Article Disability and sexual violence.

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Abstract:

***Background*:** Previous Belgian research on sexual violence (SV) showed that people who experience social othering are more at risk of victimization than those who do not. Persons with disabilities (PwD) are socially othered and often face stigma, prejudice, and discrimination. This study aimed to explore the specific vulnerabilities and experiences of PwD regarding SV.

***Methods*:** Data were collected through an online survey in a nationally representative sample of 4,461 persons (16-69 years) and via face-to-face interview with 483 older adults (70+ years) in Belgium. Older adults were randomly selected via a random walk finding approach. Within the total sample, 14·48% indicated to live with a disability and/or chronic illness. SV prevalence was measured using behaviourally specific questions based on the WHO definition of SV.

***Findings*:** PwD showed a higher prevalence of SV (37·8%) compared to those without disabilities or chronic illness (29·4%). PwD also reported lower mental health, quality of life, and well-being. Yet, they reported lower levels of hazardous alcohol and cannabis use, but similar levels of illegal drug use and self-harming behaviour. Sociodemographic, mental health, and coping factors were associated with higher SV risk.

***Interpretations*:** PwD have a higher risk of SV due to vulnerabilities. Preventing (re)victimisation should be prioritized by policymakers, researchers, and healthcare workers.

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Keywords: disability, chronic illness, minority health, sexual and gender based violence, rape

1. Introduction

Sexual violence (SV) can be defined as "*every sexual act directed against a person's will, by any person regardless of their relationship to the victim, in any setting*" [1,2]. It consists of sexual harassment without physical contact – further called hands-off SV – and sexual abuse with physical contact but without penetration and (attempted) rape with penetration, further referred to as hands-on SV [3,4]. SV affects people worldwide, in every culture, and in every social layer of society and is considered a major public health issue [5,6]. Also in Belgium, SV was identified as an important threat to public health. According to the UN-MENAMAIS study (2021) [4], which surveyed a representative sample of Belgian citizens, it was found that 64% of the population has experienced some form of SV at least once in their lives. More precisely, 44% reported experiencing hands-on or hands-off sexual victimization within the past year [4,7]. Belgium ratified the Istanbul Convention in 2016 [8], committing to combat violence against women and domestic violence. In 2020, the Flemish government prioritized tackling SV – with attention to the most vulnerable groups, including persons with disabilities (PwD), through a national action plan [9]. A 2018 study in Flanders revealed the vulnerability of women with disabilities to SV [10]. While the results should be approached with caution due to the exploratory nature of the study, they indicate a very high risk of SV for women with disabilities in Flanders. The study found that 93% of participants had experienced some form of SV. It was also noted that these victims often experienced repeated incidents, with the assailant being someone they knew, such as a partner, friend, or family member [10].

SV emerges and continues to exist due to factors and dynamics occurring at individual, interpersonal, community and societal level [11,12]. At individual-level risk and protective factors for SV, include younger age, being female and/or identifying as a woman, lower education and/or socio-economic status, physical or mental health issues, dependence on others for care, engaging in risky behaviours (such as alcohol abuse, drug use, and unsafe sexual activity), and previous (in)direct exposure to violence [4,7,12-38]. On interpersonal, community and societal level, ruling gender norms, gender inequality, ideologies about male sexual entitlement, rape myth acceptance, insufficient legal frameworks targeted at sanctioning sexual perpetration and protecting victims of gender-based violence, etc. are identified as drivers for creating contexts that promote and sustain SV in variating degrees [12,39-46]. Although everyone can be impacted by these factors and are at risk of sexual victimization and perpetration, specific subgroups are more vulnerable for its exposure. The previously mentioned UN-MENAMAIS study [4] illustrated that not only applicants for international protection [47] and lesbian, gay, bisexual, and other non-heterosexual (LGB+) persons [48] are particular high risk of sexual victimization, but

also that persons who identified as having characteristics that would differentiate them from the majority of the inhabitants of Belgium report more SV exposure than those who do not identify as such [49,50]. Based on these findings, De Schrijver et al. [50] concluded that populations exposed to societal othering, which are often considered minority groups, experience a heightened victimization risk. As a result of exposure to stigma, prejudice and discrimination – they are susceptible to differential treatment in the societies in which they live [51]. Hence, they often hold a more vulnerable social position that increases the likelihood that they will present any of the above mentioned general risk factors (cf. *supra*) – aside from risk factors specific to the othered group they belong to [50]. 'Othering' refers to processes that serve to mark and name those individuals considered as different from oneself and which secure and define a person's or group's identity through the stigmatization and distancing of others through "us-them" separations [52]. Moreover, not only do othered people experience more vulnerabilities for sexual victimization , they also often report help-seeking barriers that refrain them from finding adequate care to cope with its consequences and to prevent revictimization in the long run [50,53-56]. Furthermore, when people have a combination of multiple othered identities, the impact and probability of sexual victimization increases [49,50,57]. It is therefore crucial to apply the framework of intersectionality [58] when studying SV, as multiple minority identities may yield different social experiences and subsequently also risk factors.

With the intention to combat SV in the Belgian society, the Agency for Home Affairs of the Flemish Government has requested to explore the specific situation of persons with disabilities (PwD) more in-depth as they are identified as a potential vulnerable group at increased risk of sexual victimization. In line with the UN Convention on the Rights of Persons with Disabilities [59], we define PwD as persons who have long-term physical, mental, intellectual, or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others. PwD are for example recognized as a group that often reports a lower socio-economic status and economic poverty, ableism (i.e., stigma, prejudice and discrimination related to disabilities), poor health and well-being statuses [60,61] and they often might be dependent of others for care and conducting daily activities; factors which are identified as increasing the risk of sexual victimization. Indeed, a recent meta-analysis by Mailhot Amborski et al. [62], showed that PwD are at higher risk of sexual victimization than people without disabilities (*OR* = 1·49; 95% CI [1·27,1·76]). Upon exploration of potential moderators, they found that both minor (age < 21) and adult (age = 21+) PwD show this trend, but adult PwD were found more at risk of sexual victimization than minor PwD [62]. This finding is in contrast with what is generally found in SV studies, namely

that the risk of sexual victimization increases with younger age [7]. In addition, type of disability also emerged as a moderator in this meta-analysis [62]. Persons with intellectual deficits, physical disabilities, sensory disabilities (= highest risk), and mixed types of disabilities were all significantly more at risk than the general population [62]. In this meta-analysis, psychological or emotional disability was not identified as a significant moderator. The available evidence regarding SV against PwD also highlights important help-seeking barriers experienced by the victims. Several studies have shown that SV within this population is severely under-reported and that when victims do disclose and report SV, their experiences are often ignored, dismissed, downplayed, and concealed [10,63-66]. Disclosure and help-seeking require recognizing sexual transgressive behaviour and knowing where to seek assistance [67]. Identification can be challenging for PwD as they often depend on others and may face power imbalances in their relationships, making it harder to recognize abuse [65]. Moreover, especially for people with cognitive impairments or intellectual deficits, recognizing transgressive behaviour as violence and reporting SV may be difficult [10,63,65,68]. As a result, SV against PwD often remains under the radar and victims do not receive the needed care upon victimization.

With this study, we aim to (1) estimate the prevalence of SV in PwD in Belgium and (2) to compare SV rates with those reported by participants without disabilities. We hypothesize that PwD will be more likely to be exposed to SV during lifetime. We will also explore (3) vulnerabilities associated with SV. More explicitly, we will study whether the correlates of sexual victimization observed in the general population (i.e., sex at birth, age, socio-economic status, mental health status, and coping strategies) are associated with and potentially moderated by having disabilities.

2. Methods

Sampling procedure and participants

This study formed part of a broader mixed-methods research project called 'UNderstanding the MEchanisms, NAture, MAgnitude and Impact of Sexual violence in Belgium' (UN-MENAMAIS) [69]. The main aim of this project was to investigate sexual victimization and perpetration among a randomly selected sample of Belgian residents, regardless of their gender or sexual orientation, using a pre-validated self-report.

Belgian citizens aged 16 up to 69 years old

In a cross-sectional quantitative study, an online survey was conducted to collect data from a nationally representative sample of Belgian citizens aged 16 to 69 years. The survey was conducted in two waves, from October 2019 to January 2021, using the Belgian National

Register (BNR) as the sampling frame. To ensure equal representation of male and female participants, a random disproportionate stratified sampling method was employed, with participants divided into three age groups (i.e., 16-24 years old, 25-49 years old, and 50-69 years old). The initial overrepresentation in the first wave was adjusted in the second wave using survey weights to obtain estimates representative of the Belgian population (see [7] for more details). A total of 41,520 Belgian residents between 16 and 69 years old were contacted by the BNR through post, and participants could access the survey through a link or a Quick Response (QR) code with informed consent.

Belgian citizens aged 70 years and older

From 8 July 2019 to 12 March 2020, a cluster random probability sampling with a random walk finding approach [13] was used to select a representative sample of older adults living in Belgium to participate in structured face-to-face interviews. To participate in the study, participants had to be at least 70 years old, reside in Belgium, and be able to complete the interview in Dutch, French, or English. Cognitive ability was assessed through consistency in answering questions and attention during the interview. Interviews were conducted by trained interviewers at the participant's residence (i.e., nursing home, assisted living facility, or community). A total of 513 interviews were performed (i.e., 34% participation rate). [13,70]

Measures

Assessment of sexual violence

In this study, SV was defined according to the WHO definition (*cf. supra*) [1,2]. As is recommended internationally, behaviourally specific questions [71-74] were used to provide reliable estimates of both female and male sexual victimization [74], for participants of different sexual orientations or gender identity or different cultures. The details of the validation procedure is described elsewhere (see [75] and [74]).

The questionnaire was designed to maximize SV (victimization and perpetration) disclosure by starting with less sensitive topics, building up towards the questions regarding SV. Both lifetime and past 12-months SV experiences were assessed. The behaviourally specific questions were derived from the revised Sexual Experience Survey (SES-R) [72,76], the Sexual Aggression and Victimization Scale (SAV-S) [77], and the Senperforto questionnaire [78]. All questions on SV were adapted to the Belgian social and legal context. The process of developing this survey has been described elsewhere (see [4,74]).

Assessment of socio-economic status

To explore the socio-economic status, participants were asked about their highest level of education (i.e., I didn't go to school; primary education; secondary education; technical and vocational education (apprenticeship); religious school (e.g., madrassa); or higher education), their current occupational situation through the question "What best describes your current situation?" (i.e., student; housewife/man; voluntary work; on the job market / looking for a job; employed/self-employed; contributing family member; not able to work because of ill health; financial self-sufficiency or any other type of alternative choice of living; retired; or other), and their occupational situation before retirement through the question "What describes your situation before you retired?" (i.e., housewife/man; voluntary work; on the job market / looking for a job; employed/self-employed; contributing family member; not able to work because of ill health; financial self-sufficiency or any other type of alternative choice of living; or other). We created a new variable 'able to work' by combining the current occupational situation and the occupational situation before retirement. If participants indicated 'not able to work because of ill health' in at least one of these two variables, they were coded as 'not able to work (1)'. Others were coded as 'able to work (0)'. Finally, financial situation was assessed by asking "Considering your monthly income as a household, would you say that your household is able to make ends meet…." and proposing the answers options 'with great difficulty', 'with some difficulty, 'fairly easy', and 'easily'. The first two answer options were regrouped into 'financial situation perceived as difficult' and the latter two into 'financial situation perceived as easy'.

Assessment of disability and/or chronic illness

To identify the PwD subgroup within the study sample, two survey items were used. Participants were asked 'Do you suffer from a chronic illness that limits you in your everyday activities?' and 'Do you suffer from a disability that limits you in your everyday activities?'. Everyday activities were defined as 'for example working, shopping, going to school, managing your life, keeping in contact with other people' which was added beneath both questions. Participants who indicated 'Yes' for one or both questions were coded as having a 'disability and/or chronic illness (1)' and participants who indicated 'No' on both questions were coded as 'no disability and/or chronic illness (0)'. Many participants in the study had difficulty differentiating between a disability and a chronic illness, resulting in the terms being used interchangeably. Participants were asked to provide an explanation of their disability and/or chronic illness in an open-ended format. The responses were reviewed by two researchers and co-authors of the study, as well as a general practitioner. All participants were included in the new variable, as the reported disabilities and/or chronic illnesses could potentially be classified

as disabilities at some point in their progression. However, it is uncertain whether the participants reporting these conditions are currently experiencing hindrances in their full and equal participation in society. Therefore, the assessment of their status as PwD is subjective.

Finally, we created an additional variable through the combination of 'PwD' and 'able to work'. Participants who did not indicate any disability or chronic illness and were coded as 'no disability and/or chronic illness (0)' remained as such. Participants who were coded as 'disability and/or chronic illness' were further divided into 'disability and/or chronic illness, but able to work (1)' (if they were coded as 'able to work') and 'disability and/or chronic illness, but not able to work (2)' (if they were coded as 'not able to work').

Assessment of coping strategies and mental health status

Specific mental health aspects were measured in all participants by validated scales. Depression was assessed using the 9-item Patient Health Questionnaire (PHQ-9) [63]. Responses were made on a 4-point Likert scale ranging from 'not at all (0)' to 'nearly every day (3)'. All items were summed in a final score ranging from 0 to 27, Cronbach's Alpha = .867. Anxiety was measured by the General Anxiety Disorder (GAD)-7 [64]. The scale had seven items, and responses were made on a 4-point Likert scale ranging from 'not at all (0)' to 'nearly every day (3)', Cronbach's Alpha = 0·888. All items were summed in a final score ranging from 0 to 21 to yield a total anxiety score. Both scales assessed symptoms in the two weeks prior to filling in the survey, and both used a cut-off score of five as a positive screening for depression and/or anxiety [63, 64].

Posttraumatic Stress Disorder (PTSD) was measured using the PC-PTSD-5 (Cronbach's Alpha = 0·833), which asked about symptoms in the month before completing the survey [65]. On this scale with five items with a response format of 'yes (1)/no (0)' answers, a score of three or higher of a maximum of five was regarded as an indication of PTSD [65].

Quality of life was assessed via a 5-point Likert scale ranging from 'very poor (1)' to 'very good (5)' with question 'How would you rate your quality of life?'.

Resilience was assessed using the 6-item Brief Resilience Scale (BRS) (Cronbach's Alpha = 0·938). Responses were made on a five-point scale ranging from 1 (= strongly disagree) to 5 (= strongly agree). All six items were averaged into a final score ranging from 1 to 5 [66].

To assess maladaptive coping strategies generally associated with SV, we investigated alcohol and drug use, self-harming behaviour, and suicide attempts. Hazardous alcohol use was screened for using the AUDIT-C [67, 68] (Cronbach's Alpha = 0·690). The AUDIT-C consists

of three questions: 'How often do you have a drink containing alcohol?' ranging from 'Never (0)' to '4 or more times a week (4)' (the screening ends with a score of 0 for respondents that indicated 'Never' in this first item), 'How many standard drinks containing alcohol do you have on a typical day' ranging from '1 or 2 (0)' to '10 or more (4)' and 'How often do you have six or more drinks on one occasion?' ranging from 'Never (0)' to 'Daily or almost daily (4)'. In accordance with the guidelines of 'Flemish centre of expertise on alcohol and other drugs (VAD)', a cut-off score of four for females and five for males was used on this 3-item scale with a total score between zero and 12 [69]. In addition to the validated scales, participants were asked using yes-no questions about sedative use, cannabis use, illegal drug use, self-harm, and suicide attempts, both during their lifetime and in the past 12-months. Responses were categorised as 'No (0)', 'Yes, during the lifetime, but not in the past 12-months (1) and 'Yes, during the past 12 months (2)'.

Ethical considerations

This study was designed and performed in line with the principles of the Declaration of Helsinki and was approved by the Commission for Medical Ethics of Ghent University Hospital/Ghent University (B670201837542). Only participants aged 16 and older were included in this study due to ethical and practical regulations regarding the legal age of consent in Belgium (16 years old). All participants provided informed consent before starting the online survey.

Analysis

All analysis were run in R4.1.1. Descriptive statistics (means, standard deviations, counts, and percentages) were computed for all variables figuring across all tables. Significant differences in the distribution of nominal or categorical variables between (1) No PwD and PwD, and between (2) PwD who were able to work and PwD who were not able to work, were computed using (post-hoc) chi-square-tests. If the assumptions were not met, a Fisher's Exact test was used. No independent samples t-tests were used as none of the continuous variables were normally distributed. Two binary logistic regressions were used to analyse the association between socio-demographic variables (such as in table 1), mental health and well-being (such as in table 3) and the prevalence of lifetime hands-off and hands-on SV. To avoid multicollinearity, the correlations were checked between all variables. There were no strong correlations present. Having a disability ('*no*', '*yes, but able to work*', and '*yes, but not able to work*') was added as a moderator in the relation between the socio-demographic and mental

health variables and the two outcome variables (hands-off and hands-on SV). Interacting terms with $p < 0{\cdot}05$ were included in the model. Finally, the odds ratio was calculated with its 95% confidence interval (CI).

3. Results

Sample

In order to ensure data integrity and robustness in our analysis, observations for which there was missing data in any of the variables in the results were deleted from the dataset. In the analysis, 4,944 observations were included. The participants consisted of 4,461 individuals aged 16 to 69 from the general population, and 483 older adults aged 70 and above. There were 2,427 participants assigned male at birth, and 2,517 participants assigned female at birth. The average age of the sample was 42·83 years with a standard deviation of 20·15. Among the participants, 89% were born in Belgium. The survey was completed in Dutch 3,048 times, in French 1,732 times, in English 150 times, in Arabic nine times, and in Farsi five times.

Table 1 summarizes sociodemographic characteristics of the unweighted sample. PwD differ significantly from non-disabled participants in terms of sociodemographics. PwD had more female participants, older age, lower education, less employment, more financial difficulty, and higher self-identification as LGB+. Differences between PwD unable to work and those able to work were smaller. Incapacitated PwD were younger and had more financial difficulties.

Table 1. Sample composition (n = 4,944). Socio-demographic information presented for persons with disabilities (PwD) and persons without disabilities within the total study sample.

Variable	**Within total sample (n = 4,944)**			**Within group disability (n = 716)**		
	No disability (n =4228; 85·52%) n (%)	**Disability** (n = 716; 14·48%) n (%)	χ^2; df; p-value; V	**Able to work** (n =587; 82·98%) n (%)	**Unable to work due to disability** (n =129; 18·02) n (%)	χ^2; df; p-value; V
Sex assigned at birth			12·36; 1; <0·001; 0·050			0·24; 1; 0·625; 0·018
Male	2119 (50·1)	308 (43·0)		255 (43·4)	53 (41·1)	
Female	2109 (49·9)	408 (57·0)		332 (56·6)	76 (58·9)	
Age [mean (SD)]	40·71 (19·21)	55·33 (21·05)	462·79; 3; <0·001; 0·306	56·11 (33·66)	51·77 (11·44)	103·35; 3; <0·001; 0·380
16-24 years old	1316 (31·1)[a]	95 (13·3)[b]		94 (16·0)	1 (0·8)	
25-49 years old	1336 (31·6)[a]	161 (22·5)[b]		114 (19·4)	47 (36·4)	
50-69 years old	1313 (31·1)[a]	240 (33·5)[a]		163 (27·8)	77 (59·7)	
70 years old and more	263 (6·2)[a]	220 (30·7)[b]		216 (36·8)	4 (3·1)	
Educational level			59·36; 1; <0·001; 0·110			0·32; 1; 0·571; 0·021
No higher education	2088 (49·4)	465 (64·9)		384 (65·4)	81 (62·8)	
Higher education	2140 (50·6)	251 (35·1)		203 (34·6)	48 (37·2)	
Occupational status			185·78; 1; <0·001; 0·194			-
Remunerated workforce	2136 (50·5)	165 (23·0)		165 (28·1)	0	
Other	2092 (49·5)	551 (77·0)		422 (71·9)	129 (100·0)	

Financial situation			129·12; 1; <0·001; 0·162			71·05; 1; <0·001; 0·315
Perceived as easy	3245 (76·8)	405 (56·6)		375 (63·9)	30 (23·3)	
Perceived as difficult	983 (23·2)	311 (43·4)		212 (36·1)	99 (76·7)	
Gender			-			-
Cis Man	2105 (49·8)	303 (42·3)		250 (42·6)	53 (41·1)	
Cis Woman	2098 (49·6)	403 (56·3)		328 (55·9)	75 (58·1)	
Trans Man	3 (0·1)	2 (0·3)		2 (0·3)	0	
Trans Woman	1 (0·0)	0		0	0	
Other	21 (0·5)	8 (1·1)		7 (1·2)	1 (0·8)	
Sexual orientation			18·32; 1; <0·001; 0·061			5·01; 1; 0·025; 0·84
SI-heterosexual	3853 (91·1)	616 (86·0)		513 (87·4)	103 (79·8)	
SI-LGB+	375 (8·9)	100 (14·0)		74 (12·6)	26 (20·2)	

Notes: Because the comparisons in this table involved 6 independent tests, we adopted a Bonferroni-corrected significance level of 0·05/6 = 0·008 for these analyses
Abbreviations: SD = Standard Deviation; SI = Self-Identified; LGB+ = lesbian, gay, bisexual, pan-/omnisexual, asexual, other; df = degrees of freedom; V = Cramer's V

The study sample overrepresents higher educated individuals compared to the general Belgian population. Almost half of all respondents (i.e., 48·4%) completed a level of higher education, while – on the population level – 37·6% of Belgian residents between 15 and 64 years completed a higher educational level [79]. Table 2 presents the comparison of men and women across age groups in the entire population (ages 16-99) using public data and our sample.

Table 2. Sample weights. A comparison in distribution between the Belgian population and the study's sample.

Age group	Sex at birth	Population *N*	Population proportion	Sample *n*	Sample proportion	Population/Sample = Weights
16–24 years old	Female	576,098	0·06	687	0·13	0·46
	Male	601,426	0·06	724	0·15	0·40
25–49 years old	Female	1,864,081	0·20	787	0·16	1·25
	Male	1,883,527	0·20	710	0·14	1·43
50–69 years old	Female	1,475,820	0·16	764	0·15	1·07
	Male	1,458,421	0·15	789	0·16	0·94
70-99 years old	Female	894,533	0·09	279	0·06	1·50
	Male	653,772	0·07	204	0·04	1·75
Total		9,407,678	1·00	4,944	1·00	

Mental health, quality of life and well-being

Table 3 compares mental health, quality of life, and well-being in PwD with individuals without disabilities or chronic illnesses. It also compares these variables between PwD who are unable to work and those who can.

PwD experienced worse mental health, quality of life, and well-being compared to non-disabled individuals, regardless of their history of SV. PwD, both with and without SV, reported lower quality of life, more symptoms of depression, anxiety, PTSD, sedative use, and suicide attempts compared to those without disabilities. However, there was significantly less hazardous alcohol and cannabis use among PwD. No significant differences were found in resilience, illegal drug use, and self-harm between PwD and non-PwD individuals.

Among PwD, those unable to work reported lower quality of life, more symptoms of depression, anxiety, and PTSD, and higher sedative use.

Table 3. Observed mental health, quality of life and well-being.

Variable	Within total sample (*n* = 4,944)			Within group disability (*n* = 716)		
	No disability (*n* =4228; 85·52%) n (%)	**Disability** (*n* = 716; 14·48%) n (%)	χ^2; df; p-value; V	**Able to work** (*n* =587; 82·98%) n (%)	**Unable to work due to disability** (*n* =129; 18·02) n (%)	χ^2; df; p-value; V
Quality of life [mean (SD)]	4·14 (0·68)	3·58 (0·88)	368·21; 4; <0·001; 0·273			52·68; 4; <0·001; 0·271
Very poor	14 (0·3)[a]	20 (2·8)[b]		11 (1·9)[a]	9 (7·0)[b]	
Poor	78 (1·8)[a]	60 (8·4)[b]		33 (5·6)[a]	27 (20·9)[b]	
Neither poor, nor good	424 (10·0)[a]	190 (26·5)[b]		153 (26·1)[a]	37 (28·7)[a]	
Good	2514 (59·5)[a]	375 (52·4)[b]		322 (54·9)[a]	53 (41·1)[b]	
Very good	1198 (28·3)[a]	71 (9·9)[b]		68 (11·6)[a]	3 (2·3)[b]	
Resilience [mean (SD)]	3·34 (1·09)	3·17 (1·02)	6·05; 2; 0·049; 0·035			7·73; 2; 0·021; 0·104
Low	1526 (36·1)[a]	266 (37·2)[a]		215 (36·6)[a]	51 (39·5)[a]	
Normal	2243 (53·1)[a]	394 (55·0)[a]		333 (56·7)[a]	61 (47·3)[a]	
High	459 (10·9)[a]	56 (7·8)[b]		39 (6·6)[a]	17 (13·2)[b]	
Depression [mean (SD)]	4·53 (4·64)	7·57 (6·43)	227·44; 4; <0·001; 0·214			38·25; 4; <0·001; 0·231
Minimal	2647 (62·6)[a]	287 (40·1)[b]		257 (43·8)[a]	30 (23·3)[b]	
Mild	1024 (24·2)[a]	214 (29·9)[b]		180 (30·7)[a]	34 (26·4)[a]	
Moderate	353 (8·3)[a]	95 (13·3)[b]		71 (12·1)[a]	24 (18·6)[b]	
Moderately severe	148 (3·5)[a]	67 (9·4)[b]		47 (8·0)[a]	20 (15·5)[b]	
Severe	56 (1·3)[a]	53 (7·4)[b]		32 (5·5)[a]	21 (16·3)[b]	
Anxiety [mean (SD)]	4·63 (4·37)	6·46 (5·64)	103·62; 3; <0·001; 0·145			19·62; 3; <0·001; 0·166
Minimal	2463 (58·3)[a]	326 (45·5)[b]		289 (49·2)[a]	37 (28·7)[b]	
Mild	1233 (29·2)[a]	209 (29·2)[a]		163 (27·8)[a]	46 (35·7)[a]	
Moderate	346 (8·2)[a]	92 (12·8)[b]		71 (12·1)[a]	21 (16·3)[a]	
Severe	186 (4·4)[a]	89 (12·4)[b]		64 (10·9)[a]	25 (19·4)[b]	
PTSD [mean (SD)]	0·53 (1·17)	0·91 (1·56)	50·38; 1; <0·001; 0·101			22·52; 1; <0·001; 0·177
No PTSD	3838 (90·8)	587 (82·0)		500 (85·2)	87 (67·4)	
Probable PTSD	390 (9·2)	129 (18·0)		87 (14·8)	42 (32·6)	
Hazardous alcohol use			52·37; 1; <0·001; 0·103			0·00; 1; 0·948; 0·002
Yes	2593 (61·3)	540 (75·4)		443 (75·5)	97 (75·2)	
No	1635 (38·7)	176 (24·6)		144 (24·5)	32 (24·8)	
Sedative use			277·62; 2; <0·001; 0·237			11·58; 2; 0·003; 0·127
No	2939 (69·5)[a]	301 (42·0)[b]		264 (45·0)[a]	37 (28·7)[b]	
Lifetime	569 (13·5)[a]	103 (14·4)[a]		81 (13·8)[a]	22 (17·1)[a]	
Past 12-months	720 (17·0)[a]	312 (43·6)[b]		242 (41·2)[a]	70 (54·3)[b]	
Cannabis use			31·94; 2; <0·001; 0·080			2·14; 2; 0·342; 0·055
No	3194 (75·5)[a]	607 (84·8)[b]		503 (85·7)[a]	104 (80·6)[a]	
Lifetime	611 (14·5)[a]	54 (7·5)[b]		42 (7·2)[a]	12 (9·3)[a]	
Past 12-months	423 (10·0)[a]	55 (7·7)[a]		42 (7·2)[a]	13 (10·1)[a]	
Illegal drug use			1·51; 2; 0·471; 0·017			3·69; 2; 0·158; 0·072
No	3964 (93·8)[a]	678 (94·7)[a]		560 (95·4)[a]	118 (91·5)[a]	
Lifetime	157 (3·7)[a]	20 (2·8)[a]		15 (2·6)[a]	5 (3·9)[a]	
Past 12-months	107 (2·5)[a]	18 (2·5)[a]		12 (2·0)[a]	6 (4·7)[a]	
Suicide attempt			75·46; 2; <0·001; 0·124			6·54; 2; 0·038; 0·096
No	4018 (95·0)[a]	620 (86·6)[b]		516 (87·9)[a]	104 (80·6)[b]	
Lifetime	179 (4·2)[a]	80 (11·2)[b]		61 (10·4)[a]	19 (14·7)[a]	
Past 12-months	31 (0·7)[a]	16 (2·2)[b]		10 (1·7)[a]	6 (4·7)[b]	
Self-harm			7·13; 2; 0·028; 0·038			4·02; 2; 0·134; 0·075
No	3806 (90·0)	623 (87·0)		514 (87·6)[a]	109 (84·5)[a]	
Lifetime	299 (7·1)	61 (8·5)		51 (8·7)[a]	10 (7·8)[a]	
Past 12-months	123 (2·9)	32 (4·5)		22 (3·7)[a]	10 (7·8)[b]	

Note: A corrected p-level of 0·05/11 = 0·004 was used as the critical significance level for both sets of comparisons

Abbreviations: PTSD = Post Traumatic Stress Disorder; SD = Standard Deviation; df = degrees of freedom; V = Cramer's V

Prevalence of sexual violence

Table 4 shows the prevalence of hands-off and hands-on SV in the total sample and among those with disabilities. PwD experienced higher rates of hands-on SV compared to those without disabilities or chronic illnesses, but the rates of hands-off SV were similar in both groups.

Although there was only one significant difference (attempt of vaginal or anal penetration) after applying a strict Bonferroni-correction, we still see a clear (marginally) significant difference between PwD who can work and those who cannot. PwD who are incapacitated show a greater proportion of exposure to multiple forms of hands-off and hands-on SV compared to those who can work.

Table 4. Lifetime sexual victimization

Variable	Within total sample (*n* = 4,944)			Within group disability (*n* = 716)		
	No disability (*n* =4228; 85·52%) n (%)	**Disability** (*n* = 716; 14·48%) n (%)	χ^2; df; p-value; V	**Able to work** (*n* =587; 82·98%) n (%)	**Unable to work due to disability** (*n* =129; 18·02) n (%)	χ^2; df; p-value; V
Any SV	2635 (62·3)	432 (60·3)	1·027; 1; 0·311; 0·014	346 (58·9)	86 (66·7)	2·64; 1; 0·104; 0·061
Any Hands-Off SV	2418 (57·2)	382 (53·4)	3·67; 1; 0·055; 0·027	302 (51·4)	80 (62·0)	4·74; 1; 0·029; 0·081
Sexual staring	1610 (38·1)	240 (33·5)	5·44; 1; 0·020; 0·033	183 (31·2)	57 (44·2)	8·03; 1; 0·005; 0·106
Sexual innuendo	1421 (33·6)	214 (29·9)	3·85; 1; 0·050; 0·028	162 (27·6)	52 (40·3)	8·16; 1; 0·004; 0·107
Showing sexual images	719 (17·0)	122 (17·1)	0·00; 1; 0·970; 0·001	93 (15·9)	29 (22·5)	3·26; 1; 0·071; 0·068
Sexual calls or texts	503 (11·9)	86 (12·0)	0·01; 1; 0·922; 0·001	67 (11·4)	19 (14·7)	1·08; 1; 0·298; 0·039
Voyeurism	106 (2·5)	21 (2·9)	0·46; 1; 0·498; 0·010	12 (2·1)	9 (7·0)	8·98; 1; 0·003; 0·112
Distributing sexual images	62 (1·5)	13 (1·8)	0·50; 1; 0·481; 0·010	10 (1·7)	3 (2·3)	0·713°
Exhibitionism	575 (13·6)	115 (16·1)	3·08; 1; 0·079; 0·025	89 (15·2)	26 (20·2)	1·96; 1; 0·162; 0·052
Forcing to show intimate body parts	222 (5·3)	46 (6·4)	1·66; 1; 0·197; 0·018	31 (5·3)	15 (11·6)	7·05; 1; 0·008; 0·099
Any Hands-On SV	1241 (29·4)	271 (37·8)	20·82; 1; <0·001; 0·065	214 (36·5)	57 (44·2)	2·69; 1; 0·101; 0·061
Any Sexual Abuse	1142 (27·0)	248 (34·6)	17·62; 1; <0·001; 0·060	195 (33·2)	53 (41·1)	2·89; 1; 0·089; 0·064
Kissing	658 (15·6)	141 (19·7)	7·71; 1; 0·005; 0·039	113 (19·3)	28 (21·7)	0·40; 1; 0·526; 0·024
Touching in care	274 (6·5)	75 (10·5)	14·89; 1; <0·001; 0·055	55 (9·4)	20 (15·5)	4·24; 1; 0·039; 0·077
Fondling/rubbing	621 (14·7)	144 (20·1)	13·77; 1; <0·001; 0·053	109 (18·6)	35 (27·1)	4·83; 1; 0·028; 0·082
Forced undressing	158 (3·7)	51 (7·1)	17·34; 1; <0·001; 0·059	34 (5·8)	17 (13·2)	8·72; 1; 0·003; 0·110
Any Rape	398 (9·4)	111 (15·5)	24·58; 1; <0·001; 0·071	81 (13·8)	30 (23·3)	7·22; 1; 0·007; 0·100
Oral penetration	140 (3·3)	46 (6·4)	16·39; 1; <0·001; 0·058	31 (5·3)	15 (11·6)	7·09; 1; 0·008; 0·099
Attempt of oral penetration	151 (3·6)	36 (5·0)	3·57; 1; 0·059; 0·027	24 (4·1)	12 (9·3)	6·02; 1; 0·014; 0·092
Vaginal or anal penetration	172 (4·1)	57 (8·0)	21·00; 1; <0·001; 0·065	41 (7·0)	16 (12·4)	4·24; 1; 0·040; 0·077
Attempt of vaginal or anal penetration	116 (2·7)	33 (4·6)	7·33; 1; 0·007; 0·039	20 (3·4)	13 (10·1)	10·67; 1; 0·001; 0·122
Forcing to penetrate	35 (0·8)	14 (2·0)	7·93; 1; 0·005; 0·040	10 (1·7)	4 (3·1)	0·294°

° Fisher's exact test

Notes: Because the comparisons in this table involved 6 independent tests, we adopted a Bonferroni-corrected significance level of 0·05/22 = 0·002 for these analyses

Abbreviations: SV = Sexual Violence; df = degrees of freedom; V = Cramer's V

Table 5 shows the findings of the two logistic regressions. Socio-demographic variables improved both models significantly, except for educational level in both hands-off and hands-

on SV, and reporting a disability or chronic illness in hands-off SV. However, significant differences were found in participants' sex assigned at birth, age, and sexual orientation. Individuals assigned female at birth and/or self-identified as being LGB+ had a higher risk of both hands-off and hands-on SV. Participants over 50 had a lower risk of hands-off SV, and those between 25 and 49 had a lower risk of hands-on SV compared to those aged 16-24.

Strong correlations were found for mental health and well-being. All mental health factors improved both models, except for quality of life, resilience, and illegal drug use. People who reported higher anxiety and/or PTSD symptoms, problematic alcohol and sedative use, cannabis use, suicide attempts, and self-harm were more at risk of hands-off and hands-on SV.

Table 5: Logistic Regression Analysis of the Total Sample for Two Outcome Variables: Prevalence of Hands-off Sexual Violence and Hands-on Sexual Violence

	Hands-off sexual violence			**Hands-on sexual violence**		
Predictors	EXP (B) Odds ratio	95% C.I. Odds ratio (Wald)	p-value (LRT)	EXP (B) Odds ratio	95% C.I. Odds ratio (Wald)	p-value (LRT)
Sex assigned at birth (ref. Male)						
Female	4·77	4·16 – 5·47	<0·001	2·88	2·50 – 3·31	<0·001
Age (ref. 16-24 years old)						
25-49 years old	0·83	0·69 – 1·00	<0·001	0·81	0·67 – 0·99	<0·001
50-69 years old	0·57	0·47 – 0·69		0·99	0·81 – 1·21	
70 years old and more	0·40	0·31 – 0·53		1·12	0·85 – 1·48	
Educational level (ref. No higher education)			0·461			0·100
Higher education	1·08	0·94 – 1·25		1·23	1·06 – 1·42	
Financial situation (ref. Perceived as easy)			<0·001			<0·001
Perceived as difficult	1·08	0·92 – 1·27		1·08	0·92 – 1·26	
Sexual orientation (ref. SI-Heterosexual)			<0·001			<0·001
SI-LGB+	1·50	1·18 – 1·92		1·38	1·11 – 1·72	
Disability (ref. No)			0·912			<0·001
Disability, but not incapacitated to work	0·82	0·65 – 1·02		1·24	0·99 – 1·54	
Disability and incapacitated to work	0·77	0·49 – 1·20		1·24	0·82 – 1·88	
Quality of Life	1·14	1·03 – 1·27	0·061	1·06	0·96 – 1·18	0·009
Resilience	1·06	1·00 – 1·13	0·367	1·05	0·99 – 1·12	0·201
Depression	1·02	1·00 – 1·04	<0·001	1·01	0·99 – 1·03	<0·001
Anxiety	1·05	1·03 – 1·07	<0·001	1·03	1·01 – 1·05	<0·001
PTSD	1·28	1·20 – 1·37	<0·001	1·23	1·16 – 1·30	<0·001
Hazardous alcohol use (ref. no)			<0·001			<0·001
Yes	1·23	1·07 – 1·42		1·35	1·17 – 1·55	
Sedative use (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	1·57	1·28 – 1·93		1·28	1·05 – 1·55	
Past 12-months	1·04	0·87 – 1·25		1·11	0·93 – 1·32	
Cannabis use (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	1·79	1·45 – 2·21		2·08	1·70 – 2·54	
Past 12-months	1·85	1·42 – 2·42		1·75	1·36 – 2·24	
Illegal drug use (ref. no)			0·216			0·104
Lifetime, but not past 12 months	1·08	0·74 – 1·58		1·19	0·83 – 1·69	
Past 12-months	1·45	0·90 – 2·40		1·43	0/94 – 2·19	
Suicide attempt (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	1·54	1·07 – 2·24		1·59	1·18 – 2·15	
Past 12-months	2·11	0·95 – 4·92		1·76	0·88 – 3·51	
Self-harm (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	2·02	1·45 – 2·84		1·67	1·29 – 2·16	
Past 12-months	0·91	0·57 – 1·48		1·09	0·73 – 1·63	

Abbreviations: LRT = Likelihood Ratio Test; ref = reference category; SI = Self-Identified; LGB+ = Lesbian, Gay, Bisexual, pan-/omnisexual, asexual, other; PTSD = Post Traumatic Stress Disorder

4. Discussion

This is the first study in Belgium to estimate the prevalence of SV against PwD using nationally representative data. The findings suggest that PwD in Belgium – consistent with previous studies (see e.g., [10,62]) – are more vulnerable to SV compared to people without disabilities, particularly when it comes to hands-on SV. Additionally, PwD who are unable to work tend to experience higher levels of both hands-off and hands-on SV compared to those who can work, although the differences may be small. This trend suggests that individuals who rely on others for care, housing, safety, etc., and those who have financial concerns are more vulnerable to victimization [10,37,50,65,80-83]. Moreover, the apparent sample differences in terms of socio-demographic characteristics, mental health and coping outcomes, and the applied logistic regression analyses reveal that – as observed in other vulnerable groups that are often exposed to social othering [47-49] – the observed higher prevalence of SV in PwD can be explained by the increased likelihood that they hold a more vulnerable social position rather than this increased risk being associated with the minority characteristic – in this case disability – per se. In this line, we found that the general risk factors for SV such as having a female sex assigned at birth, having a younger age, identifying as LGB+, worrying about one's financial situation, reporting poor mental health, hazardous alcohol use, sedative and cannabis use, self-harming behaviour and suicide attempts were key to significantly optimise the prediction of SV in PwD [7,15,48,84-87]. Yet, many of these factors were also more common among PwD in our sample. Moreover, as expected based on the literature and identified as risk factors for increased SV exposure [14,38,88-91], PwD in general reported poorer mental health, quality of life, and well-being than study participants without disabilities or chronic illness. However, PwD reported less hazardous alcohol and cannabis use and no differences between PwD and participants who do not report disabilities or chronic illness were found for illegal drug use and self-harming behaviour. This is an interesting finding as these variables were shown to significantly increase the predictive value of our model. Yet, in our logistic regression model, having a disability did not show to have a significant interaction effect on the relationship between mental health and victimisation. Furthermore, in contrast to earlier studies [62], we could not confirm that adult PwD were more at risk than minor PwD. However, this can potentially be explained by our grouping of both respondents reporting disabilities and chronic illnesses into one PwD variable. Chronic diseases have been identified both among the consequences as well as among the risk factors of sexual victimisation and often emerge in later life [56]. It is therefore likely that in our sample, with the age the likelihood of a respondent having experienced SV and being at risk of revictimization increased.

Our findings suggest that the higher prevalence of SV in PwD is not solely due to disabilities but rather to underlying factors that increase the likelihood of SV. This study supports the idea that ableism and othering contribute to the higher prevalence of SV and associated risk factors in PwD. Future research should uncover the causes and interplay of these risk factors to identify key elements for effective SV prevention.

Limitations and suggestions for future research

Limitations exist in our study that should be addressed. Firstly, our sample may not accurately represent the general Belgian population (cf. sample 16-69 years old) in terms of educational level and language distribution, despite using random recruitment methods. This could introduce bias. Additionally, the overrepresentation of Flemish speaking participants suggests a potential regional imbalance among our participants, possibly leading to cultural differences across Belgian regions that may have influenced our findings. Secondly, supported by the available literature (see e.g., [62]), we recognise that type and degree of disability or chronic illness are potentially significant moderators. Because of our data collection design, we could not control for varying degrees of disability or types of disabilities, which may have affected the identification of vulnerabilities for sexual victimization in PwD. Future studies should use better-balanced samples and consider factors like type and degree of disability, residence in a facility, and professional care received. Population studies on SV need large samples to compare different types of disabilities and identify specific risk factors related to long-term impairments. Future research should also consider the intersectionality of disability with other characteristics such as gender, sexual orientation, and ethnicity to explore increased victimization rates among PwD who belong to multiple othered groups. It's important to note that the exclusion of individuals with severe mental disabilities in this study underestimates the reality.

Care, prevention, and policy implications

To effectively break the circle of SV and revictimization [50], it is vital to prioritize the development and implementation of primary, secondary, and tertiary prevention strategies. Policymakers should invest in research to understand the extent and underlying factors of SV against PwD. Additionally, prevention programs should be established to raise awareness about sexual consent and SV, specifically tailored to the unique needs of PwD. Victim support services are crucial to minimize the impact of SV and reduce the risk of revictimization.

Furthermore, interventions should focus on addressing the risk factors that increase vulnerability among PwD, including financial insecurity, dependency on others, poor mental health, and unstable housing. Healthcare and social care providers should receive training to recognize and address the vulnerabilities associated with SV in PwD. Screening for SV risk should be conducted for individuals reporting poor mental health, substance use, self-harm, and suicide attempts. PwD facing work incapacitation and chronic illnesses should receive targeted support. Legal frameworks should be established to protect PwD from SV, including provision of legal assistance. Lastly, it is crucial to combat ableism and promote inclusivity in Belgian society to eliminate the vulnerability of PwD and other socially othered groups to SV.

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Author Contributions

Conceptualization, LDS, EF, and IK; Formal analysis, LDS and EF; Funding acquisition, IK. Investigation, LDS, AN, and IK; Methodology, LDS, EF, AN, and IK; Project administration, LDS, AN and IK; Project coordination: IK. Software, LDS, AN and EF; Supervision, IK; Validation, LDS, AN and IK; Writing – original draft, LDS and EF; Writing – review & editing, LDS, EF, AN, and IK.

Declaration of Interests

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

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Ethics approval and consent to participate

This study was designed and performed in line with the principles of the Declaration of Helsinki and was approved by the Commission for Medical Ethics of Ghent University Hospital/Ghent University (B670201837542). Only participants of 16 years and older were included in this study because of ethical and practical regulations related to the legal age of consenting to sex, which is 16 years old in Belgium. All participants gave informed consent before initiating the online survey.

Availability of data and materials

Due to the highly sensitive nature of the data collected for this study, including detailed descriptions of disabilities, gender, sexual orientation, and experiences of violence, we are unable to share this data. Ensuring the privacy and confidentiality of our participants is paramount, and sharing this data would not align with ethical standards. Importantly, at the time of data collection, there was no provision in the information sheet or informed consent documents indicating data sharing. We remain dedicated to upholding our commitment to safeguarding our participants' privacy throughout the research process.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author(s) used ChatGPT (Version 25) to enhance the fluency and coherency of the text, as none of the authors are native English speakers. After utilizing this AI tool, the author(s) reviewed and edited the content as needed, taking full responsibility for the publication's content.

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Table 1. Sample composition (n = 4,944). Socio-demographic information presented for persons with disabilities (PwD) and persons without disabilities within the total study sample.

Variable	Within total sample (n = 4,944)			Within group disability (n = 716)		
	No disability (n =4228; 85·52%) n (%)	**Disability** (n = 716; 14·48%) n (%)	χ^2; df; p-value; V	**Able to work** (n =587; 82·98%) n (%)	**Unable to work due to disability** (n =129; 18·02) n (%)	χ^2; df; p-value; V
Sex assigned at birth			12·36; 1; <0·001; 0·050			0·24; 1; 0·625; 0·018
Male	2119 (50·1)	308 (43·0)		255 (43·4)	53 (41·1)	
Female	2109 (49·9)	408 (57·0)		332 (56·6)	76 (58·9)	
Age [mean (SD)]	40·71 (19·21)	55·33 (21·05)	462·79; 3; <0·001; 0·306	56·11 (33·66)	51·77 (11·44)	103·35; 3; <0·001; 0·380
16-24 years old	1316 (31·1)[a]	95 (13·3)[b]		94 (16·0)	1 (0·8)	
25-49 years old	1336 (31·6)[a]	161 (22·5)[b]		114 (19·4)	47 (36·4)	
50-69 years old	1313 (31·1)[a]	240 (33·5)[a]		163 (27·8)	77 (59·7)	
70 years old and more	263 (6·2)[a]	220 (30·7)[b]		216 (36·8)	4 (3·1)	
Educational level			59·36; 1; <0·001; 0·110			0·32; 1; 0·571; 0·021
No higher education	2088 (49·4)	465 (64·9)		384 (65·4)	81 (62·8)	
Higher education	2140 (50·6)	251 (35·1)		203 (34·6)	48 (37·2)	
Occupational status			185·78; 1; <0·001; 0·194			-
Remunerated workforce	2136 (50·5)	165 (23·0)		165 (28·1)	0	
Other	2092 (49·5)	551 (77·0)		422 (71·9)	129 (100·0)	
Financial situation			129·12; 1; <0·001; 0·162			71·05; 1; <0·001; 0·315
Perceived as easy	3245 (76·8)	405 (56·6)		375 (63·9)	30 (23·3)	
Perceived as difficult	983 (23·2)	311 (43·4)		212 (36·1)	99 (76·7)	
Gender			-			-
Cis Man	2105 (49·8)	303 (42·3)		250 (42·6)	53 (41·1)	
Cis Woman	2098 (49·6)	403 (56·3)		328 (55·9)	75 (58·1)	
Trans Man	3 (0·1)	2 (0·3)		2 (0·3)	0	
Trans Woman	1 (0·0)	0		0	0	
Other	21 (0·5)	8 (1·1)		7 (1·2)	1 (0·8)	
Sexual orientation			18·32; 1; <0·001; 0·061			5·01; 1; 0·025; 0·84
SI-heterosexual	3853 (91·1)	616 (86·0)		513 (87·4)	103 (79·8)	
SI-LGB+	375 (8·9)	100 (14·0)		74 (12·6)	26 (20·2)	

Notes: Because the comparisons in this table involved 6 independent tests, we adopted a Bonferroni-corrected significance level of 0·05/6 = 0·008 for these analyses

Abbreviations*:* SD = Standard Deviation; SI = Self-Identified; LGB+ = lesbian, gay, bisexual, pan-/omnisexual, asexual, other; df = degrees of freedom; V = Cramer's V

Table 2. Sample weights. A comparison in distribution between the Belgian population and the study's sample.

Age group	Sex at birth	Population *N*	Population proportion	Sample *n*	Sample proportion	Population/Sample = Weights
16–24 years old	Female	576,098	0·06	687	0·13	0·46
	Male	601,426	0·06	724	0·15	0·40
25–49 years old	Female	1,864,081	0·20	787	0·16	1·25
	Male	1,883,527	0·20	710	0·14	1·43
50–69 years old	Female	1,475,820	0·16	764	0·15	1·07
	Male	1,458,421	0·15	789	0·16	0·94
70-99 years old	Female	894,533	0·09	279	0·06	1·50
	Male	653,772	0·07	204	0·04	1·75
Total		9,407,678	1·00	4,944	1·00	

Table 3. Observed mental health, quality of life and well-being.

Variable	Within total sample (*n* = 4,944)			Within group disability (*n* = 716)		
	No disability (*n* =4228; 85·52%) n (%)	**Disability** (*n* = 716; 14·48%) n (%)	χ^2; df; p-value; V	**Able to work** (*n* =587; 82·98%) n (%)	**Unable to work due to disability** (*n* =129; 18·02) n (%)	χ^2; df; p-value; V
Quality of life [mean (SD)]	4·14 (0·68)	3·58 (0·88)	368·21; 4; <0·001; 0·273			52·68; 4; <0·001; 0·271
Very poor	14 (0·3)[a]	20 (2·8)[b]		11 (1·9)[a]	9 (7·0)[b]	
Poor	78 (1·8)[a]	60 (8·4)[b]		33 (5·6)[a]	27 (20·9)[b]	
Neither poor, nor good	424 (10·0)[a]	190 (26·5)[b]		153 (26·1)[a]	37 (28·7)[a]	
Good	2514 (59·5)[a]	375 (52·4)[b]		322 (54·9)[a]	53 (41·1)[b]	
Very good	1198 (28·3)[a]	71 (9·9)[b]		68 (11·6)[a]	3 (2·3)[b]	
Resilience [mean (SD)]	3·34 (1·09)	3·17 (1·02)	6·05; 2; 0·049; 0·035			7·73; 2; 0·021; 0·104
Low	1526 (36·1)[a]	266 (37·2)[a]		215 (36·6)[a]	51 (39·5)[a]	
Normal	2243 (53·1)[a]	394 (55·0)[a]		333 (56·7)[a]	61 (47·3)[a]	
High	459 (10·9)[a]	56 (7·8)[b]		39 (6·6)[a]	17 (13·2)[b]	
Depression [mean (SD)]	4·53 (4·64)	7·57 (6·43)	227·44; 4; <0·001; 0·214			38·25; 4; <0·001; 0·231
Minimal	2647 (62·6)[a]	287 (40·1)[b]		257 (43·8)[a]	30 (23·3)[b]	
Mild	1024 (24·2)[a]	214 (29·9)[b]		180 (30·7)[a]	34 (26·4)[a]	
Moderate	353 (8·3)[a]	95 (13·3)[b]		71 (12·1)[a]	24 (18·6)[b]	
Moderately severe	148 (3·5)[a]	67 (9·4)[b]		47 (8·0)[a]	20 (15·5)[b]	
Severe	56 (1·3)[a]	53 (7·4)[b]		32 (5·5)[a]	21 (16·3)[b]	
Anxiety [mean (SD)]	4·63 (4·37)	6·46 (5·64)	103·62; 3; <0·001; 0·145			19·62; 3; <0·001; 0·166
Minimal	2463 (58·3)[a]	326 (45·5)[b]		289 (49·2)[a]	37 (28·7)[b]	
Mild	1233 (29·2)[a]	209 (29·2)[a]		163 (27·8)[a]	46 (35·7)[a]	
Moderate	346 (8·2)[a]	92 (12·8)[b]		71 (12·1)[a]	21 (16·3)[a]	
Severe	186 (4·4)[a]	89 (12·4)[b]		64 (10·9)[a]	25 (19·4)[b]	
PTSD [mean (SD)]	0·53 (1·17)	0·91 (1·56)	50·38; 1; <0·001; 0·101			22·52; 1; <0·001; 0·177
No PTSD	3838 (90·8)	587 (82·0)		500 (85·2)	87 (67·4)	
Probable PTSD	390 (9·2)	129 (18·0)		87 (14·8)	42 (32·6)	
Hazardous alcohol use			52·37; 1; <0·001; 0·103			0·00; 1; 0·948; 0·002
Yes	2593 (61·3)	540 (75·4)		443 (75·5)	97 (75·2)	
No	1635 (38·7)	176 (24·6)		144 (24·5)	32 (24·8)	
Sedative use			277·62; 2; <0·001; 0·237			11·58; 2; 0·003; 0·127
No	2939 (69·5)[a]	301 (42·0)[b]		264 (45·0)[a]	37 (28·7)[b]	
Lifetime	569 (13·5)[a]	103 (14·4)[a]		81 (13·8)[a]	22 (17·1)[a]	
Past 12-months	720 (17·0)[a]	312 (43·6)[b]		242 (41·2)[a]	70 (54·3)[b]	
Cannabis use			31·94; 2; <0·001; 0·080			2·14; 2; 0·342; 0·055
No	3194 (75·5)[a]	607 (84·8)[b]		503 (85·7)[a]	104 (80·6)[a]	
Lifetime	611 (14·5)[a]	54 (7·5)[b]		42 (7·2)[a]	12 (9·3)[a]	
Past 12-months	423 (10·0)[a]	55 (7·7)[a]		42 (7·2)[a]	13 (10·1)[a]	
Illegal drug use			1·51; 2; 0·471; 0·017			3·69; 2; 0·158; 0·072
No	3964 (93·8)[a]	678 (94·7)[a]		560 (95·4)[a]	118 (91·5)[a]	
Lifetime	157 (3·7)[a]	20 (2·8)[a]		15 (2·6)[a]	5 (3·9)[a]	
Past 12-months	107 (2·5)[a]	18 (2·5)[a]		12 (2·0)[a]	6 (4·7)[a]	
Suicide attempt			75·46; 2; <0·001; 0·124			6·54; 2; 0·038; 0·096
No	4018 (95·0)[a]	620 (86·6)[b]		516 (87·9)[a]	104 (80·6)[b]	
Lifetime	179 (4·2)[a]	80 (11·2)[b]		61 (10·4)[a]	19 (14·7)[a]	
Past 12-months	31 (0·7)[a]	16 (2·2)[b]		10 (1·7)[a]	6 (4·7)[b]	
Self-harm			7·13; 2; 0·028; 0·038			4·02; 2; 0·134; 0·075
No	3806 (90·0)	623 (87·0)		514 (87·6)[a]	109 (84·5)[a]	
Lifetime	299 (7·1)	61 (8·5)		51 (8·7)[a]	10 (7·8)[a]	
Past 12-months	123 (2·9)	32 (4·5)		22 (3·7)[a]	10 (7·8)[b]	

Note: A corrected p-level of 0·05/11 = 0·004 was used as the critical significance level for both sets of comparisons

Abbreviations: PTSD = Post Traumatic Stress Disorder; SD = Standard Deviation; df = degrees of freedom; V = Cramer's V

Table 4. Lifetime sexual victimization

Variable	Within total sample (*n* = 4,944)			Within group disability (*n* = 716)		
	No disability (*n* =4228; 85·52%) n (%)	**Disability** (*n* = 716; 14·48%) n (%)	χ^2; df; p-value; V	**Able to work** (*n* =587; 82·98%) n (%)	**Unable to work due to disability** (*n* =129; 18·02) n (%)	χ^2; df; p-value; V
Any SV	2635 (62·3)	432 (60·3)	1·027; 1; 0·311; 0·014	346 (58·9)	86 (66·7)	2·64; 1; 0·104; 0·061
Any Hands-Off SV	2418 (57·2)	382 (53·4)	3·67; 1; 0·055; 0·027	302 (51·4)	80 (62·0)	4·74; 1; 0·029; 0·081
Sexual staring	1610 (38·1)	240 (33·5)	5·44; 1; 0·020; 0·033	183 (31·2)	57 (44·2)	8·03; 1; 0·005; 0·106
Sexual innuendo	1421 (33·6)	214 (29·9)	3·85; 1; 0·050; 0·028	162 (27·6)	52 (40·3)	8·16; 1; 0·004; 0·107
Showing sexual images	719 (17·0)	122 (17·1)	0·00; 1; 0·970; 0·001	93 (15·9)	29 (22·5)	3·26; 1; 0·071; 0·068
Sexual calls or texts	503 (11·9)	86 (12·0)	0·01; 1; 0·922; 0·001	67 (11·4)	19 (14·7)	1·08; 1; 0·298; 0·039
Voyeurism	106 (2·5)	21 (2·9)	0·46; 1; 0·498; 0·010	12 (2·1)	9 (7·0)	8·98; 1; 0·003; 0·112
Distributing sexual images	62 (1·5)	13 (1·8)	0·50; 1; 0·481; 0·010	10 (1·7)	3 (2·3)	0·713°
Exhibitionism	575 (13·6)	115 (16·1)	3·08; 1; 0·079; 0·025	89 (15·2)	26 (20·2)	1·96; 1; 0·162; 0·052
Forcing to show intimate body parts	222 (5·3)	46 (6·4)	1·66; 1; 0·197; 0·018	31 (5·3)	15 (11·6)	7·05; 1; 0·008; 0·099
Any Hands-On SV	1241 (29·4)	271 (37·8)	20·82; 1; <0·001; 0·065	214 (36·5)	57 (44·2)	2·69; 1; 0·101; 0·061
Any Sexual Abuse	1142 (27·0)	248 (34·6)	17·62; 1; <0·001; 0·060	195 (33·2)	53 (41·1)	2·89; 1; 0·089; 0·064
Kissing	658 (15·6)	141 (19·7)	7·71; 1; 0·005; 0·039	113 (19·3)	28 (21·7)	0·40; 1; 0·526; 0·024
Touching in care	274 (6·5)	75 (10·5)	14·89; 1; <0·001; 0·055	55 (9·4)	20 (15·5)	4·24; 1; 0·039; 0·077
Fondling/rubbing	621 (14·7)	144 (20·1)	13·77; 1; <0·001; 0·053	109 (18·6)	35 (27·1)	4·83; 1; 0·028; 0·082
Forced undressing	158 (3·7)	51 (7·1)	17·34; 1; <0·001; 0·059	34 (5·8)	17 (13·2)	8·72; 1; 0·003; 0·110
Any Rape	398 (9·4)	111 (15·5)	24·58; 1; <0·001; 0·071	81 (13·8)	30 (23·3)	7·22; 1; 0·007; 0·100
Oral penetration	140 (3·3)	46 (6·4)	16·39; 1; <0·001; 0·058	31 (5·3)	15 (11·6)	7·09; 1; 0·008; 0·099
Attempt of oral penetration	151 (3·6)	36 (5·0)	3·57; 1; 0·059; 0·027	24 (4·1)	12 (9·3)	6·02; 1; 0·014; 0·092
Vaginal or anal penetration	172 (4·1)	57 (8·0)	21·00; 1; <0·001; 0·065	41 (7·0)	16 (12·4)	4·24; 1; 0·040; 0·077
Attempt of vaginal or anal penetration	116 (2·7)	33 (4·6)	7·33; 1; 0·007; 0·039	20 (3·4)	13 (10·1)	10·67; 1; 0·001; 0·122
Forcing to penetrate	35 (0·8)	14 (2·0)	7·93; 1; 0·005; 0·040	10 (1·7)	4 (3·1)	0·294°

° Fisher's exact test

Notes: Because the comparisons in this table involved 6 independent tests, we adopted a Bonferroni-corrected significance level of 0·05/22 = 0·002 for these analyses

Abbreviations: SV = Sexual Violence; df = degrees of freedom; V = Cramer's V

Table 5: Logistic Regression Analysis of the Total Sample for Two Outcome Variables: Prevalence of Hands-off Sexual Violence and Hands-on Sexual Violence

	Hands-off sexual violence			Hands-on sexual violence		
Predictors	EXP (B) Odds ratio	95% C.I. Odds ratio (Wald)	p-value (LRT)	EXP (B) Odds ratio	95% C.I. Odds ratio (Wald)	p-value (LRT)
Sex assigned at birth (ref. Male)						
Female	4·77	4·16 – 5·47	<0·001	2·88	2·50 – 3·31	<0·001
Age (ref. 16-24 years old)						
25-49 years old	0·83	0·69 – 1·00	<0·001	0·81	0·67 – 0·99	<0·001
50-69 years old	0·57	0·47 – 0·69		0·99	0·81 – 1·21	
70 years old and more	0·40	0·31 – 0·53		1·12	0·85 – 1·48	
Educational level (ref. No higher education)			0·461			0·100
Higher education	1·08	0·94 – 1·25		1·23	1·06 – 1·42	
Financial situation (ref. Perceived as easy)			<0·001			<0·001
Perceived as difficult	1·08	0·92 – 1·27		1·08	0·92 – 1·26	
Sexual orientation (ref. SI-Heterosexual)			<0·001			<0·001
SI-LGB+	1·50	1·18 – 1·92		1·38	1·11 – 1·72	
Disability (ref. No)			0·912			<0·001
Disability, but not incapacitated to work	0·82	0·65 – 1·02		1·24	0·99 – 1·54	
Disability and incapacitated to work	0·77	0·49 – 1·20		1·24	0·82 – 1·88	
Quality of Life	1·14	1·03 – 1·27	0·061	1·06	0·96 – 1·18	0·009
Resilience	1·06	1·00 – 1·13	0·367	1·05	0·99 – 1·12	0·201
Depression	1·02	1·00 – 1·04	<0·001	1·01	0·99 – 1·03	<0·001
Anxiety	1·05	1·03 – 1·07	<0·001	1·03	1·01 – 1·05	<0·001
PTSD	1·28	1·20 – 1·37	<0·001	1·23	1·16 – 1·30	<0·001
Hazardous alcohol use (ref. no)			<0·001			<0·001
Yes	1·23	1·07 – 1·42		1·35	1·17 – 1·55	
Sedative use (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	1·57	1·28 – 1·93		1·28	1·05 – 1·55	
Past 12-months	1·04	0·87 – 1·25		1·11	0·93 – 1·32	
Cannabis use (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	1·79	1·45 – 2·21		2·08	1·70 – 2·54	
Past 12-months	1·85	1·42 – 2·42		1·75	1·36 – 2·24	
Illegal drug use (ref. no)			0·216			0·104
Lifetime, but not past 12 months	1·08	0·74 – 1·58		1·19	0·83 – 1·69	
Past 12-months	1·45	0·90 – 2·40		1·43	0/94 – 2·19	
Suicide attempt (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	1·54	1·07 – 2·24		1·59	1·18 – 2·15	
Past 12-months	2·11	0·95 – 4·92		1·76	0·88 – 3·51	
Self-harm (ref. no)			<0·001			<0·001
Lifetime, but not past 12 months	2·02	1·45 – 2·84		1·67	1·29 – 2·16	
Past 12-months	0·91	0·57 – 1·48		1·09	0·73 – 1·63	

Abbreviations: LRT = Likelihood Ratio Test; ref = reference category; SI = Self-Identified; LGB+ = Lesbian, Gay, Bisexual, pan-/omnisexual, asexual, other; PTSD = Post Traumatic Stress Disorder