



Sex as a Form of Self-Injury in the Aftermath of Sexual Assault: The Role of Trauma-Related Shame and Social Support

Citation

Herold, Shaun. 2026. Sex as a Form of Self-Injury in the Aftermath of Sexual Assault: The Role of Trauma-Related Shame and Social Support. Masters Thesis, Harvard University Division of Continuing Education.

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Sex as a Form of Self-Injury in the Aftermath of Sexual Assault:
The Role of Trauma-Related Shame and Social Support

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A Thesis in the Field of Psychology
for the Degree of Master of Liberal Arts in Extension Studies

Harvard University

May 2026

Abstract

The behavior of using sex as a form of self-injury (SASI) is under-acknowledged and under-researched. Preliminary studies with adolescents suggest that SASI behaviors are associated with traumatic experiences and several deleterious mental health outcomes. The present study proposes a novel scale with which SASI could be measured, as no scale currently exists. Correlates of SASI behavior were also examined among adults with no history of self-harm ($n=100$), a history of only non-sexual self-harm ($n=100$) and a history of sexual self-injury ($n=100$) in the US. Between group comparisons revealed that sexual assault was significantly more prevalent among individuals who use SASI. Over half of the SASI group also reported that they were reacting to or replaying traumatic memories through SASI. Additionally, those who use SASI reported higher levels of trauma-related shame. Self-esteem levels were lower, on average, among those with a history of SASI, compared with those with no self-injury history. Levels of social support did not significantly differ with SASI use but did have a negative correlation with trauma-related shame. 96% of individuals in the SASI group reported a history of non-suicidal self-injury (NSSI) and the most common functional motivators of SASI behavior were intrapersonal, similar to patterns seen in NSSI. Exploratory path analyses indicated that sexual assault was associated with engagement in SASI both directly and indirectly through trauma-related shame. These findings underscore the importance of screening for SASI alongside other forms of self-injury, and the need for trauma-informed interventions.

Frontispiece



The most beautiful part of your body
is where it's headed. & remember,
loneliness is still time spent
with the world

-Ocean Vuong

Herold, S. (2022). *Rootbound, reaching*. [Photograph].

Vuong, O. (2016). *Someday I'll Love*. In *Night sky with exit wounds* (p. 82-83).

Copper Canyon Press

Dedication

I would like to dedicate this thesis to those struggling with self-harm behaviors in the aftermath of sexual assault. I hope that this research can help bring awareness to these dynamics so that more people suffering with SASI feel comfortable seeking support without shame.

Acknowledgments

I would like to thank Dr. Fortgang for her invaluable support with research methodology, her guidance through the IRB approval process, and her continued, thoughtful support throughout the project. I would also like to thank Dr. Piccolo for guiding and supporting me through the initial generation of ideas for my thesis, and for helping me build statistical coding skills in R. I extend gratitude to Dr. Truxaw for her deep support in the early phases of my thesis planning. I appreciate Dr. Baker's assistance in refining my proposal and helping me identify a thesis director. I feel immensely fortunate to have received such thoughtful mentorship from a knowledgeable and passionate team of educators. Finally, I appreciate my 12-year-old son, Elijah, who did homework in many, many coffee shops across from me as I worked on this project (even if I did not ultimately accept his creative ideas for my thesis topic, such as tracking whale movements across the earth).

Appreciation is also due to all the survey participants who shared their experiences and took the time to further research in this area. It is my sincerest hope that this research helps forge a path out of shame and into healing for those struggling with sexual self-injury behavior.

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Chapter I.

Background

In 2017, a group of researchers in Sweden noticed a peculiar phenomenon among adolescents: some teenagers were selling sex, even without any apparent financial need or reported coercion (Fredlund et al., 2017). This observation led the researchers to dig deeper into the sexual risk behaviors (SRBs) and motivations of a large sample (n=5,750) of teens—including asking about whether they used sex as a form of self-injury (SASI). They found that around 2.2% of teens reported intentionally engaging in sexual behaviors that they knew would cause them physical or emotional harm. They also found that those engaging in sexual self-injury behaviors reported selling sex at higher rates than their peers. In addition, they discovered that a large majority of the teens reporting the use of SASI also reported having been sexually abused (Fredlund et al., 2017). A subsequent pilot study in the U.S. suggested that about 12% of U.S college students were familiar with the term “Sex as Self Injury”—with some participants who reported engaging in SASI saying that these impulses resulted from past sexual trauma or attempts at coping with suicidal ideation (Mellin & Young, 2024). Although preliminary studies about SASI behaviors are now emerging, the true prevalence is unknown. Furthermore, this behavior is still under-recognized by clinicians and under-researched in general, leading to the need for further study.

The first three sections of this discussion will review what is already known about SASI behaviors, what drives them, and what sorts of psychosocial variables are associated with them. Subsequent sections will analyze how SASI behaviors are similar

to and different from nonpathological kink and non-suicidal self-injury (NSSI). Lastly, theories which may explain the distal causes of SASI will be discussed. Ultimately, we theorize that sexual trauma, especially in the context of limited social support, leads to an increase in trauma-related shame—predisposing individuals to engage in sex as self-injury as a coping mechanism.

Sex as a Form of Self-Injury

SASI encompasses an array of behaviors and is associated with many different functions (motivations). Preliminary studies have also unearthed some deleterious associations among SASI and other risky behaviors Swedish adolescents. Below, we will summarize some of these findings and discuss SASI as it relates to other forms of self-injury.

Behaviors

Since discussions of SASI are still slowly making their way out of the shadows and into psychiatric discourse, this behavior is not, at present, included in any psychometrically validated scales. SASI is presently defined as “a pattern of seeking sexual situations involving psychological or physical harm to oneself” (Fredlund et al., 2017; Ek et al., 2026). Previous studies about SASI have relied upon the use of single, self-report questions such as “Have you ever used sex to purposefully hurt yourself?” to measure SASI (Fredlund et al., 2017). These existing self-report questions centrally assess one’s intent to cause themselves harm through sexual behavior. For example, the phrasings “in an attempt to cause...”, “to purposefully...”, and “with the intent to...” underlie how self-reported motivations are highlighted in these items. The actual sexual

behaviors and situations associated with this intention of self-injury are quite varied, however (Fredlund et al., 2020; Fredlund & Jonsson, 2023; Mellin et al., 2024; Mellin & Young, 2024).

Previous studies have documented that people who self-report use of SASI describe having sex when they truly did not want to, having sex with an undesired partner, agreeing to everything proposed by a partner despite what they truly wanted or did not want, or having sex even when it hurt or did not feel pleasurable (Fredlund et al., 2020; Mellin & Young, 2024). Other individuals reported having sex which resembled past trauma, having sex with partners they knew would be physically or emotionally abusive to them, or having sex which made them feel worthless (Fredlund et al., 2020; Mellin & Young, 2024). Another portion of respondents reported having sex they felt was disgusting, humiliating, or demeaning (Mellin & Young, 2024). Some of these encounters involved seeking “hard” or “rough” sex, including spitting, hitting, insults, belittlement, and strangling (Fredlund et al., 2020; Mellin & Young, 2024). Overall, these SASI experiences were most frequently sought out in the context of a casual encounter (67.3%) as opposed to in a relationship (13.6%; Fredlund et al., 2020). These contextual factors illuminate how SASI may show considerable overlap with general sexual risk-taking behaviors such as having sex with multiple unknown partners or not setting limits about safe sexual activities with partners. On the other hand, the motivational (functional) aspects of SASI underscore the ways in which SASI is similar to more prototypical forms of self-injury, such as cutting or burning.

Psychosocial Associations

SASI has been associated with several deleterious psychiatric symptoms. Further analysis of the aforementioned dataset of 5,743 Swedish high school students evinced several worrisome trends among those engaging in SASI. Adolescents using SASI were more likely to report symptoms of post-traumatic stress disorder (PTSD), dissociative symptoms, and sexual concerns (preoccupation and distress) when compared with peers who didn't self-harm or only self-harmed in non-sexual ways (Zetterqvist et al., 2018). Adolescents who reported using SASI *and* other forms of NSSI also disclosed higher rates of drug abuse, more frequent alcohol consumption, higher rates of selling sex, and a greater number of sexual partners. This group also reported more contacts with health care systems for concerns about an eating disorder or following suicide attempt.

Those using SASI also report a higher incidence of experiencing trauma, including emotional, physical, and sexual abuse (Ek et al., 2026; Zetterqvist et al., 2018). In one study, 48.8% of respondents in the SASI group reported experiencing penetrative sexual assault (rape), compared with 11.9% in the NSSI group and 4.3% in the non-self-harming group (Zetterqvist et al., 2018). Another study found that, among females, 82.8% of those using SASI reported experiencing some form of sexual abuse (Fredlund et al., 2017). Notably, 91% of the females who experienced both sexual assault and the use of SASI reported that the assault happened in the year *immediately preceding* when they began to use sex as a form of self-injury.

Functions

Examining SASI through a functional behaviorist lens is useful for understanding the multidetermined nature of this phenomenon. Functional behaviorism emphasizes the importance of understanding behaviors through both topographical and functional features (Skinner, 1953; Moxley, 1992). Topography refers to the observable actions associated with a given behavior, whereas function refers to the motivators or drivers behind the behavior-- the reason why it is performed. When thinking about SASI, there are layers of functionality to consider. Although, by definition, people engaging in SASI seek out sexual situations with the intention of being harmed, pertinent follow up questions include: *What kind of harm are people seeking through these behaviors?* and *What is driving the desire to self-harm in this way?* The answers to these questions can help researchers and clinicians understand the proximal, acute, or immediate causes of SASI.

In 2020, Fredlund, Wadsby & Jonsson evaluated what sort of “self-injury” was sought during SASI encounters and found that 72.4% of participants using SASI reported seeking psychological harm and 44.2% reported seeking physical harm (with a minority of participants endorsing both). The reasons for seeking either type of harm through sexual encounters were varied, and often, participants endorsed multiple reasons (functions) for engaging in SASI.

Emotion regulation goals were most common across samples of people using SASI. Over half of adolescents (53.7%) in one such sample endorsed practicing SASI to “stop bad feelings” and a large majority (94%) of adults in another sample reported practicing SASI to manage anxiety, depression, or self-contempt (Jonsson et al., 2019;

Fredlund et al., 2020). Subsequent qualitative studies found that some people who use SASI may do so as a reaction to suicidal ideation (Mellin & Young, 2024) or may use SASI to replace other self-harm behaviors such as cutting (Fredlund et al., 2017). Many people engaging in SASI said it was hard to stop (51.2%) or felt like a compulsion or addiction (20.1%; Fredlund et al., 2020). Some people using SASI sought to receive confirmation of positive views of themselves (55.8%)—such as feeling valued sexually, if not relationally—or negative views of themselves (30.2%)—such as confirming their feelings of “worthlessness” (Fredlund et al., 2020).

While seeking confirmation and affect regulation were the most common self-reported reasons for engaging in SASI, almost half of participants (48.2%) identified that their impulses to use SASI followed from emotions related to memories of earlier sexual abuse (Fredlund et al., 2020). One qualitative analysis of open-ended survey responses from 199 adults using SASI found that respondents frequently described feeling that they weren’t worthy of caring or loving relationships, especially following experiences of sexual assault (Hedén et al., 2023). Adult respondents in this study also reported that they used SASI to cope with feelings related to past abuse, or in an attempt to control traumatic memories.

Given the high incidence of past sexual abuse among people practicing SASI, it is possible that experiences of sexual assault distally drive this behavior for a large portion of this population—whether or not an individual is consciously aware of the association. The impacts of sexual assault may then lead to the immediate, proximal need for affect regulation or affirmation. Psychological models of SASI should therefore integrate and test potential mediators of this association.

A Type of Self Injury

Though SASI has not traditionally been included in assessments of NSSI, we argue that SASI is a type of NSSI. By definition, SASI is a behavior used to self-injure. Furthermore, SASI shares many functional similarities with traditionally defined NSSI behaviors (Jonsson et al., 2019; Nock, 2010). The following sections will discuss similarities and differences between these behaviors and present an argument for screening SASI behaviors alongside other types of self-harm, such as cutting or burning.

Assessment of NSSI is critical in part because it is a key risk factor for suicide attempts and suicide deaths (Nock et al., 2006; Ribeiro et al., 2016). Given that most people using SASI also report a history of sexual abuse, SASI might also signal a higher risk for suicide than other forms of NSSI. Research indicates that sexual assault survivors report using a greater number of methods to self-injure, compared with those with no sexual assault history (Dixon-Gordon et al., 2014). This higher variability in the types of self-harm methods is also, in turn, related to greater self-harm frequency and a higher risk for suicide (Dixon-Gordon et al., 2014).

The fact that SASI is rarely noted alone and is most frequently reported concurrently with other NSSI behaviors supports the idea that it is most correctly categorized as a form of self-injury akin to NSSI (Zetterqvist et al., 2018). In the following sections, we will address definitional quandaries related to SASI and ultimately propose that this behavior is most aptly considered a type of non-suicidal self-injury.

Distinct from Kink

Some argue against categorizing SASI as a type of self-injury akin to NSSI because they perceive SASI behaviors as sexual kinks rather than forms of self-harm. While SASI and some sexual kink behaviors do appear topographically similar, they are functionally and contextually distinguishable in most cases. While there is not yet a consensus definition for kink, it typically refers to unconventional sexual practices, such as those involving bondage, discipline, sadism or masochism, and the associated culture or lifestyle (Yates & Neuer-Colburn, 2019). Here, we will specifically focus on how masochistic kink can be differentiated from SASI. Sexual masochism, in the context of consensual kink-related practices or sexual masochism disorder, can be understood as the pursuit of pain or humiliation *for the purpose of sexual arousal or sexual gratification*. Sex as self-harm, in contrast, can be defined as the pursuit of pain in a sexual context *for the purpose of incurring harm upon oneself*.

It is important to note that the DSM-5 only defines masochistic sexuality as a disorder if it is accompanied by significant distress or impairment (American Psychiatric Association, 2022). Several empirical studies have found that those engaging in masochistic kink do not generally have higher levels of dissociation, psychological distress, or exposure to sexual assault (Cross & Matheson, 2006; Ten Brink et al, 2021; Wismeijer & van Assen, 2013). The *opposite* finding is true among those using SASI, who have higher rates of dissociation as well as post-traumatic stress symptomology, and who are more likely to report having been sexually assaulted (Fredlund et al., 2017; Zetterqvist et al., 2018). Given these findings, it is clear that one must consider the functions, correlates, and contexts of behaviors when distinguishing SASI from non-

pathological kink. This is especially true considering that these behaviors may eventually become more topographically and functionally similar in some individuals over time.

It is important to note that SASI and sexually motivated masochism *may* become conflated after repeated engagements through associative learning. Consider, for example, a young person initially engaging in SASI to self-harm. As time passes, the experience of harm and concurrent sexual responses may become paired such that the resulting behaviors might topographically appear like masochism. Later, the same individual may engage in behaviors which are primarily motivated by arousal, but which are still reminiscent of the original self-injuring encounters. Because of these complexities, more contextual information is needed to distinguish SASI from non-pathological or kink-based masochism.

Outcomes of these two behaviors (SASI and kink-based masochism) may help differentiate these phenomena as well. Some members of the kink community have described experiencing positive outcomes, a sense of healing through consent negotiations, or a regaining of control while engaging in what is termed “trauma play” after experiences of sexual assault. For example, some people report that participating in “scenes” where abuse is re-created allows them to feel more in control over a situation in which they initially felt no agency (Thomas, 2020). Others propose that kink-related reenactments may help survivors create an audience or social context where the unbearable and insufferable experience they went through alone can then be shared with someone else (Hammers, 2014). However, while some abuse survivors report positive outcomes from kink practices, many of those struggling with SASI report a palpably different outcome. As one SASI sufferer described, “Afterwards... I feel disgusting and

empty. Often, I am in a lot of pain.” (Fredlund et al., 2017, p. 2). Another reported “I always cried afterwards” (Fredlund et al., 2020, p. 899).

Finally, while a diagnosis of sexual masochism disorder necessitates “clinically significant distress or impairment,” as is seen in SASI, it also necessitates “recurrent and intense sexual arousal” from such acts—which are not always present in SASI. In fact, many people suffering from SASI describe the opposite: a lack of arousal or sexual interest in the encounters they sought, which is linked to their intention to self-harm (Fredlund et al., 2020; Hedén et al., 2023). In addition, one study found that only a small minority (6.5%) reported feeling a “kick” or a “high” from SASI behaviors. As one woman explained, “I really had no desire to have sex with him, and many times it hurt terribly. But...I used to think it was right for me... that I deserved the pain” (Hedén et al., 2023, p.3535). Clearly, SASI may be confused with masochistic sexuality when analyzed perfunctorily, but a discerning clinician should be able to use functional and correlative factors to determine which conceptualization is most appropriate in individual cases. This is especially important because correctly identifying SASI is the first step towards supporting those struggling with this behavior.

Direct and Indirect Self-Injury

Previous research has distinguished between direct and indirect forms of self-injury. Some may argue that SASI is more similar to indirect self-harm behaviors such as engaging in unsafe sexual practices than it is to traditionally-defined NSSI. However, this argument misses important nuances in the functions and outcomes of NSSI and SASI which must be considered.

Direct self-injury typically refers to cases where self-injury is the explicit goal. In contrast, indirect self-injury refers to cases where self-injury is an unintentional byproduct of another goal (Nock, 2010). Typical examples of direct self-injury may include burning or cutting oneself, whereas examples of indirect self-injury may include binge drinking, eating unhealthy foods, not practicing safe sex, or starving oneself.

Note that under this definitional delineation, however, SASI would be considered direct self-injury, along with NSSI, because of the *explicit* aim of causing harm to oneself through the sexual activity. In contrast, sexual risk-taking behaviors (which are not usually intentional attempts at self-harm) could then be considered indirect self-injury, and some kink-based behaviors would be considered indirect (if they unintentionally caused real physical harm in the pursuit of sexual gratification).

Historically, SASI behaviors have been treated in both ways—being described as direct and indirect forms of self-injury among researchers (Mellin et al., 2024). This may underlie an uncertainty about whether SASI behaviors fit most aptly with the construct of NSSI, the construct of SRBs, or within the umbrella of kink-based behaviors.

Complicating matters further, direct and indirect forms of self-injury are very likely to co-occur (Hooley and St. Germain; 2014). In fact, direct self-injury rarely occurs on its own and is most often observed in individuals who also engage in substance abuse, disordered eating or other risky health behaviors (Hooley and St. Germain; 2014).

Interestingly, one study found no significant differences in scores of dissociation, impulsivity, or depression when comparing groups who engage exclusively in direct or indirect self-injury (Hooley and St. Germain; 2014). The fact that these critical associations are indistinguishable across forms of self-injury lends support to the idea that

widening the current conceptualization of self-injury may be appropriate—especially when behaviors share functional similarities, as with NSSI and SASI.

Similarities with Non-Suicidal Self-Injury

Non-suicidal self-injury (NSSI) refers to “deliberate destruction of body tissue without suicidal intent and for purposes not socially sanctioned” (e.g. not tattooing or piercing; Klonsky, 2007a, p.1039). This behavior is most common in adolescents and is observed in around 14-17% of teens and young adults (Klonsky, 2007a). Although the DSM-5 includes “non-suicidal self-injury disorder” as a proposed, potential stand-alone diagnosis, NSSI is also common among those with borderline personality disorder, substance use disorder, eating disorders, major depression, and post-traumatic stress disorder (Klonsky, 2007b). Risk factors for engaging in NSSI include family hostility, weakness in verbal communication or problem solving, low distress tolerance, and high levels of aversive emotions (Nock, 2010). NSSI is also associated with increased levels of suicidality, depression, anxiety, dissociation, self-criticism, and impulsivity (Hooley & St. Germain, 2014; Klonsky, 2007b). Links between abusive or dysfunctional family dynamics, childhood traumas, and NSSI have also been documented across numerous studies (for a review, see Gratz, 2023). Overall, these findings indicate that NSSI behavior and SASI behavior share several common correlates, as SASI behavior is also associated with experiences of abuse, symptoms of post-traumatic stress disorder, and dissociation (Fredlund et al., 2017; Zetterqvist et al., 2018).

SASI and NSSI are also functionally similar in many ways. Nock (2010) proposes that non-suicidal self-injury functions can be categorized as intrapersonal (related to internal feelings and states) or interpersonal (related to social relationships and goals),

and positive (seeking stimuli/experiences) or negative (avoiding stimuli/experiences). Together, these dimensions produce an orthogonal structure which describes four functional categories which may underlie the impulse to self-harm:

- intrapersonal/positive functions (e.g. seeking sensory input)
- intrapersonal/negative functions (e.g. seeking relief from bad feelings)
- interpersonal/positive functions (e.g. seeking help or support) *or*
- interpersonal/negative functions (e.g. to get people to leave them alone).

Past studies have found that the most common functions of *both* NSSI and SASI are intrapersonal/negative— suggesting that both behaviors are predominately motivated by a need for affect regulation (Fredlund et al., 2020; Jonsson et al., 2019; Klonsky, 2007b; Nock & Prinstein, 2004). In one study evaluating the functions of NSSI and SASI, “relieving numbness or emptiness” was endorsed by the majority of participants in each group, followed by “stopping bad feelings” and “self-punishment” (Jonsson et al., 2019). These similarities across groups may suggest that NSSI and SASI are driven by similar motivations. In addition, a significant portion of respondents in another study (21.6%) reported that SASI was a replacement behavior for NSSI—in other words, people engaged in SASI to stop behaviors such as cutting or burning (Fredlund et al., 2020).

NSSI and SASI are also both described as compulsive or habitual. The DSM-5 (2022) notes in the definition of the proposed non-suicidal self-injury disorder that individuals engaging in pathological NSSI “display patterns of behavior suggesting a dependence on repeatedly engaging in it” (American Psychiatric Association, 2022, p. 920). Recall that about half of participants in one study of SASI also described having

trouble stopping their use of SASI, and around a fourth self-labeled the behavior as feeling like a compulsion or addiction (Wadsby, & Jonsson, 2020). All of these findings underscore how functionally similar NSSI and SASI behaviors are. The main difference in the functional motivations behind NSSI versus SASI is that SASI appears more multidetermined. Compared to those practicing NSSI alone, those who use SASI report a higher mean number of functions, including both interpersonal and intrapersonal dynamics (Jonsson et al., 2019). In other words, people who use SASI report more functions (motivations) contributing to this behavior, compared to those engaging in only non-sexual self-injury.

Given the similarities in intentionality and function, the involvement of body tissue seems to be the main feature discriminating NSSI from SASI. Although some cases of SASI do involve incurring physical injuries, other cases of SASI involve the pursuit of emotional or psychological pain in the absence of bodily injury. In Klonsky's (2007a) definition, he describes NSSI as the deliberate destruction of body tissue. In the DSM-5, NSSI is described as "intentional self-inflicted damage to the surface of [the] body of a sort likely to induce bleeding, bruising, or pain" (American Psychiatric Association, 2022, p. 920). However, the existence of behaviors such as SASI leads one to wonder if making the definition of non-suicidal self-injury contingent on the destruction of physical flesh is the most clinically useful choice, and whether this delineation matters in terms of researching such functionally analogous behaviors. These definitions, which centralize harm inflicted on the surface of the body, may preclude examining behaviors such as SASI in research about self-harm. This is unfortunate since, due to their functional similarities, it is possible that both behaviors may benefit from similar interventions. Due

to high rates of cooccurrence, it also seems pertinent to screen for SASI along with NSSI to capture the entire continuum of ways clients may be self-injuring.

Some may argue that sexual self-injury and NSSI also differ in that SASI involves engaging with *another person* in attempt to cause oneself harm. Whether this can still be conceptualized as *self-injury* may be debated. To analyze this, one must consider concepts such as “suicide by police” wherein people purposefully incite law enforcement into assisting with their suicide, and instances wherein people commit suicide by intentionally putting themselves in front of a moving car. These behaviors are still widely considered suicide, even though they involve planning for another person to physically cause one’s own death. Similarly, we may consider a case wherein someone asks a partner to cut them with a razor. Clinically, this behavior would commonly be labeled as self-injury even while another person directly inflicts the physical harm. Similarly, SASI involves the intentional pursuit of injury to oneself, regardless of whether that individual is the direct, physical cause of the injury. Determining whether SASI is discriminable from NSSI using psychometric measures is an important step in addressing these definitional quandaries.

Trauma-Based Theories of Self-Injury

Prior to the emergence of the term “sex as self-injury,” several trauma researchers noted a similar patterns of behavior among survivors of trauma. They identified that some sexual assault survivors chose abusive partners, placed themselves in dangerous situations reminiscent of the original abuse, and engaged in self-injury (Van der Kolk, 1989). In the following sections, we will review several foundational theories about why people who have experienced sexual trauma may later engage in behaviors like SASI. We

will then propose how thinking about this behavior in regard to the welfare tradeoff ratio (an evolved mental system governing some aspects of social behavior) can help evaluate the mechanism through which sexual assault experiences may distally drive the development of SASI behavior.

Reenactment Theories

In his seminal 1989 paper, Van der Kolk noted clinical observations of traumatized people who seemed to seek situations and relationships which resembled past abusive encounters—a dynamic he described as “the compulsion to repeat the trauma” (p.398). He proposed several reasons why people may feel driven to reenact past abuse—postulating that negative self-concepts, trauma bonding, or human preference for familiar dynamics (even when painful) may explain these cycles. He also posited that survivors may become preoccupied with their traumatic experiences, resultant from a desire to gain mastery or understanding over what occurred. Although these ideas were not empirically tested at the time, a plethora of later studies did indeed support a link between childhood sexual assault and later sexual risk taking (Hailes et al., 2019; Senn et al., 2007; Senn et al., 2008; Slavin et al., 2020). Some studies have also found significant associations between the experience of childhood sexual assault and the tendency to engage with aggressive, abusive, or risky partners as adults (Messman-Moore & Long, 2003; Testa et al., 2005). Still, these early discussions related to sexual behaviors in the aftermath of trauma are marred by a concerning conflation of risk taking, revictimization, and reenactment. For example, Levy (1998) labels two notably distinct instances both as “reenactment”: (1) intentionally reenacting traumas to gain mastery over them and (2) inadvertently re-experiencing similar traumatic circumstances. Combining these two

ideas does not allow for clear exploration into either phenomenon. Despite these previously unaddressed nuances, it is important to consider how reenactment dynamics may consciously or subconsciously play a role in SASI behavior.

Distortion of Self-Esteem

Across theoretical perspectives, it is recognized that trauma profoundly impacts one's sense of self. For example, attachment theorists propose that children internalize negative messages about their sense of self-worth from abusive caregivers, which impacts the ways in which they later relate to others (Bowlby, 1988; Dewitte et al., 2008). Social learning theorists espouse similar trajectories—explaining how traumatic interactions can impair one's sense of self efficacy or belief in their ability to escape abuse (Bandura, 1977; Seligman & Maier, 1967). Cognitive-behavioral theorists emphasize how trauma may create cognitive distortions in how one views themselves and the world—leading to the creation of negative schemas about themselves as unworthy or bad (Beck, 1963; Owens & Chard, 2001). Finally, theories centralizing the role of shame assert that victims of abuse might wrongly attribute blame to themselves for the traumatic events which occurred. This shame, experienced in the aftermath of sexual abuse, has been found to mediate the relationship between traumatic experiences and several negative psychological outcomes (Alix et al., 2019; Robinson et al., 2024).

The common thread across all these theories is that trauma can lead to a devaluation of the self, and an impairment in relating to others. It may be that those seeking SASI do so to cope with, or dissociate from, overwhelming experiences of shame and self-hatred. This idea is supported by both qualitative descriptions of SASI dynamics

by sufferers, and by quantitative analysis of self-reported motivators (Fredlund et al., 2020; Hedén et al., 2023). For example, one woman who reported using SASI explained why she engaged in these encounters this way: “I felt very bad and worthless...I just wanted to get rid of my anxiety, sorrow, and shame” (Fredlund et al., 2020, p.900).

People may also use SASI to seek out interactions with others who hold them in low esteem because they hold themselves in a low regard as well. Recall that 86% of people using SASI reported doing so to seek some sort of social confirmation (positive or negative). Seeking negative confirmation through SASI can best be understood through the lens of self-verification theory, first described by Swann (1992; see also Zetterqvist et al, 2018). Self-verification theory posits that people prefer to interact with those who confirm their pre-existing beliefs about themselves. People with negative self-concepts therefore prefer to interact with those who also hold them in low regard (at least in those domains they rate themselves poorly in), and the opposite is true for those with positive self-concepts. This may be for pragmatic reasons (people want to be able to predict others’ reactions to them and also want people to have reasonable expectations for them) or for epistemological reasons (people want to trust the way they view themselves, which theoretically should be the easiest/closest thing to perceive; Swann, 1992). For example, in a qualitative interview-based study, one woman explained, “I was worth nothing and it was only when I had this verified that I found peace” (Fredlund et al., 2020, p.901). This case elucidates how a negative self-concept, combined with a drive for self-verification, may motivate the use of SASI. Another woman in the same sample reported seeking affirmation that she was “wanted” sexually even while she did not feel value as a relationship partner (Fredlund et al., 2020). It remains unclear, however, in cases where

positive confirmation was described as a motivator, why the participant labeled their behavior as sex as self-harm. The fact that this behavior seems multidetermined or influenced by a variety of different motivators may help explain this phenomenon. It is also possible that these people defined their encounters as SASI in retrospect—after initially seeking positive confirmation but noticing that negative confirmation, regret, or pain was the true outcome in the aftermath. Some people may also be seeking positive confirmation of their worth to others by deferring to the other person’s will, regardless of their own desires. Lastly, it could be that people seek positive feedback in one limited area (being physically desirable) because they do not feel desirable, competent or worthy in other areas.

The idea that SASI behavior may be associated with negative self-concept and a need for self-verification is supported by various self-reports from those using SASI as well. As one woman explained, “I felt like I didn’t deserve anything else...I tried to have a relationship with a guy who was really decent and cared about me...It got too tough to handle, I couldn’t stand it. I don’t deserve good love, and I can’t handle it.” (Hedén et al., 2023, p. 3540). Another woman said, “After I was raped, I felt that my body did not belong to me...and it did not matter what was done with my body—because it was full of disgust...” (Fredlund et al., 2020, p.900). Evaluating these dynamics through evolutionary understandings about self-esteem and social decisions may help unearth the distal process through which trauma, and cues of social devaluation, may lead to SASI.

Miscalibration of Evolved Social Behavior Systems

Approaches rooted in evolutionary psychology recognize that the mental architecture of present-day humans was shaped by natural selection and influenced by the unique challenges our ancestors faced, especially during the Pleistocene epoch. Being excluded or devalued socially is painful. It even increases the release of cytokines (a protein important for immune system functioning), presumably to help fight infections and injuries one may incur subsequent to rejection from social groups (Sznycer, 2019). Much like hunger pains motivate humans to eat, or the experience of being fatigued propels us to sleep, the pain associated with social exclusion or devaluation may drive people to make social decisions which protect their inclusion in a group (Leary et al., 1995). It is helpful to consider, through this evolutionary lens, how traumatic interpersonal experiences may impact social decision-making—including whether to self-injure in intimate social contexts, such as occurs with SASI.

Early research coming out of the field of evolutionary psychology proposed that a person's mating strategy may be resultant from facultatively calibrated traits (in other words, the environment impacting the expression of one's genes). Belsky, Steinberg & Draper (1991) first proposed a model relating sexual risk taking to early life trauma. They theorized that exposure to dangerous environments or traumatic early life experiences could lead to more reproductive risk taking since cues about the safety and sustainability of the environment may calibrate people's mating strategies to increase their chances of reproductive success. They argued that this less discriminate mating strategy may have been advantageous for passing on one's genes in situations where people may not have lived long enough for a slower, and more investment-centered mating strategy to pay off.

Sexual risk-taking in the aftermath of sexual assault makes sense in the context of these frameworks. However, while this framework could explain why people may seek a greater number of partners sooner, it does not fully explain why some people seek out abusive, degrading, or harmful encounters in the aftermath of assault—as is seen in those using SASI.

More recent research in the field of evolutionary psychology has shed light upon how people make social decisions which value others at their own expense, and how people closely track their social standing based on cues of inclusion and status. During the time when humans subsisted on hunting, gathering and foraging, life was perilous. Threats to survival included the risk of predation, injury, infection, and resource scarcity due to environmental changes. In these dangerous contexts, surviving long enough to pass on one's genes depended significantly on one's ability to secure the support of other humans. For this reason, it is believed that humans developed complex mental systems to ensure inclusion in social groups, and to deter exclusion by others. Understanding these decision-making systems can help shed light on why people decide to enter into self-injurious sexual situations.

Researchers in the field of evolutionary psychology explain that one of these mental systems which govern human interactions is informed by a “welfare tradeoff ratio” (WTR) which is an automatic or unconscious calculation which governs when one should act in ways which benefit others at some cost to themselves, or when they should instead prioritize their own welfare. These sorts of decisions are ubiquitous in everyday life: Should you agree to pet-sit for your neighbor? Should you spend money on a present for your coworker? Should you loan your son money for rent? Invisible calculations,

which help us make social cost/benefit decisions easily and predictably, produce a welfare tradeoff ratio (WTR; Cosmides & Tooby, 1992; Delton & Robertson, 2016). Since social support was so fundamentally important to early human survival, it is theorized that mental mechanisms such as the WTR were shaped by natural selection to promote social inclusion. The WTR is a summary variable which takes into account the other person's relatedness, formidability, and likelihood to reciprocate, along with other contextual aspects of the situation and the self when making social decisions. Experiences of anger, forgiveness, gratitude, guilt and, importantly, shame are thought to influence WTRs as well (Delton & Robertson, 2016; Sell et al., 2017). Given that self-esteem is highly associated with cues of social standing, it is likely that this variable impacts people's WTR calculations too—potentially leading those with a low self-esteem to prioritize the welfare of others over their own, in an attempt to optimize their social valuation.

It is possible that people may engage in SASI subsequent to cues about social devaluation or feelings of shame which they internalized from experiences of trauma. Experiences of shame and lowered self-esteem in the aftermath of assault or abuse may make individuals more likely to accept unfair treatment in sexual encounters. These experiences may also make people using SASI believe that this treatment is all they are worthy of, due to a miscalibration of their own self-worth in the unconscious calculation of the WTR. This may be especially true in cases where sexual assault survivors do not have adequate social support systems to counteract or balance out cues of negative self-worth or decreased social valuation (transmitted through the abusive encounters). Aspects

of these possibilities, as they relate to SASI, will be discussed in the following three sections.

Trauma-Related Shame and SASI

Shame is defined as a painful emotion characterized by negative evaluation of the self as a whole (Tangney, 1998). It is frequently accompanied by behaviors of withdrawal and social avoidance (American Psychological Association, n.d.) as well as self-perceptions of worthlessness and powerlessness (Øktedalen, 2014). Research suggests that shame-proneness is also strongly associated with psychosocial maladjustment (Tangney et al., 1992).

Qualitative reports from those struggling with SASI frequently mention shame and negative self-evaluations as forces prompting or perpetuating SASI behavior. For example, one woman explained why she engaged in SASI encounters this way: “I felt very bad and worthless...I just wanted to get rid of my anxiety, sorrow, and shame” (Fredlund et al., 2020, p. 900). For these reasons, it is important to consider how experiences of shame may impact SASI behavior.

Shame and Self-Injury

A multitude of studies link shame to NSSI behavior (Houazene et al., 2021; Hack & Martin, 2018; Mahtani et al., 2019; VanDerhei et al., 2014; Cameron et al., 2020). Shame-proneness, the tendency to feel shame easily and frequently, is specifically associated with higher frequencies of self-injurious behavior (VanDerhei et al., 2014). Shame also emerges a significant predictor of NSSI behavior (Hack & Martin, 2018).

Interestingly, among a sample of women with borderline personality disorder, shame-proneness was an even stronger predictor of self-injury behaviors than the severity of borderline symptoms (Cameron et al., 2020). These findings make sense considering that some of the most commonly reported functions of NSSI are affect regulation and self-punishment. Since shame is frequently described as painful and unbearable, self-injury behaviors can be understood, in many cases, as attempts at ameliorating feelings of shame or self-punishing in response to feeling devaluated.

Shame and Trauma

Recently, there has been increased interest in evaluating the role of shame in the development of PTSD and the persistence of PTSD symptomology. As a result, Øktedalen et al. (2014) developed a scale to measure trauma-related shame specifically—which they define as painful negative self-evaluation as a result of a traumatic experience. A 2016 review of 32 studies confirmed a positive association between PTSD severity and shame (Saraiya & Lopez-Castro, 2016), and a 2023 meta-analysis of 25 studies reported a significant association between PTSD symptomatology with of trauma-related shame specifically (DeCou, 2023).

Interestingly, people have been shown to feel shame simply because of devaluation by others—even when they are not culpable for any wrongdoing (Robertson et al., 2018). According to WTR theory, shame then informs how much someone values themselves in relation to others when making social decisions—a theory which may partly explain why people seek devaluing sexual encounters. When devaluation is detected, shame has been connected to anger or to submissive displays, depending on which strategies are most likely to restore valued social standing (Gilbert, 2003;

Robertson et al., 2018; Sznycer, 2019; Zhu et al., 2019). Research has also found that people who are ashamed are more likely to accept unfair treatment from others (Zhu et al., 2019).

Many people struggling with SASI behaviors report intense shame—to the point that they will not even disclose these experiences to trusted therapists (Fredlund et al., 2020; Fredlund & Jonsson, 2023). One woman suffering with SASI reported that SASI was “worse than other types of self-harming behaviors I had... [it caused] lots of shame, and it was used to punish myself. To manage stress and emotions. To get the abuse out of my head” (Hedén et al., 2023, p.3536). Others describe seeking out SASI encounters in direct response to intense shame (Fredlund et al., 2020). Several studies suggest that the emotion of shame informs one’s broader sense of self-esteem—especially when shameful experiences are repeated (Budiarto & Helmi, 2021). In light of these findings, it is clear that the role of trauma-related shame, social devaluation, and a loss of self-esteem in the development of SASI needs analyzed further.

Self-Esteem and SASI

The proposed evolutionary function of shame and self-esteem are similar: both are thought to play a role in providing behavioral feedback to counter social devaluation or prompt one to recover from it (Sznycer, 2019). However, whereas self-esteem may be an internal estimate of one’s value to others, shame may more closely track cues of potential devaluation by others. A meta-analysis of 18 studies found that shame correlates negatively with self-esteem, with a large effect size (Budiarto & Helmi, 2021). It has been suggested that repeatedly experiencing acute instances of shame may lead to a trait of shame-proneness, which in turn impacts self-esteem (Budiarto & Helmi, 2021).

Given the nearly inexorable relationship between these experiences, it is important to evaluate both when considering the development of sexual self-injury behaviors. Self-esteem is defined as the culmination of an individual's self-perception regarding how others view them as well as how positively they view their own accomplishments, capabilities, and qualities (American Psychological Association, n.d.) It is well-established that self-esteem is strongly and consistently associated with a multitude of mental health outcomes (Muris & Otgarr, 2023; Zell & Stockus, 2025) and is also predictive of depression (Sowislo & Orth, 2013).

Qualitatively, reports of low self-esteem are prevalent among those struggling with SASI (Fredlund & Jonsson, 2023). Low levels of self-esteem are also, on average, associated with increased dependance on the approval of others and decreased trust in close relationships in general (Ozdemir & Sahin, 2020). This is interesting to consider in light of findings that 55.8% of those struggling with SASI sexually self-injure out of a desire for positive confirmation from others (Fredlund et al., 2020). These potential links between SASI, decreased self-esteem and decreased trust in close relationships may also be relevant to understanding SASI behavior when considering how the functions of SASI compare with the functions of broader human sexual behavior.

Cooper et al. (1998) first proposed a model to explain four different psychological sexual functions. Potential functions identified in this model included:

- intrapersonal-negative motives (use of sex to cope with negative emotions or combat threats to self-esteem)
- intrapersonal-positive motives (use of sex to experience positive emotions or pleasure)

- interpersonal-negative motives (use of sex to avoid social judgment or anger from partner), and
- interpersonal-positive motives (use of sex to enhance intimacy, connection, or bonding).

This research found that the use of sex for intimacy-based reasons was associated with the lowest rate of sexual risk behaviors, whereas the use of sex for enhancement motives (feeling good) and coping motives (not feeling bad) was associated with higher rates of sexual risk behaviors (Cooper et al., 2011). Other research found that, among adolescent females, those with higher levels of depression were significantly more likely to endorse using sex for coping motives (Morrison-Beedy et al., 2017). Males who had experienced sexual assault were also more likely to use sex to cope with negative emotions (Wekerle et al., 2017). Note here that SASI and NSSI were also frequently driven by the need to cope or emotionally regulate, suggesting a common thread of functionality underlying all these behaviors. It may be that people who use SASI are less driven by intimacy-based motives, since low self-esteem and trauma can impact peoples' willingness to form close relationships (Ozdemir & Sahin, 2020). Those using SASI may instead be driven towards sexual activity through interpersonal-negative motivations, in an attempt to boost self-esteem and combat negative emotional experiences like shame.

Exploring the potential relationship between SASI, self-esteem, and shame can help to inform the development of interventions responding to this type of self-injury.

Self-Esteem and Self-Injury

Numerous studies suggest that self-esteem is negatively correlated with self-harm behavior (Almeida & Horta, 2018; Cawood & Hupruch, 2011; Dunlop et al., 2022; Forrester et al., 2017; Lei et al., 2024; Zou et al., 2025). In other words, as self-esteem decreases, self-injurious behavior tends to increase. In one study involving 302 college students, self-esteem, along with emotional coping styles, were found to fully mediate the relationship between several personality disorders and self-injury (Cawood & Huprich, 2011). Adolescents who engage in SASI along with NSSI were found to have lower levels of self-esteem than those who engaged with only one type of self-injurious behavior (Zetterqvist et al., 2018), raising the possibility that low self-esteem may lead people to more severe, frequent, or varied forms of self-injuring.

Research suggests that the relationship between self-esteem and self-injury may be bidirectional, where low-self-esteem predisposes individuals towards self-injury behaviors, while self-injury behaviors also lead to decreased self-esteem (Lei et al., 2024). This dynamic is particularly relevant when considering how those struggling with SASI behaviors describe feeling stuck in a cycle that is hard to break—one in which negative self-evaluations lead people to seek out SASI encounters and these encounters, in turn, amplify those same feelings of self-disgust and negative self-judgment.

Self-Esteem and Trauma

Studies evaluating the relationship between trauma exposure and self-esteem have produced mixed results—with some showing a clear association, while others find no statistically significant relationship (Barnum, 2017, David et al., 2008; Ozdemir & Sahin, 2020). Several studies have demonstrated a link between childhood abuse and self-

esteem, with a number finding the strongest impact of emotional abuse (Brodski & Hutz, 2012; Teixeira et al., 2021) and others linking childhood sexual abuse with self-esteem (Gauthier-Duchesne et al., 2021; Okunlola et al., 2021). Importantly, self-esteem has been shown to partially mediate the relationship between traumatic experiences and later mental-health problems such as depression and PTSD in multiple studies (Hu et al., 2024; Li & Liang, 2024).

Research also indicates that traumatic exposure and self-esteem levels are intricately related to attachment styles and mental well-being (Pandey & Gupta, 2025; Teixeira et al., 2021). For example, one study found that self-esteem significantly moderates the relationship between traumatic experiences and the development of insecure avoidant or anxious attachment styles (Pandey & Gupta, 2025). Several other studies link childhood sexual trauma to lower levels of *sexual* self-esteem (Guyon et al., 2024; Van Bruggen et al., 2006) which, in turn, predicts one's overall sense of wellbeing (Barnum, 2017). Sexual self-esteem refers to a person's subjective sense of having a positive sexual identity and sexual acceptability to others (Chesli et al., 2024). Experiences of sexual abuse have been specifically associated with one's feeling of agency or control in sexual situations (Van Bruggen et al., 2006). This lowered sense of agency may partially explain why past sexual abuse also increases one's odds of later sexual victimization as an adult (Van Bruggen et al., 2006). These dynamics may be especially relevant to SASI dynamics, given the prevalence of sexual trauma in the population of people struggling with SASI.

Clearly, the relationship between trauma and self-esteem is complex and likely influenced by several mediating and moderating factors, such as levels of social support

during and after traumatic exposure—a possibility we will explore further in the following section. In the present study, we propose that individuals who experience trauma-related shame and a subsequent decline in self-esteem may be predisposed to engage in sexual self-injury.

Social Support and SASI

The association of social support with general mental wellbeing ranges from small ($r=.07$) to moderate ($r=.41$) across several metanalyses (Harandi et al., 2017; Smith et al., 1994; Zell & Stockus, 2025; Zhou & Cheng, 2022). Several theories have been proposed to explain the mechanism through which social support may improve mental health outcomes after stress or trauma—and most fit broadly under the social causation or social erosion frameworks. Social causation theories propose that social supports are critical resources which act protectively in the aftermath of stress to preserve mental wellbeing (Shallcross et al., 2016). On the other hand, social erosion theories posit that one's degree of mental health or distress determines the amount of social support available to them. Evidence exists for both theories, supporting the notion that there may be a bidirectional relationship between social support and mental health (Shallcross et al., 2016). The nuances of how social support impacts self-harming behaviors, self-esteem, and shame in the aftermath of trauma are even more complex, and in need of further evaluation.

Social Support and Self-Esteem

Self-esteem and social support are consistently correlated with one another, although causal pathways remain unclear—with some studies indicating that self-esteem

predicts social support unidirectionally (Marshall et al., 2014), some indicating that social support instead predicts self-esteem, (Bum & Jeon, 2016; Goodwin et al., 2004), and some finding that self-esteem and social support reciprocally predict one another (Harris & Orth, 2020). Under the sociometer hypothesis of self-esteem, self-esteem's sole function is to monitor one's social standing in relations to others. Here, we will lay out the possibility that lower levels of self-esteem may result from experiencing interpersonal devaluation through trauma *without* adequate positive levels of social support to balance out these negative inputs.

Several empirical studies support this assertion that self-esteem is specifically associated with social inclusion or exclusion (Eisenberger et al., 2011; Mahadevan et al., 2019; Leary et al., 1995). While self-concept refers to thoughts and beliefs one has about the self, self-esteem reflects how one evaluates themselves based on these thoughts. The sociometer hypothesis of self-esteem proposes that this self-evaluation is an important estimator of how others think about and value oneself as well—and that this calculation can impact social decisions and behaviors. Leary et al. (1995) first proposed that the function of self-esteem is to monitor threats related to possible social exclusion, and to drive people to act in ways which would promote social inclusion as much as possible. A subsequent study showed that both social inclusion and social status contribute to self-esteem (Eisenberger et al., 2011). Studies using fMRI techniques also demonstrate that negative feedback about the self results in greater activity in areas processing social rejection (dorsal anterior cingulate cortex, anterior insula) and mentalization (dorsal medial prefrontal cortex and posterior superior temporal sulcus; Mahadevan et al., 2019). These findings support the idea that people formulate their sense of self-esteem based on

how they believe others view them, and that negative social feedback may prime individuals to start strategizing about ways to circumvent social exclusion or devaluation. This perspective may offer insight into how changes in social support and self-esteem—especially after experiences of interpersonal devaluation post-trauma—may lead people towards sexual self-injury behaviors. It may be that people who undervalue themselves, based on input from traumatic and abusive interactions, may then seek out social interactions in which they feel devalued further by others based on this miscalibration. Indeed, studies suggest that self-esteem, along with social support, moderate the relationship between interpersonal violence and depression (Costa & Gomes, 2018) and that social support and self-esteem are protective factors, lowering the likelihood that one may engage with NSSI behaviors (Huang et al., 2024).

Social Support and Self-Injury

Although studies examining the association between social support and self-injury are mostly limited to adolescent populations, a significant negative association is consistently observed (Christoffersen et al., 2015; Forster et al, 2020; Huang et al., 2024; Kellerman et al., 2022; Liu et al., 2024a; Mackin et al., 2017; Wan et al., 2019; Yao et al., 2025). In other words, those with lower levels of social support tend to have a higher odds ratio of engaging in NSSI behavior. However, results regarding the precise way in which social support impacts NSSI behaviors are mixed. One study found that social support influenced the y-intercept but not the slope of NSSI behavior over time, indicating that this factor may be most protective in a preventative sense (Liu et al., 2024b). On the other hand, a separate study found that levels of social support were associated with short-term fluctuations of NSSI behavior (Kellerman et al., 2022).

Especially relevant to the dynamics of the SASI population (which has high levels of trauma history), Christoffersen et al (2015) found that social support significantly reduced the association between trauma and NSSI use.

Social Support and Trauma

When evaluating the impact of social support in the context of traumatic experience and PTSD, a clear bidirectional relationship emerges (Wang et al., 2021; Zalta et al., 2021). One meta-analysis of longitudinal data from 75 studies found that levels of social support are protective against PTSD, and that levels of social support continue to be significantly related to the maintenance of PTSD symptoms over time (Wang et al., 2021). A second meta-analysis echoed the finding that higher levels of social support were linked to lower levels of PTSD—with an especially strong impact of negative social reactions on later traumatogenic outcomes (Zalta et al., 2021).

Specific, nuanced types of social support may be especially important to survivors of sexual assault or interpersonal violence, compared with survivors of other traumatic events. One study involving 172 women with a history of childhood sexual abuse found that increased levels of social support predicted decreased levels of PTSD symptomology—and that feeling valued by others or held in high esteem through these social interactions was the most predictive of improved outcomes (Hyman et al., 2003). A separate study showed that low levels of social support, in conjunction with high levels of rejection sensitivity and vulnerable (insecure/distant) attachment, were predictive of PTSD with a large effect size (Jittayuthd & Karl, 2022). This is especially interesting considering that about half of those engaging in SASI reported seeking these encounters because of a desire for social confirmation (Fredlund et al., 2020). Some qualitative

interviews also support the idea that social support may impact SASI behaviors. For example, one woman expressed, “I wish someone had noticed me as a child...If someone had dared to pay attention to me and protect me... then maybe I would have felt well enough not to be attracted by destructive behavior” (Fredlund & Jonsson, 2023, p. 154). Several other women reported that positive social support helped them stop using SASI—including one respondent who said “I found the strength to quit when I got older and made better friends. I felt better myself and began to understand my own value better” (Fredlund & Jonsson, 2023, p. 155). For all these reasons, it is critical to examine how perceived social support may impact the development or sustainment of SASI behaviors in the aftermath of sexual trauma.

Hypotheses

In the current work, we present a novel measure: the Sex as Self Injury Survey Scale (SASIS; appendix A). We propose that the behaviors assessed by this scale represent a type of non-suicidal self-injury, frequently occurring alongside other NSSI behaviors and serving similar functions. We assert that these behaviors are not fully explainable as kink practices, as some people seek sex as a form of self-injury with no reported sexual motivation. SASI is an important clinical construct that may have links with historical sexual abuse and ongoing psychiatric symptoms. SASI may also signal risk of further harm, both as a potential risk factor for suicide and as a risk factor for physical injury through their association with sexual risk behaviors and potentially physically abusive partners.

In a study of 300 adults with and without a self-reported history of SASI behaviors, we tested a series of hypotheses regarding SASI, enumerated below.

Hypothesis 1

First, we put forward a set of predictions supporting the proposal that SASI is a form of NSSI.

Hypothesis 1a. We hypothesize that a majority ($\geq 50\%$) of individuals engaging in SASI will also report NSSI behaviors.

Hypothesis 1b. We hypothesize that intrapersonal-positive functions will be the most commonly endorsed functions of SASI behaviors and that interpersonal-negative functions will be the least commonly endorsed functions, consistent with what has previously been reported for the functions of NSSI behaviors.

Hypothesis 1c. With respect to risk of bodily harm posed by SASI, we further hypothesize that individuals who engage with SASI will report higher levels of sexual risk behaviors, compared with those who do not engage with SASI.

Hypothesis 2

We theorize that SASI behaviors are strongly associated with sexual abuse and may develop as an acute coping mechanism in response to memories of trauma. In line with that theory, we make the following specific predictions for this study:

Hypothesis 2a. We hypothesize that a majority ($\geq 50\%$) of individuals who have engaged in SASI will also report a history of SA.

Hypothesis 2b. We hypothesize that individuals who engage with SASI will report higher levels of interpersonal violence, with particularly elevated rates of sexual assault, compared with those who do not report use of SASI.

Hypothesis 2c. We hypothesize that a majority (>50%) of individuals who use SASI will endorse the items which were added to the ISAS functions scale for this study: agreeing that they use SASI as a way of “reenacting or replaying past experiences of sexual abuse or assault” or “responding to memories of past trauma or abuse”

Hypothesis 3

We theorize that SASI behaviors may develop due to the distal influences of shame experienced in response to traumatic experiences and due to the acute reactivation of this shame in response to memories of trauma or abuse. The following predictions were made to test this theory in the context of the present study:

Hypothesis 3a. We hypothesize that levels of trauma-related shame will be higher among those who report using sex as a form of self-injury, compared with those who do not.

Hypothesis 3b. We hypothesize that higher levels of trauma-related shame will be associated with a higher reported frequency of SASI behavior.

Hypothesis 4

We theorize that trauma-related shame is associated with lower self-esteem, predisposing individuals to engage in SASI behaviors.

Hypothesis 4a. We hypothesize that levels of self-esteem will be lower among those who report using sex as a form of self-injury, compared with those who do not.

Hypothesis 4b. We hypothesize that lower levels of self-esteem will be associated with a higher reported frequency of SASI behavior.

Hypothesis 4c. We hypothesize that, among those reporting SASI, higher levels of trauma related shame will be associated with lower levels of self-esteem.

Hypothesis 5

We theorize that higher levels of social support in the aftermath of trauma may buffer individuals from experiencing trauma-related shame and may protect self-esteem.

Hypothesis 5a. We hypothesize that levels of social support will be lower among those who report using sex as a form of self-injury, compared with those who do not.

Hypothesis 5b. We hypothesize that, among those reporting SASI, lower levels of social support will be associated with higher levels of trauma-related shame.

Hypothesis 5c. We hypothesize that, among those reporting SASI, lower levels of social support will be associated with lower levels of self-esteem.

Chapter II

Methods

This study was conducted remotely via Qualtrics (an online survey hosting platform) and was advertised on Reddit (a social media platform). The procedures for this study were approved by the Harvard University-Area Committee on the Use of Human Subjects (IRB25-0575). Anyone over the age of 18 who reported being a U.S. citizen and able to read in English was considered eligible to participate. Analyses of the data were performed using R version 4.4.1 (2024-06-14).

Participants

Upon entering the survey, participants were screened to ensure that they were above the age of 18, U.S. citizens, and able to read in English. Next, participants were asked whether they had:

1. never purposefully self-harmed
2. had sex in order to purposefully harm themselves, physically or emotionally
3. self-harmed in the past or present but NEVER in a sexual way
4. self-harmed in BOTH sexual and non-sexual contexts.

Response quotas were set for three groups: the NONE group (those with no history of self-harm), the NSSI only group (those with a history of non-suicidal self-injury but not the use of sex as a form of self-injury) and the SASI group (those with a history of using sex as a form of self-injury, with or without a concurrent NSSI history).

If a participant identified self-harming in both sexual and non-sexual contexts, they were included in the SASI group.

Once the requisite number of group members had been reached for the SASI, NSSI only, or NONE group, participants who no longer qualified due to quota caps were directed to the end of the survey. Recruitment continued until the set number of complete responses were obtained for each group (NONE n=100; NSSI n=100; SASI n=100). Only 100% complete responses were retained for analysis. Six complete responses were also excluded for failure to pass imbedded attention check items or for the selection of mutually exclusive categories during the grouping phase.

After the screening and grouping phase, participants were asked to provide demographic information. The mean age of participants was 29, and the range was 18-64. Most participants were 21-30 (42.9%), followed by 31-40 (22.3%), 18-20 (22%) and 41+ (12.8%). 43.33% of participants identified as female, 32% as male, 11% as non-binary, 9% as transgender men, and 3% as transgender women. 1.67% selected “other or prefer not to respond” To protect the anonymity of participants, no further demographic information was requested.

Overall, the NONE group had significantly more male participants than the SASI and NSSI groups, and the NSSI group had fewer male participants than the NONE and SASI groups. Participants in the NONE group were also older on average, followed by participants in the SASI group, then the NSSI group. Due to low cell counts in some gender categories, Fisher’s exact test with Monte Carlo simulation (10,000 replicates) was used to assess whether there were significant differences in gender distribution between groups. Since our sample included multiple different genders, we evaluated

differences in distributions across groups by analyzing the standardized residuals of the chi-square test. This allowed us to identify which categories contributed the most to intergroup differences in gender. We found that the NSSI group had significantly fewer male respondents (standardized residual = -2.47) and the NONE group had significantly more male respondents (standardized residual = 4.07), compared to the other groups. All other standardized residuals ranged from -1.59 to 1.15 and did not indicate significant deviations from expected counts.

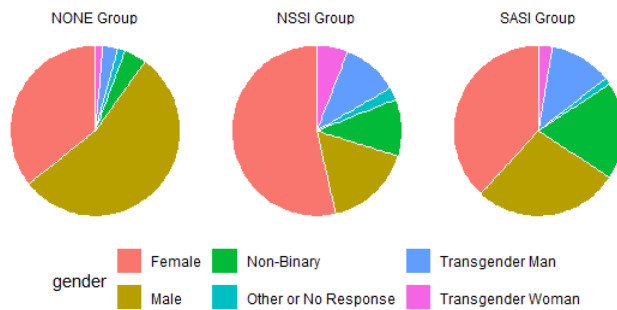


Figure 1. Gender Distribution by Self-Harm History

The mean age was 32.9 for the NONE group, 28.1 for the SASI group, and 22.5 for the NSSI group. The Shapiro-Wilk test demonstrated that all group age distributions deviated significantly from normality ($p < .001$). Therefore, we used the Kruskal-Wallis test to determine if the intergroup differences in ages of participants were significant. This test indicated a significant difference in age across groups ($\chi^2 = 30.44$, $p < .001$). Post-hoc pairwise comparisons using Dunn's test with Bonferroni adjustment showed that participants in the NONE group were older than those in the NSSI group ($p_{\text{adj}} < .001$) and the SASI group ($p_{\text{adj}} = .005$). Participants in the SASI group were also significantly older than those in NSSI group ($p_{\text{adj}} = .048$). For these reasons, significant

findings from nonparametric measures were evaluated using regression methods which allowed for control of potentially compounding variables such as age and gender—despite nonrandom sampling.

Table 1. Comparative Demographics Table

	SASI (N=100)	NSSI (N=100)	NONE (N=100)
Age			
Mean (SD)	28.1 (8.5)	25.9 (9.26)	32.9 (10.7)
Median [Min, Max]	26.0 [18.0, 60.0]	22.5 [18.0, 64.0]	30.0 [18.0, 60.0]
Missing	0 (0%)	4 (4%)	0 (0%)
Gender			
Female	45 (45.0%)	46 (46.0%)	39 (39.0%)
Male	23 (23.0%)	18 (18.0%)	55 (55.0%)
Non-Binary	18 (18%)	12 (12.0%)	3 (3.0%)
Transgender Woman	3 (3.0%)	12 (12.0%)	1 (1.0%)
Transgender Man	9 (9.0%)	17 (17.0%)	1 (1.0%)
Other or No Response	2 (2.0%)	2 (2.0%)	1 (1.0%)

Measures

The following section summarizes the psychometric scales used to measure the psychological constructs examined in the present study.

Self Esteem

The Rosenberg Self Esteem Scale (RSE) was used to assess participants' levels of self-esteem (Rosenberg, 1979). This measure includes 10 items rated on a Likert-type scale ranging from 1—strongly agree to 4—strongly disagree. Items in this scale include statements such as “I feel that I have a number of good qualities.” Five items are reverse-coded, such as “At times, I think I am no good at all.” The original developer of this scale reported strong internal consistency of items with a Guttman coefficient of reproducibility of .92 and high test-retest reliability across a two-week interval ($r = .85$ and $.88$). In our sample, scores ranged from 10 to 40. Excellent internal consistency was also demonstrated (Cronbach's $\alpha = 0.91$, McDonald's $\omega = 0.92$).

Sexual-Risk Behaviors

The Sexual Risk Behavior Scale (SRBS; Fino et al., 2021) was used to measure SRBs. This brief, unidimensional 6-question scale asks participants to respond to several statements using Likert-type ratings ranging from 0—meaning never, to 4—very often. Example items include “How often have you had sex while under the influence of drugs or substances?” and “How often have you had sex without a condom with someone you have just met?” The scale was developed and validated using a sample of 547 university students in the U.K. and was found to have acceptable to good internal consistency ($\alpha =$

0.84, $\omega = 0.82$). In our sample, the SRBS also exhibited high internal consistency (Cronbach's $\alpha = 0.87$, McDonald's $\omega = 0.88$).

NSSI Behaviors

Part one of the inventory of statements about self-injury (ISAS; Klonsky & Glenn, 2009) was used to quantify NSSI behaviors. This questionnaire asks participants to estimate the lifetime frequency at which they have performed behaviors such as cutting the skin or burning the skin intentionally (on purpose) and without suicidal intention (e.g. 0, 10, 100). The ISAS was originally developed using a sample of 239 non-clinical participants and part one was identified as a valid, brief assessment of NSSI history (Klonsky & Glenn, 2009). A review of six scales designed to measure self-injury confirmed that the ISAS demonstrated good reliability ($r = 0.85$) when evaluated with a sample of 332 participants comprised of college students, mental health patients, and community members (Latimer et al., 2013). Our study only utilized the behavioral descriptions items from Part I of this scale, which assesses the frequency of engagement in self-injury behaviors. Since self-injury behaviors (e.g. head banging and cutting) do not necessarily co-occur, lower internal consistency was expected when analyzing just these items. Consistent with this expectation, poor internal consistency was noted for this section of the scale in our sample (Cronbach's $\alpha = 0.00$, McDonald's $\omega = 0.68$). Importantly, our analyses only used the results of ISAS-Part 1 for grouping purposes, and did not analyze averaged or summed frequencies in any part of our analysis.

SASI Behaviors

Prior to the current work, no self-report scale has been proposed to measure SASI experiences. Previous research has operationalized SASI using a *single* self-report question such as “Have you ever used sex as a way to purposefully cause yourself harm?” Furthermore, only 20% of a sample of 50 college-aged respondents in the U.S were familiar with the concept, phrased as “sex as a form of self injury” (Mellin & Young, 2024). For these reasons, a novel assessment tool was designed for measuring SASI in the present study (Appendix A). Scale items were carefully crafted based on the qualitative reports of those suffering from SASI in previous research (Fredlund et al., 2020; Mellin & Young, 2024). These items were also modeled off the established scales used to measure NSSI and SRBS—using analogous language in the directions and phrasing of items but replacing the content with that relevant to SASI (Klonsky & Glenn, 2009; Turchik & Garske 2009).

The items on this new survey, termed here as the Sex as Self Injury Survey (SASIS), ask participants to estimate the number of times they have intentionally engaged in each of several SASI-related behavior (e.g. having sex in an attempt to punish oneself, having sex which the participant knew would be emotionally or physically painful to them, chatting or texting sexually in order to recreate memories of past abuse, having sex in order to confirm thoughts of being bad or worthless).

In our sample, high internal consistency was demonstrated (Cronbach’s $\alpha = 0.88$, McDonald’s $\omega = 0.93$). Average interitem correlation ranged from 4.2-4.9, indicating that items on the scale were related but not likely redundant. Cronbach’s α was examined by assessing whether deleting any individual item improved the overall reliability; no item

deletion increased the scale's reliability, indicating that none of the items weakened the measure. As with the NSSI behaviors scale, correlations between items were expected to be variable, given that the statements describe different behaviors which can be defined as SASI but may not necessarily co-occur.

Table 2. SASI Scale Reliability Analysis

Reliability if Item Deleted

Item	Cronbach's α if item was deleted	Standardized α	Average Inter-item correlation	Signal-to- noise ratio (S/N)
1. Had sex which you knew would feel emotionally or physically painful, in order to hurt yourself?	0.88	0.91	0.43	10.68
2. Had sex to confirm thoughts you had about yourself being bad or worthless?	0.87	0.91	0.42	10.03
3. Had sex to stop feelings of numbness and to feel pain instead?	0.86	0.92	0.44	10.93
4. Had sex in an attempt to punish yourself?	0.85	0.92	0.44	10.90
5. Had sex in an attempt to hurt yourself?	0.85	0.91	0.43	10.76
6. Had sex which you knew would feel humiliating, to cause yourself pain?	0.88	0.92	0.44	11.12
7. Had sex you felt was disgusting, to cause yourself pain?	0.88	0.91	0.43	10.39
8. Used sex in attempt to purposefully recreate or replay past trauma?	0.85	0.91	0.43	10.61
9. Sought out sex with a partner who you knew would physically abuse you in order to hurt yourself?	0.88	0.92	0.46	11.76

Item	Cronbach's α if item was deleted	Standardized α	Average Inter-item correlation	Signal-to- noise ratio (S/N)
10. Sought out sex with a partner who you knew would insult, belittle or verbally abuse you in order to hurt yourself?	0.89	0.92	0.46	11.91
11. Chatted or texted sexually with an emotionally abusive partner, in order to hurt yourself?	0.89	0.93	0.48	12.95
12. Chatted or texted sexually in attempt to purposefully replay or reexperience a past trauma?	0.88	0.92	0.46	11.70
13. Had demeaning, insulting, or humiliating online sexual video encounters, in order to hurt or punish yourself?	0.89	0.93	0.49	13.19
14. Sought out sex with an undesired partner, or someone you weren't attracted to, in order to hurt yourself?	0.89	0.92	0.46	12.12
15. Had sex you truly did not want to, or had sex that didn't feel good to you, in order to hurt or punish yourself?	0.88	0.92	0.44	11.02

Item-Level Statistics

Item	Corrected item-total correlation	Item-total correlation	Mean score for the item	Standard deviation for the item
1. Had sex which you knew would feel emotionally or physically painful, in order to hurt yourself?	0.66	0.81	47.68	111.56
2. Had sex to confirm thoughts you had about yourself being bad or worthless?	0.90	0.96	43.72	138.93
3. Had sex to stop feelings of numbness and to feel pain instead?	0.93	0.78	84.54	508.20

Item	Corrected item-total correlation	Item-total correlation	Mean score for the item	Standard deviation for the item
4. Had sex in an attempt to punish yourself?	0.93	0.78	81.52	502.84
5. Had sex in an attempt to hurt yourself?	0.95	0.81	93.60	515.14
6. Had sex which you knew would feel humiliating, to cause yourself pain?	0.44	0.74	31.40	83.76
7. Sought out sex that you felt was disgusting, to cause yourself pain?	0.76	0.88	29.24	86.42
8. Used sex in attempt to purposefully recreate or replay past trauma?	0.96	0.84	92.00	522.76
9. Sought out sex with a partner who you knew would physically abuse you in order to hurt yourself?	0.33	0.61	25.51	113.02
10. Sought out sex with a partner who you knew would insult, belittle or verbally abuse you in order to hurt yourself?	0.27	0.58	21.97	62.23
11. Chatted or texted sexually with an emotionally abusive partner, in order to hurt yourself?	0.21	0.37	63.81	169.16
12. Chatted or texted sexually in attempt to purposefully replay or reexperience a past trauma?	0.52	0.59	40.63	108.74

Item	Corrected item-total correlation	Item-total correlation	Mean score for the item	Standard deviation for the item
13. Had demeaning, insulting, or humiliating online sexual video encounters, in order to hurt or punish yourself?	0.26	0.33	25.91	79.03
14. Sought out sex with an undesired partner, or someone you weren't attracted to, in order to hurt yourself?	0.30	0.53	20.34	61.08
15. Had sex you truly did not want to, or had sex that didn't feel good to you, in order to hurt or punish yourself?	0.80	0.75	45.39	126.09

SASIS total scores were visualized using boxplots and histograms to evaluate potentially extreme scores. Significant rightward skew was observed. 17 outliers were detected using the interquartile range (IQR) method, and one outlier was flagged using the Z-score method. In order to retain most of the observed variation in the data while also reducing the impact of extreme outliers in the right tail, winsorization at the 95th percentile was performed. This method caps the top 5% of values while leaving the remaining values unchanged. The plots below visualize how winsorization at the 99th, 97.5th and 95th percentile would have potentially impacted the total range and top values.

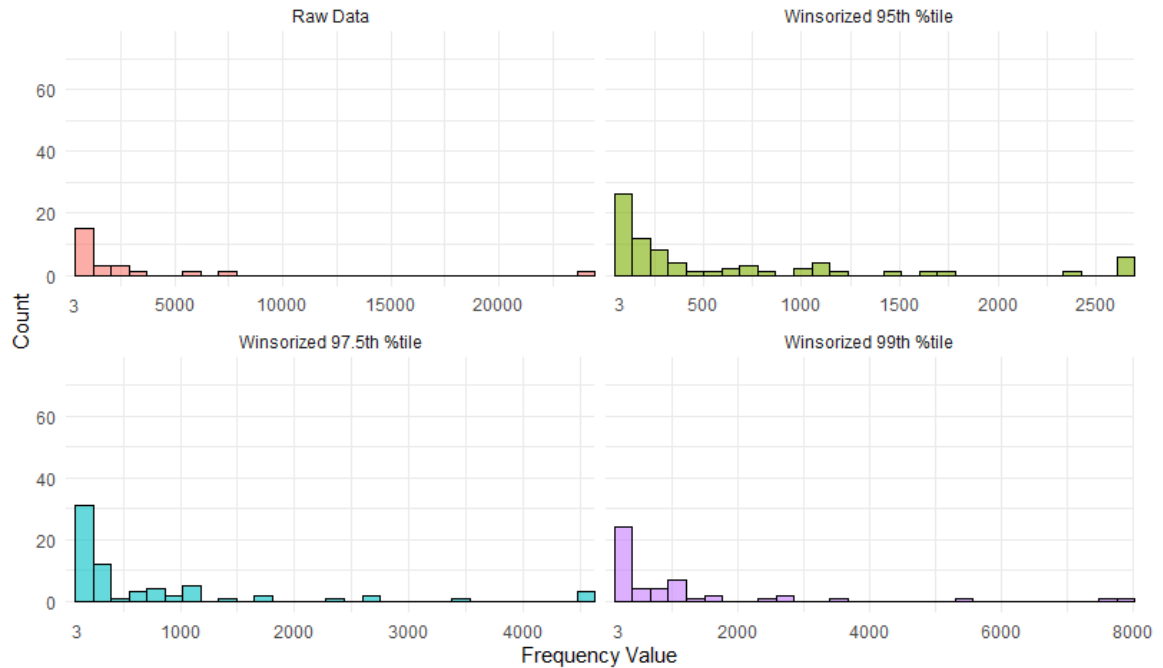


Figure 2. Comparison of SASI Behavioral Frequencies: Raw vs Winsorized

Ultimately, we winsorized our data at the 95th percentile to limit the influence of extreme right-tail values while retaining the full sample. The Shapiro-Wilk test showed that after winsorization, the distribution remained non-normal due to the strong rightward skew ($W = 0.62$, $p < .001$). Accordingly, primary analyses involving the SASI frequency variable relied on nonparametric statistical methods, which are less sensitive to distributional assumptions. Parametric models were conducted as supplementary analyses to evaluate whether key associations held after adjusting for demographic covariates (i.e., age, gender). The table below explains how the capping of the top 5% of values in our dataset impacted the summary statistics for the SASI behaviors frequency variable:

Table 3 Summary Statistics Before and After Winsorization

Statistic	Raw Data	Wisorized at the 95 th Percentile
Min	3.00	3.00
1 st Quartile	47.75	47.75
Median	133.00	133.00
Mean	746.97	445.195
3 rd Quartile	386.25	386.25
Maximum	24,040.00	2,655.30

Functions of SASI

Although some preliminary studies have reported potential functions of SASI, and the ways in which they overlap with the functions of NSSI (Jonsson et al., 2019), no psychometrically validated scale has previously been used to assess the functions of SASI. The present research adapted an established scale used for assessing the functions of NSSI (part two of the Inventory of Statements about Self-Injury, ISAS; Klonsky & Glenn, 2009) to make it relevant for assessing the functions of SASI. Minor changes to this scale (including the deletion of three items, the addition of two items, and the addition of verbiage in the directions to refer to SASI) are enumerated in Appendix B. The 39 items included in the ISAS were categorized by the original researchers as broadly relating to: affect regulation, anti-dissociation, anti-suicide, marking distress,

self-punishment, autonomy, interpersonal boundaries, interpersonal influence, peer bonding, revenge, self-care, sensation seeking, and toughness. Study of the original items unearthed two simplified, distinct factors when analyzed among a sample of 235 young adults: functions related to interpersonal motivations, and functions related to intrapersonal motivations (Klonsky & Glenn, 2009). Kuder-Richardson Formula 20 (KR-20 = 0.89). Cronbach's alpha ($\alpha = 0.89$) was employed to estimate the internal consistency of this scale among our sampled respondents, and good reliability was established. See Appendix B for the full scale, adapted to assess functions of SASI behavior.

Interpersonal Violence/Trauma

The Brief Trauma Questionnaire (BTQ; Schnurr et al., 1999) was used to assess whether or not participants had been exposed to interpersonal violence. The BTQ is widely used and is aligned with criterion A for PTSD exposure to traumatic life events in the DSM-5 (American Psychiatric Association, 2022). It is listed as a measure to assess traumatic exposure by the National Center for PTSD (n.d.). Criterion validity has been established through strong correlations between BTQ scores and levels of PTSD symptomology or dissociation (Koenen et al., 2009). This scale records participants' exposure to potentially traumatic circumstances using yes/no response options. Example items include "Have you ever been in a serious car accident, or a serious accident at work or somewhere else?" and "Did anyone ever make or pressure you into having any type of unwanted sexual contact?"

This measure, designed to be brief, includes 10 screening items which encompass an array of traumatic experiences. However, since the proposed research is primarily

focused on the impact of sexual assault, item number seven has been split into two items and adapted slightly here to separately assess the experience of sexual assault as a minor *and* as an adult.

Subsequent analyses of BTQ responses for this study grouped items 5, 6, 7, and 8 to encapsulate experiences of interpersonal trauma, such as abuse and assault, and grouped items 1-4 and 9-11 to encapsulate exposure to other traumas which are not interpersonal in nature, such as being impacted by a natural disaster or car accident.

Trauma-Related Shame

The short form of the Trauma-Related Shame Inventory (TRSI-SF; Øktedalen et al., 2014; Grau et al., 2022) was used to assess shame related to interpersonal violence or trauma. This 10-item scale asks participants to rate whether statements such as “Because of what happened to me, I am disgusted with myself” are not true, somewhat true, mostly true or completely true for them. The original TRSI was developed using a sample of 50 patients being treated for PTSD and was found to have high generalizability ($\rho^2 = .874$) and dependability ($\Phi = .868$; Øktedalen et al., 2014). The short-form version was validated using a sample of 427 participants with a PTSD diagnosis recruited from partial hospitalization programs, and was also found to have good internal consistency and reliability ($\alpha = .88$ & $.92$; $\omega = .89$ & $.95$ across 2 separate samples; Grau et al., 2022). Our sample also evidenced excellent internal consistency of the TRSI-SF (Cronbach’s $\alpha = 0.96$, McDonald’s $\omega = 0.96$, with scores ranging from 0 to 30).

Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) was used to assess social support. This 12-item survey asks participants to respond to statements using a Likert-type scale ranging from one (very strongly disagree) to seven (very strongly agree). Example items include, “I can talk about my problems with my family,” and “I have friends with whom I can share my joys and sorrows.” Subscales of this measure include support from significant others, family, and friends. The original developers found that the scale had good internal reliability ($\alpha = .88$), good test-retest reliability ($r = .85$), and moderate construct validity ($r = -.25, p < .01$) when testing associations with levels of depression. One subsequent study among 374 college students also demonstrated evidence of construct validity of the scale, as levels of social support negatively correlated with levels of loneliness, across subscales (Salimi et al., 2012). In the current sample, scores ranged from 0-87 and internal consistency was found to be excellent (Cronbach’s $\alpha = .93$, McDonald’s $\omega = .92$).

Procedures

The following section outlines the participant recruitment process, survey administration, and data analysis methods.

Survey Procedures

Participants were recruited over the course of 6 months via Reddit postings which provided a link to the study survey. Upon opening the survey link, participants were directed to screening questions related to age, fluency in English, and U.S citizenship. Next, if eligible, participants were provided with information about the study, including

the voluntary nature, the potential risk of distress, and the participants' right to discontinue participation at any time. Those who provided informed consent to participate were then asked to provide their age in years and their self-identified gender. After that, they selected which of the self-harm experiences (enumerated above) were relevant to them.

After completing the self-harm history question, all participants were directed to the Rosenberg Self-Esteem Scale (RSE), followed by the Sexual Risk Behavior Scale (SRBS). Only participants who reported a history of self-harm were directed to complete the Inventory of Statements about Self Injury (ISAS). Participants who self-reported having sex to cause themselves harm were also presented with the Sex as Self Injury Survey (SASIS) and the SASI adapted function scale. Participants who reported that they had *never* harmed themselves on purpose were not provided the questionnaires regarding the frequency or function of these behaviors. Similarly, participants who reported that they had never self-harmed in a sexual context were not presented with the SASI scales. All participants were then asked to complete the Brief Trauma Questionnaire (BTQ). An attention check item was embedded into the BTQ section to help check the quality of received responses (all participants were asked to select a specified response in the middle of the scale). Any participant who responded "yes" to having experienced at least one traumatic event was then directed to complete the Trauma-Related Shame Inventory. Finally, the Multidimensional Scale of Perceived Social Support was presented to all participants. Again, an attention-check item was presented in this survey. This order of questioning was designed using a buffering technique, which aims to reduce potential discomfort by starting and ending the survey with less sensitive topics.

At the conclusion of the study, all participants were provided with mental health resources to mitigate distress. These resources included the numbers for various mental health crisis and abuse lines as well as psychoeducational websites related to sexual risk and self-injury. A website specifically related to SASI was also created for this study and provided to participants (accessible for viewing at <https://sites.google.com/view/understandingsasi/home> with minor updates made post-study).

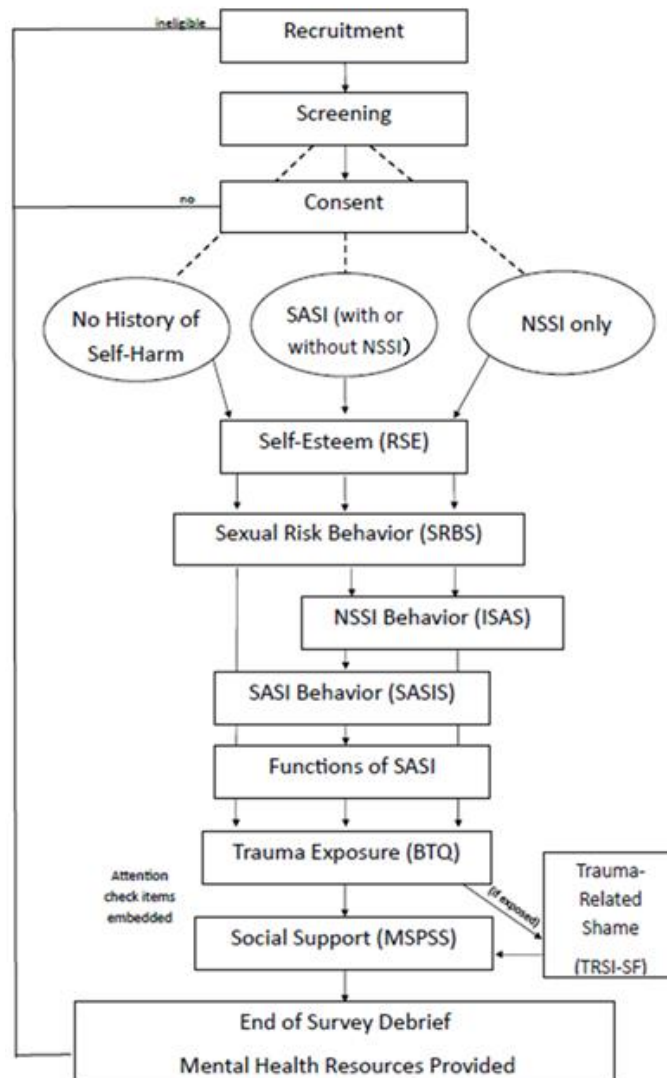


Figure 3. Methods Flowchart

Statistical Procedures

All statistical analyses were performed using R version 4.4.1 (2024-06-14). Prior to testing, the data set for any numeric (frequency) variable was evaluated for outliers, and SASI frequency scores were winsorized as described above. The sums of Likert-type scale items were unchanged, and outliers were retained, since Likert scales are already bounded and do not produce extreme numeric outliers. In addition, the Kruskal-Wallis test—used to evaluate group differences measured with the Likert Scale variables—is resistant to outliers. For participants who endorsed “I have never self-harmed” or “I have self-harmed but never in a sexual way,” relevant follow-up self-harm frequency items were coded as zero, consistent with the skip logic of the survey.

It is important to note that, in several analyses, we employed regression techniques after the primary nonparametric analyses in order to account for potential confounding by age and gender. Because group assignment was not randomized, regression models adjusting for age and gender were conducted to evaluate whether observed group differences persisted after accounting for these demographic variables. These analyses were performed as supplementary checks to assess the robustness of the primary findings. Results are interpreted within the context of the study’s nonrandom sampling design.

Research Question 1a

What percentage of respondents with a history of sex as self-injury report a history of other forms of non-suicidal self-injury?

Intragroup Analysis: To determine how concurrent SASI is with NSSI among those who use SASI, we first extracted a subset of the respondents who endorsed at least one

behavior at a frequency >0 on the SASIS scale and evaluated what percentage of these respondents *also* endorsed at least one behavior at a frequency >0 on the ISAS scale.

Research Question 1b

Among those who engage in sex as a form of self-injury, which functional categories are most frequently endorsed, based on item-level responses?

Intragroup Analysis: To evaluate the most commonly reported functions of SASI, the percentage of SASI group participants endorsing each item on the adapted function scale was calculated. Responses of 0 (“not relevant for you”) were counted as unendorsed, while responses of 1 (“somewhat relevant”) and 2 (“very relevant”) were counted as endorsed without differentiation for this research question.

Statements were then grouped into the main functional categories identified by prior research on self-injury, including interpersonal negative, interpersonal positive, intrapersonal negative and intrapersonal positive. The item numbers corresponding to the order of statements in Appendix B are listed in the table below.

Table 4. SASI-Adapted Function Scale: Items Defining Functional Categories

Category	Item Numbers Defining Each Category
Interpersonal-Negative	2, 11, 23, 26, 36, 37
Interpersonal-Positive	7, 8, 9, 14, 19, 20, 21, 32, 33, 34
Intrapersonal-Negative	3, 10, 15, 17, 22, 24, 25, 27, 28, 29, 30, 35, 38
Intrapersonal-Positive	1, 6, 12, 13, 16, 18, 31

The mean response to the items in each functional category was calculated per participant. These participant means were then averaged at the group level to find a sample mean score per category. No outliers were detected for any category using the IQR method. Before running a repeated-measures ANOVA, we evaluated several assumptions. First, we ran the Shapiro-Wilk test to check the normality of pairwise difference scores between categories. Most differences were approximately normal, with one pair of differences showing slight non-normality ($p = .018$). Since repeated-measures ANOVA is generally robust to small deviations from normality, we continued on to check the assumption of sphericity. We assessed sphericity with Mauchly's test ($W=0.99$, $p=.46$) and the Greenhouse-Geisser epsilon ($\epsilon_{GG}=0.97$), which indicated the assumption of sphericity was met. The ANOVA results were automatically corrected to handle the slight deviation from perfect sphericity.

ANOVAs were used to test whether differences in responses between the four categories were significant. We also performed paired T-tests and Holm correction (to control for multiple comparisons) to identify which specific category differences were significant.

Research Question 1c

Are sexual risk behaviors higher among those who report a history of sex as self-injury, compared with those who do not?

Intergroup Analysis: To evaluate whether levels of sexual risk behaviors varied between groups, we summed the 0-4 Likert-type score responses of the 5 SRBS items to create a discrete numeric variable. Group sums on the SRBs items were non-normal (Shapiro-Wilk $W = 0.86$, $p < .001$). A density plot of summed SRBs scores per group

also showed that the distribution of SRBs scores for the SASI group was roughly bell-shaped (Shapiro–Wilk $W = 0.97$, $p = .35$) while the distributions for the NSSI and NONE groups were both zero inflated and sloping downward. Zero-inflated Poisson modelling confirmed this: the NSSI group had a ~41% probability of zero inflation, and the NONE group had a ~31% possibility of zero inflation, while the SASI group had a low probability of excess zeros (~7%). However, since the zeros are meaningful in the context of our study, and since substantial overdispersion was present (5.17, $z = 9.68$, $p < .001$), negative binomial regression was ultimately used for analysis. Age and gender were also included in the model as covariates.

Research Question 1d

What proportion of participants reported no sexual motivation for participating in sex as a form of self-injury?

Intragroup Analysis: Partway through the study, an item was added to the ISASI functions scale to assess whether some people who engage with SASI do so without sexual motivation. This question is important when considering whether SASI behaviors can be accurately considered as kink practices, rather than forms of self-harm. This item asked SASI group participants to respond to the statement “When I have sex to cause myself harm I am trying to experience pleasure or sexual gratification.”

To evaluate the proportion of respondents which reported no sexual motivation for SASI through this item, we calculated the percentage of participants endorsing this item on the adapted function scale as “not relevant.” We then analyzed the proportion of respondents endorsing this item as “somewhat” or “mostly” relevant in comparison. A total of 63 participants from the SASI group answered this question.

Research Question 2a

What percentage of respondents with a history of sex as self-injury report a history of experiencing sexual assault?

Intragroup Analysis: To determine what proportion of respondents reported both SASI and SA experiences, we evaluated what percentage of the SASI group respondents endorsed at least one SA experience on the BTQ scale at a frequency > 0.

Research Question 2b

Do individuals who engage in sex as self-injury report different levels of interpersonal violence, compared with those who do not?

Intergroup Analysis: To determine whether levels of interpersonal violence differed between groups, we defined an IPV variable from the BTQ survey using items 5, regarding severe beatings by caretakers, 6, regarding other physical attacks by caretakers or others, 7, regarding childhood sexual abuse and 8, regarding sexual abuse after the age of 18. A discrete numeric variable was created from the sum score of these four items. The Shapiro-Wilk test showed non-normality in group IPV scores ($p < .001$), so we used the Kruskal-Wallis test to determine whether the number of IPV experiences varied among the three groups (SASI, NSSI or NONE). We evaluated the results of the post-hoc Dunn Test with Bonferroni Correction to determine which specific groups differed. After that, we evaluated effect size and the proportion of variance of IPV scores explained by group using eta-squared.

Finally, Poisson regression was used to examine whether age and gender confounded any intergroup differences evinced by the Kruskal-Wallis test in our sample. Dispersion statistics indicated that the Poisson model assumptions were met (dispersion = 0.98).

Since equal groups were specifically sampled for this research, group, along with age and gender, were positioned as the predictors and IPV was positioned as the outcome.

Do individuals who engage in sex as self-injury report different levels of sexual assault, compared with those who do not?

To assess whether experiences of *sexual assault* specifically varied significantly between groups, we only considered items 7 and 8 from the BTQ. We combined these two items to create a yes/no categorical variable. All cell counts in the 3 x 2 (group x SA experience) table were above 5, with the lowest cell count being 11. Therefore, the chi-square test was appropriate to evaluate whether the levels of sexual assault varied across groups. Pairwise Fisher's exact tests were used post-hoc with Bonferroni correction to determine whether pairs of groups (SASI vs NSSI, SASI vs NONE, NONE vs NSSI) varied.

In order to determine whether intergroup differences in SA experiences remained significant for our sample after controlling for age and gender as covariates, we employed logistic regression using SA as the outcome variable due to study design. No evidence of multicollinearity was identified among predictors (all adjusted GVIFs < 1.12) and the linearity of the logit assumption for age was supported (Box–Tidwell test, $p = .094$), making this an appropriate analysis to run.

Research Question 2c

Are trauma-related reasons for engaging in sex as a form of self-injury endorsed by a majority of participants?

Intragroup Analysis: To evaluate whether trauma-related functions were endorsed by the majority of participants, we calculated the percentage of SASI group participants

endorsing each item on the adapted function scale, including the two items added for this study: “When I have sex to cause myself harm, I am responding to memories of past trauma or abuse” and “When I have sex to cause myself harm, I am reenacting or replaying past experiences of sexual abuse or assault.” Responses of 0 (“not relevant for you”) were counted as unendorsed, while responses of 1 (“somewhat relevant”) and 2 (“very relevant”) were first counted as endorsed without differentiation. Later analyses then parsed apart these endorsements with greater nuance, proffering the percentage of respondents answering not relevant, somewhat relevant and very relevant for each statement.

After this, the mean response to the items was then calculated for the items in each subcategory: affect regulation (items 1, 13, 25), interpersonal boundaries (items 2, 14, 26), self punishment (items 3, 15, 27), anti-dissociation (items 4, 16, 28), anti-suicide (5, 17, 29), sensation-seeking (items 6, 18, 31), peer bonding (items 7, 19, 32), interpersonal communication (items 8, 20), toughness (items 9, 21, 34, 35), marking distress (items 10, 22, 36), revenge (items 11, 23, 37), autonomy (items 12, 24, 38), and trauma response (items 30, 38). The initial response values of 0-2 were utilized to create averages for each category. Participant means were then averaged at the group level to find a mean score per category sample-wide.

The subcategory data was screened for outliers using the IQR method. Two participants had unusually high means for items in the revenge categories; yet, neither was extreme, and these items were retained for analysis given their theoretical validity. Before running a repeated-measures ANOVA, we evaluated several assumptions. Normality of participant-level means for each subcategory was assessed using the

Shapiro-Wilk test. Deviations from normality were noted across subcategories; however, given the sample size ($n=100$) and the absence of extreme outliers, repeated-measures ANOVA was deemed robust to these moderate violations ($W = 0.81-0.94$).

Most differences were approximately normal, with one pair of differences showing slight non-normality ($p = 0.018$). Since repeated-measures ANOVA is generally robust to small deviations from normality, we continued on to check the assumption of sphericity. We assessed sphericity with Mauchly's test ($W = 0.04$, $p < .001$). As a result, Greenhouse-Geisser corrected results were used for interpretation ($\epsilon = .68$). We also performed paired t-tests with a Holm correction in order to identify which specific category differences were significant.

Research Question 3a

Do individuals who engage in sex as self-injury report different levels of trauma related shame, compared with those who do not?

Subset Intergroup Analysis: To evaluate whether levels of trauma-related shame varied between groups, we first subset the data to include only respondents who endorsed at least one traumatic experience on the BTQ ($n=257$). This subset sample was composed of 69 respondents from the NONE group, 90 respondents from the NSSI group, and 98 responses from the SASI group. Trauma-related shame was calculated as a sum score of the 10 items on the TRSI-SF with 0-3 Likert-type responses.

Assumptions of homogeneity of variance and normality were violated, $F(2, 254) = 12.87$, all $ps < .001$. Accordingly, Kruskal-Wallis with eta squared and a post-hoc Dunn's test with Bonferroni correction was used.

Because assumptions of normality and homogeneity of variance were violated, a rank-based ANCOVA was employed post-hoc to explore the potential confounding effects of age, gender and trauma type in our sample. Trauma types were defined for this study based on items from the BTQ. “Sexual assault experiences” included items 7 and 8 of the BTQ, “other interpersonal violence experiences” included items 5 and 6. “Witnessing violence” included items 10 and 11, and “other: war, accidents, illness” comprised of items 1, 2, 3, 4 and 9. Here, group membership, age, gender and trauma type were treated as predictors and trauma-related shame was treated as the outcome variable. Variance inflation factors were examined to assess multicollinearity. Scaled GVIFs ranged from 1.04 to 3.32, indicating no serious multicollinearity among predictors. However, there was a significant violation of the homogeneity of regression slopes between the group and age variables, indicating that the effect of age on shame differed across groups. Therefore, results should be interpreted with caution.

Research Question 3b

Among those who engage in SASI, are higher levels of trauma-related shame associated with greater frequency of sex as self-injury behaviors?

Intragroup Analysis: Only responses from participants who reported engaging in SASI (n=100) were included in this analysis. The relationship between trauma-related shame scores and frequency of SASI behaviors was first visualized using a scatterplot, which did not show a clear linear trend. However, superimposing a smoothed lowess trend line did visually indicate a monotonic relationship. Due to a high proportion of ties (70%) in the shame scores data, Kendall’s tau was leveraged to assess potential associations between these variables.

Research Question 4a

Do individuals who engage in sex as self-injury report different levels of self-esteem, compared with those who do not?

Intergroup Analysis: To evaluate this question, we used the sum total score from the RSE to operationalize shame. A density plot of summed self-esteem scores per group showed that the distribution of scores for the SASI group was moderately bimodal (Shapiro–Wilk $W = 0.97$, $p = .35$) while the distributions for the NSSI and NONE groups were roughly bell shaped. Shapiro–Wilk tests indicated slight deviations from normality for the SASI ($W = .97$, $p = .02$) and NSSI groups ($W = .97$, $p = .01$), while the NONE group was approximately normally distributed ($W = .98$, $p = .10$). However, Q–Q plots did not display any major departures from normality. Levene’s test also indicated that the assumption of homogeneity of variances was also met, $F(2, 297) = 2.86$, $p = .06$. Therefore, ANOVA was considered appropriate for analysis.

Research Question 4b

Are lower levels of self-esteem associated with greater frequency of sex as self-injury behaviors?

Intragroup Analysis: To evaluate this relationship, we again used the sum total of RSE scores to operationalize self-esteem and used the winsorized sum total from the SASIS to quantify SASI frequencies. The relationship between self-esteem scores and frequency of SASI behaviors was first visualized using a scatterplot, which did not show a clear linear trend. Due to a high proportion of ties (73%) in the self-esteem scores, Kendall’s tau was leveraged to assess potential associations between these variables.

Research Question 4c

Among those reporting SASI, are higher levels of trauma-related shame associated with lower levels of self-esteem?

Intragroup Analysis: Using participants with at least one endorsed traumatic event ($n=257$), we calculated a sum total score from the TRSI-SF and a sum total score from the RSE. After that, we ran a test of monotonicity to determine whether these variables consistently increased or decreased together without changing direction from a positive to negative relationship or vice versa. A strong negative correlation between trauma-related shame and self-esteem was evidenced by the results of Spearman's rank correlation ($\rho = -.62, p < .001$). However, due to a high proportion of ties in the data (self-esteem 88%, shame 88%), Kendall's tau was used for the primary analysis after confirming monotonicity with Spearman's rank correlation. A 95% confidence interval for Kendall's tau was calculated using a nonparametric bootstrap with 2,000 resamples.

Research Question 5a

Do individuals who engage in sex as self-injury report different levels of social support, compared with those who do not?

Intergroup Analysis: To evaluate this question, we calculated a sum total score from responses to the MSPSS items. The Shapiro-Wilk test indicated that the data were not normally distributed, $W = 0.95, p = 0.001$, and the density plot distributions showed a slight bimodal trend in the NONE group with some left skew in all groups. An approximately linear pattern was found in Q-Q plot visualizations, however. Since the assumption of normality was violated, a Kruskal-Wallis test was conducted to analyze this research question.

Research Question 5b

Among those reporting SASI, are lower levels of social support associated with higher levels of trauma-related shame?

Intragroup Analysis: The sum total score from the TRSI-SF and the sum total score from the MSPSS allowed us to quantify social support and trauma-related shame as discrete numeric variables. Only 2 respondents in the SASI group did not report any instances of trauma on the BTQ and thus, did not respond to the TRSI-SF scale. Rows with missing responses were excluded from analysis and no further sub-setting of the dataset was necessary. A scatterplot evinced a monotonic, downward sloping relationship between social support and levels of trauma-related shame, with some curvature. Since there were significant ties in the data, (51% social support, 74% shame) Kendall's tau was employed to analyze the relationship between these variables further.

Research Question 5c

Among those reporting SASI, are lower levels of social support associated with lower levels of self-esteem?

Intragroup Analysis: The sum total score from the RSE and the sum total score from the MSPSS allowed us to quantify social support and self-esteem as discrete numeric variables. Here, analyses were performed using data from SASI respondents only. A scatterplot suggested a monotonic and upward trending relationship, confirmed by Spearman's rank correlation ($\rho = 0.537$, $p < .001$). Ultimately, Kendall's tau was chosen due to the proportion of ties in the data (Self-Esteem 73%, Social Support 51%).

Exploratory Path Analysis

An exploratory moderated mediation path analysis was conducted to examine the relationship between sexual assault, shame, social support, and SASI engagement. Here, we were specifically interested in how sexual assault influences initial engagement in SASI both directly and indirectly through trauma-related shame. We were also interested in whether a potential indirect effect of SA on SASI through shame may be moderated by levels of social support (hypothesizing that social support may have a protective effect against the development of shame).

We ran this analysis across the entire sample ($n=300$) and SASI engagement was coded binarily (yes/no) based on reported frequency above zero. Sexual assault exposure was also coded binarily, where reporting sexual abuse as a minor and/or as an adult was coded as yes. For those participants reporting no trauma history on the BTQ, levels of trauma-related shame were assumed 0, as no trauma was reported.

Shame was modeled as a mediator between sexual assault and SASI engagement. Since we hypothesized that social support may buffer against increases in shame following sexual assault, social support was included both as a covariate and as a moderator of the path from sexual assault to shame. This allowed us to test whether the strength of the indirect effect of sexual assault on SASI engagement via shame varied depending on levels of social support. Specifically, we estimated conditional indirect effects of sexual assault on SASI engagement through shame at low, mean, and high levels of social support, where “low” and “high” were defined as one standard deviation below and above the mean of centered social support.

The model was estimated using lavaan 0.6-20 with the WLSMV estimator to account for the binary outcome. Confidence intervals were based on asymptotic standard errors rather than bootstrap resampling. Model fit was evaluated using chi-square, CFI, TLI, RMSEA, and SRMR. The model converged normally after 35 iterations. Importantly, this analysis is exploratory. Group sizes were pre-determined to be balanced, meaning that the observed proportions do not reflect true population prevalence. Analyzed associations include path coefficients (which represent the strength and direction of relationships between variables in the model) and the conditional indirect effects (which quantify the effect of SA on SASI engagement *through* shame *at varying levels of* social support).

Chapter III

Results

Below, descriptive statistics elucidate which types of encounters and behaviors SASI respondents reported engaging in most frequently. Following this, the results of hypothesis-based testing are presented.

Table 5. Most Frequent and Most Commonly Endorsed SASI Behaviors

SASI Behavioral Descriptors	Mean Winsorized Frequency of the Behavior	Percentage of SASI Respondents who Endorsed this Item > 0
Had sex which you knew would feel emotionally or physically painful, in order to hurt yourself	33.43	87.0 %
Had sex you truly did not want to, or had sex that didn't feel good to you, in order to hurt or punish yourself	31.19	82.0 %
Had sex in an attempt to punish yourself	25.14	75.00 %
Had sex to confirm thoughts you had about yourself being bad or worthless	26.48	72.0 %
Had sex to stop feelings of numbness and to feel pain instead	25.66	70.00 %
Had sex which you knew would feel humiliating, to cause yourself pain	20.20	69.0 %
Chatted or texted sexually with an emotionally abusive partner, in order to hurt yourself	49.06	65.0 %

SASI Behavioral Descriptors	Mean Winsorized Frequency of the Behavior	Percentage of SASI Respondents who Endorsed this Item > 0
Used sex in attempt to purposefully recreate or replay past trauma	23.10	64.0 %
Had sex in an attempt to hurt yourself	27.55	63.00 %
Sought out sex that you felt was disgusting, to cause yourself pain	21.38	61.6 %
Sought out sex with an undesired partner, or someone you weren't attracted to, in order to hurt yourself	13.34	60.0 %
Chatted or texted sexually in attempt to purposefully replay or re-experience a past trauma	29.50	56.0 %
Sought out sex with a partner who you knew would insult, belittle or verbally abuse you in order to hurt yourself	14.97	53.0 %
Had demeaning, insulting, or humiliating online sexual video encounters, in order to hurt or punish yourself	15.41	47.0 %
Sought out sex with a partner who you knew would physically abuse you, in order to hurt yourself	9.13	47.0 %

Individual SASI items were winsorized at the 5th and 95th percentiles to reduce the impact of extreme values. Means and percentages were then calculated across the whole sample.

Results 1: Sex as a Form of Self-Injury

The following sections present the results of analyses conducted to examine whether SASI is appropriately categorized as a form of self-injury.

Results 1a:

96% of respondents who endorsed engaging in SASI also reported engaging in NSSI at least once. 90% of SASI respondents reported engaging in both NSSI and SASI >10 times. 64% of SASI respondents reported engaging in NSSI and SASI >50 times. Interestingly, 81% of SASI respondents reported engaging in NSSI over 100 times, while only 61% reported engaging in SASI at this same frequency, indicating that among people who engage in both types of self-injury, NSSI has a greater average lifetime frequency.

Table 6 Percentages of SASI Respondents Reporting SASI & NSSI at Given Frequencies

Frequency of Behavior	SASI Respondents Reporting NSSI at this Frequency	SASI Respondents Reporting SASI at this Frequency	SASI Respondents Reporting BOTH Behaviors at this Frequency
5 times	95%	97%	93%
10 times	95%	94%	90%
25 times	89%	83%	74%
50 times	85%	74%	64%
100 times	81%	61%	52%

Results 1b:

Mean responses for each functional category describing motivations for sexual self-injury were: Intrapersonal- Positive $M=1.10$ ($SD=0.45$, $CI [1.01,1.19]$), Intrapersonal-Negative $M= 0.97$ ($SD=0.39$, $CI [0.896, 1.05]$), Interpersonal-Positive $M=.748$ ($SD=0.46$, $CI [0.657, 0.839]$), and Interpersonal-Negative $M=0.43$ ($SD=0.44$, $CI [0.340,0.516]$).

There was a significant difference in mean responses across functional categories for SASI behavior ($F(3, 297) = 80.71$, $p < .001$, generalized $\eta^2 = 0.256$). The generalized eta-squared value (0.256) demonstrated that the category of functions accounted for about a fourth of the variances in responses. The table below illustrates the comparative means for the four functional categories.

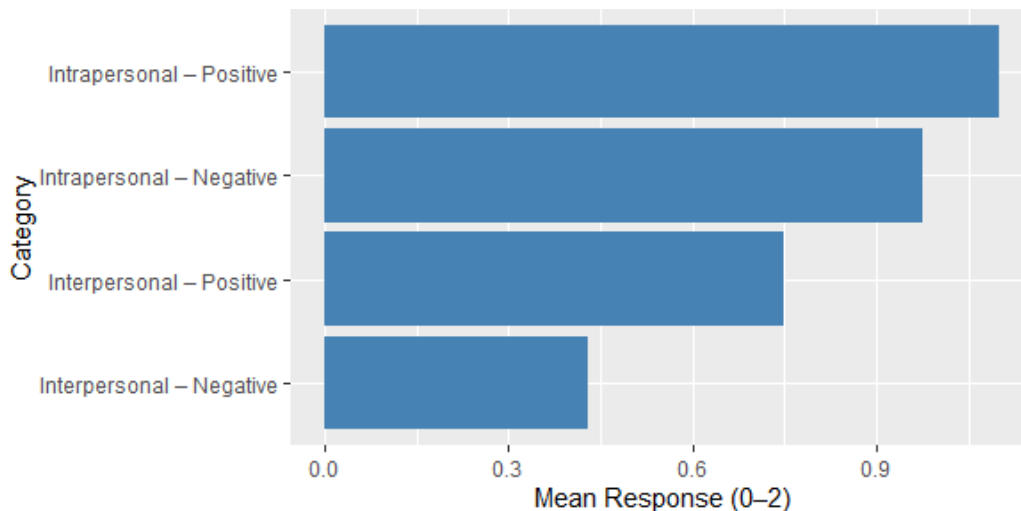


Figure 4. Mean Response per Broad Functional Category Grouping

Individual items were grouped together into the four main functional categories listed above and responses 0-2 were then averaged for each participant. Participants' averages were then averaged again for a groupwide mean for each category of response.

Post-hoc paired comparisons with Holm correction showed that all category pairs differed significantly from one another. Partially consistent with our hypothesis, intrapersonal functions for SASI were most commonly reported, as has been observed regarding NSSI behaviors in past research (Klonsky, 2007b; Nock & Prinstein, 2004). However, within this domain, intrapersonal-positive functions ($M=1.10 \pm 0.45$) were endorsed at a slightly higher rate than intrapersonal-negative functions ($M= 0.97 \pm 0.39$) among SASI respondents. This pattern contrasts with prior research on NSSI, which has shown that intrapersonal-negative functions are most prevalent (Klonsky, 2007b; Nock & Prinstein, 2004). Notably, though, the difference between the intrapersonal-positive and intrapersonal-negative categories was small ($t = -2.72$, $p = .008$) compared to larger contrasts observed between the other categories, which ranged from $t = -5.56$ to -13.60 .

Table 7. Pairwise Post-Hoc Comparisons Between Functional Categories

Comparison	T ($df=99$)	Direction	Adjusted p
IP- vs IP+	-6.72	IP- < IP+	3.45×10^{-9}
IP- vs IA-	-11.30	IP- < IA-	9.65×10^{-19}
IP- vs IA+	-13.60	IP- < IA+	1.19×10^{-23}
IP+ vs IA-	-5.56	IP+ < IA-	4.50×10^{-7}
IP+ vs IA+	-7.74	IP+ < IA+	3.39×10^{-11}
IA- vs IA+	-2.72	IA- < IA+	.008

Results 1c:

The Kruskal-Wallis rank sum test indicated a statistically significant difference between mean SRBs scores across groups ($H(2) = 76.79, p < .001, \eta^2 = 0.25$). A post-hoc Dunn's test with Bonferroni correction revealed a statistically significant difference between SASI and NONE group scores ($Z = -8.72, p < .001$), SASI and NSSI group scores ($Z = -4.92, p < .001$), and NSSI and NONE group scores ($Z = -3.79, p < .001$). The mean summed SRBs score was highest for the SASI group at 11.5, second highest for the NONE group at 4, and lowest for the NSSI group at 1.5.

Negative binomial regression showed statistically significant differences in expected counts of SRBs between groups, even after controlling for age and gender. Age was positively associated with increased SRBs ($b = 0.029, SE = 0.007, p < .001$), as makes sense with a scale measuring lifetime frequencies. Gender also showed a small but significant effect ($b = -0.12, SE = 0.055, p = .027$). Therefore, the analyses below retained these as covariates. Compared with the SASI group, expected SRBs counts were significantly lower in the NSSI group ($b = -1.09, SE = 0.17, p < .001$) and the NONE group ($b = -0.99, SE = 0.17, p < .001$). On the original count scale, the expected sum total of the SRBS scale was approximately 6.5 for the SASI group, 2.2 for the NSSI group, and 2.4 for the NONE group.

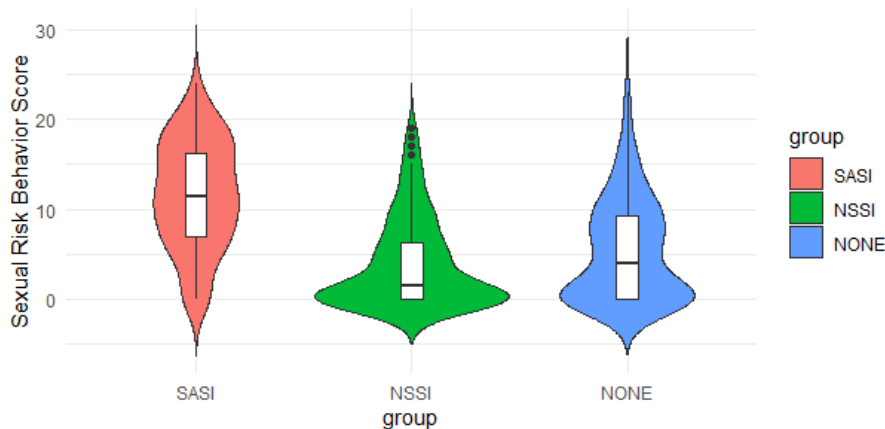


Figure 5. Violin Plot of Sexual Risk Behavior Scores by Group

Table 8. Relating SASI and NSSI: Summary Results

Hypothesis 1a. We hypothesize that a majority (>50%) of individuals engaging in SASI will also report NSSI behaviors.

Research Question 1a. What percentage of respondents with a history of sex as self-injury report a history of other forms of non-suicidal self-injury?

Results 1a. 96% of respondents who reported a history of SASI also reported a history of NSSI, supporting the hypothesis.

Hypothesis 1b. We hypothesize that intrapersonal-negative functions will be the most commonly endorsed functions of SASI behaviors and that interpersonal-negative functions will be the least commonly endorsed functions, consistent with what has been reported for the functions of NSSI behaviors.

Research Question 1b. Among those who engage in sex as a form of self-injury, which functional categories are most frequently endorsed, based on item-level responses?

Results 1b. Intrapersonal functions for engaging in SASI were significantly more common than other types of functions—with intra-personal positive functions slightly more common than intra-personal negative functions in our sample.

Statistics 1b: ANOVA, greenhouse-geisser-corrected			
Group Means (M ± SD)	<i>F</i> (df ₁ , df ₂)	<i>p</i> [GG]	η ² (GG)
Intrapersonal Positive (IA+): 1.10 ± 0.45	80.705 (2.91, 288.13)	3.79 x 10 ⁻³⁷	0.256
Intrapersonal Negative (IA-): 0.97 ± 0.39			
Interpersonal Positive (IP+): 0.75 ± 0.46			
Interpersonal Negative (IP-): 0.43 ± 0.44			

Hypothesis 1c. We hypothesize that individuals who engage with SASI will report higher levels of sexual risk behaviors, compared with those who do not.

Research Question 1c. Are sexual risk behaviors higher among those who report a history of sex as self-injury, compared with those who do not?

Results 1c. Sexual risk behavior scores were significantly higher for those with a history of SASI, compared with those who had no history of SASI, supporting the hypothesis.

Statistics 1c: Kruskal-Wallis			
Group Medians (IQR)	<i>H</i> (df)	<i>P</i>	ε ²
SASI 11.5 (9.25)	76.798 (2)	< 2.2e-16	0.2518461
NSSI 1.5 (6.25)			
NONE 4 (9.25)			

Results 2: SASI and Trauma

The following sections present the results of analyses conducted to examine whether there is a relationship between SASI and trauma in adult populations.

Results 2a:

Among those who have used sex as a form of self-injury, 87% reported some type of sexual assault experience (before or after age 18). 64% reported experiencing SA as a minor. 74% reported experiencing sexual assault as an adult. Additionally, 51% reported experiencing SA as both a minor *and* an adult.

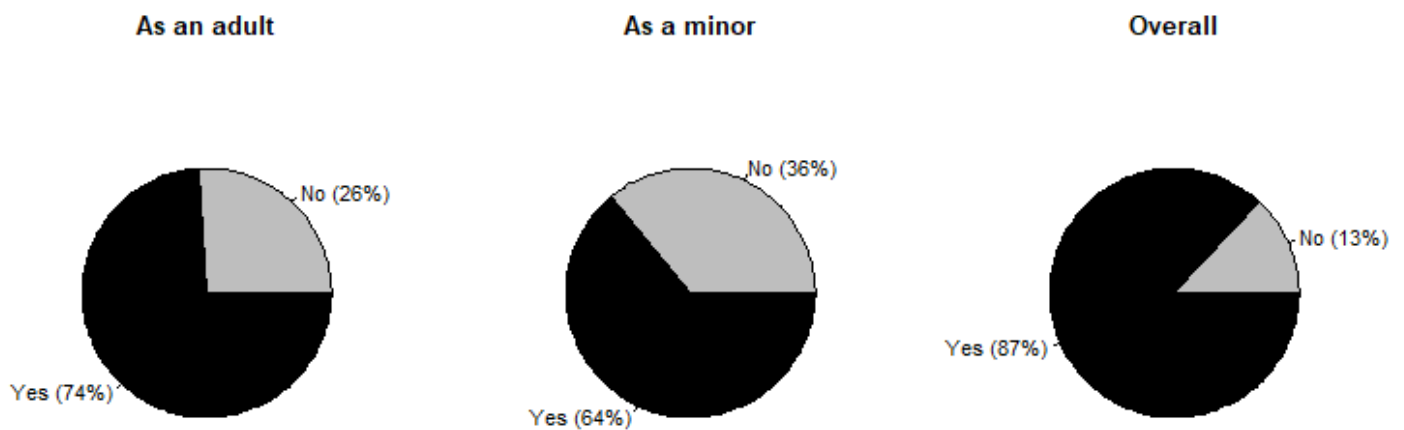


Figure 5. Pie Charts of Sexual Assault Histories

Proportions of participants from the SASI group reporting sexual assault experiences. The “overall” chart compares the percentage of respondents endorsing SA as a minor and/or SA as an adult versus the percentage of respondents reporting neither.

Results 2b:

Sample-wide, 28% of respondents reported that they had not experienced any of the IPV experiences listed on the BTQ (frightening or injuring physical punishments by caretakers, other beatings, muggings or attacks, childhood sexual abuse, sexual assault as experienced after the age of 18). 25.67% reported experiencing one type of IPV, 20.33% reported two types of IPV, 14.33% reported three types of IPV, and 11.67% reported four types of IPV.

The results of the Kruskal-Wallis rank sum test demonstrated a highly significant intergroup difference between the median number of IPV experiences reported across groups ($H(2) = 76.45, p < .001, \eta^2 = 0.25$). The group medians were 0 for the NONE group, 1 for the NSSI group, and 3 for the SASI group. Post-hoc pairwise comparisons using Dunn's test with Bonferroni correction confirmed that the NONE group scores were significantly lower than those of the NSSI ($Z = -3.80, p = .0004$) and SASI ($Z = -8.72, p < .001$) groups. The NSSI scores were also significantly lower than SASI scores ($Z = -4.92, p < .001$).

These differences remained significant after controlling for the impacts of age and gender using Poisson regression. While male participants had slightly lower expected IPV counts than female participants (Incident Rate Ratio [IRR] = 0.84, $p = .03$), other gender categories did not differ significantly. Age was not strongly associated with IPV counts (IRR = 1.01, $p = .45$). SASI group membership was associated with approximately 3 times as many IPV experiences, compared to membership in the NONE group (IRR = 3.04, $p < .001$). This ratio was even higher than that of the NSSI group compared to the NONE group (IRR = 1.84, $p < .001$).

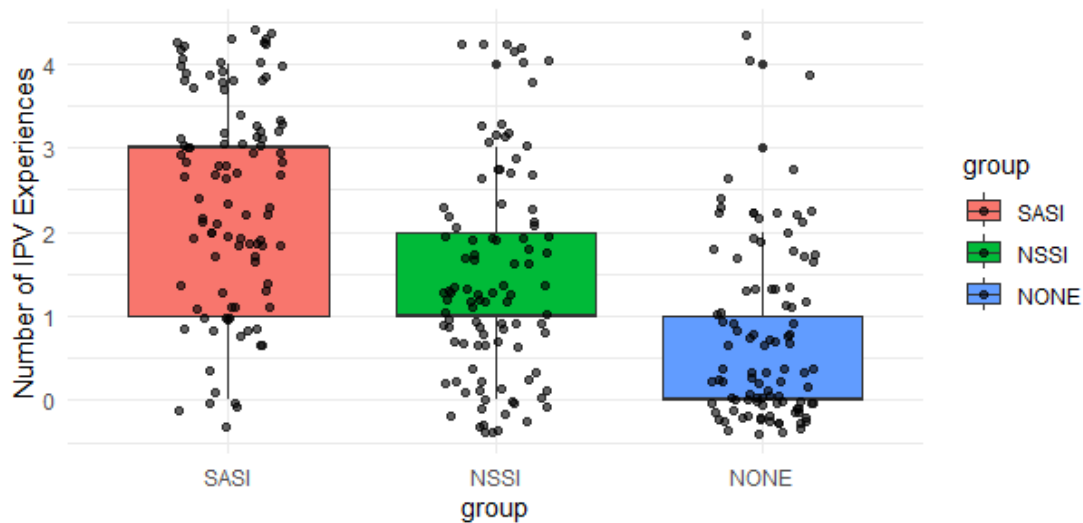


Figure 7. Boxplot of Summed IPV Trauma Scores by SI Experience

Sample-wide, 54% of respondents had experienced some type of sexual violence in their lifetime, while 46% had not. A chi-square test of independence was conducted to examine the association between self-injury group (NONE, SASI, NSSI) and occurrence of sexual assault experiences (yes/no). The overall association was significant, $\chi^2 (2) = 76.409$, $p < .001$. The results of Fisher's exact test with Bonferroni correction indicated that the proportion of participants reporting SA was much higher in the SASI group compared to the NONE group ($p < .001$) and the NSSI group ($p < .001$). NSSI participants also had higher odds of having experienced SA than NONE participants, but this difference did not reach significance after correction (OR = 2.26, 95% CI [1.14,4.57], $p = .064$).



Figure 8. Mosaic Plot of Sexual Assault Experiences by Group

Binary logistic regression was conducted to examine whether the noted differences remained significant after controlling for age and gender. Age was not a significant predictor (OR = 1.02, 95% CI [0.99, 1.06], $p = .12$) but, among gender categories, being male was associated with lower odds of reporting sexual assault across groups (OR = 0.25, 95% CI [0.12, 0.48], $p < .001$). The overall model was significant, $\chi^2(8) = 106.69$, $p < .001$. The participants in the SASI group had approximately 19 times higher odds of reporting SA, compared to the NONE group (OR = 19.42, 95% CI [9.06, 44.51], $p < .001$) and SASI participants have approximately 8.6 times higher odds of reporting SA, compared to the NSSI group (OR = 8.62, 95% CI [4.16, 18.90], $p < .001$).

Results 2c:

Among SASI participants, 65% reported that the statement “When I have sex to cause myself harm, I am responding to memories of past trauma or abuse” was either somewhat or mostly true. 39% endorsed this statement as mostly true. This was the 15th most common statement out of 38 total statements.

63% reported that the statement “When I have sex to cause myself harm, I am reenacting or replaying past experiences of sexual abuse or assault” was either somewhat or mostly true. 35% endorsed this statement as mostly true. It was the 16th most commonly endorsed statement out of 38 total statements.

The most commonly endorsed reasons for engaging in SASI were “punishing myself” (91% at least somewhat true, 44% mostly true), “releasing emotional pressure” (88% at least somewhat true, 55% mostly true), “reacting to feeling unhappy or disgusted with myself” (82% at least somewhat true, 39% mostly true), “Expressing anger towards myself for being worthless or stupid” (81% at least somewhat true, 43% mostly true), and “Trying to feel something (as opposed to nothing) even if it is pain.” (81% at least somewhat true, 55% mostly true).

With regard to differentiating SASI from kink behavior, we decided to add a statement about sexual motivations to the functions of SASI scale partway through the study. Out of the 63 SASI participants who were presented with this added statement: “When I have sex to cause myself harm, I am seeking pleasure or sexual gratification,” 15.87% said this was not true, indicating that for a proportion of people, SASI is not sexually motivated. However, 52.38% said this was mostly true, and 31.75% said this was somewhat true. The mean number of functions endorsed by participants as somewhat or very relevant was 21.73 across participants, indicating that SASI serves many functions or results from multiple behavioral motivations.

Specific endorsement rates per item (presented to the entire sample) are enumerated in the table below:

Table 9. SASI Function Endorsement Rates

Function Item	% Endorsed as Somewhat or Mostly True
When I have sex to cause myself harm, I am...	
Punishing myself	91
Releasing emotional pressure	88
Reacting to feeling unhappy or disgusted with myself	82
Expressing anger towards myself for being worthless or stupid	81
Trying to feel something (as opposed to nothing) even if it is pain	81
Doing something to generate excitement or exhilaration	79
Causing pain so I will stop feeling numb	77
Reducing anxiety, frustration, anger or other overwhelming emotions	77
Entertaining myself or others by doing something extreme	72
Seeing if I can stand the pain	69
Keeping a loved one from leaving or abandoning me	68
Proving I can take the pain	67
Signifying the emotional distress I'm experiencing	67
Creating a sign that I feel awful	65
Responding to memories of past trauma or abuse	65
Reenacting or replaying past experiences of sexual abuse or assault	63
Proving to myself that my emotional pain is real	61
Making sure I am still alive when I don't feel real	61
Pushing my limits in a manner akin to skydiving or other extreme activities	61
Calming myself down	60
Avoiding the impulse to attempt suicide	58
Responding to suicidal thoughts without actually attempting suicide	57
Seeking care or help from others	54
Ensuring that I am self-sufficient	52
Fitting in with others	47
Putting a stop to suicidal thoughts	45
Demonstrating that I am tough or strong	44
Establishing that I am autonomous/independent	43
Creating a boundary between myself and others	42
Bonding with peers	39
Letting others know the extent of my emotional pain	38
Creating a sign of friendship or kinship with friends or loved ones	38
Demonstrating that I do not need to rely on others for help	36
Getting back at someone	35
Demonstrating that I am separate from other people	35
Establishing a barrier between myself and others	35
Getting revenge against others	22
Trying to hurt someone close to me	18

Category-level means were calculated for items which were grouped together by the original developers of the scale (Klonsky & Glenn, 2009) as well as for the new trauma-response category added for this study. The Greenhouse-Geisser corrected repeated-measures ANOVA indicated extremely significant differences across all of these 13 functional subcategories ($F(8.16, 800.08) = 26.85, p < .001, \eta^2_G = 0.161$).

The subcategories with the highest mean scores included self-punishment (1.27), anti-dissociation (1.17), sensation seeking (1.13), affect regulation (1.23) and trauma-response (1.02). The subcategories with the lowest mean responses included marking distress (0.69), interpersonal communication (0.68), peer bonding (0.55), interpersonal boundaries (0.51) and revenge (0.43). Trauma-related responses had the 5th highest mean out of 13 subcategories. Other subcategory means are shown in the table below.

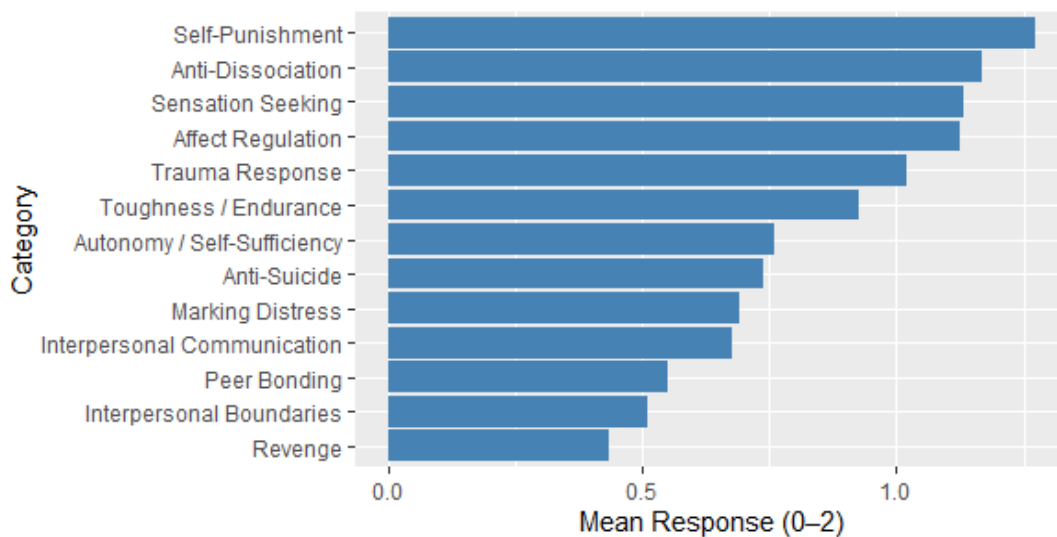


Figure 9. Mean Responses for SASI Function Subcategories

Individual items were grouped together into subcategories and responses 0-2 were then averaged for each participant. Participants' averages were then averaged again for a groupwide mean for each category of response.

When evaluating descriptors of behaviors framed partially through motivations, a similar percentage of respondents responded affirmatively that they had “used sex in attempt to purposefully recreate or replay past trauma?”—at 64%

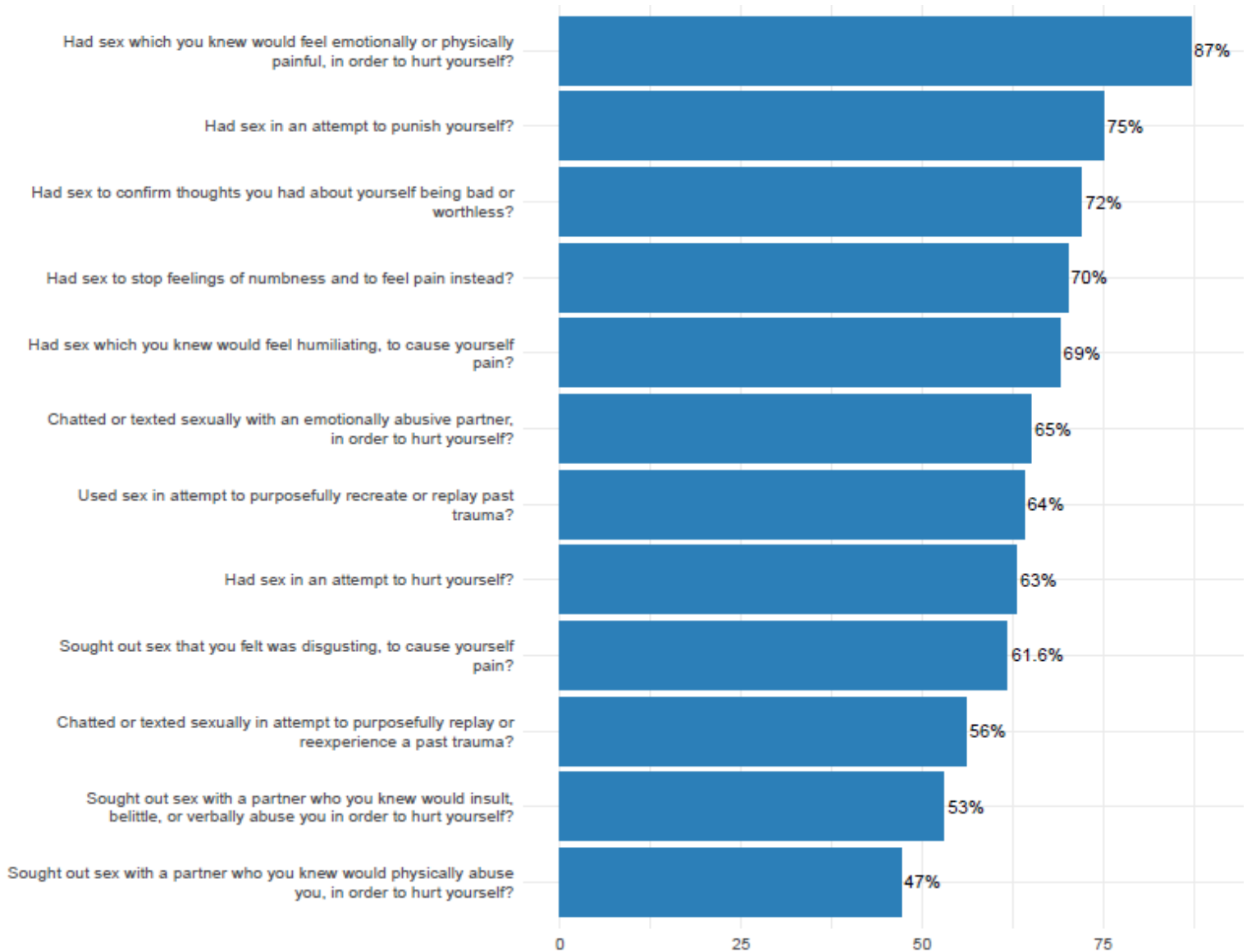


Figure 10. Percentage of SASI Group Participants Endorsing Each Behavioral Descriptor

Table 10. SASI and Trauma: Summary Results

Hypothesis 2a. We hypothesize that a majority (50%) of individuals who have engaged in SASI will also report a history of SA.

Research Question 2a. What percentage of respondents with a history of sex as self-injury report a history of experiencing sexual assault?

Results 2a. 87% of those with a history of SASI also reported a history of sexual assault.

Hypothesis 2b. We hypothesize that individuals who engage with SASI will report higher levels of all types of interpersonal violence, with particularly elevated rates of sexual assault, compared with those who do not.

Research Question 2b. Do individuals who engage in sex as self-injury report different levels of interpersonal violence, compared with those who do not?

Do individuals who engage in sex as self-injury report different levels of sexual assault, compared with those who do not?

Results 2b. The median number of IPV experiences reported by those with a history of SASI was significantly higher than the median number of IPV experiences reported by those with no SASI history. Those with a history of SASI also had significantly higher odds of reporting SA, supporting the hypothesis.

Statistics 2b			
Interpersonal Violence		Test: Kruskal Wallis Test	
Group Medians (IQR)	$H(df)$	P	ϵ^2
SASI 3 (2)	76.45 (2)	< 2.2e-16	0.2506719
NSSI 1 (1)			
NONE 0 (1)			
Sexual Assault		Test: Chi Square	
Contingency table	$\chi^2(df)$	P	Cramér's V
SASI NSSI NONE	76.409 (2)	< 2.2e-16	0.356859
no 13 51 74			
yes 87 49 26			

Hypothesis 2c. We hypothesize that a majority (>50%) of individuals who use SASI will endorse the items which were added to the ISAS functions scale for this study: “reenacting or replaying past experiences of sexual abuse or assault” or “responding to memories of past trauma or abuse”

Research Question 2c. Are trauma-related reasons for engaging in sex as a form of self-injury endorsed by a majority of participants?

Results 2c. 65% of respondents reported that they used SASI in reaction to memories of trauma or abuse, and 63% reported that they were reenacting or replaying past traumas through SASI, supporting the idea that these are common and important functions to consider in the development of SASI behavior.

Results 3: SASI and Trauma-Related Shame

The following sections present the results of analyses conducted to examine the relationship between SASI and trauma-related shame.

Results 3a:

The results of the Kruskal-Wallis rank sum test demonstrated a highly significant intergroup difference between the median trauma-related shame score across groups ($H(2) = 62.47, p < .001, \eta^2 = 0.24$). The group medians were 1 for the NONE group (IQR = 6), 10.5 for the NSSI group (IQR = 15.8), and 20 for the SASI group (IQR = 18.8). The middle 50% of scores fell approximately between 10.6 and 29.4 among SASI respondents, between 2.6 and 18.4 among NSSI respondents, and between 0 and 4 among NONE respondents. Post-hoc pairwise comparisons using Dunn’s test with Bonferroni correction confirmed that the NONE group scores were significantly lower than the NSSI group scores ($Z = 5.30, p < .001$) and SASI group scores ($Z = 7.85, p < .001$). The SASI group shame scores were also significantly higher than the NSSI group shame scores ($Z = 2.64, p < .001$).

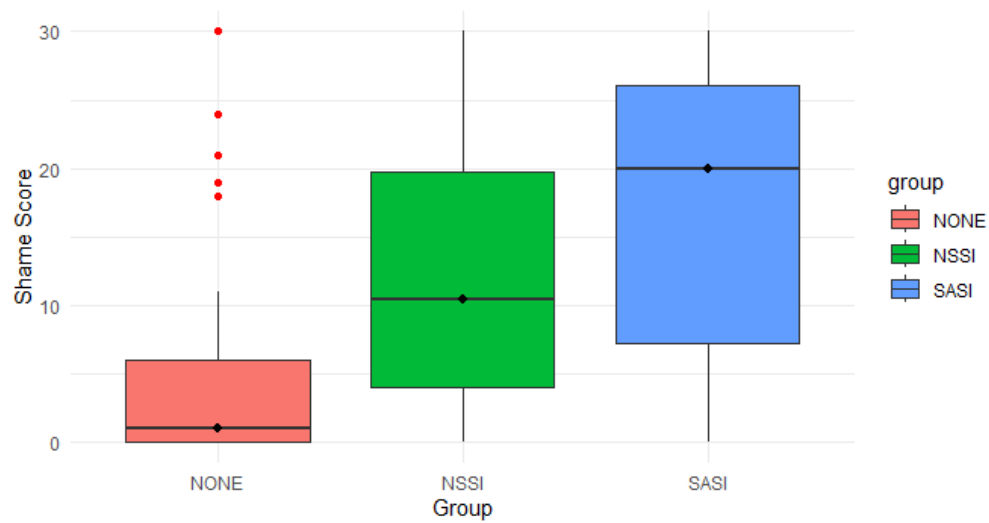


Figure 11. Differences in Trauma-Related Shame Scores Across Groups

A rank-based ANCOVA was also conducted to examine the effects of group membership, age, gender, and trauma type on trauma-related shame. Having a history of SASI remained a significant predictor of trauma-related shame scores, even after controlling for these variables. Group membership ($F(2, 238) = 46.73, p < .001$), age ($F(1, 238) = 10.71, p = .001$), and trauma type ($F(3, 238) = 7.44, p < .001$) significantly predicted shame ranks. Gender did not significantly predict shame ranks ($F(5, 238) = 0.91, p = .47$). Across groups, interpersonal violence excluding SA was associated with the highest mean shame score ($M = 14.3, SD = 10.7$), followed by SA ($M = 10.00, SD = 9.34$), “other” including war, accident and illness ($M = 5.5, SD = 8.74$), and, lastly, witnessing violence ($M = 4.25, SD = 5.06$).

A significant interaction between group and age was observed, $F(2, 238) = 3.07, p = .048$, indicating that the effect of age on shame differs across groups. A simple slopes analysis evinced that older age was associated with lower trauma-related shame scores in

both the NSSI ($B = -2.04$, $SE = 0.73$, $t = -2.80$, $p = 0.01$) and SASI ($B = -2.36$, $SE = 0.76$, $t = -3.12$, $p = 0.002$) groups, whereas age did not significantly impact trauma-related shame scores in the NONE group ($B = -0.16$, $SE = 0.65$, $t = -0.24$, $p = 0.81$).

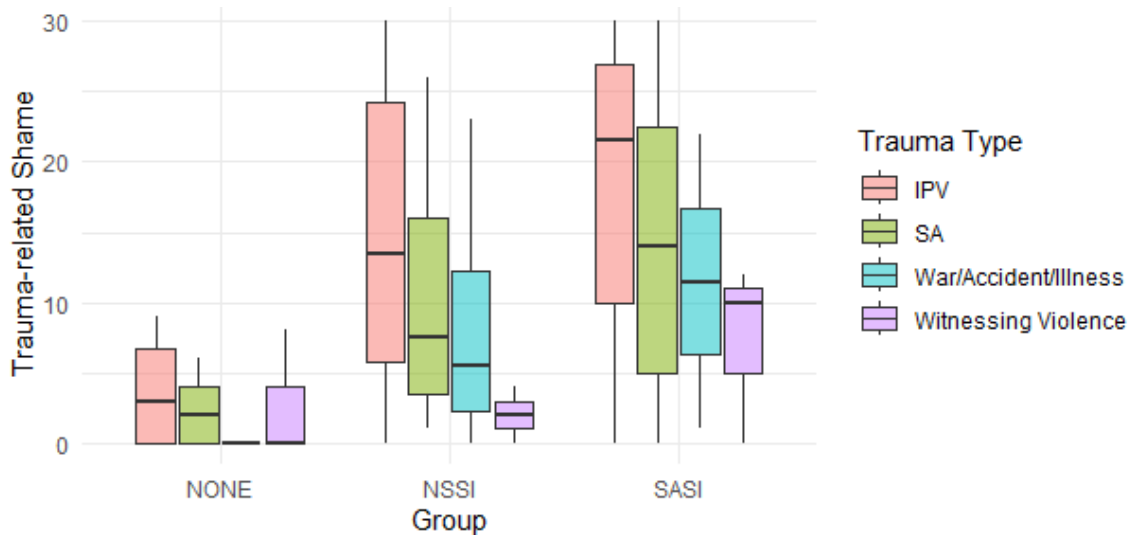


Figure 12. Trauma-Related Shame Scores by Group and Trauma Type

Results 3b:

The results of Kendall's tau indicated a weak-to-moderate positive relationship between trauma-related shame and frequency of SASI behaviors ($Z = 2.94$, $\tau = 0.20$, 95% CI [0.06–0.33], $p = 0.003$). This corresponds to an approximate increase of 69 lifetime SASI behaviors when moving from lower to higher shame levels, given the observed variability (IQR of SASI frequency = 338.5). Given the risks associated with each separate SASI encounter, the estimated increase in SASI frequency, given trauma-related shame levels, likely signals a meaningful real-world effect.

Table 11. SASI and Trauma-Related Shame: Summary Results

Hypothesis 3a. We hypothesize that levels of trauma-related shame will be higher among those who report using sex as a form of self-injury, compared with those who do not.

Research Question 3a. Do individuals who engage in sex as self-injury report different levels of trauma related shame, compared with those who do not?

Results 3a. Among those with some exposure to traumatic events, those with a history of SASI had a significantly higher level of trauma-related shame than those with no SASI history.

Statistics 3a: Kruskal Wallis				
Group n	Group Medians (IQR)	$H(df)$	P	ϵ^2
SASI 98	20 (18.8)	62.474 (2)	2.716e-14	0.2380868
NSSI 90	10.5 (15.8)			
NONE 69	1 (6)			

Hypothesis 3b. We hypothesize that higher levels of trauma-related shame will be associated with a higher reported frequency of SASI behavior.

Research Question 3b. Among those who engage in SASI, are higher levels of trauma-related shame associated with greater frequency of sex as self-injury behaviors?

Results 3b. A significant positive relationship between trauma-related shame and SASI frequency was observed, partially supporting the hypothesis.

Statistics 3b: Kendall's Tau			
Z	P	T	CI
2.9432	0.003248	0.2039459	0.0634, 0.332

Results 4: SASI and Self-Esteem

The following sections present the results of analyses conducted to examine the relationship between SASI and self-esteem.

Results 4a:

In our sample, the mean self-esteem score for the NONE group was higher ($M = 28.4$, $SD = 6.32$) than that of the SASI group ($M = 22.2$, $SD = 6.85$) and the NSSI group ($M = 20.8$, $SD = 5.92$). A one-way ANOVA indicated that these differences in mean self-esteem scores were statistically significant between groups ($F(2, 297) = 40.43$, $p < .001$, $\eta^2 = .21$). Post-hoc Tukey's test specified that there were statistically significant differences between mean self-esteem scores for the SASI group compared to the NONE group ($p < .001$) and for the NSSI group compared to the NONE group ($p < .001$). However, the difference in self-esteem scores between the SASI and NSSI group was not statistically significant ($p = 0.28$).

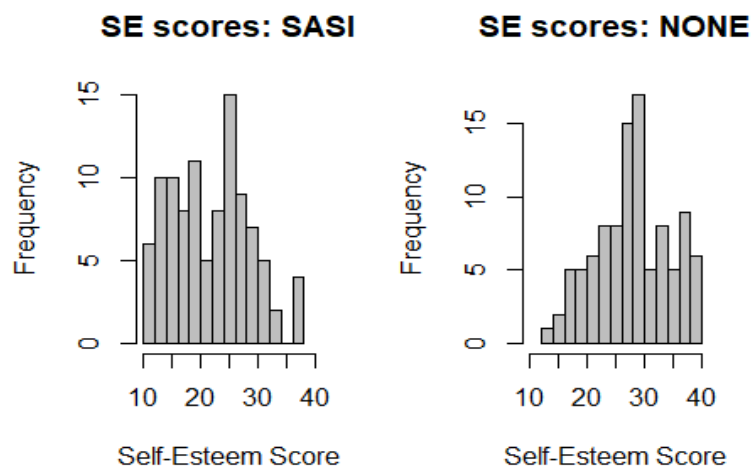


Figure 13. Histogram of Self Esteem Scores in SASI and NONE groups

It is uncertain whether these magnitude of the differences between the SASI and NONE groups correspond with meaningful real-world differences in subjective sense of self-esteem. Using the observed variation (IQR = 6.85 for SASI, 6.32 for NONE), we can estimate that the middle 50% of self-esteem scores range from 18.8 to 25.6 among those with a history of using SASI, and from 25.2 to 31.6 for those with no history of self-injury.

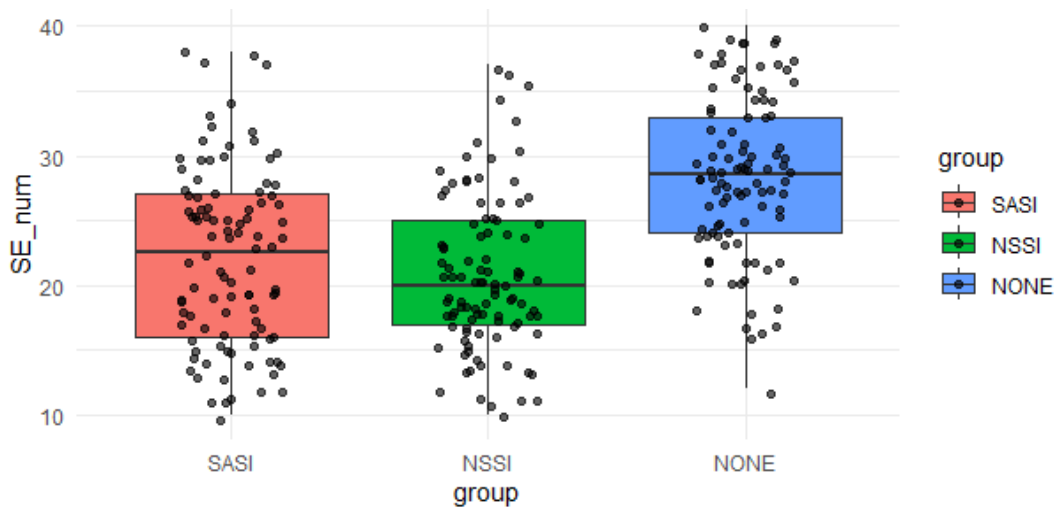


Figure 14. Boxplot of Self-Esteem Scores by Group

Results 4b:

The results of Kendall's Tau did not indicate a significant relationship between self-esteem and SASI frequency among those who reported a history of SASI in our sample ($\tau = -0.11$, 95% CI $[-0.22, 0.03]$, $p = 0.12$).

Results 4c:

The results of Kendall's tau revealed a moderate negative correlation between trauma-related shame and self-esteem ($\tau = -.46$, 95% CI $[-0.51, -0.39]$, $p < .001$). In other words, as trauma-related shame increases, self-esteem tends to decrease.

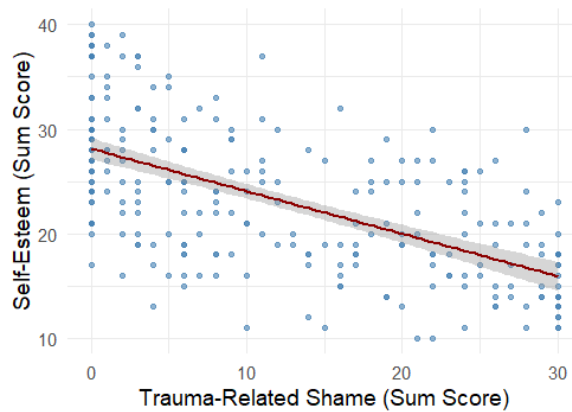


Figure 15. Relationship between Self-Esteem and Trauma-Related Shame Score

Table 12. SASI and Self-Esteem: Summary Results

Hypothesis 4a. We hypothesize that levels of self-esteem will be lower among those who report using sex as a form of self-injury, compared with those who do not.

Research Question 4a. Do individuals who engage in sex as self-injury report different levels of self-esteem, compared with those who do not?

Results 4a. SASI participants had lower average levels of self-esteem than those with no self-injury history, partially supporting the hypothesis; self-esteem did not significantly differ between SASI and NSSI groups. The practical significance of the SASI–NONE difference is uncertain.

Statistics 4a: ANOVA

Group Means ($M \pm SD$)	$F(df)$	Sum Sq	Mean Sq	P	η^2 (or partial η^2)
SASI 22.2 (6.85)	40.43 (2)	3288	1643.8	2.95e-16 ***	0.21 [CI 0.15-1.00]
NSSI 20.8 (5.92)					
NONE 28.4 (6.32)					

Hypothesis 4b. We hypothesize that lower levels of self-esteem will be associated with a higher reported frequency of SASI behavior.

Research Question 4b. Are lower levels of self-esteem associated with greater frequency of sex as self-injury behaviors?

Results 4b. There was not a significant relationship between levels of self-esteem and SASI frequency in our sample.

Statistics 4b: Kendall's Tau

Z	T	P	CI
-1.5365	-0.1064226	0.1244	-0.224 0.0302

Hypothesis 4c. We hypothesize that, among those reporting SASI, higher levels of trauma related shame will be associated with lower levels of self-esteem.

Research Question 4c. Among those reporting SASI, are higher levels of trauma-related shame associated with lower levels of self-esteem?

Results 4c. A significant negative relationship was found between trauma-related shame and self-esteem, supporting the hypothesis that lower levels of self-esteem are associated with higher levels of trauma-related shame.

Statistics 4c: Kendall's Tau

Z	T	P	95% CI
-10.407	-0.4562362	< 2.2e-16	-0.5144, -0.3928

Results 5: SASI and Social Support

The following sections present the results of analyses conducted to examine the relationship between SASI and social support.

Results 5a:

In our sample, mean levels of social support were 61 (IQR = 29.5) for the SASI group, 55 (IQR = 25.25) for the NSSI group, and 63.5 (IQR = 28.7) for the NONE group. A Kruskal-Wallis test indicated a small but significant overall difference in levels of perceived social among groups, $H(2) = 14.53$, $p < .001$, $\varepsilon^2 = 0.042$. However, the post-hoc pairwise comparisons (with Bonferroni correction) indicated that only the NSSI group reported significantly lower levels of social support than the NONE group ($p < .001$), while all other group comparisons were not statistically significant.

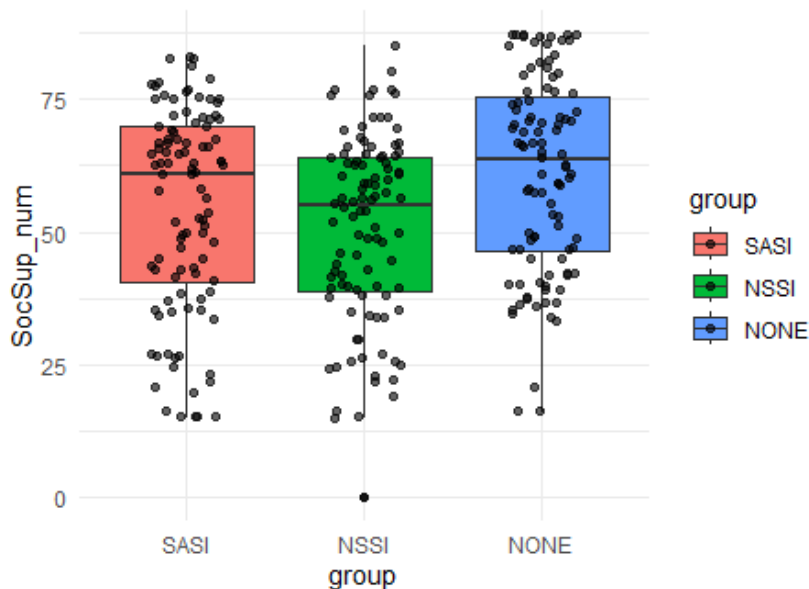


Figure 16. Boxplot of Social Support Scores by Self Harm History

Results 5b:

The results of Kendall's tau revealed a moderate negative correlation between social support and trauma-related shame among those with SASI behaviors ($\tau = -.28$, 95% CI $[-0.4, -0.15]$, $p < .001$). In other words, lower levels of social support were associated with higher levels of trauma-related shame.

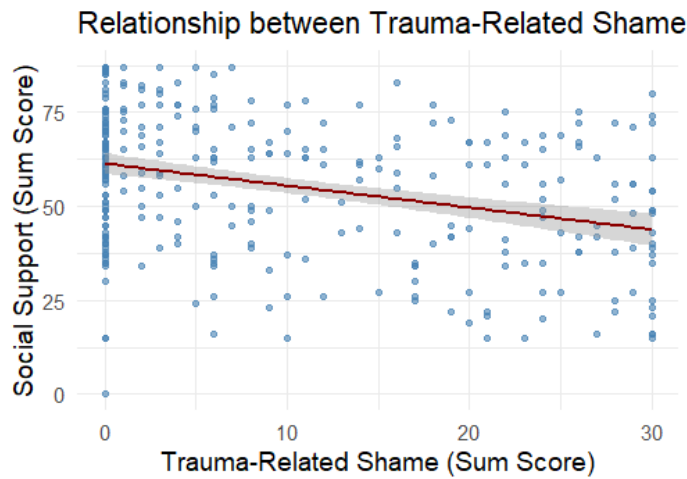


Figure 17. Relationship between Social Support and Trauma-Related Shame Score

Results 5c:

The results of Kendall's tau revealed a moderately positive correlation between social support and self-esteem among those with SASI behaviors ($\tau = .39$, 95% CI [.27, .51, $p < .001$). In other words, higher levels of social support were associated with higher levels of self-esteem with a moderate effect size.

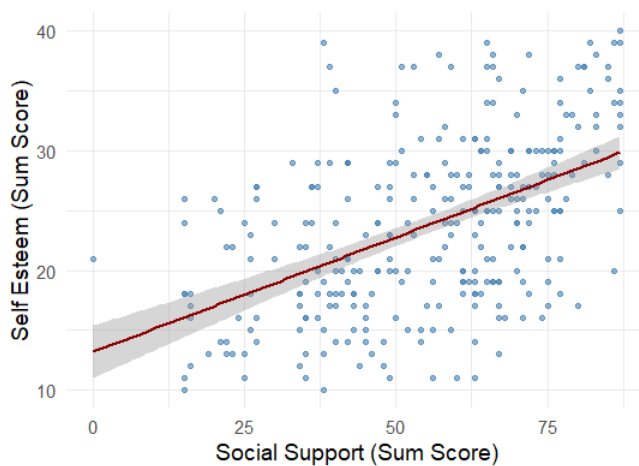


Figure 18. Relationship between Social Support and Self-Esteem Scores

Table 13. SASI and Social Support: Summary Results

Hypothesis 5a. We hypothesize that levels of social support will be lower among those who report using sex as a form of self-injury, compared with those who do not.

Research Question 5a. Do individuals who engage in sex as self-injury report different levels of social support, compared with those who do not?

Results 5a. No statistically significant difference in social support levels was found among those who engage with SASI, compared with those who did not.

Statistics 5a: Kruskal-Wallis

Group Medians (IQR)	<i>H</i> (df)	<i>P</i>	ϵ^2	Post-hoc
SASI 61(29.5)	14.534(2)	0.0006981	0.042	SASI/NSSI ns
NSSI 55 (25.25)				SASI/NONE ns
NONE 63.5 (28.75)				NSSI/NONE ***

Hypothesis 5b. We hypothesize that, among those reporting SASI, lower levels of social support will be associated with higher levels of trauma-related shame.

Research Question 5b. Among those reporting SASI, are lower levels of social support associated with higher levels of trauma-related shame?

Results 5b. A significant negative relationship was found between levels of social support and trauma-related shame, supporting the hypothesis that lower levels of social support are associated with higher levels of trauma-related shame.

Statistics 5b: Kendall's Tau

<i>Z</i>	<i>T</i>	<i>P</i>	CI
-4.0678	-0.2839454	4.746e-05	-0.41, -0.152

Hypothesis 5c. We hypothesize that, among those reporting SASI, lower levels of social support will be associated with lower levels of self-esteem.

Research Question 5c. Among those reporting SASI, are lower levels of social support associated with lower levels of self-esteem?

Results 5c. Among those with a history of SASI, levels of social support were significantly and positively correlated with levels of self-esteem, supporting the hypothesis.

Statistics 5c: Kendall's Tau

Z	T	P	CI
5.5972	0.3905237	2.178e-08	0.262, 0.501

Exploratory Path Analysis Results

The lavaan SEM results evaluated a proposed, exploratory conditional process model wherein sexual assault experiences were hypothesized to have a direct effect on engagement in SASI and an indirect effect via trauma-related shame, with the path from sexual assault to shame being moderated by social support. This is known as a moderated mediation model. Here, trauma-related shame was positioned as the mediator of the SA→SASI pathway and social support functioned as the moderator of the mediation pathway.

The proposed model demonstrated excellent fit to the data. The chi-square test was non-significant ($\chi^2 = 0.275$, $df = 2$, $p = 0.871$), which indicates that the model-generated covariances matched closely with the covariances observed in the actual data. Additional fit indices also met or exceeded thresholds for good fit, suggesting that the hypothesized paths captured the relationships among sexual assault, trauma-related shame, social support and SASI engagement (CFI = 1.00; TLI=1.05; RMSEA = 0.00, 90% CI: 0.00-0.058). The standardized root mean square residual was well below the acceptable cutoff (SRMR = 0.002).

The regression path output indicated that SA ($\beta = 0.431, p = 0.000$) and trauma-related shame ($\beta = 0.298, p = 0.000$) both had a direct effect on engagement in SASI. SA ($\beta = 0.471, p = 0.000$) and social support ($\beta = -0.290, p = 0.000$) also had direct effects on trauma-related shame. Additionally, trauma-related shame partially mediated the relationship between sexual assault history and SASI engagement, indicating that sexual assault was associated with greater shame, which in turn predicted higher SASI engagement. The interaction between sexual assault and social support predicting trauma-related shame was not statistically significant, however, ($\beta = -0.018, SE = 0.058, z = -0.240, p = 0.810$), indicating that social support did not significantly moderate the relationship between sexual assault and shame in this sample. Overall, SA and trauma-related shame together explained a large portion of the variance in SASI engagement ($R^2 = 0.399$). Furthermore, SA history and levels of perceived social support accounted for a large proportion of the variance in trauma-related shame ($R^2 = 0.326$).

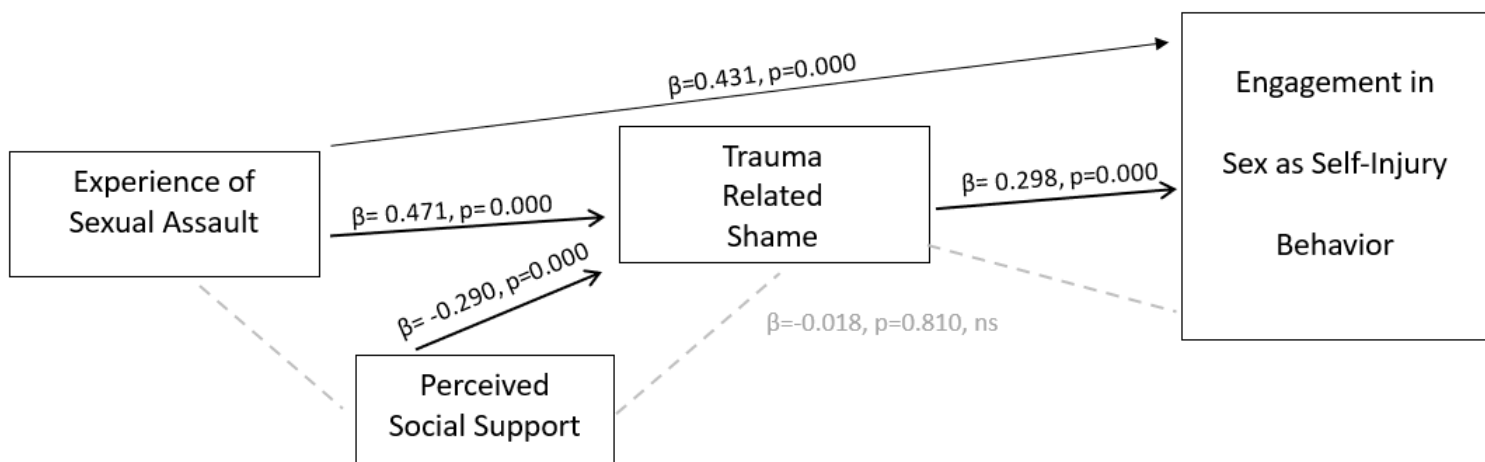


Figure 19. Exploratory Path Analyses Model

Table 14 Exploratory Path Analyses: Summary Results

Hypothesis 6. We hypothesized that sexual assault would have a direct effect on engagement in sex as a form of self-injury. We also hypothesized that there would be an indirect effect of sexual assault on engagement in sex as a form of self-injury through levels of trauma-related shame, which would be moderated by levels of social support (with higher levels of social support expected to buffer against the impact of sexual assault on trauma related shame).

Results 6. Sexual assault and trauma related shame had direct effects on engagement in SASI behavior. Sexual assault and social support levels also had direct effects on trauma-related shame levels. Shame significantly mediated the relationship between SA and SASI but this relationship was not moderated by levels of social support.

Statistics: Lavaan Structural Equation Modeling (SEM) for

A Moderated Mediation Model (i.e. Conditional Process Model)

Model Fit Indices

Indicating how close the model-predicted values match the observed values, based on correlations and covariances among variables

Model fit: $\chi^2(2) = 0.275$, $p = .871$; CFI = 1.000; TLI = 1.052; RMSEA = 0.000; SRMR = 0.002.

Regression/Path Estimates

quantifying the strength and direction of hypothesized relationships between variables

Predictor	Outcome	β (Std.all)	SE	Z	P
Sexual Assault	TR-Shame	0.471	1.326	7.578	0.000
Social Support	TR-Shame	-0.290	0.046	-3.583	0.000
SA x Social Support	TR-Shame	-0.018	0.058	-0.240	0.810
Sexual Assault	SASI Engagement	0.431	0.191	5.569	0.000
TR-Shame	SASI Engagement	0.298	0.007	4.722	0.000

Conditional Indirect Effects

estimates of the mediation effect (SA → Shame → SASI) at defined levels of social support

Effect	Estimate	β (Std.cof)	SE	Z	P
Indirect Effect when social support is low (1 SD below the mean)	0.346	0.141	0.086	4.040	0.000
Indirect effect at average level (mean) social support	0.355	0.242	0.089	3.975	0.000
Indirect effect when social support is high (1 SD above the mean)	0.337	0.039	0.098	3.451	0.001

Proportion of Variance Explained

R²: Shame = 0.326

R²: SASI = 0.399

Chapter IV

Discussion

Those struggling with SASI have expressed that being able to name, learn about, and seek help for these behaviors has been, or would be, highly important for them when attempting to overcome impulses towards sexual self-harm (Apelqvist et al., 2025; Fredlund and Jonsson, 2023). Furthering an open discussion about sexual self-injury is especially important since past research evaluating SASI in adolescents evinced significant positive associations between SASI and sexual assault, levels of traumatogenic symptoms, and other high-risk behaviors (Mellin et al., 2024). The present research added to these findings by confirming that, in adults, SASI behaviors are also associated with sexual assault, sexual risk behaviors, and NSSI. It further establishes that SASI is associated with trauma-related shame—a finding which may inform therapeutic intervention planning.

The primary goals of the present study were to (1) preliminarily establish a set of statements which may be used to screen for SASI behavior, (2) identify psychosocial variables which are associated with SASI, and (3) evaluate whether and how SASI may be discriminable from NSSI, SRBs, or kink-based sexual preferences. The broader, theoretical aim of this research was to deepen understandings of how SASI develops and persists in order to guide further research into interventions for SASI behavior. Although our research can only partially evaluate theories proposed to explain distal causes of SASI—such as reenactment theory and the evolutionary-based sociometer hypothesis—the nuances of these analyses may nonetheless inform emerging therapeutic research.

It should be noted that, due to study design, all analyses are correlational and cannot establish causal relationships between variables. Consequently, the directionality of the observed associations is also not able to be determined. Future research employing longitudinal or experimental designs for evaluating interventions will be necessary to clarify causal relationships between these variables.

Screening for SASI Behavior

As noted by Mellin & Young (2024) “It is likely not sufficient to ask broadly whether [one] has engaged in sexual activity as self-injury” to assess SASI as the phrase is not widely recognized (p.412). Our proposed scale helps specify dynamics and behaviors which can help identify SASI behavior among those unfamiliar with the term. We also proposed and measured the use of SASI through several virtual channels such as text and chat—finding that the items related to these behaviors were endorsed by 20-64% of our sample. Future research should analyze these items, along with the refined list of possible drivers of SASI further—validating the use across populations, and exploring the factor structure of the items.

We propose that the SASIS scale behavioral descriptors may be used additively (in addition to existing NSSI screenings) to quickly screen for the presence of SASI during intake interviews for mental health treatment. Second, we propose that the content of these items may be used to inform questions which mental health providers ask during therapy—in order to identify these behaviors among those who may be struggling with self-harm in the aftermath of sexual assault. Third, we suggest that this type of scale can be used in subsequent research as a psychometric instrument measuring this behavior. It should be noted that possible overlap does exist between items in this scale, however—

potentially limiting the validity of frequency data based on this scale in research. For example, it is possible that a participant may report that they “sought out sex with a partner who [they] knew would insult, belittle or verbally abuse [them]...” and that they “sought out sex with an undesired partner” while referring to the same encounter, about which both of these statements are true. While the presence of potential overlap would not have a large impact when screening for these behaviors in a clinical context, it may impact research wherein the goal is to measure SASI quantitatively.

SASI, Trauma, and Trauma-Related Shame

Our research demonstrates that trauma-related shame levels are significantly higher among those who use SASI. This suggests that targeting trauma-related shame in patients may be an important therapeutic intervention. It also suggests that explicitly and non-judgmentally screening for these behaviors—which takes the onus off the client to spontaneously report—may be an important first step in overcoming shame to reach those who need help in this regard. Shame and guilt are salient features of first-person accounts of SASI experiences, recorded in past qualitative studies (Fredlund & Jonsson, 2023). We now have quantitative evidence suggesting that levels of trauma-related shame are higher among those using SASI, compared with those who do not self-harm, and those who self-injure only in non-sexual contexts. This may be partially explained by the fact that sexual abuse—an experience reported by a majority of those with a history of SASI—was also strongly associated with trauma-related shame. However, the relationship between SASI and this trauma-related shame remained significant after controlling for the impact of trauma-type. This may suggest that both SA and SASI contribute to feelings of intense

shame among sufferers. This information may be especially important for informing further research into effective interventions for SASI.

Our research also explored the possibility that SASI behaviors may be direct and conscious reactions to traumatic memories—an idea which would fit with earlier reenactment theories, which propose that self-injury is a way of ruminating on and attempting to gain mastery or resolution of past abuse (Van der Kolk, 1989). Specifically, our study added the statements “When I have sex to cause myself harm, I am reenacting or replaying past experiences of sexual abuse or assault” and “When I have sex to cause myself harm, I am responding to memories of past trauma or abuse” to a functional behavior scale for NSSI to assess whether SASI behavior may be directly tied to traumatic memories and experiences. The fact that over half of participants endorsed these statements indicates that this is an important area to address in future research and therapeutic support. Previous qualitative, interview-based research identified that patterns of “normalization of sexual violence”, “escalation of violence” and “regaining control after sexual abuse” may contextualize SASI motivations after trauma, based on self-reports (Hedén et al., 2023). Our research suggests that reacting to intense shame associated with sexual abuse and explicitly reacting to traumatic memories may also be important motivators to respond to therapeutically as well. Similarly, recent research suggests that those who have ceased using SASI report revising core beliefs about themselves and increasing emotional competence as important abilities allowing them to stop (Apelqvist et al., 2025). The results of the present research suggest that working with shame specifically may be one route therapeutic interventions may consider to reach these aims of revised core beliefs and increased emotional competence.

The rate at which participants endorsed the statements “When I have sex to cause myself harm, I am... punishing myself” (91%), “...releasing emotional pressure” (88%), “...reacting to feeling unhappy or disgusted with myself” (82%) and “...expressing anger towards myself for being worthless or stupid” (81%) also provides important insights into how shame pervades SASI motivations and experiences. Shame is an emotion felt in reaction to the assumed perception of others towards ones self—which may (1) cause intense emotional pressure (2) make one feel that they need punished and (3) lead one to perceive themselves as worthless or disgusting—echoing the top 3 endorsed motivations for engaging in SASI.

Recent research has indicated that interventions targeting shame can reduce PTSD symptoms. For example, one study involving 462 adults with a PTSD diagnosis in a clinical context found that reductions in trauma-related shame were predictive of reductions in PTSD symptomology (Matloub et al., 2024). Other research has found that negative, internal attributions for past events have an impact on PTSD symptoms—a relationship which is mediated by trauma-related shame, but interestingly, not by depression (Seah & Berle, 2022).

Given that 91% of those struggling with SASI reported doing so as a form of self-punishment, the relationship between shame, guilt and punishment also deserves further consideration. Past research has established that shame and guilt are intricately similar affective experiences, often sharing similar outcomes (Harder et al., 1992; Miceli & Castelfranchi, 2018; Tangney, 1998). Several studies have suggested that guilt may have evolved as a way to preserve reciprocity within social relationships and deter one from harming others in their social group—with self-punishment emerging as a way to express

remorse and reaffirm social value to others after transgressions (Shen, 2018; Nelissen, 2012; Nunney et al., 2022). Shame, in contrast, is more self-focused than socially focused and more closely tracks one's perceived value and worth to others, rather than one's transgressions against others (Gilbert, 2003). In light of this information, it is possible that some people are driven to SASI as an attempt to deal with intense trauma-related shame by co-opting the guilt-remorse-punishment system. In other words, people may be attempting to assuage the feelings of shame through self-punishment, but may fall short since, evolutionarily, shame and guilt emerged due to distinct social pressures and with distinct functions, while feeling affectively similar. The goal of therapy may then be to cognitively restructure the sense that one needs punishment into an understanding that their calibration of social worth may have been distorted by trauma. Future longitudinal research could provide important insights into the efficacy of shame-based interventions on self-injurious behavior—especially with those who have a significant history of trauma.

SASI and Self-Esteem

We found that SASI group members had lower self-esteem scores than those without a history of self-injury. However, the differences in average scores were small and of unknown clinical significance. At first glance, this evidence seems to indicate that the sociometer hypothesis, which centralizes the importance of self-esteem in decisions, is not the most useful framework for understanding SASI behavior. However, differences between trait self-esteem and state self-esteem are relevant to consider here. Trait self-esteem is a long-standing and mostly stable sense of one's value and positive qualities while state self-esteem is a reactive and somewhat dynamic sense of self which may be

more impacted by social dynamics and mood (Elsevier, n.d.). Although state self-esteem has been shown to account for a smaller degree of interpersonal variance in overall self-esteem than trait self-esteem (Donnellan et al., 2012), the clinical relevance of state self-esteem differences is not yet fully understood. Self-esteem lability, in fact, has been shown to be more significantly associated with depression than trait self-esteem (Butler et al., 1994). Here, it is also especially important to note that more drastic fluctuations in state self-esteem have been observed among those with traumatogenic conditions like PTSD than in those without such experiences and diagnoses (Kashdan et al., 2005).

It may be that people use SASI as a coping mechanism when negative self-concepts are activated by memories of trauma or devaluing social interactions. Our study most likely captured the impact of trait self-esteem across participants as we did not present any mood alteration task prior to delivering the survey. We also measured self-esteem before asking questions about traumatic events, which may have minimized the observed between-group differences in state self-esteem, which could fluctuate with traumatic memories, especially in those with high levels of trauma-related shame.

Past research supports this interpretation, as first-hand reports among those using SASI have frequently describe low self-worth and even self-loathing as drivers of these behaviors (Apelqvist et al., 2025; Fredlund et al., 2020). In addition, those who have stopped using SASI cite cognitive restructuring about the self as one of the main catalysts allowing them to stop SASI (Apelqvist et al., 2025).

Time-series studies are needed to determine whether levels of state self-esteem may have more predictive power when considering how people chose to engage in SASI. It may be particularly important, due to our findings, to consider how memories of

trauma may influence fluctuating feelings of shame, and therefore impact state self-esteem immediately before SASI behavior.

SASI and Social Support

While levels of social support were not significantly lower for those with SASI behaviors compared to those without SASI behaviors in our sample, social support was found to be significantly associated with levels of trauma-related shame. This, along with the results of our exploratory path analysis, suggests that there may be an indirect effect of social support on shame, which then independently impacts SASI behavior.

High levels of shame surrounding sexual assault experiences or SASI behaviors may also mean that people seek less social support for emotions surrounding these specific experiences, even while maintaining adequate levels of support in other domains. As one participant in a past qualitative study explained:

“It became like a compulsion and an addiction [...] I could not stop. I tried to sign a contract with myself. Use all the strategies I used to stop cutting myself. But I could not resist. The shame also contributed. Although I have been in therapy for the last few years, I did not dare to talk about this. I was so ashamed. I was sure my therapist would hate me, think I was disgusting, and throw me out if I told her. [...] I could not ask for help.” (Fredlund & Jonsson, 2023).

Having available and trusted social resources but not being able or willing to utilize these resources in regard to struggles with SASI behavior is likely to influence any attempt at cessation profoundly—a dynamic well documented in drug and alcohol addiction literature (Batchelder et al., 2022).

The aforementioned dynamics underscore another important limitation of our study—that it only measured perceived social support, which may be discrepant from utilized social support. (Haber et al., 2007). Our study also measured present levels of

social support without differentiating between those who overcame a history of using SASI, and those who were still engaging in SASI at the time of the survey. Several respondents in past qualitative studies expressed that increasing levels of healthy and supportive social support allowed them to stop or overcome SASI behavior (Apelqvist et al., 2025; Fredlund & Jonsson, 2023). Since the present study did not assess whether one had current or only historical SASI experiences, the interpretation of social support scores here cannot capture the whole picture of what leads people to engage in SASI behaviors to begin with. Future research should not only consider levels of social support during the time people are struggling with SASI, but also the temporal proximity of utilized social support with traumatic events, and SASI behaviors. Such information would be necessary to fully understand the interplay between immediate levels of available social support in the aftermath of trauma, fluctuations in self-esteem, utilized support, development of trauma-related shame, and the decision to engage in SASI behavior. Because of these limitations, we do not have enough evidence to fully evaluate whether a miscalibration in evolved social support systems may truly be involved in the etiology of sexual self-injury behavior or not.

Sex as a Form of Self-Injury

Our results partially support the idea that SASI should be considered a form of self-injury akin to NSSI behavior. In fact, 96% of SASI group respondents in our sample reported a history of NSSI behaviors. This confirms past findings in adolescent samples, which found considerable overlap in these behaviors (Jonsson et al., 2013). In qualitative

research, those struggling with SASI have reported using sex as a form of self-injury in the same way as cutting with razorblades (Apelqvist et al., 2025) and trying to replace NSSI with SASI since they thought it was less likely to be noticed (Fredlund et al., 2020). This rate of concurrence between NSSI and SASI, along with links made in past qualitative research, suggests that these associations need explored further and deserve serious consideration in clinical and therapeutic contexts.

Participants in our study also endorsed functional motivations for SASI which are similar to those historically reported for engaging in NSSI—relating to coping and reacting to negative emotions (Klonsky, 2007b; Nock & Prinstein, 2004). In contrast, the motivations endorsed for SASI were much less commonly espoused for general sexual activity—which most frequently relate to pleasure and intimacy (Cooper et al., 1998; Patrick et al., 2011). Although only 15.87% of 63 respondents in our surveyed subsample reported absolutely *no* sexual motivations for engaging in SASI, past research has suggested that SASI may be highly multi-determined (Jonsson et al., 2013)—an idea which was supported by our findings about functional motivations for SASI as well. Past research has also found that, when using open-ended reporting and qualitative methods, only 6.5% of respondents described that they used SASI to get a “kick or thrill” (Fredlund et al., 2020). Importantly, studies of sexual motives show that engaging in sex to cope with negative emotions is linked to harmful outcomes and trauma histories, consistent with patterns observed in SASI. For example, among adolescent females, those with higher levels of depression were significantly more likely to endorse using sex for coping motives (Morrison-Beedy et al., 2017), and males who had experienced sexual assault were also more likely to use sex to cope with negative emotions (Wekerle et al.,

2017). All of these findings support the idea that SASI behaviors represent something distinct from variance in sexual preference. Instead, SASI appears to serve similar functions and share many similar risk factors with NSSI.

Some may insist that NSSI must be differentiated from other forms of indirect self-injury by the outcome of physical harm. However, the risk of negative health outcomes such as contracting an STI through risky sexual behavior must also be considered. Our research shows that those engaging in sex as self-injury exhibited sexual risk behaviors at approximately three times the rate of both NSSI and no-injury groups. Past research also found that adolescents who using SASI were significantly more likely to have engaged in risky sexual behaviors—from having sex at a younger age or with multiple partners, to even selling sex (Ek et al., 2026; Fredlund et al., 2017; Zetterqvist et al., 2018). This is important not only because of the inherent risks in selling sex, or having sex with multiple partners, but also because these behaviors have been found to be associated with increased risk of suicide in adolescents (Hallfors et al., 2004). Specifically, adolescents who had multiple sexual partners had a 3.29 odds ratio increase for suicidal ideation and those who sold sex for drugs or money had a 10.49 odds ratio increase for suicidal ideation (Hallfors et al., 2004). Experiences of childhood sexual abuse have also been consistently associated with later sexual risk behaviors (Hailes et al., 2019; Senn et al., 2008; Senn et al., 2007; Slavin et al., 2020; Testa et al., 2005). Importantly, sexual risk behaviors were found to significantly moderate the relationship between childhood sexual assault and adult revictimization (Testa et al., 2010). The overlap between SA, SASI, and SRBs needs investigated further—as it may be indicative of a trauma-driven trajectory, where early abuse increases vulnerability to self-injurious

sexual behavior and associated risk-taking. Engaging in SASI represents a very real risk of physical harm—including the possibility of being revictimized, abused and contracting STIs through increased sexual risk behaviors. Therefore, it is not fully defensible to exclude SASI from the umbrella of NSSI even when physical harm is not incurred in all cases.

Our research confirms that a proportion of the adult population, especially those with a history of sexual assault or other interpersonal traumas, uses sex as a form of self-injury. Given that prior research has linked SASI to elevated rates of mental health problems, substance abuse, risky sexual behaviors, and suicide attempts (Ek et al., 2026; Fredlund et al., 2017), and that our findings similarly associate SASI with NSSI, higher levels of sexual risk behavior, and greater trauma-related shame, it is essential that clinicians are equipped with appropriate tools and conceptual frameworks to identify and address these behaviors.

Through this research, and as a result of this research, we compiled a psychoeducational website which may provide a concise, first step towards naming and understanding SASI for those who are not used to engaging with academic literature. This resource (revised based on outcomes of the current work) can be found at <https://sites.google.com/view/understandingsasi/home>. It is our hope that research in this area continues in order to better inform care and support for those suffering with these behaviors.

Future Directions

Recent research has identified psychological processes and abilities which may enable those struggling with SASI to overcome it. According to those with histories of

SASI themselves, changing beliefs about oneself, improving abilities to cope with negative emotions, finding healthier relationship patterns, replacing powerlessness with a sense of empowerment, and learning about SASI through language and new insights are all possible avenues towards healing (Apelqvist et al., 2025). Future research should help evaluate treatments aimed at enhancing these competencies among those with SASI who are seeking outside help. Given our findings, interventions aimed at decreasing shame and trauma-related shame should also be evaluated.

In order to enhance understandings of SASI and clarify future research, our proposed scale for identifying SASI behaviors should also be evaluated alongside a scale measuring non-pathological kink practices to see if distinct factors emerge which allow for further discrimination between these constructs. It may be that some people practicing masochistic kinks may actually be struggling with sexual self-harming behaviors, or that some people are mis-categorizing their kink behavior as self-harm due to lack of understanding about the diversity of sexual preferences. Much more research is required to truly and objectively evaluate the ways these behaviors are linked to diverse mental health outcomes over time.

Our research indicates that a significant proportion of people struggling with SASI do so as a way to reenact traumas or directly respond to traumatic memories. Future studies investigating outcomes and interventions aimed at those who have experienced sexual abuse should also consider SASI as a relevant behavior which people in this population are at an increased risk for. For those who are using SASI to reenact traumas or cope with memories of abuse, it is important to understand the specific aims of these reenactments. Are reenactment attempts responding to feelings of devaluation or thoughts

of “deserving” maltreatment? Are reenactments attempts to master or gain control over situations which initially felt powerless? When these functional pathways are further understood, therapy can work at replacing these behaviors with more efficacious or healthy behaviors serving similar functions.

Individuals struggling with sexual self-harming behaviors deserve compassionate, informed care. The present findings indicate that engagement in SASI frequently occurs in the aftermath of sexual abuse or assault. Additionally, individuals who struggle with SASI exhibit higher rates of sexual risk behaviors, representing an immediate risk to physical health. Elevated levels of shame related to past traumas were also observed among those engaging with SASI—highlighting a potential target for therapeutic intervention.

Cumulatively, the growing body of research on SASI demonstrates that sexual self-injury is a tangible, multifaceted and profoundly damaging experience. Those suffering with these behaviors often do so in the aftermath of sexual trauma. It is imperative that research into the etiology of this behavior and effective interventions for this behavior continue in order to reduce great suffering and shame for those impacted.

Appendix A.

The Sex as Self Injury Survey (SASIS)

Note: This survey has been created specifically for this study because there is presently no psychometrically validated scale which exists to measure SASI. It is modeled off of similar validated scales which have been used to measure NSSI or SRBs. It also uses analogous language from the directions of those scales (Klonsky & Glenn, 2009; Turchik & Garske, 2009) and uses language from previous research about the behavior (Fredlund et al., 2020; Mellin & Young, 2024).

Instructions: This survey asks about different ways people may use sex as an attempt to cause themselves harm or injury.

These topics may feel particularly personal or painful. Remember your responses are anonymous and that you may skip any question you choose to.

Please only endorse a behavior if you have done it intentionally (i.e., on purpose) and without suicidal intent (i.e., not for suicidal reasons).

Please put a 0 if the experience occurred because someone else forced you into a sexual experience you did not want.

Please estimate the number of times in your life you have intentionally (i.e., on purpose) performed each behavior (e.g., 0, 10, 100, 500):

Had sex which you knew would feel emotionally or physically painful, in order to hurt yourself? ____

Had sex to confirm thoughts you had about yourself being bad or worthless? ____

Had sex to stop feelings of numbness and to feel pain instead? ____

Had sex in an attempt to punish yourself? ____

Had sex in an attempt to hurt yourself? ____

Had sex which you knew would feel humiliating, to cause yourself pain? ____

Sought out sex that you felt was disgusting, to cause yourself pain? ____

Used sex in attempt to purposefully recreate or replay past trauma? ____

Sought out sex with a partner who you knew would physically abuse you, in order to hurt yourself? ____

Sought out sex with a partner who you knew would insult, belittle or verbally abuse you in order to hurt yourself? ____

Sought out sex with an undesired partner, or someone you weren't attracted to, in order to hurt yourself? ____

Chatted or texted sexually with an emotionally abusive partner, in order to hurt yourself? ____

Chatted or texted sexually in attempt to purposefully replay or reexperience a past trauma? ____

Had demeaning, insulting, or humiliating online sexual video encounters, in order to hurt or punish yourself? ____

Sought out sex with an undesired partner, or someone you weren't attracted to, in order to hurt yourself? ____

Had sex you truly did not want to, or had sex that didn't feel good to you, in order to hurt or punish yourself? ____

Appendix B.

SASI Adapted Function Scales

(Klonsky & Glenn, 2009)

Note: This scale has been slight adapted from the Inventory of Statements about Self-Injury in order to assess the functions of sex as self-injury specifically. Changes being made to the scale (originally measuring functions of NSSI) include:

- Replacing the phrase “non-suicidal self harm” and “self-harm” in the directions with “using sex as a way of self-harming”
- Replacing the sentence starter “when I self harm, I am...” with “When I have sex to cause myself harm, I am...”
- Deletion of items irrelevant to SASI: including “giving myself a way to care for myself (by attending to the wound)”, “creating a physical injury that is easier to care for than my emotional distress.”, and “allowing myself to focus on treating the injury, which can be gratifying or satisfying.”
- Removing the word “physical” from the items reading “creating a physical sign that I feel awful”, “trying to feel something (as opposed to nothing) even if it is physical pain.” and “proving I can take the physical pain”
- Adding two items relevant to SASI: “reenacting or replaying past experiences of sexual abuse or assault” and “responding to memories of past trauma or abuse”

Instructions: This inventory was written to help us better understand the experience of using sex as a way to self harm. Below is a list of statements that may or may not be relevant to your experience of using sex as a way of self-harming. Please identify the statements that are most relevant for you:

- Circle 0 if the statement not relevant for you at all
- Circle 1 if the statement is somewhat relevant for you
- Circle 2 if the statement is very relevant for you

When I have sex to cause myself harm, I am...

calming myself down 0 1 2

creating a boundary between myself and others 0 1 2

punishing myself 0 1 2

causing pain so I will stop feeling numb 0 1 2

avoiding the impulse to attempt suicide 0 1 2

doing something to generate excitement or exhilaration 0 1 2

bonding with peers 0 1 2

letting others know the extent of my emotional pain 0 1 2

seeing if I can stand the pain 0 1 2

creating a sign that I feel awful 0 1 2

getting back at someone 0 1 2

ensuring that I am self-sufficient 0 1 2

releasing emotional pressure that has built up inside me 0 1 2

demonstrating that I am separate from other people 0 1 2

expressing anger towards myself for being worthless or stupid 0 1 2

trying to feel something (as opposed to nothing) even if it is pain 0 1 2

responding to suicidal thoughts without actually attempting suicide 0 1 2

entertaining myself or others by doing something extreme 0 1 2

fitting in with others 0 1 2

seeking care or help from others 0 1 2

demonstrating that I am tough or strong 0 1 2

proving to myself that my emotional pain is real 0 1 2

getting revenge against others 0 1 2

demonstrating that I do not need to rely on others for help 0 1 2

reducing anxiety, frustration, anger or other overwhelming emotions 0 1 2

establishing a barrier between myself and others 0 1 2

reacting to feeling unhappy or disgusted with myself 0 1 2

making sure I am still alive when I don't feel real 0 1 2

putting a stop to suicidal thoughts 0 1 2

reenacting or replaying past experiences of sexual abuse or assault 0 1 2

pushing my limits in a manner akin to skydiving or other extreme activities 0 1 2

creating a sign of friendship or kinship with friends or loved ones 0 1 2

keeping a loved one from leaving or abandoning me 0 1 2

proving I can take the pain 0 1 2

signifying the emotional distress I'm experiencing 0 1 2

trying to hurt someone close to me 0 1 2

establishing that I am autonomous/independent 0 1 2

responding to memories of past trauma or abuse 0 1 2

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