that the mental health status of male victims may go from highly emotional responses having a large effect on their daily functioning to more moderate and introspective responses. While this suggests differences in severity of sexual violence experiences, estimates of the severity usually include a uni-dimensional assessment based on specific aspects of SV (e.g. the injuries, frequency of experienced assaults, type of assault or tactics used) (Alempijevic et al., 2007; Davis et al.,

[1] In Belgium, Sexual Assault Care Centers (SACC) are a specific separate service not linked to a gynecological or maternity ward (Baert et al., 2021).

2014; Fiebert & Osburn, 2001; French et al., 2014; Koss et al., 2006, 2007; Malamuth et al., 1991). The operationalization of the severity of sexual violence rarely combines these various aspects into one combined model, resulting in an simplified view of SV (Lysova & Dim, 2020).

Furthermore, to be able to distinguish subgroups of male victims of sexual violence one should research variations in prevalence and consequences within a sample of male victims. In doing so subgroups of individuals can be detected that share similar characteristics and could benefit from a common intervention (Weller et al., 2020). So far, researchers have documented adverse effects of male SV by comparing mental health outcomes between male and female victims or between male victims and non-victims within certain subpopulations (see, Peterson et al., 2011). Focusing on a sample of male victims and applying a person-centered approach, such as Latent Class Analysis (LCA), allows researchers to detect multivariate combinations to describe population subgroups in a systematic and more detailed way (Macy et al., 2007). Such an analytical approach go beyond a mere one-dimensional dichotomous description of sexual violence, based on presumed severity (French et al., 2014).

Only few studies have conducted LCA on the broad topic of (sexual) violence (Ansara & Hindin, 2010; Cavanaugh et al., 2012; Clarke et al., 2016; French et al., 2014; Lysova & Dim, 2020; Macy et al., 2007; McMahon et al., 2019; Nelon et al., 2019; O'Connor et al., 2021). However, none of them focused on male victims of sexual violence in the general population, but rather focused on (sexual) violence within a sample of high school students, college students and children attending primary school (Clarke et al., 2016; French et al., 2014; Macy et al., 2007; Nelon et al., 2019), intimate partner violence (Ansara & Hindin, 2010; Cavanaugh et al., 2012; Lysova & Dim, 2020) or topics related to sexual violence such as bystander intentions and exposure to sexual violence messages (McMahon et al., 2019; O'Connor et al., 2021). Only one study specifically focused on male victims in the context of intimate partner violence in their ongoing relationship (Lysova & Dim, 2020). As such, there is a lack of studies describing severity profiles of male SV in the general population including a broad spectrum of sexual violence incidents.

The current study aims to address these gaps in scientific literature by providing male victim severity profiles. By adopting a broad definition of sexual violence we are able to expose 'minor' forms of SV and the adverse effect they may cause. Biasing effects due to the use of convenience samples are limited by utilizing data of male SV from a Belgian nationally representative study (Keygnaert et al., 2021). Additionally, both the self-reported consequences of SV and the (poly)victimization of various forms of sexual violence are considered simultaneously using LCA. Results of this paper provides a basis for the development of intervention and prevention measures specifically directed at male victims and diminishes the under recognition of male SV in policy, research and treatment.

METHODS

Sampling Procedure and Participants

This study utilized data from a large-scale Belgian national representative sexual violence survey (Keygnaert et al., 2021) with data collected in two waves between October 2019 and January 2021. The study was approved by the Medical Ethical Committee of Ghent University and Ghent University Hospital (project nr. 2018/1204) and conducted in accordance with the ethical guidelines of the WHO (2016) for researching violence.

The National Register, containing information on all Belgian residents, was used as a sampling frame from which respondents were selected to participate in an online survey. A disproportionate stratified probability sample consisting of an equal number of male and female participants in three equally divided age groups was drawn by the National Register. In total, 41,520 Belgian residents between 16

and 69 years of old were contacted by post by the Belgian National Register. A link/QR code to the online survey was provided in the invitation letter. To limit self-selection bias, the study was presented as a survey about health, sexuality, and well-being. Prior to participation, respondents were provided with additional information on the study and an informed consent form. Only those who gave informed consent were able to participate in the survey. For more information regarding the data collection method, see Schapansky et al. (2021).

Out of 6,504 respondents who initiated the survey (15.7% participation rate), 1,659 were removed due to either not providing informed consent (n = 706), not completing victimization items in the survey (n = 909), not meeting the age criteria for participation (i.e., between 16 and 69 years old; n = 6), completing the survey more than once (n = 37), and concerns about the quality of the responses (n = 1). Next, only male participants were selected (n = 2,397). Out of this sample we selected men who experienced a form of sexual violence in their lives and reported about the consequences experienced directly from their SV (i.e. self-reported consequences) and their overall mental health. This leaves a final sample of N = 1,078.

The sample of male victims were aged 36.5 (SD = 16.5) on average. The majority identified as heterosexual (87.2%), another 9.8% identified as gay, lesbian or bisexual. The remaining 3.0% identified as asexual, omnisexual or indicated 'other'. The large majority indicated that they themselves (87.3%) and their parents (75%) were born in Belgium.

Measurements

Sexual victimization.

The victimization items were based on the Sexual Experiences Survey (Koss et al., 2006, 2007), the National Intimate Partner and Sexual Violence Survey (NISVS) (Smith et al., 2017), the Sexual Aggression and Victimization Scale (SAV-S) (Krahé & Berger, 2013), and the Senperforto questionnaire (Keygnaert et al., 2015). The items included in this survey applied a broad definition of sexual violence and included both hands-on forms (e.g., kissing, fondling/rubbing, undressing) including rape (e.g., (attempted) oral sex, (attempted) anal penetration) and hands-off forms (e.g., comments, staring, voyeurism, exhibitionism, distribution of sexual images) (a detailed overview of the items is provided in appendix A). Respondents were asked whether they experienced the presented behavior ever in their lives (yes/no). Each item was described behaviorally specific without the use of generic terms such as 'rape' or 'assault' in line with recommendations of previous research (Wilson & Miller, 2016). These generic terms increase ambiguity in participant interpretation which may influence correct estimations of victimization prevalence (Wilson & Miller, 2016).

Self-reported consequences.

Respondents were asked to indicate whether they experienced various outcomes as a result of the incident. If they experienced multiple incidents they were asked to think back to the incident that had the biggest impact on them. Answers were collected on a five-level Likert scale ranging from not at all/ none (1) to very much/ all the time (5). Since the items were included in the LCA, they were dichotomized including either experiencing the outcome to some extent (including options 2 until 5) or not experiencing the outcome (including option 1) as a result of the incident.

Overall, 8 outcomes were questioned that focus on the psychological, physical, relational and sexual consequences of SV (a detailed overview of the items is provided in appendix A). These items were based on various studies focusing on the consequences of male SV (Banyard et al., 2007; Struckman-Johnson & Struckman-Johnson, 2006; Walker et al., 2005a, 2005b).

Socio-demographics.
We examined various socio-demographic differences between the identified male victim profiles. More specifically we focused on the respondents age, educational level, employment status, financial difficulties, sexual orientation, and relationship status.

Respondents educational level included five response option and was regrouped to primary or no education, secondary education and higher education. Their current occupational status included the following regrouped options: (1) active (combining the options employed/independent, contributing family member, voluntary work), (2) student, (3) inactive or other (combining the options financial self-sufficiency or any other type of alternative choice of living, housewife/-man, not able to work because of ill health, on the job market/looking for a job, retired, other).

Respondents current financial situation was assessed by asking whether, with their monthly household income, they were able to make ends meet easily, fairly easily, with some difficulty, or with great difficulty. These four answer options were combined into a binary variable (easy vs. difficult).

Participants sexual orientation was also grouped into a binary variable (heterosexual vs. non-heterosexual) for analysis.

Finally, participants could indicate the following when asking about their current relationship status: (1) living together with a partner, (2) involved in a relationship without living together, (3) no relationship.

Current mental health.
In addition to the self-reported consequences of sexual violence, respondents general mental health was assessed. These scales were provided to the respondents before asking about potential SV experiences to ensure an 'objective' measurement of their current mental health without emphasizing a link with SV. These scales mostly refer to the two weeks prior to participating in the survey. As such, these measurements are applied as current mental health measures serving as potential indicators for long-term effects of SV.

To minimize data loss due to missing values, a person-mean imputation method (Imai et al., 2014) was applied to the sum scores created for the scales regarding depression, anxiety and resilience. Given that the questions did not include a forced-response answer, respondents were able to skip some questions. However, excluding these respondents would lead to additional data loss. Therefore, a mean imputation method is applied on those respondents with 20% or less missing values on the scales (Imai et al., 2014). More specifically, the method was applied on respondents with a maximum of two missing items on the depression scale and 1 missing item on the anxiety and resilience scale.

Depression. Depression was measured using the Patient Health Questionnaire (PHQ)-9 from Kroenke and Spitzer (2002). Respondents were asked to indicate how often the nine items bothered them in the past two weeks prior to participation in the survey. A 4-point Likert scale was provided ranging from *not at all (0) to nearly every day (4).* A higher score on the constructed sum score indicates higher severity of depression ($\alpha = 0.88$; range = 0 - 27). A sum score equal to or higher than five represents mild depression symptoms (Kroenke & Spitzer, 2002)..

Anxiety. The General Anxiety Disorder (GAD)-7 by Spitzer et al. (2006) was used as a brief self-report scale for probable cases of anxiety disorders. Respondents were asked to indicate whether they experienced any of the seven anxiety symptoms in the past two weeks prior to participating in the survey on a 4-point Likert scale ranging from *not at all (0) to nearly every day (4).* A sum score was created where higher scores indicated higher levels of anxiety ($\alpha = .80$; range = 0 – 21).

Resilience. The Brief Resilience Scale (BRS) by Smith et al. (2008) was used to measure victims ability to bounce back or recover from stress. This 6-item scale includes statements regarding the way individuals cope with health-related stressors with answer options on a 5-point Likert scale from *strongly disagree (1) to strongly agree (5).* A mean sum score was created where higher scores indicated more resilience ($\alpha = .79$).

Problematic alcohol use. The Alcohol Use Disorders Identification Test Consumption (AUDIT-C) was used to measure potential problematic alcohol use among the respondents (Babor et al., 2001; Bradley et al., 2007). This measure includes 3-items assessing respondents alcohol consumption (*How often do you have a drink containing alcohol? – Never (0) – 4 or more times a week (4)*) frequency of alcohol consumption on a typical day when drinking (*1 or 2 (0) – 10 or more (4)*) and frequency of drinking more than 6 drinks on one occasion (*Never (0) – (Almost) daily (4)*). Sum scores were created where higher scores indicate higher risk of problematic alcohol consumption ($\alpha = .79$; range = 0 – 12). As a threshold for men, a score higher or equal to 4 suggest problematic alcohol use (Bradley et al., 2007).

Suicidal thoughts and attempts. Finally, respondents were asked whether they had ever made an attempt to take their own life and/or deliberately harmed themselves without the intention of killing themselves (*yes/no*).

Data analyses

A tree-step latent class analysis (LCA) (Asparouhov & Muthén, 2014) with maximum likelihood estimation was conducted using the package (poLCA) in the statistical program R (version 4.1.1). The first step includes building the latent class model without the inclusion of covariates (Van Den Bergh & Vermunt, 2019). The broad spectrum of sexual violence experiences and the self-reported consequences were included in the analyses to determine severity profiles of male SV. The optimum number of classes was determined by examining well-established statistical model selection criteria as well as conceptual usefulness of the classes. Since fit indices often do not point towards one solution, it is recommended to explore a set of fit indices along with substantive interpretability and utility of the classes and classification diagnostics to decide the number of classes to retain (Nylund-Gibson & Choi, 2018).

One up to six class models were run. Fit indices included the (Sample-size adjusted) Bayesian Information Criterion (aBIC/BIC), the consistent Akaike Information Criterion (cAIC) as well as the entropy value. Lower values of (a)BIC/cAIC indicate a better model fit. The entropy value indicates how accurately the model defines classes with values closer to 1 indicating better model fit. While there is no agreed cut off value for entropy, a value below .6 is considered as an indication of bad model fit (Weller et al., 2020). Finally, we considered class size as an indication for model selection. While there are no existing guidelines on determining class size, classes with fewer than 50 cases and classes containing less than 5% of the sample should be avoided (Nylund-Gibson & Choi, 2018; Weller et al., 2020). Based on the various model fit indices no one perfect solution was visible (view table 1). However, the 4-class solution showed the best model fit with lowest BIC and cAIC score. An entropy value of .76 indicates acceptable fit and class population shares are not below the acceptable 5%.

[Insert **Table 1** here]

The second step involves assigning respondents to classes using their posterior membership probabilities (Van Den Bergh & Vermunt, 2019). Using model assignment, all respondents are assigned to a class based on the largest estimated posterior membership probability.

As a final step, differences between the various classes/profiles are examined by using covariates as predictors for class membership through multinomial regression (Van Den Bergh & Vermunt, 2019), and by examining differences in current mental health outcomes. Prior to these final analyses, weights were applied to the sample. This ensures that the male victim sample is representative for the entire Belgian male population regarding age. The weights adjust for the underrepresentation of respondents in the older age categories. An overview of the weights can be found in appendix B.

Using covariates allows us to understand how male victims profiles differ based on socio-demographics. The results of the multinomial analyses report the adjusted odd ratio's (Exp (B)) for each unit increase of the independent variable while adjusting for the effects of the other predictor variables in the model. A value greater than 1 indicates an increase in the odds of belonging to the class compared to the reference class. Goodness-of-fit is reported with AIC/BIC and misclassification error. In addition, a pseudo R-square value (McFadden R^2) is reported. This value indicates how well the model explains the data compared to the null-model. However, no consensus exists on a best pseudo R-square measure and many measures are affected by the number of independent variables and sample size (Hemmert et al., 2018). This value is merely informative and we place emphasis on the other indicators of model fit.

Mean differences in current mental health outcomes across the male victim profiles are examined through analyses of variance (ANOVA), Chi-Square and post-hoc tests. Effect sizes are reported with eta squared (η^2) and Cramer's V (V). Effect sizes are referred to as small ($\varphi/V \leq .20$, $\eta^2 \leq .06$), medium ($\varphi/V \leq .40$, $\eta^2 < .14$) and large ($\varphi/V \geq .40$, $\eta^2 \geq .14$) (Kotrlik et al., 2011; Richardson, 2011).

RESULTS

Male Victim Severity Profiles

The conditional probabilities by class are shown in graph 1 (more detailed conditional probabilities are provided in appendix C). Class 1 represents the "Low severity – low victimization" group and accounted for the majority of the male victims (i.e. 58.3%). Members of this class have a very low chance of experiencing any rape incidents. High probabilities are visible for experiencing sexual starting, sexual comments, showing of sexual material, and unwanted kissing (i.e. probabilities of 21% up to 36%). Victims in this class reported almost no self-reported consequences as a result of the incident (having the biggest impact on them), with the highest probability visible among emotional consequences (i.e. 13%).

Class 2 ("Medium severity – hands off SV") accounted for 21.4% of the sample. While the probability of experiencing sexual violence incidents is relatively similar to members in Class 1 (with the exception of a 64% probability of experiencing unwanted sexual comments), these victims show a high probability of experiencing various self-reported consequences to some extent. As such, these victims had a .67 probability of reporting emotional consequences, .59 probability of reporting an impact on their self-esteem, and .41 probability of avoiding certain places or persons. Additionally, these male victims had a 30% probability of reporting that the incident made them question their feelings of masculinity.

[Insert **Graph 1** here]

Class 3 ("Medium severity - poly-victimization) made up 13.3% of the male victims. These victims had a relatively high probability of experiencing hands-off, hands-on and rape incidents with probabilities going up to 64%. Victims in this class had a particular high chance of experiencing sexual staring and comments (i.e. 64% and 50% respectively), and unwanted kissing and fondling (i.e. 46% and 52% respectively). With regard to rape incidents, these male victims had a 13% up to 19% chance of experiencing unwanted (attempts of) oral penetration. The probability of experiencing adverse effects from these experiences are highest among the emotional consequences (70%) and avoidance behaviors

(51%). These male victims showed a .11 up to .26 probability of having an impact on their feelings of masculinity and self-esteem respectively.

Finally, Class 4 ('High severity – poly-victimization') accounted for the remaining 7.0% of the male victims. Victims in this class show high probability of experiencing all types of victimization with the highest probability of experiencing (attempt to) anal penetration and forced to penetrate someone across all Classes (i.e. chance of up to 15%). Additionally, these male victims show very high probabilities of experiencing adverse effects (i.e. 42% up to 100%). Compared to the other classes, only male victims in this class have a probability of having injuries with a probability of 42%.

Univariate Analysis

Table 2 provides descriptive information regarding the socio-demographic variables across the various severity profiles. It shows that the distributions of age is approximately similar over the various severity profiles with slightly younger victims on average visible in Class 2 and 4. The male victims in this sample are mostly represented by men having attained secondary or higher education. The distribution of the educational level is relatively similar in Classes 1 until 3. The distribution in Class 4, on the other hand, shows a shift from higher educated victims (i.e. 38.8%) to male victims with secondary education (i.e. 58.8%) compared to the other Classes. In addition, the majority of the male victims in Classes 1 until 3 are represented by men with an active occupational status. Contrarily, in Class 4 a large shift is visible between the active (i.e. 44.3%) and inactive (i.e. 37.7%) occupational status compared to the other classes.

[Insert **Table 2** here]

The financial status of the male victims seems to be decreasing as the severity of the profiles increase with the majority (i.e. 55.8%) of the male victim in Class 4 reporting financial difficulties. Similarly, an increase in the number of male victims identifying as non-heterosexual is visible as the severity of the profiles increase, with the highest number (i.e. 26.8%) visible in Class 4. Finally, the majority of the male victim in all profiles report living with their current partner. The highest proportion of male victims indicating not having a partner is visible in Class 2 and 4 with approx. 34%.

[Insert **Table 3** here]

As for the current mental health outcomes (view table 3), the mental health of male victims seem to be worsening as the severity profiles increase. As such, male victims report lower resilience and an increase of anxiety and depression with every increase in severity with the 'worst' mental health outcomes visible in Class 4. Significant differences with regards to resilience are, however, only visible when comparing the various severity classes (i.e. Class 2, 3 and 4) with the 'low severity' group (i.e. Class 1). With regards to anxiety, male victims in Class 1 report significantly lower rates of anxiety compared to all other Classes. Additionally, male victims in Classes 2 and 3 report significantly lower rates of anxiety compared to the 'high severity' group (i.e. Class 4). Male victims in Classes 2 up to 4 show mean depression scores representing mild (i.e. score equal to or higher than 5, see Class 2 and 3) and close to moderate (score higher than 10, see Class 4) depression symptoms. Male victims in Class 1 report significantly lower depression rates compared to the other Classes. Furthermore, the 'high severity' Class shows significantly higher rates compared to all other Classes.

No significant differences are visible in the scores of problematic alcohol use between the various severity profiles. Moreover, the mean scores of alcohol use barely meet the threshold of 4 or higher as an indication of problematic alcohol use with a highest score visible among the low severity group (i.e. 4.3) and lowest score visible among the high severity group (i.e. 3.9).

Large differences are visible regarding suicidal attempts and/or self-harm among the male victim profiles. Approximately 35.7% of the male victims in Class 4 reported either of these behaviors compared to 'only' 11.3% in Class 1. This difference was also found to be significant, as were comparisons between Class 2 against Class 1 and 4. One should, however, keep in mind that the effect sizes of the majority of the general comparisons are small, with the exception of depression where a medium effect size is visible.

[Insert **Table 4** here]

Multinomial Analysis

Table 4 reports the results of the multinomial regression analyses to examine differences in class membership based on socio-demographics. As such, older male victims are less likely to be in Class 2 compared to Class 1. Male victims who have an inactive occupational status at the time of participating in the survey (as opposed to active) are approx. 3 times more likely to be in the highest severity class (i.e. Class 4) compared to Class 1. Additionally, male victims in Class 3 are 1.7 and 1.9 times more likely to have no partner or not live with their partner respectively (as opposed to living together with their partner) compared to the low severity group (i.e. Class 1).

The largest effects were visible with the financial status of the male victims and their sexual orientation. As such, male victims with a difficult financial status are 1.7 up to 2.9 times more likely to be in the medium (i.e. Class 3) and high severity classes (i.e. Class 4) compared to the reference group. Additionally, male victims who identified as non-heterosexual were 1.7 up to 3.8 times more likely to be in the three higher severity classes compared to the low severity group.

DISCUSSION

Knowledge regarding male SV still falls far behind that of female SV (Peterson, 2011; Davies, 2002). As such, male SV and the adverse effect these men encounter is still often denied, leading to an under recognition of male victims in research, policy and treatment provisions (Davies, 2002; Depraetere et al., 2020; Keygnaert, 2014; Weiss, 2010). Additionally, scholars examining sexual violence typically construct severity profiles based on presumed severity using a one-dimensional approach (French et al., 2014; Lysova & Dim, 2020; Macy et al., 2007). While multivariate combination studies have been performed for (sexual) victimization in general, studies focusing on the broad spectrum of male sexual victimization in the general population are lacking. This study fills a particular gap in scientific research by constructing severity profiles of male SV among a Belgian representative sample. The combination of the self-reported consequences, prevalence and co-occurrence of various incidents into one model has the particular advantage of describing subgroups of male victims in a multidimensional way.

Results of the LCA showed four distinct classes going from 'low severity – low victimization' with low probability of experiencing various form of sexual violence and low probability of experiencing adverse effects to 'high severity – poly-victimization' including high probability of experiencing multiple forms of hands-off, hands-on and rape incidents and showing high probability of experiencing approximately all self-reported consequences. In particular, this study demonstrates that while 58.3% of the male victims in this sample fall within the 'low severity' group, the remaining 41.7% of the male victims fall in the medium to high severity groups including exposure to various forms of sexual violence and showing high probability of experiencing adverse effects to some extent. This finding, confirms some of the adverse effects of male sexual victimization found in previous studies (Banyard et al., 2007; Walker et al., 2005a, 2005b).

In addition to findings from previous studies, this study reveals how so called 'minor' forms of sexual violence may still have a big impact on male victims. Class 2 demonstrates how hands-off incidents

(such as unwanted staring, sexual comments, and showing of sexual material) may induce a relatively high probability of emotional consequences, may impact male victims' self-esteem, feelings of masculinity and eventually may result in avoidance behavior. This finding demonstrates the importance of applying a broad definition and looking at these so called 'minor' forms to better grasp the consequences of sexual violence (Peterson et al., 2011). Furthermore, it shows that one should not underestimate the adverse effect hands-off forms of SV may have on male victims.

Another noticeable finding is the presence of poly-victimization among male victims, particularly in Class 3 and 4. These male victims show high probabilities (e.g., probabilities off approx. 40% or higher) of experiencing various forms of hands-on and hands-off SV and accounted for 20.3% of the male victims in the sample. This finding shows that while the number of male victims may be lower compared to female victims (see Depraetere et al., 2020), almost 1 out of 5 of the male victims have a high probability of experiencing multiple forms of sexual violence in their lives.

Results showed that the current mental health outcomes worsen as the severity profiles increase. This confirms findings in previous studies examining the adverse effects of male SV (Banyard et al., 2007; Elliott et al., 2004; Heidt et al., 2005; Kimerling et al., 2002; Krahé & Berger, 2017; Struckman-Johnson & Struckman-Johnson, 2006; Tiet et al., 2006; Walker et al., 2005a, 2005b). However, with the exception of Heidt et al. (2005), these scholars have only made comparisons between male and female victims, and between victims and non-victims. As such, knowledge regarding differences in mental health outcomes across male victims was lacking. Heidt et al. (2005), include comparisons between non-victims, victims and revictimized individuals. Their results showed how revictimized individuals report greater psychological distress compared to singly victimized individuals. They suggest a cumulative effect of multiple sexual violence incidents. However, this study only included gay, bisexual and lesbian individuals. The current study confirms these findings within a broad male victim sample. Male victims with a high probability of poly-victimization (i.e. Class 3 and/or 4) show the biggest impact on their current mental health outcomes.

Similar to previous studies (Struckman-Johnson & Struckman-Johnson, 2006; Tiet et al., 2006; Walker et al., 2005a, 2005b) male victims of hands-on sexual violence and rape have the highest probability of attempting suicide and/or self-harm. An alarming 35.7% of the male victims in the high severity class engaged in such behaviors and show rates that are up to three times higher compared to the other severity classes. This confirms the high impact of the most intrusive incidents, such as rape, on male victims.

Contrary to previous findings (Walker et al., 2005b), this study did not find high rates of problematic alcohol use among male victims, nor were differences found across male victim profiles. Walker et al. (2005b) found 62.5% of male rape victims reporting abuse of alcohol. However, no comparisons were made with other male victims or non-victims which may explain these different findings. Comparisons between victims and non-victims were made among older adults (i.e. aged 70+), sampled within the nationally representative project using face-to-face interviews (Keygnaert et al., 2021). No significant differences regarding problematic alcohol use were visible among men, yet female victims reported higher odds of problematic alcohol use compared to non-victimized women (Keygnaert et al., 2021). As such, (problematic) alcohol use may be different for male victims compared to female victims.

As for socio-demographic differences, male victims in the low severity group are mostly represented by heterosexual middle-aged men who are currently living together with their partner, obtained secondary or higher education, and have an active occupational status with limited financial difficulties. When comparing against the reference group, male victims in Class 2 are significantly younger. Younger victims were also visible in Class 4, even though this difference was not significant when comparing with the reference group. Male victims in Class 2 and 4 also show similarities regarding their

relationship status and mostly represent men without partner. These victims also have the highest probability of reporting relational problems, lower self-esteem and questioning their feelings of masculinity. One potential explanation could be related to the amount of time that passed between the sexual violence and reporting of the consequences in this study. These victims are on average mid thirty and may have experienced the sexual violence relatively recently compared to victims in classes 1 and 3. Another explanation may be found in the type of sexual violence experienced. These male victims show the highest probability of receiving sexual comments across all classes. This experience may, therefore, have particularly affected their general self-esteem and feelings of masculinity. This, however, remain hypothetical and more research is needed to explain these findings.

The strongest influence to predict class membership was visible within victims sexual orientation and financial status. A non-heterosexual orientation increases the likelihood of membership of all medium to high severity classes compared to the reference class. This finding could be linked to the general higher risk of being exposed to sexual violence among sexual minorities (Bullock & Beckson, 2011; Herkes et al., 2015; Schapansky et al., 2021; Walker et al., 2005b). Additionally, difficulties in male victims financial status worsens as their severity profile increases. This finding could be related to the increase in current mental health problems and need of care for these victims. Furthermore, approximately one third of the male victims in the high severity group report an inactive occupational status. This may, on the one hand, influence their financial status but may also be linked to work drop-out and time investment in care upon their SV experiences (Watson et al., 2014). Yet, one should keep in mind that the study design does not allow us to make causal claims. As such, the financial status may also increase the risk of SV.

LIMITATIONS

There are some limitations that must be observed when interpreting the results. First, part of the data collection (i.e. wave 2) took place during the outbreak of the covid-19 pandemic and the associated lockdown measurements in Belgium. This may have affected both the prevalence of SV and mental health outcomes. While victims are asked to think back to the event that had the biggest impact on them when reporting about the consequences as a result from this incident, the current mental health outcomes mostly focused on the two weeks prior to participating in the survey. However, chi-square and t-tests focusing on differences in SV rates and mental health outcomes did not show any significant difference between the male victims participating in wave 1 or 2. Therefore, we believe that the influence of the Covid-19 pandemic on the results of this paper is limited.

Second, the results of this study may be affected by recall bias. Similar to all victimization studies, this study relies on retrospective memories of sexual violence experiences in men's lives. One may wonder as to how accurate participants may recall events and the consequences associated with it. The impact of this limitation is constrained by focusing on the incident with the biggest impact with regard to the self-reported consequences. Additionally, current mental health outcomes generally focus on male victims mental health status in the past two weeks, which already limits recall bias.

As Peterson et al. (2011) already stated, 'it is difficult to interpret associations between having experienced sexual violence and having various psychological, physical, or sexual problems. Did the sexual violence cause the problem or did the problem place the man at risk for sexual violence?' (p. 18). The cross-sectional nature of this study makes it impossible to make causal claims and predict the direction of the relationship.

Finally, we are aware of the relatively poor fit of the multinomial model with a high misclassification error (38.7%). Therefore, the results of this model should be interpreted with caution and replication

studies are advised. In addition, by assigning respondents to a specific class from the LCA, classification error inevitably occurs (Van Den Bergh & Vermunt, 2019). However, by assigning respondents based on the largest estimated posterior membership probabilities, the error is already minimized. Second, the LCA was performed using 3000 iterations which guarantees more robust findings. Finally, the optimal model was selected based on various fit indices. These elements ensure us that the results are trustworthy.

CONCLUSION AND IMPLICATIONS

In conclusion, the severity profiles defined in this study shows large variations in the experiences of sexual violence among men. Similar to the conclusion of Tewksbury (2007), male victims adverse effects may include highly emotional responses having a large effect on their daily functioning to more moderate and introspective responses. While previous studies provided evidence of the adverse effects of male SV, none of them have made inter-comparisons among male victims of the broad spectrum of sexual violence to detect subgroups of male SV.

Results of our study emphasize the importance of including a broad description of sexual violence in order to detect 'minor' forms of sexual violence and the adverse effects they may cause. Current interventions are mostly aimed towards female victims and many focus on the most intrusive acts (i.e. existence of rape care centers) (Donne et al., 2018; Hendriks et al., 2018; Larsen & Hilden, 2016; Lowe & Balfour, 2015). This not only limits accessibility for male victims in general but particularly excludes male victims who experience various adverse effects from hands-off forms of sexual violence. These male victims, accounting for approximately 21% of the victims in this sample, are left to deal with the adverse effects themselves, leaving them untreated (Donne et al., 2018; Haegerich & Hall, 2011; Lowe & Balfour, 2015). However, not receiving the help they need may worsen the mental health problems, result in additional effects and increase the risk of developing PTSD (Depraetere et al., 2020; Larsen & Hilden, 2016).

With this study we provide more insights into the distinctive severity profiles of male SV. This knowledge regarding the patterning of sexual violence, the existence of poly-victimization and the various adverse effects detected within each severity group provides a basis to develop services and treatment measures specifically targeted at male victims. We, therefore, recommend care services to increase gender-sensitive care and place specific attention towards hands-off sexual victimization and the adverse effects they may cause, with particular focus on the emotional consequences, effects on their self-esteem and avoidance behavior. Next, we would emphasize that care services welcome all male victims regardless of the so-called 'severity' of the sexual acts. Finally, care services need to be aware of the high probability of poly-victimization among approx. 20% of the male victims and the accompanying high current mental health problems. As such, prevention measures against revictimization are strongly advised, taking the socio-demographic differences across the severity profiles into account as potential risk factors.

Overall, our findings emphasize the need for profiling analyses among male victims to increase knowledge regarding male SV. The findings also demonstrate that approximately half of the male victims report adverse effects to some extent and a significant influence on their current mental health. As such, findings of this study provide additional evidence against the stigmas stating that men cannot be sexually victimized and that if they would experience such an event, would not be harmed by it both physically and emotionally (Chapleau et al., 2008; Turchik & Edwards, 2012). Given the lack of research on male SV among general samples, we strongly encourage future scholars to replicate current findings and approach male SV with a multidimensional approach when researching their risks, consequences and help-seeking behavior.

REFERENCES

Alempijevic, D., Savic, S., Pavlekic, S., & Jecmenica, D. (2007). Severity of injuries among sexual assault victims. Journal of Forensic and Legal Medicine, 14, 266-269.

Ansara, D. L., & Hindin, M. J. (2010). Exploring gender differences in the patterns of intimate partner violence in Canada: A latent class approach. Journal of Epidemiology & Community Health, 64(10), 849-854.

Artime, T. M., McCallum, E. B., & Peterson, Z. D. (2014). Men's acknowledgment of their sexual victimization experiences. Psychology of Men & Masculinity, 15(3), 313.

Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Threestep approaches using Mplus. Structural Equation Modeling. A Multidisciplinary Journal, 21 (3), 329−341.

Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). The alcohol use disorders identification test. World Health Organization.

Baert, S., Gilles, C., Van Belle, S., Bicanic, I., Roelens, K., & Keygnaert, I. (2021). Piloting sexual assault care centres in Belgium: who do they reach and what care is offered? European journal of psychotraumatology, 12(1), 1935592.

Banyard, V. L., Ward, S., Cohn, E. S., Plante, E. G., Moorhead, C., & Walsh, W. (2007). Unwanted sexual contact on campus: A comparison of women's and men's experiences. Violence and Victims, 22(1), 52-70.

Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. Alcoholism: Clinical and Experimental Research, 31(7), 1208-1217.

Bullock, C. M., & Beckson, M. (2011). Male victims of sexual assault: phenomenology, psychology, physiology. Journal of the American Academy of Psychiatry and the Law Online, 39(2), 197-205.

Cavanaugh, C. E., Messing, J. T., Petras, H., Fowler, B., La Flair, L., Kub, J., Agnew, J., Fitzgerald, S., Bolyard, R., & Campbell, J. C. (2012). Patterns of violence against women: A latent class analysis. Psychological trauma: theory, research, practice, and policy, 4(2), 169.

Chapleau, K. M., Oswald, D. L., & Russell, B. L. (2008). Male rape myths: The role of gender, violence, and sexism. Journal of Interpersonal Violence, 23(5), 600-615.

Clarke, K., Patalay, P., Allen, E., Knight, L., Naker, D., & Devries, K. (2016). Patterns and predictors of violence against children in Uganda: a latent class analysis. BMJ open, 6(5), e010443.

Davies, M. (2002). Male sexual assault victims: A selective review of the literature and implications for support services. Aggression and Violent Behavior, 7(3), 203-214.

Davis, K. C., Gilmore, A. K., Stappenbeck, C. A., Balsan, M. J., George, W. H., & Norris, J. (2014). How to score the Sexual Experiences Survey? A comparison of nine methods. Psychology of Violence, 4(4), 445.

Depraetere, J., Vandeviver, C., Vander Beken, T., & Keygnaert, I. (2020). Big boys don't cry: A critical interpretive synthesis of male sexual victimization. Trauma, Violence, & Abuse, 21(5), 991-1010.

Donne, M. D., DeLuca, J., Pleskach, P., Bromson, C., Mosley, M. P., Perez, E. T., Mathews, S. G., Stephenson, R., & Frye, V. (2018). Barriers to and facilitators of help-seeking behavior among men who experience sexual violence. Amercican Journal of Men's Health, 12(2), 189-201.

Elliott, D. M., Mok, D. S., & Briere, J. (2004). Adult sexual assault: Prevalence, symptomatology, and sex differences in the general population. Journal of Traumatic Stress, 17(3), 203-211.

Fiebert, M. S., & Osburn, K. (2001). Effect of gender and ethnicity on self reports of mild, moderate and severe sexual coercion. Sexuality & Culture, 5(2), 3-11.

French, B. H., Bi, Y., Latimore, T. G., Klemp, H. R., & Butler, E. E. (2014). Sexual victimization using latent class analysis: Exploring patterns and psycho-behavioral correlates. Journal of Interpersonal Violence, 29(6), 1111-1131.

Haegerich, T. M., & Hall, J. E. (2011). Violence and men's health: Understanding the etiological underpinnings of men's experiences with interpersonal violence. American Journal of Lifestyle Medicine, 5(5), 440-453.

Heidt, J. M., Marx, B. P., & Gold, S. D. (2005). Sexual revictimization among sexual minorities: A preliminary study. Journal of Traumatic Stress, 18(5), 533-540.

Hendriks, B., Vandenberghe, A. M.-J. A., Peeters, L., Roelens, K., & Keygnaert, I. (2018). Towards a more integrated and gender-sensitive care delivery for victims of sexual assault: key findings and recommendations from the Belgian sexual assault care centre feasibility study. International journal for equity in health, 17(1), 152.

Hemmert, G. A., Schons, L. M., Wieseke, J., & Schimmelpfennig, H. (2018). Log-likelihood-based pseudo-R 2 in logistic regression: Deriving sample-sensitive benchmarks. Sociological Methods & Research, 47(3), 507-531.

Herkes, G., Bisschop, L., Vandeviver, C., Delefortrie, D. a., & Vander Beken, T. (2015). Male victims of sexual violence: a review of the literature. Institute for International Research on Criminal Policy.

Imai, H., Furukawa, T. A., Kasahara, Y., Ishimoto, Y., Kimura, Y., Fukutomi, E., Chen, W. l., Tanaka, M., Sakamoto, R., & Wada, T. (2014). Ipsative imputation for a 15-item Geriatric Depression Scale in community-dwelling elderly people. Psychogeriatrics, 14(3), 182-187.

Keygnaert, I. (2014). Sexual violence and sexual health in refugees, asylum seekers and undocumented migrants in Europe and the European neighbourhood: determinants and desirable prevention [Doctoral thesis, Ghent University]. Ghent, Belgium.

Keygnaert, I., Dias, S. F., Degomme, O., Deville, W., Kennedy, P., Kováts, A., ... & Temmerman, M. (2015). Sexual and gender-based violence in the European asylum and reception sector: a perpetuum mobile?. The European Journal of Public Health, 25(1), 90-96.

Keygnaert, I., De Schrijver, L., Cismaru, I. A., Schapansky, E., Nobels, A., Hahaut, B., Stappers, C., De Bauw, Z., Lemonne, A., Renard, B., Weewauters, M., Nisen, L., Vander Beken, T., & , & Vandeviver, C. (2021). UN-MENAMAIS Understanding the Mechanisms, Nature, Magnitude and Impact of Sexual Violence in Belgium. Final report. Belgian Science Policy Office.

Kimerling, R., Rellini, A., Kelly, V., Judson, P. L., & Learman, L. A. (2002). Gender differences in victim and crime characteristics of sexual assaults. Journal of Interpersonal Violence, 17(5), 526-532.

Koss, M., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., Ullman, S., West, C., & White, J. (2006). The sexual experiences short form victimization (SES-SFV). Tucson, AZ: University of Arizona. Version, 8.

Koss, M. P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., Ullman, S., West, C., & White, J. (2007). Revising the SES: A collaborative process to improve assessment of sexual aggression and victimization. Psychology of Women Quarterly, 31(4), 357-370.

Kotrlik, J. W., Williams, H. A., & Jabor, M. K. (2011). Reporting and Interpreting Effect Size in Quantitative Agricultural Education Research. Journal of Agricultural Education, 52(1), 132-142.

Krahé, B., & Berger, A. (2013). Men and women as perpetrators and victims of sexual aggression in heterosexual and same-sex encounters: A study of first-year college students in Germany. Aggressive behavior, 39(5), 391-404.

Krahé, B., & Berger, A. (2017). Longitudinal pathways of sexual victimization, sexual self-esteem, and depression in women and men. Psychological trauma: theory, research, practice, and policy, 9(2), 147-155.

Krahé, B., Tomaszewska, P., Kuyper, L., & Vanwesenbeeck, I. (2014). Prevalence of sexual aggression among young people in Europe: A review of the evidence from 27 EU countries. Aggression and Violent Behavior, 19(5), 545-558.

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: a new depression diagnostic and severity measure. Psychiatric annals, 32(9), 509-515.

Larsen, M. L., & Hilden, M. (2016). Male victims of sexual assault; 10 years' experience from a Danish Assault Center. Journal of Forensic and Legal Medecine, 43, 8-11.

Lowe, M., & Balfour, B. (2015). The unheard victims. The psychologist, 28, 118-121.

Lysova, A., & Dim, E. E. (2020). Severity of victimization and formal help seeking among men who experienced intimate partner violence in their ongoing relationships. Journal of Interpersonal Violence.

Macy, R. J., Nurius, P. S., & Norris, J. (2007). Latent profiles among sexual assault survivors: Understanding survivors and their assault experiences. Journal of Interpersonal Violence, 22(5), 520-542.

Malamuth, N. M., Sockloskie, R. J., Koss, M. P., & Tanaka, J. S. (1991). Characteristics of aggressors against women: testing a model using a national sample of college students. Journal of consulting and clinical psychology, 59(5), 670.

Masho, S. W., & Alvanzo, A. (2010). Help-seeking behaviors of men sexual assault survivors. Amercican Journal of Men's Health, 4(3), 237-242.

McMahon, S., Treitler, P., Peterson, N. A., & O'Connor, J. (2019). Bystander intentions to intervene and previous sexual violence education: A latent class analysis. Psychology of Violence, 9(1), 117.

Nelon, J. L., De Pedro, K. T., Gilreath, T. D., Patterson, M. S., Holden, C. B., & Esquivel, C. H. (2019). A latent class analysis of the co-occurrence of sexual violence, substance use, and mental health in youth. Substance Use & Misuse, 54(12), 1938-1944.

Nylund-Gibson, K., & Choi, A. Y. (2018). Ten frequently asked questions about latent class analysis. Translational Issues in Psychological Science, 4(4), 440.

O'Connor, J., Hoxmeier, J., McMahon, S., Cusano, J., & Wilson, C. (2021). Exposure to campus messages about dating and sexual violence: a latent class analysis. Journal of Interpersonal Violence.

Peterson, Z. D., Voller, E. K., Polusny, M. A., & Murdoch, M. (2011). Prevalence and consequences of adult sexual assault of men: Review of empirical findings and state of the literature. Clinical Psychology Review, 31(1), 1-24.

Richardson, J. T. (2011). Eta squared and partial eta squared as measures of effect size in educational research. Educational research review, 6(2), 135-147.

Sable, M. R., Danis, F., Mauzy, D. L., & Gallagher, S. K. (2006). Barriers to reporting sexual assault for women and men: Perspectives of college students. Journal of American College Health, 55(3), 157-162.

Schapansky, E., Depraetere, J., Keygnaert, I., & Vandeviver, C. (2021). Prevalence and Associated Factors of Sexual Victimization: Findings from a National Representative Sample of Belgian Adults Aged 16–69. International journal of environmental research and public health, 18(14), 7360.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. International journal of behavioral medicine, 15(3), 194-200.

Smith, S. G., Basile, K. C., Gilbert, L. K., Merrick, M. T., Patel, N., Walling, M., & Jain, A. (2017). National intimate partner and sexual violence survey (NISVS): 2010-2012 state report, Centers for Disease Control and Prevention.

Spiegel, J. (2013). Sexual abuse of males: The SAM model of theory and practice. Routledge.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. Archives of internal medicine, 166(10), 1092-1097.

Stermac, L., Del Bove, G., & Addison, M. (2004). Stranger and acquaintance sexual assault of adult males. Journal of Interpersonal Violence, 19(8), 901-915.

Struckman-Johnson, C., & Struckman-Johnson, D. (2006). A comparison of sexual coercion experiences reported by men and women in prison. Journal of Interpersonal Violence, 21(12), 1591-1615.

Tewksbury, R. (2007). Effects of sexual assaults on men: Physical, mental and sexual consequences. International journal of men's health, 6(1), 22.

Tiet, Q. Q., Finney, J. W., & Moos, R. H. (2006). Recent sexual abuse, physical abuse, and suicide attempts among male veterans seeking psychiatric treatment. Psychiatric Services, 57(1), 107-113.

Turchik, J. A., & Edwards, K. M. (2012). Myths about male rape: a literature review. Psychology of Men & Masculinity, 13(2), 211.

Van Den Bergh, M., & Vermunt, J. K. (2019). Latent class trees with the three-step approach. Structural Equation Modeling: A Multidisciplinary Journal, 26(3), 481-492.

Walker, J., Archer, J., & Davies, M. (2005a). Effects of male rape on psychological functioning. British Journal of Clinical Psychology, 44(3), 445-451.

Walker, J., Archer, J., & Davies, M. (2005b). Effects of rape on men: A descriptive analysis. Archives of Sexual Behavior, 34(1), 69-80.

Watson, C., armées, C. p. l. c. d. d. f., & Bastick, M. (2014). Preventing and responding to sexual and domestic violence against men: a guidance note for security sector institutions. DCAF.

Weiss, K. G. (2010). Male sexual victimization: Examining men's experiences of rape and sexual assault. Men and Masculinities, 12(3), 275-298.

Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent class analysis: a guide to best practice. Journal of Black Psychology, 46(4), 287-311.

WHO (World Health Organization). (2016). Ethical and safety recommendations for intervention research on violence against women. WHO.

Wilson, L. C., & Miller, K. E. (2016). Meta-Analysis of the Prevalence of Unacknowledged Rape. Trauma Violence & Abuse, 17(2), 149-159.

TABLES

Table 1: Model fit indices for 1 to 5 class solutions (N = 1,078).

Model	**resid. df**	**BIC**	**aBIC**	**cAIC**	**likelihood-ratio**	**Entropy**	**Class pop. share (%)[1]**
1-class	1053	19205.39	19125.99	19230.39	7524.73	-	-
2-class	1027	17541.75	17379.76	17592.75	5679.53	.83	21.8%
3-class	1001	17340.34	17095.78	17417.34	5296.57	.75	8.8%
4-class	975	17308.81	16981.67	17411.81	5083.48	.76	7.0%
5-class	949	17370.83	16961.10	17499.83	4963.95	.76	3.9%
6-class	923	17433.32	16941.01	17588.32	4844.88	.72	4.0%

[1] Lowest estimated class population share.
Underlined indices indicate best fit.

Table 2. Description of classes, weighted (N = 1,079.5)

% (*n)* or mean (SD)	**Class 1** (*n* = 647.2)	**Class 2** (*n* = 195.5)	**Class 3** (*n* = 135.5)	**Class 4** (*n* = 74.2)
Socio-demographics				
Age	43.3 (15.1)	37.5 (14.8)	44.2 (15.6)	39.8 (14.4)
Educational level (%)				
• Primary or none	4.2 (28.2)	4.7 (9.2)	5.1 (6.9)	2.4 (1.8)
• Secondary	44.4 (299.2)	45.3 (88.5)	39.6 (53.6)	58.8 (43.6)
Higher	51.4 (346.6)	50.0 (97.7)	55.4 (75)	38.8 (28.8)
Occupational status (%)				
• Active	67.5 (455.1)	63.3 (123.7)	61.6 (83.4)	44.3 (32.9)
• Inactive or other	20.2 (136.1)	18.6 (36.3)	26.2 (35.4)	37.7 (27.9)
• Student	12.3 (83.1)	18.2 (35.5)	12.3 (16.6)	18.0 (13.3)
Financial status (difficult; %)	26.5 (178.4)	31.8 (62.1)	39.9 (54.1)	55.8 (41.4)
Sexual orientation (non-hetero; %)	8.0 (54)	13.7 (26.7)	21.5 (29.2)	26.8 (19.8)
Relationship status (%)				
Living with partner	65.9 (444.2)	54.9 (107.3)	51.7 (70.0)	48.8 (36.2)
• No partner	20.9 (140.7)	34.5 (67.4)	28.1 (38.1)	34.7 (25.7)
• Partner but not living together	13.3 (89.3)	10.6 (20.8)	20.2 (27.4)	16.5 (12.3)

Note: Class 1 (i.e. Low severity – low victimization), Class 2 (i.e. Medium severity – hands-off SV), Class 3 (i.e. Medium severity – poly-victimization), Class 4 (i.e. High severity – poly-victimization).

Table 3. Group comparisons of current mental health outcomes, weighted (N = 1,079.5)

Mental health outcomes	Classes	Mean (SD) / % (N)	F-test / X^2 test	η^2 / V
Resilience (range 0-5)	Class 1 (*n* = 674.2)	3.5 (0.7)[2,3,4]	11.02***	.03 (S)
	Class 2 (*n* = 195.5)	3.3 (0.7)[1]		
	Class 3 (*n* = 135.5)	3.2 (0.8)[1]		
	Class 4 (*n* = 74.2)	3.1 (0.7)[1]		
Anxiety (range 0 -21)	Class 1 (*n* = 674.2)	4.2 (4.4)[2,3,4]	21.75***	.06 (S)
	Class 2 (*n* = 195.5)	6.2 (4.5)[1,4]		
	Class 3 (*n* = 135.5)	5.6 (5.1)[1,4]		
	Class 4 (*n* = 74.2)	8.0 (5.5)[1,2,3]		
Depression (range 0 – 12)	Class 1 (*n* = 674.2)	4.3 (4.6)[2,3,4]	31.47***	.08 (M)
	Class 2 (*n* = 195.5)	6.1 (5.6)[1,4]		
	Class 3 (*n* = 135.5)	6.7 (6.0)[1,4]		
	Class 4 (*n* = 74.2)	9.8 (7.0)[1,2,3]		
Problematic alcohol use (range 0 – 12)	Class 1 (*n* = 674.2)	4.3 (2.7)	1.28	/
	Class 2 (*n* = 195.5)	4.0 (2.7)		
	Class 3 (*n* = 135.5)	4.3 (2.8)		
	Class 4 (*n* = 74.2)	3.9 (2.9)		
Suicide and/or self-harm (ref. yes)	Class 1 (*n* = 674.2)	11.3 (75.9)[2, 4]	35.56***	.18 (S)
	Class 2 (*n* = 195.5)	19.0 (37.1)[1,4]		
	Class 3 (*n* = 135.5)	18.3 (24.9)		
	Class 4 (*n* = 74.2)	35.7 (26.5)[1,2]		

Note: *p<.05; **p<.01; ***p<.001. Subscripts refer to the classes with significant mean differences between the groups at .05 level. S = small effect, M = medium effect, L = large effect.

Chi-square post-hoc analyses are applied with bonferroni correction. Anova post hoc tests are applied with TukeyHSD. Class 1 (i.e. Low severity – low victimization), Class 2 (i.e. Medium severity – hands-off SV), Class 3 (i.e. Medium severity – poly-victimization), Class 4 (i.e. High severity – poly-victimization).

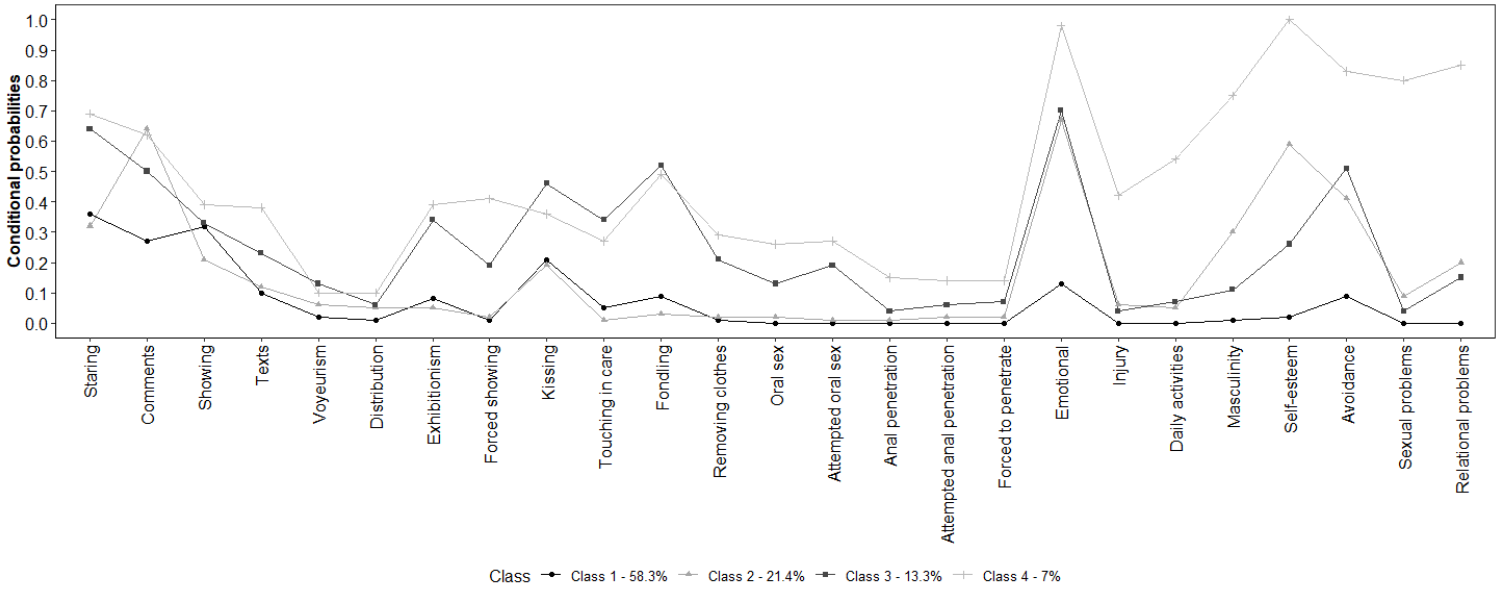
Table 4. Multinomial analyses against reference Class 1 (i.e. 'Low severity – low victimization', n = 674.2), weighted (N = 1,079.5)

OR (95% CI)	**Class 2** (*n* = 195.5)	**Class 3** (*n* = 135.5)	**Class 4** (*n* = 74.2)
Model 1. Socio-demographics			
Age	.97 (.96 - .98)***	1.01 (.99 – 1.03)	.98(.95 – 1.00)
Educational level (ref. higher)			
• Primary or none	.78 (.34 – 1.78)	.94 (.38 – 2.34)	.41 (.08 - 2.04)
• secondary	.86 (.60 – 1.22)	.70 (.46 – 1.05)	1.12 (.65 - 1.91)
Occupational status (ref. active)			
• Inactive or other	1.35 (.85 – 2.13)	1.24 (.76 – 2.04)	3.19 (1.74 – 5.85) ***
• Student	0.89 (.50 -1.56)	1.08 (.53 – 2.20)	1.48 (.64 – 3.44)
Financial Status (ref. easy)	1.27 (.88 – 1.84)	1.70 (1.13 – 2.56) *	2.85 (1.68 – 4.84) ***
Sexual orientation (ref. hetereo)	1.67 (1.00 – 2.77) *	2.82 (1.69 – 4.69) ***	3.79 (2.05 – 7.02) ***
Relationship status (ref. partner[1])			
• No partner	1.29 (.84 – 1.99)	1.72 (1.04 – 2.84) *	1.19 (.63 – 2.28)
• Partner but not living together	.63 (.35 – 1.13)	1.90 (1.08 – 3.32) *	.92 (.41 – 2.05)
Fit measures			
AIC/ BIC nullmodel		2,268.48 / 2,283.43	
AIC/ BIC Full model		2,199.25 / 2,348.78	
Nagelkerke R^2		0.14	
Misclassification error		38.68%	

Note: *p<.05; **p<.01; ***p<.001. Class 2 (i.e. Medium severity – hands-off SV), Class 3 (i.e. Medium severity – poly-victimization), Class 4 (i.e. High severity – poly-victimization). [1] This refers to the option 'living with partner'.

FIGURES

Graph 1. Conditional class probabilities of responding affirmative (N = 1,078)



APPENDIX

Appendix A – Included items in LCA

Table A. Items included in the LCA

Abbreviation	**Item**
	Hands-off sexual victimization
Staring	Someone stared at me in a sexual way or looked at my intimate body parts (e.g., breasts, vagina, penis, anus) when I didn't want it to happen.
Comments	Someone made teasing comments of a sexual nature about my body or appearance even though I didn't want it to happen.
Showing sexual material	Someone showed me sexual or obscene materials such as pictures, videos, … directly or over the internet even though I didn't want to look at them.
Calls or texts	Someone made unwelcome sexual or obscene phone calls or texts to me.
Voyeurism	Someone watched me, took photos or filmed me when I didn't want it to happen while I was undressing, nude, or having sex.
Distributing images/videos	Someone distributed naked pictures or videos of me directly or over the internet when I didn't want it to happen.
Exhibitionism	Someone showed their intimate body parts (e.g., breasts, vagina, penis, anus) to me in a sexual way and/or masturbated in front of me when I didn't want to see it.
Forced showing	Someone made me show my intimate body parts (e.g., breasts, vagina, penis, anus) (online or face-to-face) when I didn't want to do it.
	Hands-on sexual victimization
Kissing	Someone kissed me against my will.
Touching in care	Someone touched my intimate body parts (e.g., breasts, vagina, penis, anus) during care against my will.
Fondling/rubbing	Someone fondled or rubbed up against my intimate body parts (e.g., breasts, vagina, penis, anus) against my will.
Undressing	Someone removed (some of) my clothes against my will.
	Rape
Oral penetration	Someone had oral sex with me or made me give oral sex against my will.
Attempt oral penetration	Someone tried, but did not succeed, to have oral sex with me or tried to make me give oral sex against my will.
Vaginal/anal penetration	Someone put their penis, finger(s) or object(s) into my vagina or anus against my will.
Attempt vag./anal penetr.	Someone tried, but did not succeed, to put their penis, finger(s) or object(s) into my vagina or anus against my will.
Forcing to penetrate	Someone made me put my penis, finger(s) or object(s) into their vagina or anus against my will.
	Self-reported consequences linked to sexual victimization
Emotional	I had emotional consequences (anger, fear, sadness, shame, guilt,…).
Injuries	I had physical consequences (pain, injuries, bruises, …).
Daily activities	I was not able to perform my daily activities anymore (school, job, hobbies, …).
Masculinity	I questioned my feelings of being masculine.
Self-esteem	My self-esteem decreased.
Avoidance	I avoided some places and/or persons.

Sexual problems	I experienced sexual problems.
Relational problems	I experienced relational problems.

Appendix B – Calculation of sample weights

Table B. Sample weights

Age group	Wave	Population N	Population proportion	Sample *n*	Sample proportion	Population proportion/ Sample proportion
16-24 year	1	601 426	.15	187	.42	**.37**
old	2	603 407	.15	218	.35	**.44**
25-49 years	1	1 883 527	.48	154	.34	**1.39**
old	2	1 882 695	.48	213	.34	**1.41**
50-69 years	1	1 458 421	.37	108	.24	**1.54**
old	2	1 468 224	.37	198	.31	**1.18**
Total wave 1		3 943 374	.50	449	.42	-
Total Wave 2		3 954 326	.50	629	.58	-
Total		7 897 700	1.00	1078	1.00	1.05

Appendix C – Detailed conditional probabilities

Table C. Conditional class probabilities of responding affirmative (N = 1,078)

		Male victim severity profiles			
	Items	**Class 1 - Low severity – low victimization**	**Class 2 - Medium severity hands-off SV**	**Class 3 - Medium severity poly-victimization**	**Class 4 - High severity – poly-victimization**
	Estimated class population share	58.3%	21.4%	13.3%	7.0%
Hands-off	Staring	.36	.32	.64	.69
	Comments	.27	.64	.50	.62
	Showing sexual material	.32	.21	.33	.39
	Calls or texts	.10	.12	.23	.38
	Voyeurism	.02	.06	.13	.10
	Distributing images/videos	.01	.05	.06	.10
	Exhibitionism	.08	.05	.34	.39
	Forced showing	.01	.02	.19	.41
Hands-on	Kissing	.21	.19	.46	.36
	Touching in care	.05	.01	.34	.27
	Fondling/rubbing	.09	.03	.52	.49
	Undressing	.01	.02	.21	.29
Rape	Oral penetration	.00	.02	.13	.26
	Attempt oral penetration	.00	.01	.19	.27
	Vaginal/anal penetration	.00	.01	.04	.15
	Attempt vag./anal penetr.	.00	.02	.06	.14
	Forcing to penetrate	.00	.02	.07	.14
Self-reported	Emotional	.13	.67	.70	.98
	Injury	.00	.06	.04	.42
	Daily activities	.00	.05	.07	.54
	Masculinity	.01	.30	.11	.75
	Self-esteem	.02	.59	.26	1.00
	Avoidance	.09	.41	.51	.83
	Sexual problems	.00	.09	.04	.80
	Relational problems	.00	.20	.15	.85