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Mental health of sexual assault victims and predictors of their use of support from in-house psychologists at Belgian sexual assault care centres

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ABSTRACT

Background: Sexual assault (SA) can induce a negative impact on victims' mental health. Specialised SA services generally offer medical care and a forensic examination to SA victims. However, there is a large variation in how these services provide mental health support.

Objective: This study aims to assess mental health problems of SA victims attending the Belgian Sexual Assault Care Centres (SACCs) and identify predictors for victims' use of support from in-house psychologists.

Method: Health records of victims ≥ 16 years who presented within one week post-SA to one of the three Belgian SACCs between 25 October 2017 and 31 October 2019 were reviewed. An AIC-based stepwise backward binary logistic regression was used to analyse the association between victim, assault, service use and mental health characteristics and follow-up by a SACC-psychologist.

Results: Of the 555 victims, more than half had a history of mental health problems. Of those assessed, over 70% showed symptoms of posttraumatic stress disorder (PTSD), depression and/or anxiety disorder. One in two victims consulted a SACC-psychologist. Victims with a mental health history (OR 1.46, $p = .04$), victims accompanied by a support person during acute care (OR 1.51, $p = .04$), and victims who were assaulted by an acquaintance in comparison to those assaulted by a stranger (OR 1.60, $p = .039$) were more likely to attend their appointment with the SACC-psychologist.

Conclusion: The study reaffirms the high mental health burden among victims attending specialised SA services, stressing the need to provide effective mental health interventions at these services and improve their longer-term use by victims. Prescheduling of appointments with an in-house psychologist in combination with phone reminders may improve the uptake of such services. Health care providers must be vigilant about potential barriers faced by victims without a mental health history or social support in attending appointments with mental health professionals.

Salud mental de víctimas de agresiones sexuales y predictores del uso de apoyo por psicólogos internos en los Centros de Atención de Agresiones Sexuales de Bélgica

Antecedentes: Las agresiones sexuales (AS) pueden inducir un impacto negativo en la salud mental de las víctimas. Los servicios de AS especializados ofrecen generalmente atención médica y un examen forense a las víctimas de AS. Sin embargo, existe una gran variación en la forma en que estos servicios brindan apoyo de salud mental.

Objetivo: Este estudio tiene como objetivo evaluar los problemas de salud mental de las víctimas de AS atendidas en los Centros de Atención de Agresión Sexual de Bélgica (SACCs en su sigla en inglés) e identificar predictores para el uso de apoyo de psicólogos internos por parte de las víctimas.

Método: Se revisaron los registros de salud de las víctimas mayores de 16 años que se presentaron dentro de una semana después de la AS a uno de los tres SACCs belgas entre el 25 de octubre del 2017 y el 31 de octubre del 2019. Se utilizó una regresión logística binaria hacia atrás por pasos sucesivos basada en AIC para analizar la asociación entre características de la víctima, la agresión, el servicio utilizado y la salud mental y el seguimiento por parte de un psicólogo del SACC.

Resultados: De las 555 víctimas, más de la mitad tenían antecedentes de problemas de salud mental. De las evaluadas, más del 70% presentaba síntomas de trastorno de estrés

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Agresión sexual; salud mental; atención de seguimiento; centro de agresión sexual; enfoque multidisciplinario

关键词

性侵犯; 心理健康; 后续护理; 性侵犯中心; 多学科方法

HIGHLIGHTS

- The mental health burden is high among victims attending Belgian Sexual Assault Care Centres.
- Half of the victims use the support of an in-house psychologist. Victims with a history of mental health problems, those accompanied by a support person during acute care, and those assaulted by an acquaintance in comparison to those assaulted by a stranger, are more likely to use this support.
- Effective mental health support should be recognised as an integral and essential part of care for SA victims. Uptake and longer-term engagement with this mental health support should be improved for those victims diagnosed with PTSD.

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postraumático (TEPT), depresión y/o trastorno de ansiedad. Una de cada dos víctimas consultó con un psicólogo del SACC. Las víctimas con antecedentes de salud mental ($OR\ 1.46, p = .04$), víctimas acompañadas por una persona de apoyo durante la atención aguda ($OR\ 1.51, p = .04$) y víctimas que fueron agredidas por un conocido en comparación con las agredidas por un extraño ($OR\ 1.60, p = .039$) tuvieron mayor probabilidad de asistir a sus sesiones con un psicólogo del SACC.

Conclusión: El estudio reafirma la alta carga de salud mental entre las víctimas que asisten a los servicios especializados de AS, destacando la necesidad de entregar intervenciones de salud mental efectivas en estos servicios y mejorar su utilización a largo plazo por parte de las víctimas. La programación previa de las sesiones con un psicólogo interno en combinación con recordatorios telefónicos pueden mejorar la utilización de dichos servicios. Los prestadores de atención médica deben estar atentos a las posibles barreras que enfrentan las víctimas sin un antecedente de salud mental o apoyo social para asistir a las sesiones con los profesionales de salud mental.

性侵犯受害者的心理健康状况及其使用比利时性侵犯护理中心内部心理学家支持的预测因素

背景: 性侵犯 (SA) 会对受害者的心理健康造成负面影响。专门的 SA 服务通常为 SA 受害者提供医疗护理和法医检查。然而, 这些服务提供心理健康支持的方式存在很大差异。

目的: 本研究旨在评估前往比利时性侵犯护理中心 (SACC) 的 SA 受害者的心理健康问题, 并确定受害者使用内部心理学家支持的预测因素。

方法: 对 2017 年 10 月 25 日至 2019 年 10 月 31 日之间在 SA 后一周内到三个比利时 SACC 之一就诊的 16 岁以上受害者的健康记录进行评估。使用基于 AIC 的逐步后向二元逻辑回归来分析受害者、攻击、服务使用和心理健康特征之间的关联, 并由 SACC 心理学家进行跟进。

结果: 555 名受害者中, 一半以上有心理健康问题史。在接受评估的人中, 超过 70% 的人表现出创伤后应激障碍 (PTSD)、抑郁和/或焦虑的症状。二分之一的受害者咨询了 SACC 心理学家。有心理健康史的受害者 ($OR\ 1.46, p = .04$), 在紧急护理期间有支持人员陪伴的受害者 ($OR\ 1.51, p = .04$), 以及被熟人袭击的受害者与被陌生人袭击的受害者相比 ($OR\ 1.60, p = .039$) 更有可能出席与 SACC 心理学家的预约。

结论: 该研究重申了参加专门的 SA 服务的受害者面临着较高的心理健康负担, 强调需要在这些服务中提供有效的心理健康干预措施, 并提高受害者的长期使用。预先安排与内部心理学家的预约并结合电话提醒可能会提高此类服务的使用率。卫生保健提供者必须警惕没有心理健康史或没有社会支持的受害者在与心理健康专业人员预约时面临的潜在障碍。

1. Introduction

1.1. Sexual assault and mental health

Sexual assault (SA) is common around the world. It is estimated that approximately 20% of women and 10% of men ever experienced physical sexual victimisation in their lifetime (Abrahams et al., 2014; Garcia Moreno et al., 2013; Krahe et al., 2015). A recent Belgian study shows even higher lifetime prevalence rates with 42% of the female population and 19% of the male population who ever fell victim to some form of hands-on sexual violence. This includes rape, as experienced by 16% of women and 5% of men (Schapansky et al., 2021).

The high prevalence of SA is particularly alarming when considering its potential impact on victims' health. Aside from physical and reproductive health consequences (Jina & Thomas, 2013), sexually assaulted persons are at higher risk of mental health problems compared to those who were never assaulted, and this accounts for diverse forms of psychopathology (Dworkin, 2020; Dworkin et al., 2017). First, posttraumatic stress disorder (PTSD) is observed to be especially common and severe among SA victims (Dworkin, 2020), with three in four help-seeking

victims meeting diagnostic criteria for PTSD at one month after the SA and one in two at 12 months post-assault (Dworkin et al., 2021). Second, more than one-third of SA victims suffer from depression during their lifetime (Dworkin, 2020). Third, suicidality is experienced by nearly 30% of SA victims in comparison to 9% of unassaulted persons (Dworkin et al., 2020). Other, however less common forms of psychopathology that show a higher lifetime prevalence in SA victims compared to unassaulted persons, are anxiety-, substance use-, bipolar-, eating- and obsessive-compulsive disorders (Dworkin, 2020). Self-harm, alcohol or drug dependency, use of psychiatric services and psychotropic medication use is also more common among SA victims than among unassaulted persons (Brooker & Tocque, 2016; Keygnaert et al., 2021; Young-Wolff et al., 2018). Most of the aforementioned studies were performed in the US; hence, more international research on the topic is needed (Dworkin, 2020).

While the association between SA and mental health problems is clear, their causal link is harder to establish. On the one hand, SA can increase the risk for mental health problems through different pathways: first, SA can bring about mental health

problems due to the distress caused by the traumatic event as such; second, SA can aggravate pre-existing mental health problems; third, SA can trigger the manifestation of a genetic susceptibility to a certain psychopathology. On the other hand, mental health problems by itself can also increase the vulnerability to be sexually assaulted (Dworkin, 2020; Dworkin et al., 2017).

1.2. Specialised sexual assault services and mental health service provision

The alarmingly high prevalence of mental health problems among SA victims urges an adapted response, especially from professionals working at specialised SA services. Such services have been established in several countries and generally provide medical care and a forensic examination in the acute aftermath of the assault (Stefanidou et al., 2020). In line with research among general populations of SA victims, these services report a high pre-existing mental health burden amongst their patients (Bicanic et al., 2014; Brooker et al., 2018; Brooker & Durmaz, 2015; Brown et al., 2013; Clarke et al., 2021; Creighton & Jones, 2012; Manning et al., 2019; Tiihonen Moller et al., 2014; Vik et al., 2019; Zijlstra et al., 2017). Additionally, many patients remain at risk of developing mental health disorders within months post-assault (Brooker et al., 2018; Clarke et al., 2021; Khadr et al., 2018; Short et al., 2021; Tiihonen Moller et al., 2014).

Considering this mental health burden, victims, as well as service providers, have stressed the importance of accessible, long-term and free psychological support by staff trained in treating PTSD at specialised SA services, in addition to close partnerships with local mental health support providers (Peeters et al., 2019; Stefanidou et al., 2020; Vandenberghe et al., 2018). In practice, a wide variation exists in the way these SA services identify, treat and/or refer for mental health problems. Unstructured assessment, unspecified counselling and referral without pro-active follow-up are the most common approaches observed in SA services internationally, and only few services offer more specialist in-house mental health support (Stefanidou et al., 2020). However, the type and quality of mental health support provided does matter, as not all interventions are effective (Dworkin & Schumacher, 2018). Research shows PTSD and depression is best treated through cognitive behavioural therapy (CBT) or eye movement desensitisation reprocessing (EMDR) (Mavranouzouli et al., 2020; NICE, 2018, 2022; Yunitri et al., 2023). Moreover, the onset of PTSD and related symptoms may even be prevented through early psychotherapeutic interventions (Covers et al., 2021; Dworkin & Schumacher, 2018; Oosterbaan et al., 2019; Short et al., 2020).

1.3. Use of mental health follow-up support from specialised SA services

Few studies report on the use of mental health support at specialised SA services, either offered in-house or through referral, and findings are variable. General use of follow-up services in sexual assault nurse examiner (SANE) programmes at emergency departments in the US and Canada which refer for follow-up, is low, with only 30–50% of victims attending their medical and/or psychological follow-up appointment (Ackerman et al., 2006; Brown et al., 2013; Darnell et al., 2015). More specifically for mental health follow-up, service use in these settings drops to 21% for a first counselling session and 7% for consecutive sessions despite the fact that a majority of victims reported an interest to pursue this support (Ackerman et al., 2006; Darnell et al., 2015). However, in Dutch multidisciplinary SA centres service use was higher, with 86% of victims receiving psychoeducation and trauma screening by the centre's case manager (Covers et al., 2022). Thirty nine percent of victims were referred for PTSD treatment, although no data was shared on victims' actual use of this service (Bicanic et al., 2014). Recent prospective studies show that 30–80% of victims presenting for acute SA care use any type of specialised mental health care post-assault, not limited to what is offered at specialised SA services (Clarke et al., 2021; Price et al., 2014; Short et al., 2021).

1.4. Predictors of using mental health support from specialised SA services

There is a dearth of research on predictors for using mental health support after acute SA care. The few studies are all performed in US-based SANE-programmes that refer for follow-up, and no study addresses victims' linkage to mental health support as offered at specialised SA services. Two studies examined the likelihood of attending medical and/or mental health follow-up from SANE-programmes. They found that victim characteristics such as older age and homelessness (Ackerman et al., 2006), having a current mental illness (Ackerman et al., 2006; Darnell et al., 2015) and having a disability (Darnell et al., 2015) reduced the likelihood to attend follow-up services, while having a prior mental health condition increased the likelihood of using follow-up services (Darnell et al., 2015). Having social support (Darnell et al., 2015), unclarity about what happened during the SA due to victims' amnesia or alcohol use (Ackerman et al., 2006), experiencing physical consequences of the SA (Ackerman et al., 2006) and the SA happening at home (Ackerman et al., 2006; Darnell et al., 2015) increased the likelihood of attending medical and/or mental health follow-up. One

prospective study (Price et al., 2014) applied Andersen's health care utilisation model that explains how individuals' use of health care services is determined by predisposing factors such as socio-demographic characteristics, enabling factors such as social support and the organisation of health care, and need factors such as individuals' perception on their need of care and needs as evaluated by health care providers (Babitsch et al., 2012). Price et al. (2014) found that prior use of mental health services and being covered by health insurance as enabling factors, and having depressive symptoms as a need factor, increased the likelihood to use mental health services post-SA.

1.5. Study aims

Mental health needs among SA victims are apparent and specialised SA services are in search of best service delivery models to provide mental health support. In 2017, Sexual Assault Care Centres (SACC) were piloted in Belgium, providing comprehensive care including free-of charge in-house support by a psychologist to SA victims in a one-stop hospital setting. The aim of this study is to first describe mental health problems of victims presenting at the Belgian SACCs and second to identify factors that predict victims' use of support by the SACC-psychologist. This is the first study to address mental health problems among recent SA victims within a Belgian context. Considering the sparse and exclusively US-based literature regarding predictors of the use of mental health support after SA, this is to our knowledge the first study to address this topic in a European specialised SA service that applies the novel strategy of offering in-house mental health support.

2. Methods

2.1. Study setting

The study was conducted in Belgium in three SACC sites: Ghent University Hospital, Centre Hospitalier Universitaire Saint Pierre in Brussels and Centre Hospitalier Universitaire de Liège. The novel SACC-intervention is unique for its one-stop model both in Belgium and in Europe. SACCs provide acute medical care, a forensic examination and case management offered by a forensic nurse, along with long-term mental health support from a trauma psychologist and the possibility to report to the police at the SACC (Baert et al., 2021). All of these services are free of charge. Until recently, care for SA victims was fragmented and suboptimal, and only 7% of victims sought formal help, mostly from a mental health care provider (Keygnaert et al., 2021). Victims highlighted among other things the absence of longer-term specialised mental health care free of charge (Peeters et al., 2019), as

they have to navigate through a fragmented mental health landscape marked by either long waiting lists to access mental health care covered by the compulsory health insurance, or have to face financial barriers to be seen by an independent clinical psychologist (Health system performance assessment - Mental health care, 2022), of whom only few are trained in evidence-based trauma support (De Schrijver et al., 2021). National recommendations on care for SA victims in hospitals include norms for acute medical and forensic care, and mention the need for medical and psychosocial follow-up (Keygnaert et al., 2017).

Considering these challenges, several measures to ensure appropriate mental health support were implemented at the SACC. On admission, a trained forensic nurse performed a structured mental health screening and offered psychological first aid (World Health Organization et al., 2011) to victims and their support system. Screening involved the assessment of victims' mental health history, self-harm, suicidality, and current psychological distress. During the forensic examination, psychotropic medication use and mental health since the assault were again documented in the forensic report. Victims considered to be at high risk of suicide or dissociation were immediately referred to the hospital's on-call psychiatrist or physician.

Upon acute care, the nurse regularly contacted victims and/or their support system by phone to monitor their mental health and remind them of medical and/or mental health follow-up appointments. Furthermore, victims were routinely scheduled for a structured mental health assessment at day 3 and month 1 post-admission by an in-house trauma psychologist. This assessment included an anamnesis of victims' functioning in daily life, current mental health status and mental health history; and screening for depression, anxiety, alcohol and drug abuse, and PTSD based on validated standardised measures. Victims with subthreshold symptoms for PTSD within the first month post-SA were offered watchful waiting, meaning close monitoring without active treatment. Trauma-focused CBT or EMDR therapy was proposed to those with a PTSD diagnosis or having clinically important symptoms of PTSD (NICE, 2005). Referral to an external mental health specialist was organised, if preferred by the victim, or deemed appropriate by the psychologist.

2.2. Study participants

Of the 931 victims who presented at one of the three Belgian SACCs between 25 October 2017 and 31 October 2018, 555 were included. The following groups were excluded: 1) victims below the age of 16 ($n = 183$) given their adapted mental health pathways; 2) victims attending the SACC later than one week

Table 1. Definitions of Victim, Assault, Service Use and Mental Health Characteristics.

Variable	Definition and/or categories
Sex	Biological sex assigned at birth as it appears on victims' identity card, codified as male or female.
Developmental disorder	As reported by the victim or caretaker, including intellectual disability, ADHD, autism spectrum disorder, and speech, learning or language difficulties.
Resident status	'Documented or undocumented'.*
Form of sexual violence	'Sexual harassment defined as any form of unwanted sexual advances or attention, requests for sexual favours or exposure without body contact; physical sexual violence without penetration defined as any unwanted (attempted) threat of physical sexual advances such as touching, pinching, kissing; (attempted) rape defined as the (attempted) penetration of any body part with a sexual organ, or of the anal or genital opening with any body part or object against one's will'.*
SACC site	'SACC where the victim presented for acute care' (Brussels, Ghent or Liège).*
Province of victim's residence	within/outside SACC province
Presence of a support person	'For example, a friend, partner, parent' who was present during acute care at the SACC.*
Follow-up by SACC-psychologist	'Victim having received at least one consultation with the SACC-psychologist within one year from their first presentation to the SACC.' (yes/no) *
Previous experience of a mental health problem	Including depression, anxiety, behavioural disorder, psychotic episode, alcohol and/or drug abuse; personality disorder, eating disorder, and other or unspecified mental health problem
CORE-10	Clinical Outcomes in Routine Evaluation screening measure: This global measure to evaluate psychological distress, is a 10-item-5-point-Likert-scale, ranging from 'Most of the time/Always (0)' to 'Not at all (4)'. All items were summed in a final score ranging from 0–40, Cronbach's Alpha = .876. The severity score is labelled as non-clinical (0–10), mild (11–14), moderate (15–19), moderate-to-severe (20–24) or severe (25–40)(Barkham et al., 2013)
PCL-5	Post-traumatic Stress disorder Checklist: This is a 20-item-5-point-Likert-scale self-report measure of DSM-correspondent PTSD symptoms. Scores range from 0 to 80 and are classified into no PTSD (scores 0–32) or probable PTSD (scores 33–80) (Blevins et al., 2015).
GAD-7	General Anxiety Disorder-7: This 7-item-4-point-Likert-scale measures generalised anxiety disorder and provides a 0–27 severity score. The severity score is considered minimal (0–4), mild (5–9), moderate (10–14) or severe (≥15) (Spitzer et al., 2006).
PHQ-9	Patient Health Questionnaire-9: This is a validated tool to screen for depression and includes 9 items which are scored 0–3, with a total score ranging from 0 to 27. Depression severity is ranked as minimal (0–4), mild (5–9), moderate (10–14), moderately severe (15–19) or severe (20–27) (Kroenke, 2021)

*Baert et al. (2021)

upon SA ($n = 156$), to ensure study sample homogeneity and because of data limitations to distinguish mental health history from mental health sequelae since SA for those presenting later than one week; 3) victims for whom no paper records could be retrieved ($n = 11$) resulting in too many missing variables, 4) victims who presented for multiple SA events during the study period ($n = 26$) were only considered for the care provided following their first SACC-visit.

2.3. Measurement and definitions (Table 1 and Supplementary Table 1)

The outcome variable was follow-up by SACC-psychologist. The explanatory factors were prespecified based on the above literature review and the authors' expert knowledge. Victim characteristics included age, sex, transgender, sexual orientation, developmental disorder, occupational status, country of origin, resident status, and living situation. Assault characteristics encompassed previous experience of SA, number of assailants, victim-assailant relationship, and form of SA. Service use characteristics were SACC site, province of victim's residence, and presence of a support person.

The following variables were collected related to victims' mental health history, based on their self-report or that of their support person: previous mental health problems, prior consultation with psychiatrist, and current use of psychotropic medication. Variables regarding victims' mental health status since the SA

included thoughts of self-harm and suicidal ideation over the last week and acts of self-harm and suicide attempts both since the SA. Additionally, total scores of the following validated standardised psychological scales were used: the Clinical Outcomes in Routine Evaluation screening measure (CORE-10), the Post-traumatic Stress disorder Checklist (PCL-5), the Generalised Anxiety Disorder 7 scale (GAD-7) and the Patient Health Questionnaire-9 (PHQ-9). Validated translations of the scales were available in Dutch, French and German. The CORE-10 was used by the forensic nurse at victims' first presentation to the SACC and item-scores were noted on the mental health screening form. The PCL-5, PHQ-9 and GAD-7 were administered by the SACC-psychologist during the first follow-up consultation with the victim. Total scores were registered in victims' health records. Only the first score obtained within one month after the SA was considered.

2.4. Data collection

Victim, assault and service use characteristics, as well as the scores of standardised psychological scales were routinely entered into the hospital's electronic health record by the SACC personnel. Pseudonymised data were exported and merged into a central dataset managed by the researchers.

Pseudonymised paper patient records were reviewed by the researchers for specific variables regarding victims' mental health. These included the

structured mental health screening form ($n = 495$) and the forensic report ($n = 530$), completed by the forensic nurse at first presentation to the SACC. Information from these paper records was copied into an electronic file and subsequently merged with the central dataset. Information appearing in both paper sources was merged into one variable. If for a specific variable at least one of the paper records where the variable appeared was retrieved and that variable was left blank, this was considered to be a lack of evidence for that variable and therefore also coded as 'no' (for more information see Supplementary Table 1).

2.5. Data analysis

Data was imported into SPSS27 for data cleaning and manipulation, while statistical analyses were conducted with R software version 4.0.3. Descriptive statistics were computed for all variables. Significant differences in the distribution of nominal variables between victims who returned for follow-up by the SACC-psychologist and those who did not, were computed using chi-square-tests. Chi² tests going beyond 2 × 2 tables were followed up by post-hoc Chi² tests. Effect sizes were explored by comparing the Cramer's V Coefficient (V). Fisher's Exact test was used when the assumptions of a Chi² test were not met. The independent samples *t*-test was done to compare continuous variables, and all its assumptions were checked. The Levene's Test was applied to check for homogeneity of variance, which led to performing the Welch *t* Test statistic if equal variances could not be assumed. Effect sizes were determined by calculating the Cohen's *d* coefficient (D).

Due to the exploratory nature of the study, a stepwise backward binary logistic regression was conducted to analyse the association between victim, assault, service use and mental health history variables, with follow-up by a SACC-psychologist. To avoid multicollinearity, correlations were checked between all variables and no strong correlations (< 0.60) were found. The Akaike Information Criterion (AIC) was utilised along with *p*-values in the variable selection process. All main effects with at least ten observations in each category were included in the first step (AIC = 789.0). Subsequently, variables with $p > .100$ were removed in a second step (AIC = 760.3), followed by the elimination of variables with $p > .050$ (step 3: AIC = 764.4; step 4: AIC = 765.9). Reporting step 2 of the logistic regression model in the results section was justified as it yielded the lowest AIC-value, indicating a better balance between the model's goodness of fit and model complexity compared to the other steps, and hence enhancing the reliability and interpretability of the results (Akaike, 1974; Burnham & Anderson, 2004). To assess the predictive performance of the selected model, a likelihood ratio test

was conducted to determine if the inclusion of the main effects significantly improved the prediction of the outcome variable. Finally, the odds ratio was calculated with its 95% confidence interval (CI) for the estimates of the best model.

2.6. Ethical considerations

Ethical approvals were granted by all included hospitals as formerly described (Baert et al., 2021).

3. Results

3.1. Victim, assault and service use characteristics

The study sample consisted of 555 victims, of which 282 (50.8%) returned for follow-up by the SACC-psychologist, with a median of 2 contacts per victim (P25-

Table 2. Characteristics of the 555 Sexual Assault Victims of 16 years and older who Presented within One Week Post-Assault in one of the Three Belgian SACCs between 25 October 2017 and 31 October 2018.

Variable	<i>n</i>	%	% Follow-up by SACC-psychologist	X ² ; df; <i>p</i> -value; V
Sex				0.62; 1; .617; .018
Female	513	92.4	51.1	
Male	42	7.6	47.6	
Transgender				.515*
Yes	5	0.9	60.0	
No	550	99.1	50.7	
Sexual orientation				1.53; 2; .464; .053
Heterosexual	437	78.7	52.2	
LGB+	42	7.6	45.2	
Unknown	76	13.7	46.1	
Developmental disorder				2.37; 1; .124; .065
No	512	92.3	51.8	
Yes	43	7.7	39.5	
Occupational status				0.54; 4; .970; .031
Student	198	35.7	50.0	
Working	145	26.1	53.1	
(Temporarily) not working	158	28.5	50.6	
Other	41	7.4	48.8	
Unknown	13	2.3	46.2	
Country of origin				0.82; 3; .846; .038
Belgium	353	63.6	50.1	
EU country	75	13.5	53.3	
Outside EU	101	18.2	49.5	
Unknown	26	4.7	57.7	
Resident status				1.04; 1; .307; .043
Documented	541	97.5	50.5	
Undocumented	14	2.5	64.3	
Living situation				3.03; 3; .386; .074
Living alone, with family and/or partner	475	85.6	52.0	
In residential or foster care	37	6.7	37.8	
Homeless	21	3.8	52.4	
Unknown	22	4.0	45.5	

Note. Because the comparisons in this table involved 8 independent tests, we adopted a Bonferroni-corrected significance level of $.050/8 = .006$ for these analyses.

Abbreviations. V = Cramer's V; SACC = Sexual Assault Care Centre; LGB + = Lesbian, Gay, Bisexual and all other sexual orientations; EU = European Union; * Fisher's exact test (instead of chi-square-test): *p*-value

Table 3. Assault Characteristics of the 555 Sexual Assault Victims of 16 years and older who Presented within One Week Post-assault in one of the Three Belgian SACCs between 25 October 2017 and 31 October 2018.

Variable	n	%	% Follow-up by SACC-psychologist	X ² ; df; p-value; V
Previous experience of sexual assault				5.77; 2; .056; .102
No	302	54.4	49.7	
Yes	196	35.3	56.1	
Unknown	57	10.3	38.6	
Number of assailant (s)				5.15; 2; .076; .096
1	442	79.6	53.2	
> 1	71	12.8	43.7	
Unknown	42	7.6	38.1	
Victim-assailant relationship ^a (Ex-) partner, family or household member				9.22; 2; .010 ; .130
Acquaintance	185	33.3	58.9 ^a	
Stranger	269	48.5	44.6 ^b	
Unknown (no memory/no info)	7	1.3	42.9	
Form of sexual assault				8.78; 2; .012 ; .126
Sexual harassment or physical sexual violence without penetration	79	14.2	51.9	
(Attempted) rape	397	71.5	53.7 ^a	
Unknown	79	14.2	35.4 ^b	

Note. Because the comparisons in this table involved 4 independent tests, we adopted a Bonferroni-corrected significance level of .050/4 = .012 for these analyses.

Abbreviations. V = Cramer's V; SACC = Sexual Assault Care Centre.
^aVictims from the category 'Unknown' were excluded from the chi-square-test analysis due to issues with the chi-square-test's assumptions.
^{a, b}The presented proportions per variable with different superscripts differ significantly (post-hoc χ^2 test $p > 0.05$).

75 = 1–4). Median time between SA and first follow-up appointment with the SACC-psychologist was six days (SD = 43.40, P25-75 = 3–11).

Table 4. Service Use Characteristics of the 555 Sexual Assault Victims of 16 years and older who Presented within One Week Post-assault in one of the Three Belgian SACCs between 25 October 2017 and 31 October 2018.

Variable	n	%	% Follow-up by SACC-psychologist	X ² ; df; p-value; V
SACC site				5.34; 2; .069; .098
Brussels	269	48.5	53.9	
Ghent	153	27.6	52.9	
Liege	133	24.0	42.1	
Province of victim's residence				0.33; 1; .566; .024
Within SACC province	469	84.5	51.6	
Outside SACC province	83	15.0	48.2	
Unknown	3	0.5		
Presence of support person				2.14; 1; .144; .062
No	257	46.3	47.5	
Yes	298	53.7	53.7	

Note. Because the comparisons in this table involved 3 independent tests, we adopted a Bonferroni-corrected significance level of .050/3 = .017 for these analyses.

Abbreviations. V = Cramer's V; SACC = Sexual Assault Care Centre

Mean age at admission was 27.9 years (SD = 10.8). Age was not significantly associated with follow-up by a SACC-psychologist ($t = 0.66$; $df = 553$; $p = .209$; $D = .056$). Tables 2–4 describe additional victim, assault and service use characteristics respectively. Of these characteristics, only victim-assailant relationship and form of last SA were significantly associated with follow-up by a SACC-psychologist. Those assaulted by an acquaintance attended their mental health appointment more often than those who were assaulted by a stranger, and those who experienced (attempted) rape more often than those for whom the form of SA was unknown.

3.2. Mental health characteristics

Half of the victims presented with a history of mental health problems. More specifically, almost one third of

Table 5. Mental Health History of 555 Sexual Assault Victims, 16 years and older who Presented within One Week Post-assault, in one of the Three Belgian SACCs between 25 October 2017 and 31 October 2018.

Variable	n	%	% follow-up by SACC-psychologist	X ² ; df; p-value; V
Previous mental health problems				4.63; 1; .031; .091
Yes ^a	168	30.3	57.7	
Depression	71	12.8		
Anxiety	29	5.2		
Behavioural disorder	2	0.4		
Psychotic episode	11	2.0		
Alcohol and/or drug abuse	41	7.4		
Personality disorder	19	3.4		
Eating disorder	10	1.8		
Other or unspecified mental health related problems	41	7.4		
No	387	69.7	47.8	
Prior consultation with psychiatrist				1.45; 1; .228; .051
Yes	242	43.6	53.7	
No	313	56.4	48.6	
Current use of psychotropic medication				.69; 2; .708; .035
Yes ^a	87	15.7	47.1	
Hypnotics, sedatives, anxiolytics	47	8.5		
Antipsychotics	37	6.7		
Antidepressants	49	8.8		
Narcolepsy	2	0.4		
No	443	79.8	51.7	
Unknown	25	4.5	48.0	
Any type of mental health history ^b				5.46; 1; .019; .099
Yes	276	49.7	55.8	
No	279	50.3	45.9	

Note. Because the comparisons in this table involved 4 independent tests, we adopted a Bonferroni-corrected significance level of .050/4 = .012 for these analyses.

Abbreviations: V = Cramer's V; SACC = Sexual Assault Care Centres
^aMultiple mental health related problems or types of psychotropic medication could be selected per victim.

^bThis variable combines 'Previous experience of a mental health problem', 'Prior consultation with psychiatrist' and 'Current use of psychotropic medication' into one.

Table 6. Mental health since Sexual Assault at First Presentation to SACC as Assessed by the Forensic Nurse of the 555 SA victims, 16 years and older who Presented Within One Week Post-assault, in one of the Three Belgian SACCs between 25 October 2017 and 31 October 2018.

Variable	n	%	% follow-up by SACC-psychologist	X ² ; df; p-value; V
Psychological distress (CORE-10) [Mean (SD)]	12.37 (7.94)			2.76; 402; .006*; .275
Non-clinical	184	31	46	
Mild	87	15	54	
Moderate	63	11	54	
Moderately severe	39	7	59	
Severe	38	6	63	
Unknown	175	30	45	
Thoughts of self-harm over last week				1.26; 1; .262; .048
No	529	95.3	50.3	
Yes	26	4.7	61.5	
Acts of self-harm since sexual assault				2.44; 1; .118; .066
No	541	97.5	50.3	
Yes	14	2.5	71.4	
Suicidal ideation over last week				1.68; 1; .195; .055
No	528	95.1	50.2	
Yes	27	4.9	63.0	
Suicide attempt since sexual assault				0.92; 1; .337; .041
No	546	98.4	50.5	
Yes	9	1.6	66.7	

Note. Because the comparisons in this table involved 5 independent tests, we adopted a Bonferroni-corrected significance level of $.050/5 = .01$ for these analyses.

Abbreviations: V = Cramer's V; SACC = Sexual Assault Care Centres; CORE = Clinical Outcomes in Routine Evaluation screening measure; D = Cohen's *d*.

* Independent samples *t*-test; *t*; df; *p*-value; D.

the study participants reported having experienced a mental health issue prior to the SA, of which depression, alcohol or drug use and anxiety were the most common (Table 5). Nearly half of the victims reported a prior consultation of a psychiatrist and 16 percent of victims were currently on psychotropic medication. There were no significant associations with any of the mental health history variables and follow-up by a SACC-psychologist.

Table 6 describes victims' mental health since the SA as assessed by the forensic nurse at first SACC-contact. One-in-four victims experienced moderate to severe psychological distress since the SA. Five percent reported thoughts of self-harm or suicidal ideation in the last week and two percent reported acts of self-harm or suicide attempts since the SA. Victims who experienced higher levels of psychological distress more often attended their prescheduled appointment with a SACC-psychologist.

Scores on the psychological screening tools, administered by the SACC-psychologist within one month after the SA, were known for one third of the victims (Table 7). Of those victims assessed, nearly 70% suffered from symptoms of posttraumatic stress

and/or moderate to severe anxiety, and more than 80% of moderate to severe depression.

3.3. Characteristics associated with follow-up by SACC-psychologist

The final model (Table 8) revealed several significant predictors of victim' follow-up by the SACC-psychologist. Specifically, the variables presence of a support person, any type of mental health history and victim-assailant relationship, had a meaningful impact on the likelihood of victims to attend their appointment with the SACC-psychologist (likelihood ratio test, $p < .05$). The chances for attending for follow-up by the SACC-psychologist were 1.5 times higher for victims who were accompanied by a support person during acute care, as well as for victims with a mental health history. Moreover, victims whose assailant was an acquaintance were 1.6 times more likely to attend for follow-up compared to victims whose assailant was a stranger.

In addition, several variables showed a marginally significant association ($0.05 < p < .10$) with follow-up by the SACC-psychologist including previous experience of SA, form of SA and SACC-site.

4. Discussion

4.1. Summary of findings

This study used data from 555 victims attending the Belgian SACCs to describe their mental health and assess predictors for using support from an in-house psychologist. More than half of the victims presented with a history of mental health problems and -of those victims assessed- an important share had symptoms of PTSD, depression and/or anxiety disorder. One in two victims presenting at the SACC attended a first follow-up appointment with the SACC-psychologist. Victims who came to the SACC accompanied by a support person, those with a history of mental health problems, and those who were assaulted by an acquaintance in comparison to those assaulted by a stranger, were more likely to attend their appointment with a SACC-psychologist.

4.1.1. Mental health history and sequelae

Our finding that more than half of the victims presented with a mental health history including self-reported mental health problems, service use and medication, is consistent with other SA services' high reporting rates of 40–70% (Manning et al., 2019; Vik et al., 2019). Even though exact proportions vary, similar trends were found in other studies for having previously experienced a mental health issue (Brown et al., 2013; Creighton & Jones, 2012; Manning et al., 2019), psychotropic medication use (Brooker

et al., 2018; Brown et al., 2013; Creighton & Jones, 2012; Manning et al., 2019; Zijlstra et al., 2017) and previous consultation of a psychiatrist (Bicanic et al., 2014; Brooker & Durmaz, 2015; Clarke et al., 2021; Price et al., 2014).

One in four victims experienced significant psychological distress within one week post-assault and a small minority reported acts of self-harm or suicide attempts. To our knowledge, no studies reported on these indicators in the immediate aftermath of the SA. Suicidality proportions are low compared to general populations of SA victims (Dworkin et al., 2017; Dworkin et al., 2020), though we assume this is due to our short assessment period. Among those study participants that were assessed, many showed symptoms of PTSD, depression and/or anxiety disorder, confirming other studies (Brooker et al., 2018; Dworkin et al., 2021; Short et al., 2021; Tiihonen Moller et al., 2014).

4.1.2. Use of support by the in-house psychologist

Half of the victims presenting at the SACC attended a first consultation with the in-house psychologist, which is higher than rates in other studies ranging from 21 to 30% in US-based SANE-programmes referring externally for follow-up (Ackerman et al., 2006; Darnell et al., 2015). A comparison with the Dutch SA centres where 86% of victims received watchful waiting (Covers et al., 2022) is more difficult, as in our study this type of support was also offered by the forensic nurse who reached 90% of victims for follow-up (Baert et al., 2021). Although many studies sparingly describe their mental health support strategies (Stefanidou et al., 2020), we assume SANE-programmes make less use of strategies to improve uptake such as pre-scheduled follow-up visits, phone reminders, in-house support or referral with active follow-up as is the case in this and other studies where higher uptake were achieved (Bicanic et al.,

Table 7. Mental health within one month after the Sexual Assault of the SA victims, 16 years and older who presented within one-week post-assault, in one of the three Belgian SACCs between 25 October 2017 and 31 October 2018, for whom these values were available.

Variable	n	%	mean	SD
PTSD (PCL-5) (n = 189)			39.92	16.68
No	61	32.3		
Probable	128	67.7		
Anxiety (GAD-7) (n = 187)			11.89	5.19
Minimal	19	10.2		
Mild	43	23.0		
Moderate	65	34.8		
Severe	60	32.1		
Depression (PHQ-9) (n = 192)			15.17	6.18
Minimal	10	5.2		
Mild	26	13.5		
Moderate	54	28.1		
Moderately severe	48	25.0		
Severe	54	28.1		

Abbreviations. SD = Standard Deviation; PTSD = Post Traumatic Stress Disorder.

Table 8. Predictors for Follow-up by SACC-Psychologist for 555 Sexual Assault Victims, 16 years and older who Presented within One Week Post-assault, in one of the Three Belgian SACCs between 25 October 2017 and 31 October 2018.

Predictor	Descriptive %	EXP (B) Odds ratio	95% C.I. Odds ratio (Wald)	p-value (LRT)
<i>Previous experience of sexual assault</i>				.055
No	54.4	Ref.		
Yes	35.3	1.08	0.72–1.61	
Unknown	10.3	0.69	0.37–1.25	
<i>Victim-assailant relationship</i>				.039
Stranger	48.5	Ref.		
(Ex-) partner, family or household member	16.9	1.36	0.82–2.26	
Acquaintance	33.3	1.60	1.07–2.40	
Unknown (no memory/no info)	1.3	1.39	0.25–6.92	
<i>Form of sexual assault</i>				.077
Sexual harassment or physical sexual violence without penetration	14.2	Ref.		
(Attempted) rape	71.5	1.03	0.61–1.73	
Unknown	14.2	0.56	0.29–1.08	
<i>SACC site</i>				.075
Brussels	48.5	Ref.		
Ghent	27.6	0.78	0.50–1.19	
Liege	24.0	0.53	0.34–0.84	
<i>Presence of support person</i>				.041
No	46.3	Ref.		
Yes	53.7	1.51	1.06–2.17	
<i>Any type of mental health history</i>				.040
No	50.3	Ref.		
Yes	49.7	1.46	1.01–2.13	
<i>Acts of self-harm since sexual assault</i>				.152
No	97.5	Ref.		
Yes	2.5	2.33	0.74–8.85	

Abbreviations. LRT = Likelihood Ratio Test; Ref. = Reference group.

2014; Brown et al., 2013; Covers et al., 2022; Short et al., 2021).

However, half of the victims did not reach the SACC-psychologist and only few engage in longer-term psychological care. Considering the high proportion of victims with pre-existing mental health problems and the important share of victims with symptoms of PTSD, depression and anxiety, a high unmet need for preventing or treating mental health problems may remain. Prospective studies suggest that many victims seek mental health support outside of specialised SA services (Clarke et al., 2021; Price et al., 2014; Short et al., 2021). However, it is not guaranteed that these services offer effective mental health support, as victims may not disclose the SA (Short et al., 2021) and only few mental health providers in Belgium are trained in evidence-based trauma support (De Schrijver et al., 2021).

4.1.3. Predictors for use of support by the in-house psychologist

Victims who came accompanied by a support person during acute care were more likely to attend their appointment with the SACC-psychologist. One study also identified social support as a predictor for attending any type of follow-up from specialised SA services (Darnell et al., 2015), suggesting that support persons may motivate victims or provide practical support to come for follow-up appointments.

Victims with a history of mental health problems were more likely to consult the SACC-psychologist in comparison to those without, confirming findings of other studies that identified prior use of mental health services and having a pre-existing mental health condition as predictors for using mental health support post-SA (Darnell et al., 2015; Price et al., 2014). It is plausible that those with a mental health history may have more positive attitudes towards mental illness and help-seeking (Schnyder et al., 2017).

Our study is also consistent with previous research suggesting that experiencing mental health sequelae may not result into seeking support from mental health professionals (Darnell et al., 2015; Price et al., 2014; Short et al., 2021). We observed a marginal association between self-harming after the SA and follow-up by a SACC-psychologist, but no associations were observed for other immediate mental health issues since the SA. This finding may be reflective of victims' ambivalent attitudes towards help-seeking even when symptoms are present (Hutschemaekers et al., 2019), what could be a sign of avoidance commonly observed in SA victims suffering from PTSD (NICE, 2005).

Our prediction model suggests that factors such as the victim-assailant relationship, having previously experienced SA, the form of SA and the site where specialised services were offered, may also play a role in predicting attendance for follow-up by a SACC-psychologist. Previous research reported contradictory findings regarding victim-assailant relationship and follow-up after acute SA care (Ackerman et al., 2006; Darnell et al., 2015), did not observe any impact of previous trauma on follow-up attendance (Darnell et al., 2015; Price et al., 2014), and only studied cases of (suspected) rape (Ackerman et al., 2006; Darnell et al., 2015; Price et al., 2014). Differences across specialised SA sites have not yet been studied and our study findings suggest that despite standard operating procedures, different practices in scheduling and motivating victims for follow-up by the in-house psychologist appeared over time across SACC-sites.

4.2. Study limitations and strengths

This is a retrospective study based on programme data, which comes with several challenges. First,

standardised psychological scales were not always (correctly) administered by the SACC personnel, resulting in an important share of missing data. This may reflect a reluctance among health workers to use scales out of concern to overburden victims at a difficult time (Brooker et al., 2018). Second, the dataset might suffer from potential inaccuracies as a diverse group of SACC personnel collected the data. Third, we could only include variables that were routinely registered in the patients' files and were unable to assess certain variables that were associated with use of mental health support in previous studies. Fourth, we relied on potentially subjective self-reporting by victims or their support person, which may have led to an incomplete picture of our study population's mental health history. Last, we do not know how many victims were intentionally not scheduled for an appointment with the SACC-psychologist. Some victims may have preferred to consult a psychologist already known to them. Other victims may not see the need for mental health support or for the type of support provided by the SACC-psychologist. This implies that the potential unmet need for mental health support among victims in our study may in reality be lower. While there is no need to unnecessarily refer victims who are asymptomatic or in a natural process of recovery for mental health care, we however do need to acknowledge certain victims' ambivalence and avoidance in seeking help post-SA, despite PTSD symptoms being present. Taking the above factors into account in the study design might have led to a deeper understanding of this phenomenon, as theoretical models indicate that perceived as well as objectified need for health care services may predict their use (Babitsch et al., 2012).

Despite these limitations, this is the first Belgian study to provide a description of the mental health burden of a relatively large sample of both male and female recent SA victims. This is also the first study to examine predictors of using support from an in-house psychologist at comprehensive SA services in a European setting.

4.3. Implications for policy and practice

This study re-emphasises the need for comprehensive SA services to manage the large mental health burden of SA victims. Despite this being an observational study, we identified a few promising avenues to improve uptake of mental health support, such as the provision of in-house mental health support, pre-scheduling of mental health follow-up appointments and phone reminders, which are strategies that have also been successfully adopted elsewhere (Bicanic et al., 2014; Brown et al., 2013). Additionally, our findings suggest to be attentive to SA victims' mental health needs and their barriers to reach out

for care among those who do not report pre-existing mental health problems and those who came unaccompanied during acute care, as in our study they tend use in-house psychologist services less often upon SA. Nevertheless, efforts should also be directed towards prolonged engagement with the trauma psychologist for victims diagnosed with PTSD, as many only attended two appointments with the SACC-psychologist. Posttraumatic stress disorder is very common and severe among SA victims (Dworkin, 2020). For the time being, EMDR and CBT are the only interventions that have proven to significantly reduce this burden (Mavranetzouli et al., 2020; Yunitri et al., 2023), but these generally require multiple contacts with a trauma psychologist. Better health education for victims, support persons, (mental) healthcare providers and policy makers may be necessary, to explain that evidence-based trauma therapies are as crucial as medical and forensic care for the recovery of SA victims, and hence should be included as a core component of their comprehensive care.

Besides strategies implemented at the level of specialised SA services, other interventions remain important to improve victims' access to effective mental health support after SA. These include active back-referral or collaboration with victims' previously known mental health providers, addressing SA history in patients' anamnesis by (mental) health providers (Short et al., 2021), trauma training for mental health providers (De Schrijver et al., 2021) and blended mental health service provision (Baert et al., 2021).

4.4. Implications for research

This study aimed to broaden the understanding of victims' mental health needs and their use of mental health care at specialised SA services. This exploratory work would benefit from confirmatory studies in larger prospective samples which assess mental health service use from various sources, as well as multiple mental health sequelae post-SA and other theoretically indicated predictors for mental health service utilisation post-SA. More comparative research, both quantitative and qualitative, is needed to better understand victims' perception on their need for mental health services post-SA, their barriers and facilitators to access such care, and their satisfaction with these services, in order to identify what service delivery strategies work best in what context and why. Ultimately, the aim is to improve SA victims' mental health outcomes, but few studies assess the impact of specialised SA services on victims' mental health (Stefanidou et al., 2020). Such research is urgently needed, which will hopefully contribute to the recognition of effective mental health support as an integral and essential part of specialised SA services internationally (Dworkin et al., 2017; Stefanidou et al., 2020).

Author contributions

SB, EF, AM, IB, SV, PG, KR, IK conceived and designed the analysis. SB coordinated the data collection, supervised by IK. CG and KR supervised the data-collection in their respective study sites. AM imputed and coded the data under supervision of SB. AM performed the preliminary data-analysis and wrote the preliminary study report. EF performed the final data-analysis. SB, AM, EF wrote the paper. IB, SV, PG, CG, KR, IK critically reviewed the paper and approved its final version.

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Data availability statement

The research complies with the European General Data Protection Regulation and the data set can as such not be made publicly available.

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