RUNNING HEAD: SHAME, SOCIAL COMPARISON AND SELF-CONCEPT INTEGRATION

**Distinguishing people with current, past, and no history of Non-Suicidal Self-Injury: Shame, social comparison, and self-concept integration**

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**Abstract**

***Objective:*** Non-Suicidal Self-Injury (NSSI) can have a major impact on the lives of individuals and those around them. The way in which a person feels about and perceives themselves (i.e. self-concept) appears central to understanding NSSI. The current study investigates three variables linked to self-concept: shame, social comparison, and self-concept integration. We examine how well these variables differentiate people who report past NSSI, people who report current NSSI, and people who have never engaged in NSSI. ***Design***: Cross-sectional. ***Method:*** Individuals reporting NSSI in the past year (*n* = 51), individuals with a history of NSSI but none in the past year (*n* = 44), and individuals with no history of NSSI (*n* = 110) were compared on measures of shame, social comparison, and self-concept integration. ***Results:*** Shame was elevated in people with a history of NSSI but did not distinguish between past and current NSSI when other variables were controlled for. Self-concept integration was poorer in people reporting current NSSI than people reporting past NSSI, even when controlling for other variables. ***Conclusions:*** The results support the role of shame as a general marker for NSSI risk, but suggest self-concept integration may fluctuate more dynamically in relation to the recency of NSSI. The study is limited by a non-matched student control group.

**Keywords:** NSSI; self-injury; shame; self-concept; social comparison

**Distinguishing people with current, past, and no history of Non-Suicidal Self-Injury: Shame, social comparison and self-concept integration**

Non-suicidal self-injury (NSSI) is a growing international health concern. It is highly prevalent (17.2% among adolescents, 13.4% among young adults; Swannell et al., 2014), and associated with psychological distress (Andrews et al., 2014; Hasking et al., 2008), suicide attempts and completed suicide (Bryan et al., 2015; Ribeiro et al., 2016). NSSI is a subtype of self-harm, defined as the deliberate and self-inflicted damage of one’s own body tissue, without suicidal intent and for purposes which are not socially sanctioned, and can include cutting, carving, burning, skin picking, scratching, hitting, biting, and interfering with wound healing (International Society for the Study of Self-injury, 2018). NSSI fundamentally involves the directing of harmful behaviour towards the self, and thus processes linked to how the self is perceived and experienced appear important. Self-concept is therefore one potential determinant of NSSI (Taylor et al., 2018; Forrester et al., 2017). Commonly reported functions of NSSI even include explicit endorsement of wanting to punish oneself (Taylor et al., 2018a). Research suggests that a more critical, hostile or negative perception of oneself is associated with a greater risk of NSSI (Taylor et al., 2018; Forrester et al., 2017; Xavier et al., 2017). The cognitive-emotional model of NSSI further emphasises that self-concept (or self-schema) is important in the onset of NSSI (Hasking et al., 2017). However, whilst variables related to self-concept may act as a general risk factor for NSSI, scarce research has examined whether they differ between people who report past and current NSSI.

Understanding what potentially helps some individuals to cease NSSI, and what maintains NSSI for others is important when considering potential interventions for this population. Research that contrasts people with a history of NSSI who have maintained this behaviour against people who have not engaged in NSSI recently can provide indications about the variables that could affect the cessation or maintenance of NSSI. Cross-sectional and longitudinal research in this area suggests that people who have not recently engaged in NSSI tend to experience less severe emotional difficulties, fewer adverse experiences, and greater well-being compared to people who maintain NSSI (Andrews et al., 2013; Kiekens et al., 2017; Rotolone and Martin, 2012). People with past experiences of NSSI also report better social support (or social connectedness), and psychological functioning than those where NSSI is current (e.g. positive self-appraisal, cognitive re-appraisal, emotion regulation; Andrews et al., 2013; Kiekens et al., 2017; Riley et al., 2015; Rotolone and Martin, 2012;). Notably these variables overlap considerably and it is therefore difficult to determine, which have a more fundamental role in the cessation of NSSI and which are concomitant or epiphenomena of recovery from NSSI. This body of literature is also largely based on US, Canadian, and Australian university and high-school students, with little data regarding individuals in the UK. We are aware of a single study of UK young people that found limited evidence of differences in problem-solving ability between people with current and past history of self-harm (Oldershaw et al., 2009).

Given the potential relevance of self-concept in understanding NSSI, these variables may also be important in understanding the cessation of NSSI. However, this has received little research attention. Self-esteem has been identified as having a particularly large effect size when distinguishing between current and past NSSI, though more recent research has failed to confirm this effect (Kiekens et al., 2017; Mummé et al., 2017). Negative self-schema (e.g. maladaptive cognitions about the self) are also correlated with the recency of NSSI (Quirk et al., 2015). However, self-concept extends beyond cognitive content, encompassing a number of additional dimensions or aspects. These include the emotions linked to self-perception (i.e. self-conscious emotions like shame), the integration of self-concept (i.e. the stability of a person’s sense of self), and how individuals feel they compare to others in society (i.e. social comparison). The current study focuses on whether these three aspects of self-concept distinguish between people who currently self-injure, people with a history of self-injury who have not engaged in the behaviour in the past year, and people without a history of self-injury.

Shame is an emotion characterised by feelings of being socially unacceptable, inferior or immoral (Blythin et al., 2018; Tangney and Dearing, 2002). Shame can therefore be seen as a consequence or indicator of a particularly negative self-concept. Research has largely supported a relationship between shame and NSSI occurrence, frequency and severity, within both cross-sectional and prospective designs (Brown et al., 2009; Duggan et al., 2015; VanDerhei et al., 2014). Moreover, research using Experience Sampling Methodologies (ESM) has demonstrated that momentary spikes in negative affect, particularly shame, precedes episodes of NSSI and declines following the act (Selby et al., 2014). Shame is an aversive emotional state, which potentially leads to NSSI as a means of avoiding or regulating these feelings, or a means of punishing oneself in response to these feelings (Taylor et al., 2018). Shame also encourages secrecy and social withdrawal (McDermott et al., 2008) and so may promote NSSI over more adaptive means of coping (e.g., seeking social support). A single study has examined whether shame distinguishes between people with current and past experiences of NSSI (Duggan et al., 2015). They did not identify any differences, but comparisons were limited by very small sample sizes.

Another line of research indicates that being lower in social rank or status, relative to people around you, is related to poorer mental health. This has been found for both subjective perceptions of social rank, and for more objective indicators like income (Thompson et al., 1999; Wood et al., 2012). Notably, the impact of social rank and related feelings of shame are consistent with evolutionary approaches to psychopathology, which suggest humans have an innate, evolved sensitivity to social comparison (Gilbert, 1997; Taylor et al., 2011). Within this framework shame is viewed as part of a behavioural repertoire designed to prevent further escalation in competition between conspecifics. From this perspective there may be an evolutionary value to directing injury towards oneself. For example it may be an alternative to directing aggression towards others or a way of signalling distress and lack of threat to others (Nock, 2008). Very few studies have examined the association between social comparison and NSSI, with a single study suggesting negative social comparison is positively related to broadly defined self-harm (Gilbert et al., 2010). However, it has been noted that marginalised social groups often experience higher rates of NSSI (Hughes et al., 2018), and so it is plausible that social comparison would be linked to NSSI.

The relationship between self-concept integration and NSSI has received little research attention. Within the Multiple Self States Model (MSSM) it has been argued that self-concept is essentially pluralistic, and that an individual’s self-concept encompass a broad repertoire of states or roles that they shift between depending on the demands of the situation (Pollock et al., 2001; Ryle, 1997). It is suggested that experiences such as early trauma or abuse disrupt the integration of these states and the person’s ability to shift smoothly between them. Instead, an individual may experience more marked and unpredictable shifts in their thoughts and feelings. It is possible these shifts in feeling become linked with NSSI, which emerges as a way to help cope with or regulate these unpredictable changes. A lack of self-concept integration has been seen as a common characteristic in people diagnosed with borderline personality disorder, and is associated with self-injury within this population (Pollock et al., 2001; Scala et al., 2018). It is also associated with NSSI in people with eating disorders (Claes et al., 2015). Relatedly, confusion in self-identity formation has been linked to NSSI (Luyckx et al., 2015). No studies that we are aware of have yet examined whether this variable distinguishes between people with current and past experiences of NSSI.

Research suggests that risk factors associated with NSSI thoughts and NSSI behaviour largely overlap, though work in this area is scarce (Martin et al., 2011). However, models of self-harm more broadly suggest that the psychological processes associated with the motivation to self-harm (including ideation) may be different to those associated with engagement in actual behaviour (O'Connor, 2011). In this study we therefore also consider the association that the self-concept variables have with NSSI thoughts, as well as behaviour.

The aim of the current study was to investigate whether three self-concept related variables (shame, social comparison, and self-concept integration) distinguished between people who currently self-injure, have a history of self-injury but no recent behaviour (no NSSI in the past year), and no history of NSSI. These findings help us to consider whether these self-concept variables represent relatively stable, distal correlates of NSSI (which remain elevated even in individuals who have ceased NSSI), or whether they have a more dynamic relationship with NSSI, fluctuating with changes in NSSI behaviour. Moreover, by considering these overlapping self-concept variables together we have been able to determine their independent associations with NSSI. It was hypothesised that all three self-concept variables would distinguish between the three NSSI groups, with the current NSSI group showing the greatest shame, poorest social comparison, and poorest self-concept integration. A further analysis focused on the association between the self-concept variables and NSSI ideation in the NSSI sample, where a positive association was hypothesised.

**Method**

**Participants**

The NSSI sample consisted of adults (aged > 18 years) with a history of two or more instances of NSSI, and adequate English-language ability to understand the study materials. A history of two or more instances of NSSI was sought in order to exclude individuals where NSSI represented a single uncharacteristic act. Participants were recruited via clinical services, support groups, student health services, social media and local jobs websites. In addition to responses to adverts, potential participants were identified by clinicians, who sought consent for potentially eligible individuals to be contacted by the research team. Participants were screened for eligibility by phone. Individuals judged currently at high suicide risk (i.e. presence of intent or planning) were excluded from the study (due to concerns about the impact the study may have upon them) and signposted on to appropriate support services. Individuals were split into current and past NSSI groups based on the presence of NSSI within the past year, as in other studies (e.g. Rotolone & Martin, 2012). The non-clinical comparison sample consisted of university students (aged > 18 years), with no history of NSSI (this was stated in advertising material and confirmed with a screening question), and adequate English-language ability to understand the study materials. Participants were recruited via a University credit system.

**Measures**

***Demographic and clinical information.*** This included information on participants’ age, gender, ethnicity, income, whether they considered themselves to have a mental health or physical health diagnosis, and psychiatric service use and medication.

***NSSI behaviour and thoughts.*** The widely-used Self-Injurious Thoughts and Behaviour Interview- Short Form (SITBI; Nock et al., 2007) was conducted with the NSSI sample. The item concerning the number of NSSI acts in the past year (“How many times in your life have you purposely hurt yourself without wanting to die? How many times in the past year?”) was used to distinguish between the current and past NSSI groups based on whether NSSI had occurred or not in the past year. Other studies have used this tool to differentiate groups based on how recently NSSI has occurred (e.g. Glenn et al., 2017). The item regarding the number of thoughts about NSSI (“How many days in your life have you thought about purposely hurting yourself without wanting to die?”) experienced in the past month was also used in the secondary analysis.

***Self-concept integration.*** The Personality Structure Questionnaire (PSQ; Pollock et al., 2001)is an 8-item self-report questionnaire which assesses problems with the integration of different states of minds. Items are rated on 1-5 Likert scales with higher scores indicating poorer integration (scores range from 8 to 40). Research supports the factor structure, reliability and validity of the scale (Bedford et al., 2009; Pollock et al., 2001).The PSQ demonstrated good internal reliability in the current study, McDonald’s ω = .83 (95% CI: .79-.87).

***Social Comparison.*** Three self-anchoring scales (Cantril, 1965) that have been widely used and validated within health and social research (Atkinson, 1982), were used. Each scale was in the form of 10-rung ladders (scores range from 1 to 10) which represented where people stand in society. The first two ladders reflected where participants felt they stood in their own community and in the UK, whilst the 3rd assessed where the participant believed others would place them on the ladder. The top rung of the ladders represented people with the highest standing and the bottom rung represented people with the lowest standing. The meaning made of ‘highest’ and ‘lowest’ was determined by the participant, with additional guidance given (e.g., “’highest’ represents people who are best off – those with most money, most education and most respected jobs; ‘lowest’ represents people who are worst off – those with the least money, least education and least respected jobs”). Instructions for its use have been adapted from a previous study (Singh-Manoux et al., 2003). A total score was created by summing scores across the three scales, ranging from 3 to 30, with higher scores indicating more positive social comparison. The scale demonstrated good internal reliability in the current study, McDonald’s ω = .81 (95% CI: .75-.85).

***Shame.*** The Experiences of Shame Scale (ESS; Andrews et al., 2002) is a widely used self-report measure assessing the severity of feelings of shame in the past year. For the current study we focus on the characterological shame subscale (12 items), which encompasses shame relating to character, personality and selfhood. Each item is rated between 1 and 4, with total scores ranging between 12 and 48. The factor structure, reliability and validity of this scale have been supported (Andrews et al., 2002). The scale demonstrated good internal reliability in the current study, McDonald’s ω = .94 (95% CI: .93-.95).

**Procedure**

Participants completed the measures during a face-to-face meeting with the researcher. The order of questionnaires was randomised to reduce the impact of an order-effect. Ethical approval was provided by the University of Manchester divisional ethics committee (control sample) and NHS ethics committee (NSSI sample). All data entry was checked by an independent researcher to avoid error.

**Statistical Analysis**

Analyses were undertaken in Mplus 7.4 (Muthén and Muthén, 1998-2012). Multinomial regression was used to determine how well the predictor variables distinguished between the three groups (current NSSI, past NSSI, no NSSI). Potentially influential cases were identified via log-likelihood distances. Where potentially influential cases were identified we undertook a sensitivity analysis and re-ran analyses with these cases excluded to ascertain the impact on model parameters. The adjusted Akaike’s Information Criterion (AICc) was also calculated to help compare models (Burnham & Anderson, 2004). Because of the problems with the commonly used Cronbach’s alpha, internal reliability was assessed using McDonald’s Omega (Dunn et al., 2013). The analysis of NSSI thoughts used a negative binomial regression model, as the number of NSSI thoughts reported are count data but were also over dispersed (test of overdispersion *p* < .01).

**Results**

**Participant Characteristics**

A sample of 208 participants (current NSSI = 51; past NSSI = 44; no NSSI = 110). Missing data was minimal (< 0.5% of cases). Two participants reported suicide attempts but no NSSI and were excluded from the NSSI sample. Missing data on individual items belonging to scales was managed via mean imputation where < 20% of the scale items were missing. Remaining missing data was managed via casewise deletion, leaving *n* = 204 with complete data.

Participant demographic information for each of the three groups is reported in Table 1. The samples were similar with regards to sex and age (though low cell count prevented inferential testing). The non-clinical groups had a greater proportion (*p* < .05) of non-white participants (29.1% vs. 8.3%), and fewer earning over £10,000 annually compared to the clinical participants. As would be expected, people with a history of NSSI reported significantly greater physical and mental health difficulties, and greater experience of accessing psychiatric services (*p* < .05). These variables were therefore included as covariates in subsequent analyses.

The majority of participants in the NSSI groups reported starting NSSI under the age of 18 years (n = 87, 90.6%). The most widely endorsed form of NSSI was cutting or carving (n = 92, 95.8%) followed by hitting oneself (n = 61, 63.5%). The frequency of past year NSSI for participants in the current NSSI group varied between < 5 (n = 24), 5-10 (n = 9), and > 10 instances (n = 18).

TABLE 1 ABOUT HERE

**Associations between Self-concept Variables and NSSI**

A series of multinomial regression models were estimated, with group as the outcome (current NSSI, past NSSI, no NSSI), and the self-concept variables as covariates. We initially tested bivariate associations between predictors and NSSI (see Table 2). All three self-concept variables distinguished between participants with and without a history of NSSI. However only shame and self-concept integration distinguished participants reporting current NSSI compared to past NSSI, whereby participants reporting current NSSI reported greater shame and poorer integration.

TABLE 2 ABOUT HERE

In order to determine their independent association with NSSI, we entered all three self-concept variables into a single multinomial regression model. Shame continued to distinguish between participants with and without an NSSI history, but no longer differentiated the current and past NSSI groups. Only self-concept integration distinguished the current and past NSSI groups, with poorer integration reported in the current NSSI group. Notably, integration did not significantly differ between participants reporting past NSSI and no NSSI, though it was elevated in participants reporting current NSSI. This pattern of results is consistent with self-concept integration fluctuating in relation to the recency of NSSI, in contrast to shame, which remained significantly elevated even after NSSI had ceased. The exclusion of two potentially influential cases made no substantive difference to these findings.

We repeated this analysis with ethnicity (1 = white; 0 = non-white), annual income (1 = > £10,000; 0 = < £10,000; based on median split) mental health (1 = diagnosis; 0 = no diagnosis) and physical health (1 = difficulties; 0 = no difficulties) included as covariates. A consistent pattern of results emerged regarding the self-concept variables across the two models, supporting the robustness of these relationships. Notably within this model, the small number of non-white participants led to extreme parameter estimates for this variable, and so these values should be treated with caution. As a consequence two non-white participants had large log-likelihood distances relative to other cases. Exclusion of these cases meant that parameters related to ethnicity could not be estimated, but other model parameters were not substantially changed.

TABLE 3 ABOUT HERE

**NSSI Thoughts**

As both shame and self-concept integration were associated with NSSI behaviour, we conducted a secondary analysis investigating the association with NSSI thoughts over the past month. A small number of responses where participants were not able to provide an estimated number of occasions (*n* = 8) were excluded from the analyses. A negative binomial regression (due to the over-dispersed count nature of NSSI thoughts) was conducted with shame and self-concept integration as predictors. Shame, Incident Rate Ratio (IRR) = 1.10 (1.02, 1.18) was positively related to the frequency of NSSI thoughts in the past month, with a unit increase in shame leading to a 10% increase in the chances of thinking about NSSI in this period. Self-concept integration was not significantly associated with NSSI thoughts, though a trend was apparent, IRR = 1.07 (0.94, 1.22).

**Discussion**

The aim of the current study was to investigate whether shame, social comparison, and self-concept integration distinguished between people who have recently self-injured, have self-injured in the past (but no NSSI in the past year), and have never self-injured. Greater shame, poorer self-concept integration, and more negative social comparison, was apparent in participants with experiences of NSSI. Greater shame, and poorer self-concept integration was also present in participants reporting current (past year) NSSI, when compared with participants with past experiences of NSSI. However, when adjusting for the overlap between these self-concept variables the nature of their relationship with NSSI varied. Shame continued to distinguish between participants with and without experiences of NSSI, but did not distinguish past and current NSSI. As such, shame acted as a stable correlate of NSSI, remaining elevated even in participants who had not engaged in NSSI in the last year. In contrast, self-concept integration was lowest for participants reporting current NSSI, distinguishing them from individuals without a history of NSSI, but when adjusting for other variables, it did not differentiate participants with no NSSI history and individuals who reported past NSSI. Hence self-concept integration acted more as a dynamic marker of NSSI, which fluctuates in relation to the recency of NSSI. Social comparison did not have any independent association with NSSI and so may not be as important as shame and self-concept integration. NSSI thoughts had an independent association with shame but not self-concept integration.

The findings regarding shame are consistent with a growing body of evidence linking feelings of shame to NSSI (Brown et al., 2009; Duggan et al., 2015; VanDerhei et al., 2014). This study extends these findings by indicating that shame remains elevated even in individuals who have ceased NSSI. It may be that whilst feelings of shame are relevant in the onset of NSSI, shame is less important in the ongoing maintenance of NSSI behaviour. It is also possible that the elevated shame observed in people with a history of NSSI represents a consequence of this behaviour, rather than a cause, linked to the stigma and taboo surrounding NSSI. Notably, though, shame was also associated with the frequency of thoughts about NSSI in the past month, supporting the idea that feelings of shame could drive NSSI urges. It may be that other factors are then required for the subsequent emergence of NSSI acts. Further longitudinal research is needed to elucidate the direction of the association between shame and NSSI.

There has been scarce research on self-concept integration and NSSI. This study therefore provides preliminary evidence that poorer self-concept integration is associated with current NSSI. These findings are consistent with an understanding of NSSI that we can derive from the MSSM (Pollock et al., 2001; Ryle, 1997). From this perspective, NSSI can be viewed as a self-relational act, a relational behaviour enacted against a part of oneself. NSSI is associated with a greater tendency to suddenly shift between different states or ways of relating to oneself and others (e.g. shift from feeling supportive of oneself to feeling very critical). NSSI may be linked with shifts into particular self-states (characterised by particularly strong negative feelings towards other parts of oneself), but the act of NSSI may also provide a means of shifting an individual again into a different, more tolerable state (e.g. moving from a highly self-critical state to a more calm or in control state). In this sense, NSSI could maintain instability or lack of integration. Self-concept integration was not related to NSSI thoughts, when adjusting for shame, and so it may be a variable more relevant in understanding NSSI behaviour.

The finding that greater income and being white was positively associated with experiences of NSSI runs counter to other research (e.g. greater self-harm risk in ethnic minorities; Bhui et al., 2007). We suspect this reflects confounding with student status, as most students that made up the non-NSSI control group also had lower income, but also represent a diverse population in terms of race. This confounding is partly accounted for by adjusting for these variables in the analyses. However, this finding highlights the limitations of the control group, and suggests a group more closely matched to the clinical sample, in terms of socio-demographics, would be beneficial for future research of this nature.

This study focused on NSSI as opposed to self-harm more broadly. Debate exists about the benefits of distinguishing NSSI from other forms of self-harm (Butler and Malone, 2013; Kapur et al., 2013). Research suggests that individuals often report motives for self-harm, many of which are not about ending life, suggesting there is a value in looking at NSSI specifically (Taylor et al., 2018a). In the current sample individuals were initially recruited on the basis of having experienced self-harm more broadly, but only two participants reported self-harm but not NSSI (they were excluded).

The current study adds to the very limited research taking place in the UK comparing people with current and past experiences of NSSI. However, it is limited by the cross-sectional design and we therefore cannot determine if the self-concept variables are determinates of cessation or consequences of recovery. Other factors occurring over time such as treatment may jointly account for changes in NSSI and the self-concept variables. The results of this study support the use of more resource demanding longitudinal designs to further explore the relationships examined here. The current study also has a reliance on self-report measures. Whilst the latter may encourage more honest and open responding it may also result in shared method bias inflating associations. The cut-off used of one year without NSSI is also arbitrary and it may be that with a greater elapse of time findings would differ. Importantly, recovery from NSSI is broader than just cessation of the behaviour, encompassing additional intra and inter-personal factors (Wills, 2012). Interactions between variables were not tested in this study, due to the limited sample size (larger samples are typically needed to identify interaction effects; Whisman & McClelland, 2005) but should be considered in future research. Whilst we adjusted for a number of potentially confounding variables in the analyses, a large number of non-measured, potentially confounding variables exist that might bias reported findings. Future studies should consider other potential confounding variables and include this within analyses.

Whilst under-studied, self-concept integration is seen as an important mechanism of change in some psychological therapies, including Cognitive Analytic Therapy (Taylor et al., 2018b). Such an approach may therefore be beneficial for people who struggle with NSSI, but whilst adapted forms of this therapy targeting self-harm have been piloted (Ougrin et al., 2008; Sheard et al., 2000) evidence remains very limited. Psychological approaches have also been developed to help individuals with high levels of shame, including Compassion Focused approaches (Van Vliet and Kalnins, 2011). Whilst recent theoretical models of NSSI have emphasised the importance of self-concept in the occurrence of NSSI (Hasking et al., 2017), these processes are arguably under-developed, and do not recognise the potential relational nature of NSSI. Adaptation to therapeutic models like the MSSM may be helpful in better understanding and intervening with NSSI. These suggestions are all speculative, however, given the limited research in this area.

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Table 1

*Descriptive Statistics of the Sample (n=206)*

|  |  |  |  |
| --- | --- | --- | --- |
| Sample characteristics | Current NSSI n = 51  (%) | Past NSSI n = 44  (%) | No NSSI n = 110  (%) |
| **Age**  18-29  30-49 | 49 (96.1)  2 (3.9) | 37 (84.1)  7 (15.9) | 110 (100.0)  0 (0) |
| **Sex**  Male  Female  Other | 8 (15.7)  41 (80.4)  2 (3.9) | 1 (2.3)  43 (97.7)  0 (0) | 14 (12.7)  95 (86.4)  1 (0.9) |
| **Ethnicity**  White  Mixed  Asian  Black  Arab  Other | 45 (88.2)  4 (7.8)  2 (3.9)  0 (0)  0 (0)  0 (0) | 42 (95.5)  0 (0)  0 (0)  1 (2.3)  0 (0)  1 (2.3) | 78 (70.8)  8 (7.3)  16 (14.5)  2 (1.8)  3 (2.7)  3 (2.7) |
| **Annual Income**  < £10,000  > £10,000 | 42 (82.4)  9 (17.7) | 34 (77.3)  10 (22.7) | 102 (92.7)  8 (7.3) |
| **Health problemsa**  Physical Health  Mental health | 6 (11.8)  37 (72.5) | 12 (27.3)  19 (43.2) | 9 (8.2)  10 (9.1) |
| **Mental health service contact**  Current  Previous | 24 (47.1)  43 (84.3) | 10 (22.7)  33 (75.0) | 9 (8.2)  23 (20.9) |

a Self-identified physical and mental health problems

Table 2

*Results of bivariate Multinomial Logistic Regressions with NSSI Status as Outcome*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Bivariate model  OR (95% CI) | | |
| Predictors | AICc | NSSI current vs. none a | NSSI past vs. none a | NSSI current vs. NSSI past a |
| Characterological shame | 309.53 | 10.80 (6.39, 18.26)\*\* | 4.48 (2.70, 7.43)\*\* | 2.41 (1.40, 4.18)\*\* |
| Social comparison | 401.08 | 0.44 (0.30, 0.65)\*\* | 0.67 (0.43, 1.02) | 0.67 (0.41, 1.10) |
| Self-concept integration | 332.75 | 8.43 (5.01, 14.20)\*\* | 3.09 (1.85, 5.16)\*\* | 2.73 (1.53, 4.87)\*\* |

Note: Predictors standardized (Mean = 0, SD = 1) to aid interpretation; non-standardised results available in Supplement I; a reference category; \* *p* < .05; \*\* *p* < .01

Table 3

*Results of Multinomial Logistic Regressions with NSSI Status as Outcome* *and Multiple Predictors*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Bivariate model  OR (95% CI) | | |
| Predictors | AICc | NSSI current vs. none a | NSSI past vs. none a | NSSI current vs. NSSI past a |
| Model 1 |  |  |  |  |
| Characterological shame | 299.46 | 5.27 (2.93, 9.49)\*\* | 3.39 (1.96, 5.87)\*\* | 1.56 (0.84, 2.88) |
| Social comparison |  | 0.74 (0.46, 1.92) | 0.87 (0.53, 1.46) | 0.85 (0.52, 1.39) |
| Self-concept integration |  | 3.64 (1.96, 6.75)\*\* | 1.61 (0.88, 2.96) | 2.56 (1.19, 4.28)\* |
| Model 2 | 281.45 |  |  |  |
| Characterological shame |  | 4.51 (2.41, 8,57)\*\* | 2.68 (1.44, 4.99)\*\* | 1.69 (0.85, 3.37) |
| Social comparison |  | 0.81 (0.48, 1.36) | 0.95 (0.54, 1.70) | 0.85 (0.50, 1.42) |
| Self-concept integration |  | 3.36 (1.67, 6.75)\*\* | 1.57 (0.85, 2.91) | 2.14 (1.13, 4.07)\* |
| Income |  | 1.63 (0.34, 7.86) | 3.33 (0.84, 13.10) | 0.49 (0.13, 1.83) |
| Ethnicity (White) |  | 0.78 (0.25, 2.46) | 0.10 (0.01, 0.81)\* | 8.27 (1.12, 61.11)\* |
| Mental health |  | 7.71 (2.49, 23.87)\*\* | 3.01 (0.98, 9.28) | 2.56 (0.92, 7.14) |
| Physical health |  | 0.37 (0.07, 1.96) | 2.46 (0.77, 7.91) | 0.15 (0.03, 0.68)\*\* |

Note: Predictors standardized (Mean = 0, SD = 1) to aid interpretation; non-standardised results available in Supplement I; a reference category; \* *p* < .05; \*\* *p* < .01

Supplementary Table I

*Results of bivariate Multinomial Logistic Regressions with NSSI Status as Outcome (Non-standardised variables)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bivariate model  OR (95% CI) | | |
| Predictors | NSSI current vs. none a | NSSI past vs. none a | NSSI current vs. NSSI past a |
| Characterological shame | 1.41 (1.30, 1.53)\*\* | 1.20 (1.10, 1.30)\*\* | 1.18 (1.07, 1.29)\*\* |
| Social comparison | 0.84 (0.77, 0.91)\*\* | 0.91 (0.83, 1.01) | 0.91 (0.82, 1.02) |
| Self-concept integration | 1.41 (1.30, 1.53)\*\* | 1.20 (1.10, 1.30)\*\* | 1.18 (1.07, 1.29)\*\* |

Note: a reference category; \* *p* < .05; \*\* *p* < .01

Supplementary Table 2

*Results of Multinomial Logistic Regressions with NSSI Status as Outcome* *and Multiple Predictors (Non-standardised variables)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bivariate model  OR (95% CI) | | |
| Predictors | NSSI current vs. none a | NSSI past vs. none a | NSSI current vs. NSSI past a |
| Characterological shame | 1.18 (1.11, 1.25)\*\* | 1.13 (1.07, 1.19)\*\* | 1.05 (0.98, 1.12) |
| Social comparison | 0.94 (0.84, 1.04) | 0.97 (0.87, 1.09) | 0.95 (0.86, 1.06) |
| Self-concept integration | 1.23 (1.2 1.36)\*\* | 1.08 (0.98, 1.19) | 1.14 (1.04, 1.26)\*\* |

Note: a reference category; \* *p* < .05; \*\* *p* < .01