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Investigating the Functions and Psychological Correlates of Sexual Activity to Self-Injure (SASI) in Post-Secondary Students

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Abstract

Background: Sexual activity as self-injury (SASI) is an emerging and underexplored concept in current research. Literature suggests that sexual behaviours may serve a function like non-suicidal self-injury (NSSI). However, there is an ongoing debate regarding SASI categorization as either a direct or indirect form of self-injury. Currently, SASI literature predominantly focuses on adolescent populations over emerging adults. Specifically, post-secondary students may be particularly prone to SASI due to increased mental health challenges and expectations of sexual exploration. Moreover, histories of sexual and physical abuse is a known risk factor for self-injurious behaviours, therefore, understanding how these factors interact with SASI can aid in developing more effective interventions. The present study aims to address the gap in literature by exploring SASI prevalence and self-reported functions in post-secondary students. ***Methods:*** An anonymous cross-sectional survey was completed by 190 post-secondary students, aged 17–25, who were currently or previously sexually active. The survey included an investigator-designed SASI questionnaire, standardized measures of NSSI, abuse, self-esteem, depression, and anxiety. Participants were

categorized into four groups: NSSI+SASI (n=77), NSSI only (n=64), SASI only (n=26), and neither (n=23). Analyses included descriptive statistics, one-way ANOVA and MANOVA, McNemar's test, Spearman correlations, logistic regression, and chi-squared tests. ***Results:*** Results indicate that students are significantly more likely to engage in SASI for indirect functions, such as emotional regulation, rather than direct functions (p = .001). Abuse history was critically prevalent in SASI-reporting groups; 100% of the SASI-only group reported a history of both sexual and physical abuse. Logistic regression identified depression (OR = 1.13) and abuse (OR = 1.60) as significant predictors of SASI engagement. ***Conclusion:*** This work fills a critical gap in understanding how sexual behaviours may serve self-injurious functions among emerging adults. Findings suggest that emotional distress and trauma history are primary correlates of SASI in university populations. The strong association between SASI and prior abuse highlights the need for trauma-informed mental health supports. Future research should utilize longitudinal designs and validated psychometric tools to refine the conceptualization of SASI and develop effective early-intervention strategies. ***Trial Registration:*** The study protocol and analysis plan were preregistered at (**10.17605/OSF.IO/BJ3T7**).

Keywords: Sexual activity; self-injury; post-secondary students; non-suicidal self-injury; sexual health; SASI; NSSI.

Background

The use of sexual activity to self-injure (SASI) is an emerging and underexplored concept in modern self-harm research. Although not widely recognized, individuals can often define SASI in ways that align with emerging academic literature (Mellin & Young, 2022). Early definitions suggest that SASI is marked by unbearable feelings, such as intense anxiety and high levels of distress (Jonsson et al., 2012; Fredlund et al., 2017). Early definitions describe SASI as driven by intense emotional distress, including shame, guilt, and anxiety, and involving sexual situations that result in mental or physical harm (Jonsson et al., 2012; Fredlund et al., 2017). However, these definitions lack clarity around consent and do not distinguish SASI from non-consensual experiences such as sexual assault, which fall outside the scope of voluntarily sought harm. They also fail to account for consensual sexual practices like BDSM (bondage, discipline/domination, submission/sadism, and masochism), which may involve pain or humiliation but are rooted in mutual erotic pleasure and consent (Brown et al., 2020). To address these gaps, the current study defines SASI as the consensual engagement in sexual situations that result in self-harm, either mentally or physically, and explicitly excludes consensual sexual fantasies such as BDSM. This refined definition aims to distinguish SASI from other sexual behaviours and provide a clearer framework for future research.

SASI and Non-Suicidal Self-Injury (NSSI)

Emerging research suggests SASI functions similarly to NSSI, serving as a maladaptive strategy to manage intense psychological distress (Fredlund et al., 2017; Jonsson et al., 2019). (Fredlund et al., 2017; Jonsson et al., 2019). Since its addition to the DSM-5, NSSI has become increasingly popular within mental health research. It

encompasses direct behaviors (e.g., cutting, burning) and indirect behaviors (e.g., disordered eating, substance misuse) enacted without suicidal intent (American Psychiatric Association, 2013; Muehlenkamp, 2005; Nock, 2010). Common functions of NSSI, including affect regulation, self-punishment, sensation seeking, and interpersonal influence, have been well documented and mirror motivations reported for SASI (Nock et al., 2008; Hooley & St Germain, 2013; Wilkinson, 2013; Taylor et al., 2017). Individuals engaging in both direct and indirect self-injury typically present greater psychological severity and elevated pain endurance (Nock, 2010; Hooley & St Germain, 2014). NSSI correlates to various mental health conditions, such as depression, and may be a predictor for future mental health problems (Lewis et al., 2025; Serra et al., 2022; Wang et al., 2024). There is often an overlap between non-suicidal and suicidal self-harm, as many who self-injure report suicidal ideation, complicating categorical distinctions and raising concerns that SASI may similarly confer elevated suicide risk when distress escalates or coping fails (Andover & Gibb, 2010; Kapur et al., 2018; Klonsky, 2007; Nock, 2010; Fredlund et al., 2017).

Recent research indicates that SASI can serve the same function as NSSI for certain individuals (Fredlund et al., 2017; Jonsson et al., 2017; Zetterqvist et al., 2018). Within adolescents who reported engaging in both NSSI and SASI, the most common functions are affect regulation, such as “to stop bad feelings”, “to relieve feeling numb or empty,” or “to punish oneself” (Fredlund et al., 2017; Jonsson et al., 2017; Zetterqvist et al., 2018). Social functions, such as “to get attention”, were also more common in adolescents who endorsed SASI compared to other forms of NSSI (Jonsson et al., 2017; Zetterqvist et al., 2018). Within adolescents who endorse both NSSI and SASI, more severe forms of NSSI, higher perceived burdensomeness and higher distress levels were reported (Jonsson et al., 2017; Zetterqvist et al., 2018). One study found that

21.6% of informants reported using SASI to replace other forms of NSSI, as it was often more easily hidden and often convenient (Fredlund et al., 2019). Fredlund et al. (2017) determined that in a sample of adolescent high school students, 3.2% of females and 0.8% of males reported intentionally harming themselves using sex, with prevalence being associated with earlier sexual and/or physical abuse, depression, eating disorders and suicide attempts. Moreover, within a sample of U.S college students, 12% reported using sexual activity to self-injure through physical pain, reliving past trauma, proving self-worth, or confirming feeling wanted (Mellin & Young, 2022). While the findings of Mellin & Young (2022) suggest that SASI may be a present issue within University students, no other studies assess the phenomenon within this population. The current study aims to address the present gap in knowledge surrounding the functionality and psychological correlates of SASI specifically within post-secondary students. Our current hypotheses are drawn from relevant knowledge on both NSSI and SASI research. We hypothesis that, similar to NSSI, emotional regulation will be the most frequently reported function and SASI will more likely serve an indirect function for post-secondary students. It is also hypothesized that SASI and NSSI will be frequently co-morbid and that SASI will be linked to various mental health conditions, like NSSI (Lewis et al., 2025; Wang et al., 2024).

Although studies have found that SASI and other self-injurious behaviours share similar functions, SASI is generally not considered part of NSSI (Jonsson et al., 2017; Zetterqvist et al., 2018). This may be due to a lack of research and recognition on SASI, as well as the limited awareness of the motivations and mechanisms of the behaviour. This may lead to greater implications as individuals who utilise SASI remain undiagnosed with self-harm disorders and may find it more difficult to receive care. The lack of current treatments for SASI may result in the progression of SASI behaviours,

increased sexual health risks and implications in legal settings. One potential reason for the lack of acceptance of SASI within NSSI research is the ongoing debate regarding whether it should be conceptualized as a direct behaviour, an indirect behaviour or both. Previous literature on the characterization of direct or indirect behaviours concerning SASI remains limited. Currently, sexual risk-taking behaviours (i.e., engaging in unprotected sex) are not included in the definition of NSSI but are instead considered an indirect form of self-injury (Muehlenkamp, 2005; Nock, 2010) or as a form of risk-taking behaviour rather than a form of self-harm (Vrouva et al, 2010). While SASI and sexual risk-taking behaviours may both involve potentially harmful sexual acts, their underlying motivations, psychological functions, and clinical implications are fundamentally different. Sexual risk-taking are often driven by sensation seeking, impulsivity, peer influence, or lack of sexual education (Jonsson et al., 2019). In contrast, SASI is characterized by the intentional use of sexual activity to inflict emotional or physical harm on oneself, often in response to unbearable psychological states such as shame, guilt, anxiety, or self-hatred (Fredlund et al., 2017). Literature has suggested that SASI can include engaging in physically harmful sexual encounters without the main desired function being sexual gratification (i.e., choking, slapping, bruising, etc.), suggesting SASI may best be considered a more direct form of self-harm (Fredlund et al., 2017; Jonsson et al., 2017). Alternatively, it has been argued that SASI is more closely associated with indirect self-harm behaviours by serving to produce emotional distress or a mental punishment despite the act itself not being physically harmful (Fredlund et al., 2017; Jonsson et al., 2017).

Both NSSI and SASI are not only psychological concerns but also have broader negative outcomes and public health burdens. Repeated self-injury increases the risk of physical harm and accidental death by misadventure, particularly when self-injury

escalates severity (Haney, 2020). Individuals who engage in NSSI frequently utilise emergency departments and acute care services which increases healthcare costs and creates challenged to resource allocation (Lee et al., 2024). Similarly, individuals who engage in SASI through high-risk sexual behaviours are at an increased risk of sexually transmitted infections (STIs), unintended pregnancies, and physical trauma (Fredlund et al., 2017; Jonsson et al., 2019). These behaviours may result in a broader scope of public health burden, through increased demand for sexual health services and mental health care, frequent emergency department visits related to sexual trauma or psychological crises, and long-term costs associated with treating STIs, trauma-related disorders, and comorbid conditions (Fredlund et al., 2017;Lee et al., 2024). Recent global data highlights the scale of self-harm effects, with nearly 750,000 deaths attributed to self-harm in 2021 (Xie et al., 2025). While SASI is not always captured in these statistics due to its underreporting and conceptual ambiguity, its contribution to the overall burden is likely underestimated and should be considered when assessing the larger effects of self-harm.

Sexual Abuse and Traumagenic Dynamics

Research increasingly links SASI to early trauma, particularly sexual abuse (Fredlund et al., 2017; Jonsson et al., 2019; Mellin & Young, 2022). Sexual abuse is found to be a recurrent risk factor for engagement in SASI, and higher rates of sexual trauma often result in low self-esteem, greater self-contempt, and destructive sexual relationships (Fredlund et al., 2017; Zetterqvist et al., 2018; Fredlund et al., 2019). Child sexual abuse is associated with risky sexual behaviours, higher number of sexual partners, earlier age of sexual debut and higher number of STIs (Fergusson et al., 1997; Lalor et al., 2010). As sexual risk-taking shares surface level similarities with SASI, the

function these behaviours serve may indicate that these findings refer more to SASI over sexual risk-taking. Further research on the functions the behaviours serve is needed to explore child sexual abuse in relation to SASI versus sexual risk-taking.

In Swedish adolescents, 75% of those engaging in SASI had experienced sexual abuse, 82.8% of females and 35.0% of males; with higher rates of penetrative abuse, revictimization, and sex work (Fredlund et al., 2019). Nearly half (48.2%) attributed their SASI to coping with past trauma (Fredlund et al., 2019). Zetterqvist et al. (2018) found similar patterns, 46.9% of adolescents who engage in both NSSI and SASI reported exposure to penetrative sexual abuse. In U.S. college students, 15% reported childhood sexual abuse and 4% adult abuse, indicating cross-cultural relevance (Mellin & Young, 2022). SASI may be conceptualized in the context of trauma re-enactment, where individuals repeat harmful experiences to regain control over past helplessness (Reiker & Carmen, 1986; Penning & Collings, 2014). This aligns with findings that SASI often serves as indirect self-injury and is linked to self-punishment (Jonsson et al., 2017).

Multiple studies refer to Finkelhor & Brown's (1985) model of traumagenic dynamics to conceptualise how childhood sexual abuse can affect sexual behaviours (Fredlund et al., 2019; Fredlund et al., 2023; Zetterqvist et al., 2018). This model describes the traumatic effects of sexual violence in four psychosocial dynamics - traumatic sexualization, betrayal, stigmatization, and powerlessness (Finkelhor & Brown's, 1985). In reference to SASI, traumatic sexualization may lead to negative attitudes towards sexuality, sexual aggression or compulsive sexual behaviour (Fredlund et al., 2019; Zetterqvist et al., 2018). Stigmatization may be associated with feelings of shame or guilt, which results in self-destructive behaviours, such as SASI (Fredlund et al., 2022). Betrayal following sexual violence may lead to distrust of

others, aversion to intimate relationships and warped judgements with regards to relationships (Fredlund et al., 2019). Finally, powerlessness may lead to the desire to regain control, which may occur through revictimization, re-enacting the abuse or a desire to dominate others (Finkelhor & Brown, 1985; Fredlund et al., 2022). These dynamics and a theoretical understanding of sexual abuse trauma may be beneficial to better understanding SASI, and how SASI behaviours may develop.

SASI in Sweden and Globally

SASI is well-established in Swedish society, where the majority of early research has been conducted. Its emergence as a recognized construct followed the publication of *14 Years and for Sale*, which chronicled the experiences of Tessan, a 14-year-old sex worker who used sex as a form of self-harm (Weigl, 2008; Fredlund, 2019). Since then, SASI has been reframed from a subtype of sexual risk-taking to a distinct behaviour, frequently referenced in Swedish healthcare and media (Fredlund et al., 2020; Wall & Johnsdotter, 2022). Grey literature, including several Swedish bachelor's theses, reflects sustained academic interest in SASI. These qualitative studies explore SASI through interviews, media analysis, and professional perspectives (Blomkvist & Vikman, 2015; Carlsson, 2012; Johansson & Lindberg, 2015). Professionals consistently describe SASI as intentional, emotionally distressing sexual behaviour, often linked to anxiety, low self-esteem, and shame (Karlsson et al., 2013; Gimestam-Jarl & Thogersen, 2012). Gendered differences have also been noted, with girls more likely to internalize distress and boys more likely to externalize or show less emotional awareness (Carlsson, 2012). These findings suggest SASI may serve similar functions to NSSI, such as affect regulation, and highlight the need for tailored clinical approaches and evidence-based treatments.

SASI has also appeared in Swedish legal cases, raising concerns about consent and victim vulnerability. Ambiguities in SASI's definition may allow perpetrators to reframe abuse as consensual self-harm, potentially undermining legal protections for victims (Wall & Jonsson, 2022). A notable case involved a 16-year-old girl who signed a "slave contract" and was subjected to extreme abuse, with the perpetrator claiming no responsibility due to her self-harming intent (Engvall, 2011b). Such cases underscore the urgency of clearer definitions and safeguards for individuals vulnerable to exploitation. Despite growing literature, SASI research remains largely confined to Sweden and Swedish-speaking populations (Fredlund et al., 2017; Zetterqvist et al., 2018). Broader cultural exploration is needed to assess its global relevance. A recent U.S. study suggests SASI may be present in other contexts (Mellin & Young, 2022), and social media posts, blogs, and personal testimonies from Canada and the U.S. indicate growing awareness (Koncza Leblanc, 2025; Cornhill, 2022; Lehmiller, 2020). However, these references are limited to Western cultures, and further research is needed to understand SASI across diverse populations. Expanding the scope of SASI research is essential for developing inclusive clinical frameworks and protective legal policies.

SASI and Post-Secondary Students

Majority of existing literature focuses on SASI within adolescent populations, largely due to participant accessibility in Sweden. Studies often draw from national surveys like "Youths, Sex and Internet—in a changing world," which allow adolescents over 15 to participate without parental consent (Fredlund et al., 2019). Although information on adolescent groups is necessary to obtain a full understanding of SASI, there is a current gap in literature investigating other population groups - particularly

post-secondary students—who may be at heightened risk. Among post-secondary students within the 21st century, there is an increased emergence of "hook-up" culture, characterized by casual sexual encounters without long-term expectations (Garcia et al., 2012; Pham, 2017). The rise in hook-up culture trends may be attributed to changes in traditional gender roles, later age of first marriage, and more permissive attitudes towards sex in general (Allison & Risman, 2014; Pham, 2017). Current research suggests that hookup culture is most prevalent within university scenes, where substantial emphasis is placed on sexual experiences and identity exploration (Monto & Carey, 2014; Arnett, 2004). The emphasis on mainstream hook-up culture reflects the expectation of a 'typical' University experience. Young adults are living near potential sexual partners, with alcohol or drug fueled social gatherings and no strings attached sex seen as the norm (Pham, 2017). Students often overestimate peer participation in hook-ups, which can lead to anxiety, disappointment, and even sexual violence (Wade, 2017). This may influence how students approach sexual relationships with others and may result in anxiety, disappointment, and sexual violence within this population (Wade, 2017). These dynamics warrant further investigation into SASI within this group.

NSSI research on university students consistently indicates that there is a high prevalence of other forms of self-injurious behaviours within this population; often with high co-morbidity rates between NSSI and other mental disorders (Tull et al., 2012; Dahlström et al., 2015; Klonsky, 2007). University students often experience increased emotional distress and mental health difficulties due to high stress, life event changes, and other external factors (Klonsky, 2007; Hooley & St. Germain, 2014). The high prevalence rates of NSSI in university students and considerable mental health difficulties coupled with the increased likelihood of sexual encounters may increase the

risk for post-secondary students to engage in SASI. Only one U.S. study has examined SASI in university students, finding that some use sex to inflict harm (Mellin & Young, 2022). However, its small sample size limits generalizability, highlighting the need for broader, more inclusive research.

The Current Study

The current research project sought to answer the following research questions:

1. Are post-secondary students more likely to engage in SASI behaviours to serve an indirect (e.g., emotional distress) or direct (e.g., physical harm) function?
2. Is there a significant association between SASI function endorsement (direct, indirect, or both) and the presence of comorbid NSSI behaviors among students?
3. Are certain risk factors associated with SASI, including self-esteem, abuse history, and mental health conditions (e.g., depression, anxiety)?

Based on the limited existing evidence, we hypothesised that students will report SASI to serve functions similar to NSSI. It is also expected that there will be a statistically significant association between SASI function and the presence of comorbid NSSI behaviors among students. Finally, Higher reported symptoms of depression and anxiety, lower self-esteem, and high prevalence of sexual and physical abuse history are expected to be associated with increased SASI.

Given the limited research on SASI in post-secondary students, as well as the associations of SASI with other significant negative outcomes, a better understanding of SASI in terms of functions and psychological correlates is warranted. A greater understanding of SASI will aid in developing an international concept of SASI, as well as develop intervention and support strategies for individuals engaging in it.

Methods

Design

The current study utilised a cross-sectional design, which aimed to analyse the functions and psychological correlates of those who engage in SASI, NSSI, NSSI+SASI or neither through pre-planned confirmatory comparisons. An online survey was designed and distributed using Qualtrics to a self-selecting sample of young adults. This study was internet-mediated psychological research, and as such followed best practice guidance outlined by (British Psychological Society, 2017), including informed consent, participant confidentiality, and systematic data collection. A priori protocol was designed and pre-registered to ensure transparency, reduced biases, enhance reproducibility and standardization and increase clarify of research.

Participants and Recruitment

A priori power analysis, conducted given the absence of prior effect-size estimates for SASI in post-secondary samples, assumed a medium effect ($d = 0.50$) following Cohen (1988). To achieve 90% power at $\alpha = .05$ for a McNemar test, a minimum sample of 104 participants was required. Because this study is exploratory, a larger target sample was adopted to permit subgroup analyses, improve estimate precision, and accommodate missing data, thereby increasing the robustness and generalizability of findings.

Eligibility required participants to: (a) be aged 17–25, (b) be currently enrolled in a post-secondary program (full- or part-time), and (c) be currently or previously sexually active. “Sexual activity” was defined in recruitment materials as any behaviour, solo or partnered, that elicits sexual arousal. The chosen age range reflects typical post-secondary demographics and aligns with an expanded developmental definition of adolescence extending to age 24 (Sawyer et al., 2018), capturing

individuals still negotiating identity formation, sexual exploration, and relational autonomy. This range is also consistent with research on hook-up culture prevalence in university populations (Garcia et al., 2012; Hatfield et al., 2020).

Participants were recruited internationally via social media ads, snowball sampling, flyers, student mailing lists, and referrals between December 2024 and May 2025. Of 605 visitors to the Qualtrics survey, 190 participants remained after screening and data cleaning. Attrition and exclusions comprised 257 non-responders, 25 who only accessed consent, 38 who completed consent and demographics only, 22 ineligible respondents, 28 withdrawals, and 45 cases removed for excessive missing data.

Procedure

The survey was administered online via Qualtrics XM. All responses were anonymous and no identifiable data were collected. An online Participant Information Sheet (PIS) outlined study purpose, procedures, expected time (20–30 minutes), foreseeable risks, benefits, and available supports; informed consent was obtained before a brief eligibility screener. Eligible participants continued to the main survey, while ineligible respondents were redirected to a debrief page. The Qualtrics survey flow and branching logic ensured respondents saw only relevant items. Participants were informed of confidentiality and the right to withdraw at any point prior to final submission; after submission data could not be retracted because responses were fully anonymous. A “Withdraw” button was available on each page, and answers were auto-saved so participants could exit and resume. Incomplete responses were retained if sufficient data were provided; participants had seven days from their last saved response to return before partial responses were finalized for analysis. Respondents could skip any question they preferred not to answer. Given the sensitive topic, the PIS, debrief,

and footer of each page emphasized voluntary participation, optional item response, and access to psychological resources. The debrief form and PIS included researcher contact details and links to support services. These procedures were designed to maximize participant safety, autonomy, and data integrity while accommodating the ethical challenges of researching potentially distressing material.

Measures

The survey included both investigator-designed items and validated psychometric measures. Demographic information on age, gender identity, sexual orientation, year of study, and ethnicity were collected to characterise the sample and allow for comment of generalisability.

Sexual Activity as Self-Injury (SASI)

As no standardized SASI measure exists, an investigator-developed questionnaire based on prior SASI instruments (Fredlund et al., 2017; Wall & Johnsdotter, 2022) assessed presence, frequency, and self-reported functions of SASI (see Additional file 1). Core items asked whether participants had ever engaged in sexual encounters that felt expected or were later regretted and included binary items on using sexual activity to physically or mentally harm oneself (yes/no). All respondents were asked about potential future SASI engagement; additional open-ended items probed intention, goals, frequency, and attitudes for qualitative analysis.

To evaluate functional overlap with NSSI, the Functional Assessment of Self-Mutilation (FASM; Lloyd-Richardson et al., 1997) was adapted to rate SASI motivations on a 4-point Likert scale (0 = never to 3 = often) across four domains: Automatic Negative Reinforcement (ANR), Automatic Positive Reinforcement (APR),

Social Negative Reinforcement (SNR), and Social Positive Reinforcement (SPR). No adjustments were made to the FASM for SASI measure, participants were asked if they harmed themselves using sexual activity for any of the provided reasons. Participants were classified as reporting indirect, direct, or both SASI types.

Reliability analyses of the adapted SASI-FASM indicated acceptable consistency for SPR (α = .70), poor consistency for ANR and SNR (α = .51 each), and unacceptable consistency for APR (α = .33). These limitations reduce confidence in the scale's validity and warrant caution when interpreting domain scores. These results should be considered when interpreting the data. Low reliability for the SASI-FASM makes it difficult to define the concept the scale is capturing, which in turn limits validity of the scale and hinders meaningful interpretations of the scores.

Non-Suicidal Self-Injury (NSSI)

Participants reporting both behaviours completed the FASM once for SASI and once for NSSI for domain-level comparisons. The FASM assessed functional motivations on a 4-point Likert scale (0 = never to 3 = often). Motivations were coded using the validated Nock and Prinstein (2004) method, applied identically to the SASI-adapted FASM. Domain mean scores were computed for analysis. To assess the internal consistency of the FASM for NSSI, a reliability analysis was conducted on each of the four domains independently. ANR contained 4-items; however, the item "to feel relaxed" was removed due to a low item-total correlation (α = 0.69), which improved the internal consistency of the scale. The final scale, consisting of 3-items, showed acceptable internal consistency (α = 0.73). The 3-item scale for APR showed poor internal consistency (α = 0.30). SNR contained 4-items and showed acceptable internal

consistency (α = 0.74). SPR, contained 11-items and demonstrated good internal consistency (α = 0.87).

Self-Esteem

Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965). Ten items rated 1 (strongly disagree) to 4 (strongly agree); higher totals indicate greater self-esteem. Excellent internal reliability in this sample (α = .90).

Abuse History

Sexual and Physical Abuse Questionnaire (SPAQ; Kooiman et al., 2002). Items assessing lifetime sexual and physical abuse were summed to produce a total score (range 0–6). Excellent reliability in this sample (α = .86).

Depression Symptoms

Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). Nine items rated 0 (not at all) to 3 (nearly every day); higher totals indicate greater depressive symptom severity. Excellent internal consistency in this sample (α = .86).

Anxiety Symptoms

Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006). Seven items rated 0 (not at all) to 3 (nearly every day); higher totals indicate greater anxiety severity. Excellent internal consistency in this sample (α = .88).

Data Analysis

Analyses were conducted using IBM SPSS Statistics for Mac (Version 25) and explored the prevalence and functional motivations of SASI, group differences, psychological correlates, and predictors of engagement. Prior to analysis, we screened the data for missing values, structural errors, and outliers. Cases with significant missing data were excluded. No outliers were identified. Statistical assumptions were verified prior to analysis.

Descriptive statistics were used to summarize demographic variables across four independent groups (NSSI-only, SASI-only, NSSI+SASI, and a control group). Given the limited prior research on SASI, this exploratory approach provided necessary insights into data distribution and trends (Field, 2013). Internal consistency of the RSE, GAD-7, PHQ-9, SPAQ, FASM, and SASI-FASM was assessed using Cronbach's alpha. A secondary analysis examined mean differences in FASM motivations based on direct versus indirect SASI functions. A Spearman's rho correlation determined relationships between study group, abuse status/history, and scores for depression, anxiety, and self-esteem. A McNemar's test compared the likelihood of engaging in SASI for indirect versus direct functions. Associations between SASI and NSSI engagement were assessed via chi-square tests of independence. Additionally, two binary logistic regression models were used to determine if RSE, PHQ-9, GAD-7, and SPAQ-9 scores predicted engagement in SASI and NSSI, respectively. Finally, we used Chi-square tests to examine the relationship between abuse status and study group; where expected cell counts were violated, we conducted separate tests for physical and sexual abuse to maintain statistical validity.

Results

Descriptive Statistics

Demographic information for the total sample and study group is presented in Table 1. Most participants were 21 years old (n = 35), with the mean age being 20.97 (*SD* = 2.21, Range: 17–25). A one-way analysis of variance (ANOVA) indicated no significant difference in age across the four study groups $F(3, 184) = 0.53$, $p = .660$, $\eta 2 = 0.009$. Levene's test confirmed the assumption of homogeneity of variance, $F(3, 184) = 1.10$, $p = .352$. Assumptions of linearity and multicollinearity were met, and no outliers were identified. The assumption of expected cell frequencies for chi-squared tests was violated across all variables; therefore, formal hypothesis testing was not conducted for these categorical variables. Descriptive statistics indicted the sample was primarily female (n = 114), white (n = 135), bisexual (n = 88) and reported monogamous relationships (n = 109). The neither group was predominantly heterosexual (n = 18; 82%) and male (n = 11; 50%). The NSSI+SASI group had the most non-binary identifying participants (n = 16).

Table 1. *Demographic information of participants*

	Total (*n*=190)	SASI (*n*=26)	NSSI+SASI (*n*=77)	NSSI (*n*= 65)	Neither (*n*=22)
Age *M(SD)*					
	20.97 (2.21)	*21(2.38)*	*20.76(2.29)*	*21.05(2.34)*	*21.41(2.52)*
Gender					
	Male – 42 *Female – 114* *Non-binary – 33* *Other - 1*	*Male – 5* *Female – 16* *Non-binary – 5*	*Male – 14* *Female – 47* *Non-binary – 16*	*Male – 12* *Female – 41* *Non-binary – 11* *Other - 1*	*Male – 11* *Female – 10* *Non-binary – 1*
Sexual Orientation					
	Heterosexual – 64 *Homosexual – 19* *Bisexual – 88* *Asexual – 7* *Other – 9* *Prefer not to answer – 3*	*Heterosexual – 6* *Homosexual – 7* *Bisexual – 9* *Asexual – 2* *Other – 2*	*Heterosexual – 12* *Homosexual – 9* *Bisexual – 48* *Asexual – 3* *Other – 3* *Prefer not to answer – 2*	*Heterosexual – 28* *Homosexual – 3* *Bisexual – 29* *Asexual – 2* *Other – 2* *Prefer not to answer – 1*	*Heterosexual – 18* *Homosexual – 0* *Bisexual – 2* *Asexual – 0* *Other – 2*
Level of Study					

	Undergraduate – 137 *Postgraduate – 40* *Doctorate – 2* *Other – 10* *Prefer not to answer - 1*	*Undergraduate – 19* *Postgraduate – 6* *Other - 1*	*Undergraduate – 57* *Postgraduate – 13* *Doctorate – 1* *Other – 6*	*Undergraduate – 48* *Postgraduate – 13* *Doctorate – 1* *Other – 2* *Prefer not to answer - 1*	*Undergraduate – 13* *Postgraduate – 8* *Other – 1*
Ethnicity					
	Asian– 14 *Black– 4* *Mixed– 13* *White – 135* *Other - 24*	*Asian– 2* *Black– 1* *Mixed– 2* *White – 19* *Other - 2*	*Asian– 2* *Black – 1* *Mixed– 6* *White – 59* *Other - 9*	*Asian – 7* *Black – 1* *Mixed– 4* *White – 41* *Other - 12*	*Asian – 3* *Black – 1* *Mixed– 1* *White – 16* *Other - 1*
Relationship Status					
	Monogamous – 109 *Non-monogamous- 13* *Single – 60* *Other – 7* *Prefer not to answer - 1*	*Monogamous – 12* *Non-monogamous- 2* *Single – 9* *Other – 3*	*Monogamous – 43* *Non-monogamous- 8* *Single – 21* *Other – 4* *Prefer not to answer - 1*	*Monogamous – 42* *Non-monogamous- 2* *Single – 21*	*Monogamous – 12* *Non-monogamous- 1* *Single – 9*

SASI and NSSI Engagement

Majority of participants reported engaging in both SASI and NSSI behaviours (n = 77). Of those who endorsed both behaviours, more participants reported using either indirect or direct forms of SASI (n = 41), over those who reported using both forms (n = 36). 26 participants reported engaging in SASI behaviours without engaging in another form of NSSI, with more participants reporting using one form of SASI (n = 15), over both forms (n = 11).

Motivations and Abuse History

Valid percentages for SASI function, SASI lifetime vs past year and abuse status across each group are reported in Table 2. Majority of participants reported both indirect and direct SASI functions. Direct functions were more common in the SASI group and indirect functions were more common in the NSSI+SASI group. Regarding

trauma history, 115 informants reported experiencing both sexual and physical abuse. This dual-abuse history was most prevalent in the SASI group (100%), followed by the NSSI+SASI group (85.7%), the control group (47.8%), and the NSSI group (43.8%).

***Table** 2. SASI and Abuse Frequencies.*

	Total *N*=190	NSSI 64(33.7)	NSSI+SASI 77(40.5)	SASI 26(13.6)	Neither 23(12.1)
SASI function					
Direct	20(10.5)	0	10(13.0)	10(38.50	0
Indirect	36(18.9)	0	31(40.5)	5(19.2)	0
Both	47(24.7)	0	36(46.8)	11(42.3)	0
Neither	87(45.8)	64(100)			23(100)
SASI lifetime vs past year					
Lifetime but not past year	27(14.2)	3(4.7)	18(24.3)	4(30.8)	2(10.5)
Lifetime and past year	58(30.5)	0	49(66.2)	9(69.2)	0
Past year but not lifetime	2(1.1)	0	2(2.7)	0	0
Never	71(37.4)	49(94.2)	5(6.8)	0	17(89.5)
Abuse status					
Physical	7(3.7)	5(7.8)	2(2.6)	0	0
Sexual	7(3.7)	3(4.7)	1(1.3)	0	3(13.0)
Both	115(60.5)	28(43.8)	66(85.7)	12(100)	9(39.1)
No abuse	47(24.7)	28(43.8)	8(10.4)		11(47.8)

**Note. Valid percentages were used and missing data was excluded from frequency totals*

Table 3 outlines the descriptive statistics of the associated variables in the study. Higher scores indicate greater severity for depression, anxiety, and abuse and higher self-worth for self-esteem. Self-esteem scores were the lowest for NSSI+SASI (M = 13.57) and highest for SASI (M = 18.27). Depression scores were the highest for NSSI+SASI (M = 12.89) and SASI (10.55). Anxiety scores were relatively similar

between SASI (M = 9.27) and NSSI (M = 9.57), but were higher for NSSI+SASI (M = 11.54). Abuse total scores were the highest for SASI (M = 3.33) and NSSI+SASI (M = 3.19). Sexual (M = 2.58) and physical (M = 2.17) abuse scores were the highest for the SASI group.

Table 3. *Descriptive statistics of associated variables.*

	Total			NSSI			NSSI+SASI			SASI			Neither		
	N	Mean (SD)	Range	N	Mean (SD)	Range	N	Mean (SD)	Range	N	Mean (SD)	Range	N	Mean (SD)	Range
Self-esteem	173	15.49(5.75)	4.00-29.00	63	16.38(5.08)	6.00 – 28.00	76	13.57(5.40)	4.00-28.00	11	18.27(6.37)	9.00-29.00	23	18.04(6.51)	4.00-29.00
Depression	171	10.36(6.00)	0.00-26.00	63	8.44(4.96)	1.00-25.00	76	12.89(5.94)	2.00-26.00	11	10.55(5.34)	2.00-19.00	21	6.81(5.84)	0.00-19.00
Anxiety	171	10.02(5.63)	0.00-21.00	63	9.57(5.58)	0.00-21.00	76	11.54(5.32)	0.00-21.00	11	9.27(3.72)	2.00-14.00	21	6.33(6.04)	0.00-18.00
Abuse score	176	2.36(1.98)	0.00-6.00	64	1.55(1.82)	0.00-6.00	77	3.19(1.87)	0.00-6.00	12	3.33(1.23)	1.00-5.00	23	1.30(1.66)	0.00-6.00
Sexual abuse	176	1.64(1.46)	0.00-4.00	64	1.08(1.40)	0.00-4.00	77	2.19(1.39)	0.00-4.00	12	2.58(0.90)	1.00-4.00	23	0.83(1.07)	0.00-4.00
Physical abuse	176	1.53(1.34)	0.00-4.00	64	0.98(1.21)	0.00-4.00	77	2.10(1.25)	0.00-4.00	12	2.17(1.03)	1.00-4.00	23	0.83(1.19)	0.00-4.00

**Note. Higher scores indicate greater severity for depression, anxiety, and abuse and higher self-worth for self-esteem.*

Group Differences

A one-way multivariate analysis of variance (MANOVA) was conducted to examine differences between the four groups in self-esteem, depression, anxiety, total abuse, physical abuse, and sexual abuse. Levene's test confirmed the assumption of homogeneity of variance for all variables except for sexual abuse $F(3, 167) = 3.82$, $p = 0.011$, suggesting results should be interpreted with caution. The assumptions of linearity and multicollinearity were met, and no outliers were identified. The MANOVA revealed a statistically significant effect of group on the combined dependent variables, Wilks' $\Lambda = .644$, $F(18, 458.69) = 4.30$, $p < 0.001$, partial $\eta 2 = .137$. Follow-up univariate ANOVAs revealed significant group effect observed for self-esteem ($F(3, 167) = 6.69$, $p < 0.001$), depression ($F(3, 167) = 10.68$, $p < 0.001$), anxiety ($F(3, 167) =$

5.43, $p = 0.001$), total abuse scores ($F(3, 167) = 13.71$, $p < 0.001$), physical abuse ($F(3, 167) = 14.24$, $p < 0.001$), and sexual abuse, ($F(3, 167) = 12.39$, $p < 0.001$).

SASI Questionnaire

Frequency rates of the quantitative measures within the SASI questionnaire were assessed for descriptive trends. 146 participants said yes to having engaged in a sexual encounter because it felt like it was expected. Majority of participants responded yes to this question in the SASI (n = 23; 88.5%) NSSI+SASI (n = 72; 93.5%), NSSI (n = 37; 57.8%) and neither group (n = 14; 60.9%). Also, majority of participants reported regretting a sexual encounter (n = 154) (NSSI+SASI (93.5%), SASI (92.3%) NSSI (65.6%), neither (69.6%)). When asked if they could see themselves engaging in SASI in the future, rates were overall lower (n = 87) (NSSI+SASI (n=67.5%), SASI (n=50%), NSSI (n=31.3%), neither (n=8.7%).

Exploratory Analysis

An exploratory analysis examined the mean scores across the four FASM domains for NSSI, SASI and NSSI+SASI. Table 4 outlines the descriptive trends. The NSSI+SASI group reported higher mean scores for social and automatic functioning in the NSSI FASM when compared to NSSI. However, The SASI group reported higher means across all domains than NSSI+SASI for the SASI FASM. Combined means for both FASMs in the NSSI+SASI group found that the total FASM scores for all domains were lower than the SASI group and higher than the NSSI group. Within the NSSI+SASI group, a higher mean score was reported for ANR (M = 2.07) and APR (M = 1.15) for the NSSI FASM, over the same domains for SASI FASM. However, the group reported higher mean scores on the SASI FASM for SPR (M = 0.73) and SNR

(M = 0.55), when compared to the NSSI FASM. ANR was the highest mean domain across all three groups. An exploratory analysis was also used to assess the mean differences in FASM motivations across those who use SASI for indirect and/or direct functions. Descriptive trends are shown in Table 5. Those who report indirect SASI have lower mean scores across all FASM motivations. Those who report direct SASI have the highest means across most domains, except for SPR. Those who endorse both forms of harm reported the highest means for SPR.

Table 4. *Descriptive Statistics for FASM Domains by Study Group*

	NSSI FASM N(M)				SASI FASM N(M)			
	ANR	APR	SNR	SPR	ANR	APR	SNR	SPR
NSSI	52(1.39)	51(.85)	51(.27)	51(.42)	0	0	0	0
SASI	0	0	0	0	7(.97)	7(.75)	7(2.32)	7(1.71)
NSSI+SASI	75(2.07)	75(1.15)	76(.36)	76(.60)	51(.73)	50(.55)	51(1.91)	51(1.39)

**Note. Values represent means for each FASM domain (ANR, APR, SNR, SPR) and their SASI counterparts (SF_ANR, SF_APR, SF_SNR, SF_SPR) across four Study Groups: neither, NSSI, SASI and NSSI+SASI (both). Valid and missing N values are also reported.*

Table 5. *Descriptive Statistics for FASM Domains by SASI Motivation Group*

	NSSI FASM N(M)				SASI FASM N(M)			
	ANR	APR	SNR	SPR	ANR	APR	SNR	SPR
Direct	9(2.53)	9(1.26)	10(.80)	10(.95)	6(2.46)	6(2.06)	6(.71)	6(.70)
Indirect	31(1.92)	31(.96)	31(.21)	31(.45)	19(1.70)	19(.98)	19(.38)	19(.58)
Both	35(2.08)	35(1.30)	35(.36)	35(.62)	33(2.02)	33(1.58)	32(.66)	33(.87)

**Note. Values represent means for each FASM domain for SASI (SF_ANR, SF_APR, SF_SNR, SF_SPR) across four SASI groups: neither, direct, indirect, and both. Valid and missing N values are also reported.*

Correlation Analysis

A Spearman's rank-order correlational analysis explored potential relationships between SASI presence, NSSI presence, history of sexual abuse, history of physical abuse, depression score, anxiety score and self-esteem score. The assumptions of monotonic relationships were satisfied using scatterplots. A Shapiro-Wilk test satisfied normality ($p < 0.05$) and no outliers were detected using the interquartile range.

The result of the Spearman correlation is presented in Table 6. SASI presence was significantly positively correlated with history of sexual (ρ =0.44, p<0.001), and physical abuse (ρ=0.46, p<0.001). SASI presence was significantly negatively correlated with self-esteem (ρ =-0.28, p<0.001), and moderately positively correlated to depression (ρ=0.41, p<0 .001) and anxiety (ρ=0.25, p=0.002. NSSI presence is moderately positively correlated with anxiety (ρ=0.215, p=0.005) and moderately positively correlated with depression (ρ=0.18, p=0.020. History of sexual abuse was moderately positively correlated to a history of physical abuse (ρ=0.46, p<0.001), depression (ρ=0.36, p<0.001) and anxiety (ρ=0.29, p<0 .001). Similarly, history of physical abuse was moderately positively correlated to both depression (ρ =0.30, p<0.001) and anxiety (ρ=0.28, p<0 .001).

Table 6. *Correlation Table*

	NSSI Presence	SASI Presence	History of Sexual Abuse	History of Physical Abuse	Self-Esteem	Depression	Anxiety
NSSI Presence	1	.13 (p=.088)	.01(p=.915)	.10(p=.184)	-.22 (p=.004)**	.18 (p=.02)*	.26 (p=.005)**
SASI Presence	.13 (p=.09)	1	.44 (p<.001)**	.46(p<.001)**	-.28 (p<.001)**	.41 (p<.001)**	.25 (p=.002)**
History of Sexual Abuse	.01 (p=.915)	.44 (p<.001)**	1	.81(p<.001)**	-.14(p=.069)	.36(p<.001)**	.29 (p<.001)**
History of Physical Abuse	.10 (p=.184)	.46 (p<.001)**	.81 (p<.001)**	1	-.11(p=.153)	.30 (p<.001)**	.28 (p<.001)**
Self-Esteem	-.22 (p=.004)**	-.28 (p<.001)**	-.14 (p=.069)	-.11(p=.153)	1	-.64 (p<.001)**	-.47 (p<..001)**
Depression	.18 (p=.02)*	.41 (p<.001)**	.36 (p<.001)**	.30(p<.001)**	-.64 (p<.001)**	1	.61 (p<.001)**
Anxiety	.26 (p=.005)**	.25 (p=.002)**	.29 (p<.001)**	.28(p<.001)**	-.47 (p<..001)**	.61 (p<.001)**	1

Self-esteem was strongly negatively correlated with depression (ρ=-0.64, p<0.001) and moderately negatively correlated with anxiety (ρ=-0.47, p<0.001). Depression was strongly positively correlated with anxiety (ρ=0.61,p< 0.001). Abuse

status was strongly positively correlated with abuse total (ρ=0.83, p<0.001), and moderately positively correlated with depression (ρ=0.36, p<0.001), and anxiety (ρ=0.31, p<0.001). Abuse total was also negatively correlated with self-esteem (ρ=0.42, p<0.001), and positively correlated with depression (ρ=0.40, p<0.001) and anxiety (ρ=0.28, p<0.001).

Indirect vs Direct SASI

A McNemar's test was conducted to examine likelihood of SASI function by analysing the paired binary responses from each participant to test whether the proportion of endorsements differs between the two. All participants who reported endorsing a form of SASI were included. The assumptions of binary variables, paired observations and sufficient discordant pairs were all met. The test revealed a statistically significant difference in endorsement rates, $\chi 2(1, N = 174) = 10.00$, p = 0.001, with a medium effect size (w=0.24).

A chi-square test of independence was conducted to further examine the relationship between SASI function and NSSI co-morbidity. Both variables are categorical, and no cells had an expected count of less than 5, meeting all assumptions. The association was statistically significant, $\chi 2(2, N = 103) = 6.94$, p =0 .031. The SASI group was significantly more likely to report direct motivation (38.5%) compared to NSSI+SASI (13.0%), while the NSSI+SASI group was more likely to report indirect motivation (40.3%) than SASI(19.2%). Participants most commonly reported indirect and direct functions co-morbidly in the SASI (42.3%) and NSSI+SASI group (46.8%).

Logistic Regression

Data was screened for missing values and cases with missing data were excluded from the analysis. All cases were independently observed, and no repeated measures were present. All tolerance values were > 0.1 and all VIF values were below five, indicating no significant multicollinearity among predictors. The linearity of the logit was tested for continuous predictors and the assumption was met. No cases violated expected thresholds for leverage values or Cook's distance. Cases with residuals greater than +/- 2.5 were reviewed. Three cases were found to have large residuals but following data inspection were determined to be valid. A sensitivity analysis was run to assess the influence of the residual. The overall results remained consistent, and the cases were retained in the model.

A logistic regression was performed to assess the impact of self-esteem (RSE), depression (PHQ-9), anxiety (GAD-7) and abuse (SPAQ total score), on the likelihood that the informants would engage in SASI. The model was statistically significant, $\chi 2(4) = 51.32$, $p < .001$. The model explained 35.8% (Nagelkerke R2) of the variance and correctly classified 73.2% of cases. Of the 4 predictors, anxiety (p=0.24) and self-esteem (p=0.37) were not statistically significant. Depression (B=0.122, SE=0.046, Wald=6.88, p=0.009, OR=1.13, 95% CI [1.031, 1.237]), and abuse (B=0.469, SE=0.109, Wald=18.697, p<0.001, OR=1.599, 95% CI [0.874, 1.035]) were statistically significant.

A second logistic regression was performed to examine whether self-esteem (RSE), depression (PHQ-9), anxiety (GAD-7) and abuse (SPAQ total score), could predict engagement in NSSI. All assumptions were checked prior to running the analysis using the same method as the first logistic regression. The overall model was statistically significant, $\chi 2(4) = 13.69$, $p = .008$, indicating that the predictors reliably distinguished between individuals who did and did not engage in NSSI. The model

explained approximately 12.4% of the variance in NSSI engagement (Nagelkerke R2 = 0.124). None of the predictors reached statistical significance, however self-esteem approached statistical significance, $B = –0.088$, SE = 0.046, Wald = 3.67, $p = .055$, Exp(B) = 0.92, 95% CI [0.84, 1.00]. Depression (p=0.70), anxiety (p=.12) and abuse (.53) were not significant.

Abuse Chi-squared

A chi-squared test of independence was conducted to examine the relationship between abuse status and study group. The analysis found that 56.3% of cells had expected cell count lower than 5. To address this, abuse status was re-coded into two separate binary variables: sexual abuse (yes/no) and physical abuse (yes/no). Two separate chi-squared tests of independence were conducted to assess the relationship between study group and type of abuse. This approach was taken to adhere to best practices and maintain statistic validity. The re-coded variables each met assumptions for the analysis. The relationship between study group and sexual abuse was statistically significant, $\chi2(3, N = 176) = 32.95$, $p < 0.001$, Cramér's V = 0.43, indicating a relatively strong association between group membership and reported sexual abuse. Similarly, the relationship between study group and physical abuse was also statistically significant, $\chi2(3, N = 176) = 37.71$, $p < .001$, Cramér's V = 0.46, suggesting a strong association between group membership and reported physical abuse.

Discussion

The present study aimed to investigate the functions and psychological correlates of SASI in post-secondary students, to contribute to an overall better understanding of the behaviour. This study explored the functional motivations and

psychosocial variables associated with SASI, as well as the relationship and comorbidity patterns between SASI and NSSI.

Descriptive statistics including raw counts, percentages, and means were reported to provide a clear and interpretable summary of the data. This approach allows for meaningful comparison across groups while maintaining transparency regarding the limitations of the statistical analysis. Although inferential conclusions cannot be drawn, the descriptive patterns observed offer valuable insight into the distribution and prevalence of gender, sexual orientation, study level, relationship status and ethnicity, across study group. Through a combination of the descriptive statistics, inferential tests, and regression modelling, the study sought to identify the functional motivations behind SASI, the role of abuse history, and the predictive value of psychological variables such as depression, anxiety, and self-esteem. The findings offer valuable insights into the nuanced differences between individuals who engage in SASI, NSSI, both, or neither, and contribute to the growing literature on self-injurious behaviours and SASI.

The demographic findings demonstrate that group membership was significantly associated with differences in psychological distress and abuse-related experiences. The multivariate test revealed a robust overall effect, and follow-up univariate ANOVAs confirmed significant group differences in self-esteem, depression, anxiety, and all abuse-related variables, with moderate to large effect sizes. These results suggest that individuals in different self-injury groups experience distinct psychological profiles, particularly in terms of emotional distress and trauma exposure. Most participants were in undergraduate degrees, which is consistent with our recruitment eligibility criteria of age 17- 25 and the general assumption that undergraduate students fall within this age range. Age did not significantly differ across groups. These findings suggest that age is

not a distinguishing factor among individuals in different study groups. The lack of significant differences may reflect the narrow age range of the sample or indicate that self-injurious behaviour endorsement is not age-dependent within this population. Additionally, It is possible that these discrepancies are influences by the substantial size differences across study groups. Unequal group sizes can reduce statistical power, increase the risk of Type I or Type II errors, and caution is warranted when interpreting group contrasts. Future research should aim to recruit more balanced samples to ensure more stable estimates and to better capture the variability within smaller subgroups, such as those reporting SASI-only.

The present study suggests that within post-secondary students, some individuals do use sexual activity as a way to physically and/or mentally harm themselves. These findings are consistent with the previous research from Mellin and Young (2022), which found similar results within a U.S sample of university students. This suggests a cross-cultural consistency in how young adults conceptualize and experience SASI. These results should be considered when assessing how SASI is used and the populations at risk. Current literature on SASI further emphasises the need to recognize SASI as a legitimate form of self-injury, despite the presence of visible wounds. This supports the current finding that indirect harm is a valid and prevalent experience for students endorsing SASI, demonstrating the further need for research on SASI endorsement and post-secondary students.

The frequency rates of the SASI specific questions highlight some interesting findings. High feelings of expectation for engagement in sexual activity were reported across each distinct group, suggesting that post-secondary students may feel overall high pressure to engage in sexual activity. This is consistent with the concept of ‘hook-

up' culture, where students may feel as though it is typical to engage in frequent sexual experiences without further expectation for relationships (Garcia et al., 2012; Pham, 2017; Wade, 2017). The findings also highlight that majority of participants reported having regretted a sexual encounter. This suggests that despite group status, high levels of sexual regret exist within the population. Literature on hook-up culture suggests that student's current approach to sexual relationships may result in anxiety, disappointment, and sexual violence (Wade, 2017). The findings from the present study support this notion, as it was found that regardless of group status, high levels of sexual regret exist within the population. Furthermore, a high percentage of informants in the NSSI+SASI and SASI groups reported seeing themselves engage in SASI in the future. Although lower, certain participants in the NSSI and neither groups also reported yes to this question. This suggest that within some capacity, there is a risk for those who have not yet experienced SASI to do so in the future. The emphasis on sexual experiences and high levels of sexual regret within this population is an area that should be further explored in relation to SASI and how risk factors can be identified to prevent future engagement.

The results of the present study suggest that when looking at the functions separately, participants were significantly more likely to engage in SASI to serve an indirect function, rather than a direct one. This aligns with previous research suggesting that emotional regulation is a key function in NSSI (Nock et al., 2008; Hooley and St Germain, 2013; Wilkinson., 2013; Taylor et al., 2017) and growing literature suggesting SASI and NSSI share similar functions (Fredlund et al., 2017; Jonsson et al., 2019). The preference for indirect functions suggests that SASI may serve as a means of alleviating psychological distress rather than inflicting physical pain, distinguishing it from more overt forms of self-harm such as cutting or burning. However, when looking at the

relationship between study group membership and SASI function, majority of participants reported using SASI to serve both an indirect and direct function co-morbidly. This suggests that while indirect motivations may be the primary, many individuals experience a complex interplay of emotional and behavioural drivers behind their SASI engagement. Furthermore, participants in the SASI-only group were significantly more likely to report direct functions compared to those in the co-morbid group, whereas individuals who endorsed NSSI+SASI behaviours were more likely to report indirect functions. These findings highlight meaningful differences in motivational profiles between study groups and underscore the heterogeneity of self-injurious behavior.

Most informants reported endorsing both NSSI and SASI behaviours co-morbidly, indicating that individuals may be more likely to engage in SASI while also endorsing another form of NSSI. High co-morbidity rates among behaviours are consistent with previous self-harm literature, and indicates a need for more research and interventions for those who engage in NSSI (Tull et al., 2012; Dahlström et al., 2015; Klonsky, 2007). The present study's findings suggest that individuals who engage in one form of self-harm, such as SASI, may also be at risk of engaging in other forms, reinforcing the importance of comprehensive risk assessments and individualized safety planning. This aligns with recent research which suggests the use of multiple NSSI methods is a strong indicator of clinical severity and elevated risk, including suicidal behaviors (Reinhardt et al., 2025).

Difference in gender and sexual identity emerged across groups. 97% of participants who identified as no-binary reported some form of self-harm, followed by 93% of females. The overrepresentation of non-binary individuals may suggest that

those who identify as non-binary could be at an increased vulnerability for NSSI behaviours. This aligns with existing literature which suggests elevated vulnerability to NSSI among gender-diverse populations, potentially due to minority stress, identity-related stigma, and limited access to affirming mental health care (Hounsome, 2024; Zetterqvist et al., 2018). Similarly, bisexuality was the largest reported sexuality and may be a consideration for future literature to determine if stigma and sexual exploration expectations within the bisexual community could influence those who engage in SASI. This finding warrants further exploration, as bisexual individuals often face unique stressors—including biphobia, erasure, and conflicting societal expectations—that may contribute to emotional distress and maladaptive coping strategies such as SASI (Hedén et al., 2023).

However, given the self-selecting nature of the sample and the inherent issues with self- report and social desirability, these findings are difficult to generalize on a broader scale. Scores for associated risk factors of depression and anxiety were higher in all self-harm groups than the neither group. The correlation analysis underscored the psychological correlates associated with SASI. SASI presence was significantly correlated with depression scores, indicating that individuals who engage in SASI are more likely to have exhibit depressive symptoms. Further logistic regression found that higher depressive symptoms were associated with a higher likelihood of SASI engagement. This is consistent with the current understanding that high comorbidity rates exist between NSSI and other mental disorders and that similar consistencies may be present for SASI (Dahlström et al., 2015; Klonsky, 2007; Tull et al., 2012). These findings also suggest that interventions targeting depressive symptoms may be effective in reducing SASI behaviors.

The findings from the two logistic regression models suggest distinct psychological profiles associated with SASI and NSSI engagement. While depression and abuse emerged as significant predictors of SASI, none of the variables significantly predicted NSSI engagement, although self-esteem approached significance. This discrepancy suggests that while depression and abuse are robust predictors of SASI, they may not be sufficient to explain NSSI engagement, which is in direct contrast to current NSSI research (Dahlström et al., 2015; Klonsky, 2007; Tull et al., 2012). It is possible that NSSI is influenced by broader psychological and contextual factors that were not captured by the current measures. Importantly, these findings must be interpreted with consideration to the overlap between NSSI and SASI in this sample. Many individuals may engage in both behaviors simultaneously, which complicates the ability to isolate distinct predictors for each. Co-occurring engagement may reflect a shared underlying vulnerability, such as emotional dysregulation or trauma exposure, and suggests that the functions and psychological drivers of each behavior may differ even within the same individual. For example, SASI may serve more internalized functions, while NSSI may be more externally oriented. This overlap could dilute the predictive power of models that treat SASI and NSSI as mutually exclusive categories.

Self-esteem was strongly negatively correlated with depression and moderately correlated with anxiety, which suggests self-worth may be a risk factor for internalizing disorders within this population. Interestingly, self-esteem scores were the lowest within the NSSI+SASI group (M=13.57) and the highest in the SASI group (M=18.27), suggesting that those in the SASI group had the highest self-esteem. This is an interesting finding that may suggest that self-esteem is not associated with sexual activity and SASI in the same way as NSSI. This is directly in contrast to the findings of Mellin and Young (2022), who found that university students reported engaging in

SASI due to negative self-worth. The discrepancy may reflect differences in sample characteristics, such as age, cultural context, or the presence of co- occurring psychological conditions but also raises questions about the functional motivations behind SASI. Further literature is needed to assess this finding in a more robust manner. Longitudinal studies and qualitative approaches could offer more nuanced insights into how self-worth interacts with different forms of self-injurious behavior, and whether SASI represents a distinct psychological profile from NSSI. Anxiety and self-esteem are not significant within the regression model; however, it is possible that their effects may be mediated by depression or abuse in this study. This highlights the complexity of psychological variables in the etiology of SASI and self-harm.

The results of the correlation analysis suggests that SASI presence is associated with higher levels of historic abuse, depressive symptoms and lower self-esteem, supporting the hypothesis that SASI may function as a maladaptive coping mechanism in response to trauma and emotional dysregulation. Current SASI research that suggests the behaviours may be forms of re-enactment of child sexual abuse, suggesting that higher levels of abuse history may result in more frequent SASI engagement (Fredlund et al., 2017; Jonsson et al., 2017; Zetterqvist et al., 2018). Abuse total scores were the highest within the SASI group and closely followed by the NSSI+SASI group, reinforcing the link between trauma history and self-injurious behavior particularly in a sexual context. The association between abuse history and self-injury has been well-documented, and this study provides further evidence that SASI may share similar relationships through strong correlations and predictive factors (Gratz, 2003; Whitlock et al., 2006). Prior research on SASI suggests that historic sexual abuse is found to be a recurrent risk factor for SASI, and that SASI may be conceptualized in the context of trauma re-enactment (Fredlund et al., 2017; Fredlund et al., 2019; Zetterqvist et al.,

2018). The present study found that higher abuse scores were associated with a higher likelihood of SASI engagement. These results support the findings from prior literature and highlight the need for further investigation on the associations between SASI and abuse. Additionally, significant associations were found between both physical and sexual abuse and SASI presence. These findings align with prior research suggesting that SASI may emerge as a maladaptive coping strategy in response to normalized sexual violence, dissociation, and shame (Hedén et al., 2023). This underscores the importance of trauma-informed approaches in clinical settings when supporting individuals experiencing SASI or self-injury.

An important consideration when interpreting these findings is that only 46.2% of participants who reported endorsing SASI-only completed the SPAQ questionnaire. 100% of participants who completed the questionnaire in this group reported experiencing both sexual and physical abuse in their lifetime. The low adherence rate within the SASI population is an important consideration. High incompletion rates are consistent with current literature on NSSI (Robinson & Wilson, 2020) and may be increased within this group due to high sensitivity to content, especially in an abuse context. Similarly, 85.7% of individuals who endorse both NSSI+SASI reported experiencing both forms of abuse. Although the rates of both abuses are also high in the NSSI group (60%), they remain lower than those who report SASI or NSSI+SASI. These findings suggest that SASI may be more associated with prior trauma and abuse than NSSI. This is consistent with Fredlund et al. (2017), who theorised that sexual abuse and other adverse events are important factors for having destructive sexual relationships.

Functional Motivations

A chi-squared test examined the relationship between SASI function and study group. The test revealed a significant association between the presence of NSSI and SASI function. These findings suggest that the functions of SASI may differ depending on the presence of NSSI, with indirect motivations being more prevalent among individuals who engage in NSSI+SASI. This highlights the importance of screening for and considering co-morbidity within self- injurious behaviors during assessment and treatment planning for SASI and/or NSSI. Individuals who endorse NSSI while also endorsing SASI may utilise SASI to serve a different function than NSSI. This finding is further supported by prior research, which suggests that those who endorse SASI may switch to SASI from another form of NSSI, as it is easier to hide from others (Zetterqvist et al., 2018). As further indicated by this study, participants most frequently reported using SASI for both indirect and direct functions co-morbidly, suggesting that many individuals experience complex and multifaceted drivers behind their self-injurious behavior.

The further exploratory analysis on the mean scores across the FASM domains The further exploratory analysis on the mean scores across the FASM domains revealed meaningful patterns on the functional behaviours of each individual group. Participants in the NSSI+SASI group reported overall higher mean scores across both social and automatic functions when compared to the NSSI-only group in the NSSI context. These findings suggest that individuals who experience NSSI and SASI co-morbidly, may be experiencing more multifaceted motivations for self-injury in comparison to those who endorse NSSI-only. However, in the SASI context, the SASI-only group reported higher mean scores across all domains than the NSSI+SASI group. These findings indicated that SASI may serve more distinct or intense functions when it occurs in isolation. When combining the mean scores of both FASM's in the NSSI+SASI group, the

group's total remained lower than the SASI group and higher than the NSSI group, suggesting SASI may be associated with more salient overall functional motivations.

Differences in endorsement rates of specific functional domains were observed within the NSSI+SASI group. Automatic functions (ANR and APR) were more strongly reported in the NSSI context, while social functions (SPR and SNR) were more prominent in SASI context. These findings suggest that within those who endorse NSSI and SASI comorbidly, NSSI may be more internally driven (e.g., to reduce negative feelings), while SASI may be more socially driven. Future research should aim to analyse the potential interpersonal dynamic and social validation processes in relation to SASI. ANR was the highest reported domain across all groups, reinforcing the findings of prior literature which suggests negative reinforcement may play a central role in the functional model of self-injury (Nock, 2009). A secondary exploratory analysis examined the differences in FASM motivations between participants who reported endorsing SASI for direct, indirect or both functional motivations. The analysis indicated that those who endorse SASI as an indirect self-harm behaviour, reported the lowest mean scores across all domains when compared to the direct and both groups. In contrast, those who endorse SASI as a direct function, reported higher scores across most domains. Those who endorse both direct and indirect functions, reported the highest mean scores for SPR. These findings suggest that functional motivations for SASI may vary depending on whether the behaviour is endorsed as a direct or indirect form of self-harm.

Despite poor internal consistency scores across several FASM domains – especially in the SASI context, they were retained due to the exploratory nature of the analysis. Given the novel construct of SASI and the absence of validated measures, retaining these domains allowed for preliminary insights on the conceptualization and

experiences of SASI which has yet to be explored. It is possible that low reliability reflects genuine variability within the study population rather than measurement errors alone. Findings should be interpreted with caution and no inferential statistics were conducted on group differences. Future research should aim to refine the measurement of SASI-specific functions to improve psychometric robustness and develop validated measures. The exploratory analysis' underscore the complexity of SASI in relation to self-injurious behaviours and highlight the need for nuanced and functionally informed assessments. The findings support the notion that SASI may share similar functions to NSSI, but additionally highlight the potential distinct motivational components of SASI that warrant further investigation.

Clinical Implications

The results of this study report preliminary findings that may have several important implications for clinical practice. The discrepancies found in the logistic regressions reinforces the need for comprehensive assessments that explore the full spectrum of self-injurious behaviors. Treatment approaches should be flexible enough to address both shared and distinct mechanisms, particularly in individuals who present with co-morbid self-harm profiles. The preference for indirect functions of SASI suggests that interventions may benefit from focusing on enhancing emotional regulation skills and alternative coping mechanisms. The findings also suggest that interventions targeting depressive symptoms and abuse may be particularly effective in reducing SASI behaviors, given the strong associations between the variables and SASI. Evidence-based treatments for depression such as Cognitive Behavioral Therapy (CBT) and Interpersonal Therapy (IPT) have demonstrated efficacy in reducing depressive symptoms and improving emotional regulation (Beck, 2020; Wright, 2004).

Furthermore, the strong association between history of abuse and self-injury highlights the further need for trauma informed care. Abuse history should be assessed, and considerations should be made for its impact on psychological functions and self-injurious behaviours. For individuals with histories of abuse, trauma-focused therapies—such as Trauma-Focused CBT, Eye Movement Desensitization and Reprocessing (EMDR), and supportive psychotherapy have shown effectiveness in alleviating trauma-related distress (Schwarz et al., 2021). These interventions may reduce SASI indirectly by addressing the emotional dysregulation, dissociation, and trauma-related coping mechanisms that often underlie the behaviour. By improving psychological stability, fostering self-worth, and facilitating the processing of traumatic experiences, such treatments may diminish the emotional drivers that compel individuals to engage in SASI. Moreover, therapies that promote bodily autonomy, relational safety, and self- compassion may help reframe sexual behavior from a form of self-injury to one of agency and connection. Future research should explore integrated treatment models that combine trauma- informed care with emotion regulation strategies tailored to the unique dynamics of SASI.

Lastly, given the consistent research demonstrating the high prevalence of self-injurious behaviours and co-morbid mental disorders within post-secondary students, increased considerations should be adopted in relation to SASI in students (Dahlström et al., 2015; Klonsky, 2007; Tull et al., 2012). Early identification of risk-factors such as depressive symptoms and abuse history may reduce the likelihood of SASI engagement. Universities and colleges should aim to implement comprehensive mental health programs for a wide range of behaviours including SASI. These programs should be rooted in evidence-based treatments to reduce stigma and increase early intervention treatments. Embedding accessible interventions strategies within campus mental health

services may promote early detection and reduce stigma, encouraging students to seek help before behaviors escalate. Future research should explore integrated models that combine trauma-informed care with targeted emotion regulation strategies to address the unique psychological mechanisms of SASI.

Strengths & Limitations

The present study is a novel exploration of SASI which remains relatively under-explored and a conceptually complex phenomenon. To our knowledge, this was the first study to look at the functions and psychological correlates of SASI within post-secondary students. By incorporating quantitative research methods from a large sample of post-secondary students, the study aims to provide a nuanced and more robust understanding of the functional motivations of SASI. The collected data aims to serve as a foundation for future research. The current paper focuses primarily on descriptive and exploratory trends, however a substantial portion of collected data remains unanalysed. Subsequent studies have the opportunity to conduct more advanced statistical modelling and an in-depth qualitative analysis. The collected data contributes to the immediate understanding of SASI as well as the broader research agenda which aims to refine theoretical models and improve clinical interventions for SASI.

The use of validated psychometric measures such as the PHQ-9, GAD-7 RSE, FASM and SPAQ, further enhances the reliability of the findings. Additionally, the present study tested the validated measure of the FASM in the context of SASI behaviours, which offers several benefits for both research and clinical practice. The application of a well-established framework developed for NSSI allowed for us to assess whether similar functional motivations, such as affect regulation, are relevant to SASI. This finding may be consistent with current literature on the conceptual overlap

between direct and indirect forms of NSSI and further suggests that SASI may serve similar psychological functions, however internal consistency of the measure must be considered. This allowed for a structured method for capturing psychological functions of SASI to identify patterns which are otherwise difficult to quantify due to the complex and sensitive nature of the concept. The FASM allowed for comparability across study groups and enabled the examination of similarities and differences between NSSI and SASI. However, low internal consistency highlights the need for a more refined and validated SASI specific functional assessment tool. A more in-depth measure of NSSI may have been beneficial in analysing the functions of SASI. Future research could use a tool such as the Inventory of Statements About Self-Injury (ISAS) to assess behaviours and motivations in a more in-depth manner. The further development of a psychometrically validated tool tailored to the unique experiences of SASI is needed to improve diagnostic accuracy and inform targeted intervention strategies.

Despite various strengths in support of this study, there are limitations which must be considered when interpreting the findings. One methodological limitation comes from the comprehension of the term ‘sex as self-injury’. Given the novelty and sensitivity of the topic, it was anticipated that difference in interpretations would emerge. To combat this, a working definition of SASI was developed and provided to all participants prior to beginning the survey, to establish a shared understanding of the topic. Future research should aim to assess if difference in interpretations of the term SASI exists across different populations and how this may influence how individuals report SASI.

Furthermore, large sample size discrepancies exist between the independent groups. The NSSI (n=70), NSSI+SASI (n=77), SASI (n=26), and neither (n=22) groups varied considerably in size, which may impact robustness of comparisons. These

discrepancies are important to consider when interpreting results of the findings. The study utilised exploratory analyses and descriptive trends to decrease size discrepancy influences in the findings. Furthermore, the size discrepancies between the groups may indicate that SASI is particularly likely to occur co- morbidly with another form of NSSI. Prior research has suggested that those who endorse SASI may switch to SASI from another form of NSSI as it is easier to hide from others (Zetterqvist et al., 2018). This is a factor that should be assess in future literature. Additionally, the present study focused solely on post-secondary students, limiting generalizability to the broader population within the same age range. Future research should expand on the work of this study to assess if similar findings are seen across the non-student population. The cross-sectional design of the study limits our ability to identify causal relationships. Additional longitudinal studies are needed to assess causal relationships and establish temporal sequences.

Moreover, the reliance on self-report measure of the study allows for the possibility of recall and report biases. Given the sensitive nature of the study content, some participants may not be comfortable disclosing certain information or fear judgement due to the taboo nature of the research. Participants alternatively may not wish to share traumatic experiences or those that they feel are embarrassing. An anonymous, online format was chosen to promote full and honest disclosure. It has been established that when dealing with sensitive or potentially embarrassing topics, participants are likely to express their thoughts and experiences more honestly and openly when compared to face-to-face interviews (Barker & Barker, 2013). Despite this consideration, participants may have under- or over-reported their experiences, which may affect the accuracy of the findings. All responses were completely anonymous and extra consideration was given to survey responses with high percentage of unanswered

questions. The online survey platform aimed to allow for participants to feel more comfortable answering vulnerable questions, however this format does not allow for follow-up questions which would have helped to obtain a more well-rounded understanding of SASI and NSSI. Future research should aim to use a more adaptive interview approach to develop a deeper and more personal understanding of these behaviours.

The demographic information from the participants must be taken into consideration when interpreting the findings. Majority of participants were females (n=114), which may reflect the broader notion that women are more likely than men to respond to surveys, as highlighted in previous research (Becker & Glauser, 2018; Smith, 2008). Moreover, the majority of participants were white (n=135), which may limit generalizability of the findings across other ethnic groups. One possibility for this limitation may be due to the eligibility criteria of the study. As our eligibility criteria was targeted towards English-speaking participants, this may have limited accessibility for participants of other cultural identities to participate. Therefore, non- English speaking participants of different ethnic and cultural background were excluded from the study. Future research should aim to include more diverse samples to examine potential cultural and gender differences in SASI behaviours. No location demographic information was collected for this study, preventing analysis of regional or cultural influences on SASI. Expanding demographic representation is essential for both generalizability and for uncovering nuanced patterns of vulnerability and resilience. For example, gender-diverse individuals and ethnic minorities may experience unique forms of stigma and trauma that shape their engagement in self-injurious behaviors. A more intersectional approach to SASI research could highlight these dynamics and inform culturally competent prevention and intervention strategies. Another methodological

issue that arose was the low internal consistency of certain FASM scale domains used in the study, particularly in the SASI context. While these scales were retained for exploratory purposes due to theoretical considerations, the findings should be interpreted with caution. Future research is needed to develop and validate empirically grounded measures specifically designed to assess the functions of SASI.

Future Directions

The findings of this study generate a foundational basis for future research. Building on the findings of the present study, several suggestions for future research emerge on how to deepen our understanding of SASI on a broader scale. First, future studies should employ longitudinal research designs to examine the temporal sequences and developmental trajectories of SASI. This would allow researchers to develop a better understanding of casual mechanisms of SASI and identify associated risk and protective factors. Such designs are necessary to provide critical insights to inform the development of targeted early interventions. Additionally, future research should assess whether differences in interpretation of the term SASI exist across populations and how these interpretations may affect how individuals report SASI. Although a standardized definition was provided within this study, the novelty of SASI as a concept may result in various understandings of the definition across the participants, which could influence how participants report their experiences. An exploration of interpretation differences could enhance the accuracy and cultural sensitivity of future assessments and research. To address this, a Delphi study could be employed to systematically gather expert consensus on the definition, core features, and culturally sensitive dimensions of SASI. The Delphi method is particularly well-suited for emerging or poorly defined constructs, as it facilitates structured, iterative feedback from a diverse

panel of experts—including clinicians, researchers, and individuals with lived experience (Brady, 2015; Constantinou & Nikitara, 2023). This approach would allow for the refinement of SASI's conceptual boundaries and ensure that future measures and interventions are grounded in both empirical evidence and cultural competence. Moreover, incorporating culturally diverse perspectives through a Delphi process could help identify culturally specific expressions of SASI and reduce the risk underreporting in marginalized populations.

Research should also explore the role of gender identity and sexual orientation in SASI behaviours. The current study found that non-binary individuals were overrepresented in the NSSI+SASI group, suggesting that gender minority status may confer additional risk. Furthermore, the high proportion of bisexual individuals within each self-harm group is a factor that should be analysed in future research. A more in-depth assessment on the unique stressors faced by gender and sexual minorities may offer valuable insights into the etiology of SASI and self-injurious behaviours as a whole. The present study's sole focus on post-secondary students limits the generalizability of the findings and future research should aim to expand on the current findings within the non-student populations. Future research should also look to expand current knowledge on SASI within post-secondary students to assess why this population may be particularly at risk. Associations between socio-cultural factors and the concept of 'hook-up' culture should me more deeply investigated. The lack of geographical data within this study further limits the ability to assess regional or cultural influences on SASI, which should be addressed in future research.

Qualitative research is needed to compliment the quantitative findings of this study and provide a more robust understanding of specific experiences of SASI. The collected qualitative information within the dataset of the current study should be

analysed in a thematic analysis to assess trends and themes present in the sample. A qualitative analysis on participants experiences of engaging and self-reported functions of SASI is needed to explore the lived experiences of individuals who endorse SASI and help generate a more comprehensive understanding of the concept. Additionally, a more adaptive, interview-based approach four future studies would allow for deeper understanding of SASI experiences with the potential for follow-up questions. This format would address some of the limitations of self-report surveys and generate a more robust image of SASI behaviours. Moreover, the potential interpersonal dynamics and social validation processes associated with SASI should be further investigated. The current study suggests that social functions may play a more prominent role in SASI over NSSI, particularly in the NSSI+SASI group. Deeper understanding of these dynamics could inform the development of interventions that address these difference and identity-based factors. Future research should consider modeling SASI and NSSI engagement as interacting or nested behaviors, rather than independent outcomes, to better capture the complexity of self-injury and improve predictive accuracy.

Efforts should be made to improve the psychometric properties of existing measures and develop new tools tailored specifically for SASI. While the FASM was adapted for use in SASI context within this study, several domains – particularly ANR, APR and SNR – demonstrated low internal consistency within the SASI context. Future research may aim to use a more in-depth NSSI measure such as the ISAS to assess behaviours and motivations. On a larger scale, future research should aim to refine the measurement of SASI-specific functions to improve psychometric robustness and develop validated measures. This includes refining the measurement of functional motivations for SASI to improve psychometric robustness and ensure conceptual clarity

on a validated scale. Reliable and validated measurement tools are essential for advancing research and clinical practices in this area.

Conclusion

The present study contributes to the underexplored and emerging literature on SASI, particularly within post-secondary students, highlighting its psychological correlates and functional motivations alongside traditional NSSI. While NSSI has been increasingly examined in modern literature, SASI remains under investigated. The present study aims to address a current gap in literature by providing a comprehensive examination of the demographic statistics' psychological underpinnings, and functional motivations of SASI and NSSI. The findings highlight the importance of emotional regulation, trauma history and depressive symptoms in understanding SASI and self-injurious behaviours. Ultimately, the present study highlights the urgency for a broader and more nuanced investigation into SASI, with the use of more diverse populations and complex psychosocial variables. A more in-depth understanding of SASI's functions and psychological correlates, particularly its relationship to abuse status and emotional dysregulation, is needed to assist clinicians and researchers in identifying and supporting individuals at risk. Targeted therapeutic intervention, strategies addressing trauma and depressive symptoms may assist in mitigating self-injurious behaviours in the SASI context. By addressing complex interplay of various psychological factors and unique individual experiences, we can develop more effective strategies to support those who endorse SASI and prevent future engagement in at risk groups. While limitations exist within the study, it offers valuable and novel insights into the underlying mechanisms of SASI and lays foundational groundwork for future clinical interventions and research.

Abbreviations

Sexual activity to self-injure (SASI), Non-suicidal self-injury (NSSI), Functional Assessment of Self-Mutilation (FASM), The Sexual and Physical Abuse Questionnaire (SPAQ), Rosenberg Self-Esteem Scale (RSE), Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), Analysis of variance (ANOVA), Multivariate analysis of variance (MANOVA), Cognitive Behavioral Therapy (CBT) and Interpersonal Therapy (IPT).

Declarations

Ethical Approval

This study involved analysis of anonymized human data and was conducted in accordance with institutional guidelines and the Declaration of Helsinki. Ethical approval was obtained on November 20th, 2024 from the University of Edinburgh School of Health in Social Science Research Ethics Committee (Case # CAHSS2408/12). Informed consent was obtained from each participant prior to participation. As data were fully anonymized, no identifiable information was collected.

Consent for Publication

Informed consent for publication was obtained from each participant prior to participation. All collected data is anonymous and no identifiable information was collected.

Availability of Data and Materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Disclosure of interest

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The authors report generative AI was not used in their research or preparation of this manuscript.

Authours' Contribution

CH developed the investigator written survey, collected all data, analysed and interpreted the data and wrote the manuscript. JKT provided support in developing the investigator written survey, assisted with data interpretation and analysis, as well as provided supervision to CH and provided valuable feedback on all manuscript drafts.

References

Arnett JJ. *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford University Press; 2004.

Barker DI, Barker M. *Internet research illustrated*. Cengage Learning; 2013.

Bartholomew E, Smyth C, Buchanan B, Baker S, Hegarty D. A review of the Rosenberg Self-Esteem Scale (RSES): Interpretive guidelines, clinical and community age-based normative comparisons. NovoPsych; 2025. Available from: https://novopsych.com/assessments/well-being/rosenberg-self-esteem-scale-rses/

Beck JS. *Cognitive behavior therapy*. 3rd ed. Guilford Press; 2020.

Brady SR. Utilizing and adapting the Delphi method for use in qualitative research. *Int J Qual Methods*. 2015;14(5):1–6.

British Psychological Society. *Practice guidelines*. 3rd ed. BPS Report No. INF115; 2017.

Brown A, Barker ED, Rahman Q. A systematic scoping review of the prevalence, etiological, psychological, and interpersonal factors associated with BDSM. *J Sex Res*. 2020;57(6):781–811.

Brown RC, Plener PL. Non-suicidal self-injury in adolescence. *Curr Psychiatry Rep*. 2017;19:20.

Cohen J. *Statistical power analysis for the behavioral sciences*. 2nd ed. Routledge; 1988.

Constantinou CS, Nikitara M. The culturally competent healthcare professional: The RESPECT competencies from a systematic review of Delphi studies. *Societies*. 2023;13(5):127.

Cornhill H. Casual sex as self-harm. Self-Injury Support; 2022.

Dahlström Ö, Zetterqvist M, Lundh LG, Svedin CG. Functions of nonsuicidal self-injury: Exploratory and confirmatory factor analyses in a large community sample of adolescents. *Psychol Assess*. 2015;27(1):302.

Duggan JM, Heath NL. Co-occurring health-risk behaviors of non-suicidal self-injury in eating disorder. In: Claes L, Muehlenkamp JJ, editors. *Advances in etiology and treatment*. Springer-Verlag; 2014.

Fergusson DM, Horwood LJ, Lynskey MT. Childhood sexual abuse, adolescent sexual behaviors and sexual revictimization. *Child Abuse Negl*. 1997;21:789–803.

Fredlund C, Jonsson LS. Perceived help and support for sex as self-injury: A qualitative study of a Swedish sample. *Arch Sex Behav*. 2023;52(1):149–160.

Fredlund C, Svedin CG, Priebe G, Jonsson L, Wadsby M. Self-reported frequency of sex as self-injury (SASI) in a national study of Swedish adolescents and association to sociodemographic factors, sexual behaviors, abuse and mental health. *Child Adolesc Psychiatry Ment Health*. 2017;11(1):1–11.

Fredlund C, Wadsby M, Jonsson LS. Motives and manifestations of sex as self-injury. *J*

Sex Res. 2020;57(7):897–905.
Garcia JR, Reiber C, Massey SG, Merriwether AM. Sexual hookup culture: A review. *Rev Gen Psychol*. 2012;16(2):161–176.
Germain SAS, Hooley JM. Direct and indirect forms of non-suicidal self-injury: Evidence for a distinction. *Psychiatry Res*. 2012;197(1–2):78–84.
Haney AM. Nonsuicidal self-injury and religiosity: A meta-analytic investigation. *Am J Orthopsychiatry*. 2020;90(1):78–89.
Hatfield E, Rapson RL, Purvis J. The hookup culture: Cultural, social, and gender influences on casual sex. In: *What's next in love and sex: Psychological and cultural perspectives*. Oxford University Press; 2020. p. 122–150.
Hedén L, Jonsson LS, Fredlund C. The connection between sex as self-injury and sexual violence. *Arch Sex Behav*. 2023.
Holmes C, Kennedy-Turner J. Prevalence and functionality of sexual activity to self-injure (SASI) behaviours in university students. OSF Pre-registration; 2025.
Hooley JM, St Germain SA. Should we expand the conceptualization of self-injurious behavior? In: Nock MK, editor. *The Oxford handbook of suicide and self-injury*. Oxford University Press; 2014. p. 47–58.
Hounsome M. Gendered differences in self-harm. NELFT Library and Knowledge Service; 2024.
Jenstav M, Meissner M. "I wish I dare to talk to someone"—About receiving support and help out of a sexual self-injury behavior. Stockholms Tjejjour; 2016.
Jonsson LS, Mattsson ÅL. *Youth who self-harm by sex*. Stiftelsen Allmänna Barnahus; 2012.
Jonsson LS, Svedin CG, Priebe G, Fredlund C, Wadsby M, Zetterqvist M. Similarities and differences in the functions of nonsuicidal self-injury (NSSI) and sex as self-injury (SASI). *Suicide Life Threat Behav*. 2019;49(1):120–136.
Klonsky ED. The functions of deliberate self-injury: A review of the evidence. *Clin Psychol Rev*. 2007;27(2):226–239.
Kooiman CG, Ouwehand AW, Ter Kuile MM. The Sexual and Physical Abuse Questionnaire (SPAQ): A screening instrument for adults to assess past and current experiences of abuse. *Child Abuse Negl*. 2002;26(9):939–953.
Lee JS, Kim S, Lee JH, Kim JW, Yoo JH, Han DH, et al. A latent profile analysis on adolescents' non-suicidal self-injury related to intrapersonal and interpersonal factors. *Child Adolesc Psychiatry Ment Health*. 2024;18:120.
Lloyd EE, Kelley ML, Hope T. Self-mutilation in a community sample of adolescents: Descriptive characteristics and provisional prevalence rates. Poster presented at: Annual Meeting of the Society for Behavioral Medicine; 1997; New Orleans, LA.
Mann AJD, Tull MT, Gratz KL. Hiding in the open: Consideration of nonsuicidal self-injury by proxy as a clinically meaningful construct. *Suicide Life Threat Behav*. 2022;52:1024–1036.
Mellin JE, Young CC. A pilot study assessing sexual behavior as self-injury in college students. *J Am Psychiatr Nurses Assoc*. 2022;10783903221090531.
Monto MA, Carey AG. A new standard of sexual behavior? Are claims associated with the "hookup culture" supported by General Social Survey data? *J Sex Res*. 2014;51(6):605–615.
Muehlenkamp JJ. Self-injurious behavior as a separate clinical syndrome. *Am J Orthopsychiatry*. 2005;75(2):324–333.
Nock MK. Self-injury. *Annu Rev Clin Psychol*. 2010;6:339–363.
Nock MK, Prinstein MJ. Contextual features and behavioural functions of self-

mutilation among adolescents. *J Abnorm Psychol*. 2005;114:140–146.
Paul EL, Hayes KA. The casualties of "casual" sex: A qualitative exploration of the phenomenology of college students' hookups. *J Soc Pers Relat*. 2002;19(5):639–661.
Pham JM. Beyond hookup culture: Current trends in the study of college student sex and where to next. *Sociol Compass*. 2017;11(8):e12499.
Reinhardt M, Liu RT, Selby EA. Patterns of nonsuicidal self-injury methods and their association with suicide risk: A network analysis approach. *J Affect Disord*. 2025;320:145–153.
Renner JA, Ciraulo DA. Substance abuse and depression. *Psychiatr Ann*. 1994;24(10):532–539.
Robinson K, Wilson MS. Open to interpretation? Inconsistent reporting of lifetime nonsuicidal self-injury across two common assessments. *Psychol Assess*. 2020;32(8):726–738.
Rosenberg M. *Society and the adolescent self-image*. Princeton University Press; 1965.
Schwarz JE, Baber D, Giantisco E, Isaacson B. EMDR for survivors of sexual and intimate partner violence at a nonprofit counseling agency. *J EMDR Pract Res*. 2021;15(4):202–217.
Serra G, Di Nicolantonio C, Zarrilli F, Vicari S. Exploring psychosocial and psychiatric factors associated with non-suicidal self-injury in adolescents. *Curr Psychol*. 2022.
Tull MT, Weiss NH, Adams CE, Gratz KL. The contribution of emotion regulation difficulties to risky sexual behavior within a sample of patients in residential substance abuse treatment. *Addict Behav*. 2012;37(10):1084–1092.
Vrouva I, Fonagy P, Fearon PR, Roussow T. The risk-taking and self-harm inventory for adolescents: Development and psychometric evaluation. *Psychol Assess*. 2010;22(4):852.
Wall I, Johnsdotter S. Sex as self-injury: The appearance of a new diagnostic category in Sweden. *Sexualities*. 2022.
Wilkinson P. Non-suicidal self-injury. *Eur Child Adolesc Psychiatry*. 2013;22:75–79.
Wright JH, editor. *Cognitive-behavior therapy*. American Psychiatric Publishing; 2004.
Xie L, Tang L, Liu Y, Dong Z, Zhang X. Global burden and trends of self-harm from 1990 to 2021, with predictions to 2050. *Front Public Health*. 2025;13.
Zetterqvist M, Svedin CG, Fredlund C, Priebe G, Wadsby M, Jonsson LS. Self-reported nonsuicidal self-injury (NSSI) and sex as self-injury (SASI): Relationship to abuse, risk behaviors, trauma symptoms, self-esteem and attachment. *Psychiatry Res*. 2018;265.

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