

# The stigmatization of nonsuicidal self-injury

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## Abstract

**Objective:** Despite the high prevalence of nonsuicidal self-injury (NSSI), no research has systematically studied the occurrence and effects of stigmatization by others towards NSSI scarring.

**Methods:** The current study measured implicit and explicit attitudes among undergraduates towards NSSI scarring using the implicit association test and questionnaires to compare implicit and explicit biases towards NSSI with biases towards tattoos, a culturally sanctioned form of self-determined marking, as well as nonintentional disfigurement.

**Results:** Our study demonstrated strong negative implicit and explicit biases towards NSSI when comparing NSSI to tattoos and nonintentional disfigurement.

**Conclusions:** Results extend previous research describing stigma towards mental illness and suggest a large negative bias towards NSSI. The importance of studying how stigma affects those who bear scarring from NSSI is discussed.

## KEYWORDS

explicit attitudes, implicit attitudes, nonsuicidal self-injury, stigma

## 1 | INTRODUCTION

Nonsuicidal self-injury (NSSI) is defined as the intentional damage of one's own tissue without associated suicidal intent (Nock, 2010). Research indicates that this behavior is relatively prevalent with pooled estimates suggesting that, among nonclinical samples, 17.2% of adolescents, 13.4% of young adults, and 5.5% of adults endorse a history of NSSI (Swannell, Martin, Page, Hasking, & St. John, 2014). Of those who have engaged in NSSI, as many as half report that they have permanent visible scarring as a result of the behavior (Burke, Hamilton, Cohen, Stange, & Alloy, 2016). Although scarring is a well-known direct consequence of NSSI, relatively few empirical studies have

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systematically examined its psychosocial consequences and correlates. Extant research suggests that individuals with NSSI scarring often report negative cognitions about their scars and associated feelings of shame and embarrassment (Bachtelle & Pepper, 2015; Burke, Olino, & Alloy, 2017; Lewis & Mehrabkhani, 2016). Burke et al. (2017) found that those who reported greater negative socially related cognitions (e.g., shame, embarrassment) about their scars exhibited higher levels of social anxiety, depression, and suicidal ideation. Other literature has found that NSSI scars are associated with significantly elevated levels of negative body image, including lower appearance evaluation and body area satisfaction (Dyer, Hennrich, Borgmann, White, & Alpers, 2013; Dyer, Mayer-Eckhard, White, & Alpers, 2015). Taken together, this literature suggests that permanent scarring from NSSI may have a detrimental impact on individuals' psychological health.

Despite the high prevalence of NSSI and scarring from the behavior, no research has systematically studied the occurrence and effects of stigmatization by others towards visible NSSI scarring. This lack of research on stigmatization of visible scarring from NSSI is surprising, as these marks may be interpreted as physical documentation of a behavioral symptom of mental illness by the general public (despite literature suggesting that not all with an NSSI history meet criteria for a mental disorder; Nock, 2009). Research indicates that the stigmatization of mental disorders has increased in the United States over the past 50 years, and those with psychiatric disorders are one of the most stigmatized classes of individuals (Stier & Hinshaw, 2007). In general, the public perceives individuals with mental illnesses to be threatening, violent, and/or inept, which, in turn, leads to social rejection (P. W. Corrigan, Edwards, Green, Diwan, & Penn, 2001; P. W. Corrigan, Kerr, & Knudsen, 2005). These negative perceptions align with experimental research, which has demonstrated significant discrimination against those with mental illness, both with respect to interpersonal interactions as well as workplace hiring, when compared with physical illness (Hipes, Lucas, Phelan, & White, 2016; Lucas & Phelan, 2012). Importantly, individuals who engage in NSSI may be at risk for additional stigmatization beyond that directed towards those perceived as generally mentally ill, as clinical opinion suggests that the act of NSSI is often interpreted pejoratively by the public as not only associated with mental illness but also as a manipulative or attention-seeking behavior (Favazza, 1998; Gratz, 2006).

Research suggests that stigmatized individuals suffer a variety of adverse social, emotional, and economic effects, such as social withdrawal, low self-esteem, self-deprecation, negative affect, shame, and decreased economic productivity (Heatherton, Kleck, Hebl, & Hull, 2000; Link, Struening, Rahav, Phelan, & Nuttbrock, 1997; Stier & Hinshaw, 2007). For those with psychiatric disorders, stigmatization has been associated with higher symptom levels, even after accounting for pre-existing symptoms (Markowitz, 1998; Stier & Hinshaw, 2007). Recent research suggests that engaging in NSSI may not only follow psychopathology, but also may put individuals at risk for greater levels of psychopathology (e.g., lower self-esteem, higher depression) (Garisch & Wilson, 2015; Lundh, Wångby-Lundh, & Bjärehed, 2011), which, coupled with the effects of stigmatization, may give rise to a vicious cycle of psychopathology and self-destructive behaviors (You, Leung, & Fu, 2012). Indeed, the stigmatization associated with scarring from NSSI may have a lasting negative impact on an individual's psychological health and interpersonal interactions, putting vulnerable individuals at greater risk for these outcomes. Despite the high prevalence of NSSI and the awareness of the long-term consequences of stigma towards mental health, to our knowledge, there has been no research that has examined the occurrence and nature of stigma towards NSSI.

To address this gap in the literature, we measured stigma towards NSSI among individuals without a history of NSSI using both implicit and explicit measures. There is a broad literature describing the relationship between scores on measures of explicit attitudes and stigmatizing behavior (Angermeyer & Matschinger, 2004; Hinshaw & Stier, 2008; Link, Cullen, Frank, & Wozniak, 1987; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; Rüschi, Todd, Bodenhausen, & Corrigan, 2010). For example, studies have demonstrated that those who hold more negative beliefs about individuals with mental disorders are more likely to report a desire for social distance (i.e., decreased prosocial behaviors; Jorm & Oh, 2009) and greater acceptance of discriminatory practices (Angermeyer & Matschinger, 2004). Notably, findings from this body of literature suggest that not all stigma towards psychiatric disorders is of the same nature or severity (Link et al., 1999), highlighting the utility of examining stigma towards NSSI specifically.

Although explicit measures can provide meaningful information about stigmatization, they are inherently limited by social desirability biases (Teachman, Wilson, & Komarovskaya, 2006). Further, research suggests that individuals respond differently when assessed with explicit measures than with implicit measures, which assess unconscious, automatic, and immediate reactions (Gawronski & Bodenhausen, 2006). Studies that have used implicit measures of stigma have shown that greater negative implicit bias can predict discriminatory behavior (e.g., greater social distancing) even when explicit measures do not indicate the presence of bias (Bessenoff & Sherman, 2000; Neumann, Hülsebeck, & Seibt, 2004; Ziegert & Hanges, 2005). Explicit and implicit measures provide complementary, but distinct, information regarding attitudes towards NSSI. Thus, we assessed both implicit and explicit attitudes towards NSSI in this study.

The implicit association test (IAT) examines response time to stimuli to measure one's implicit association of a concept (e.g., NSSI scarring, tattoos) with a particular attribute (e.g., good-bad; Greenwald, McGhee, & Schwartz, 1998). Faster response times indicate a stronger implicit association between the concept and the attribute and slower response times indicate a weaker implicit association between concept and attribute (Greenwald et al., 1998). The IAT has been used to examine stigmatization across a range of concepts and recently has been used to measure stigma towards mental health. Results suggest that individuals from the general population implicitly view individuals with mental illness in a pejorative manner (Lincoln, Arens, Berger, & Rief, 2008). For example, using the IAT, researchers found that healthy samples possess negative implicit attitudes towards mental illness, such that they are more likely to view individuals with mental illness as both helpless and blameworthy (Teachman et al., 2006). Another group of researchers compared implicit attitudes towards depression versus physical illness and found that participants displayed more negative attitudes towards depression than physical illness on the IAT (Pettit & Monteith, 2011). However, individuals did not explicitly rate depression more negatively than physical illness.

Importantly, although the IAT is useful in that it can compare the *relative strength* of associations with attributes between complementary concepts (e.g., NSSI/nonintentional disfigurement; NSSI/tattoo), it is unable to measure the *absolute strength* of a single association between a concept and an attribute. Thus, the Single-Category IAT (SC-IAT) was developed to fill this gap in the assessment of implicit attitudes (Karpinski & Steinman, 2006) and has been used in social psychology research. For example, Wang, Huang, Jackson, and Chen (2012) utilized the SC-IAT to demonstrate that Chinese undergraduates' automatic associations between mental illness and negative descriptors were stronger than their associations between mental illness and positive descriptors.

## 1.1 | Current study

We investigated the presence of implicit and explicit stigmatization towards scarring from NSSI. Implicit and explicit attitudes towards NSSI scarring were compared with implicit and explicit attitudes towards two comparison forms of disfigurement, including nonintentional disfigurement (e.g., accidental injury, surgical injury, birthmarks) and tattoos. Scarring from nonintentional incidents was intended to represent an involuntary form of body disfigurement. In contrast, markings from tattoos were intended to represent an intentional, voluntary, and culturally sanctioned form of body modification, as opposed to NSSI, which is intentional, voluntary, but not culturally sanctioned. Implicit attitudes towards NSSI were measured by comparing attitudes towards NSSI to the two comparison conditions using the traditional IAT. Absolute implicit attitudes towards NSSI were examined using the SC-IAT. Finally, we assessed explicit attitudes towards NSSI via two self-report measures. One measure assessed explicit ratings of the attributes used in the IAT tasks. The second measure assessed behavioral intentions and discriminatory practices towards those with a history of NSSI.

Based on literature suggesting negative implicit and explicit views towards mental illness (Pettit & Monteith, 2011; Teachman et al., 2006; Wang et al., 2012), we hypothesized that there would be greater negative implicit and explicit attitudes towards NSSI when measured absolutely and when compared with implicit and explicit attitudes towards tattoos and nonintentional disfigurement. Specifically, we hypothesized that when measured absolutely, participants would demonstrate implicit and explicit attitudes that those with NSSI scarring are bad, rejection-

worthy, and dangerous. Moreover, we hypothesized that participants would demonstrate significantly more negative implicit and explicit attitudes towards NSSI as compared with their attitudes towards intentional, but culturally sanctioned, forms of disfigurement (i.e., tattoos), as well as involuntary forms of disfigurement (i.e., accidental scars). Furthermore, we hypothesized that results from explicit measures would follow the direction of results from implicit measures, but that these results would be of lesser magnitude, due to social desirability biases.

## 2 | METHODS

### 2.1 | Participants

Participants in the current study were 368 undergraduate students enrolled in a university in a large city in the northeastern United States. Participants were recruited from psychology classes and compensated for participation with course credit. Participants first completed an online screener to determine study eligibility. Participants who were eligible for the study were instructed to sign up for an in-person session. Exclusion criteria in the current study included: having any lifetime history of NSSI ( $n = 115$ ), being unable to read or speak English ( $n = 0$ ), not understanding the definition of NSSI ( $n = 1$ ), having abnormal vision ( $n = 0$ ), being under the age of 18 ( $n = 0$ ), and not completing the in-person session ( $n = 16$ ). The final study sample included 236 undergraduates. The majority of the sample was female ( $n = 193$ ; 82.5%) and the mean age was 20 years ( $SD = 3.93$ ). Participants were 58.1% White, 12.8% Black, 10.3% East Asian, 6.8% South Asian, 7.3% biracial, and 4.7% other. A total of 15 participants (6.4%) identified as Hispanic or Latino.

### 2.2 | Measures

#### 2.2.1 | Explicit self-report measures

##### **Deliberate Self-Harm Inventory (DSHI)**

The DSHI (Gratz, 2001) assesses the frequency, duration, and forms of NSSI behaviors (e.g., cutting, carving, burning, biting, headbanging). The DSHI asks how often the participant has engaged in each of 17 types of NSSI behaviors with the prompt, "Have you ever intentionally (i.e., on purpose) \_\_\_\_\_?" For each of the 17 types of NSSI behaviors, respondents are asked about age at onset, frequency, recency, years of engagement, and if the behavior ever resulted in a hospitalization or required medical treatment. Research has supported the DSHI's internal consistency, test-retest reliability, and construct, discriminant, and convergent validity in a university-student sample (Fliege et al., 2006; Gratz, 2001). In the current study, the internal consistency was  $\alpha = 0.67$ . This measure was used to assess the history of engagement in NSSI, and participants who reported a positive history were excluded from the current analyses.

##### **Behavioral intention questionnaires (BIQs)**

The BIQs were designed for the purposes of this study to measure explicit behavioral intentions. The BIQs used a format developed by Triandis (1977) and included items similar to those used in social distancing scales (P. Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Link et al., 1987; Triandis, 1977). Similar behavioral intention questionnaires have been used in IAT research (Bonar et al., 2012; White, Hogg, & Terry, 2002). Separate BIQs were created to assess behavioral intentions towards individuals with scarring from NSSI, those with visible tattoos, and individuals with scarring from nonintentional incidents. Each BIQ contained 17 items that assessed the extent to which individuals would either include or discriminate against those from the three groups. A sample item is "Would you want to become friends with X?" where X represents a same-age peer who has engaged in NSSI in the past, has visible tattooing, or has visible scars from a car accident. Individuals responded using a Likert scale ranging

from 1 (*very unlikely*) to 7 (*very likely*). Scores ranged from 17 to 119 for each questionnaire with higher scores indicating a greater likelihood that the participant would engage in social interaction with the same-age peer.

We expected that responses might differ based on whether the item assessed a sexual/romantic relationship versus a nonsexual/nonromantic relationship. Thus, we created corresponding BIQ subscales and conducted analyses for each subscale to assess nonsexual/nonromantic interactions separately from sexual/romantic interactions for NSSI (sexual/romantic,  $\alpha = 0.97$  and nonsexual/nonromantic,  $\alpha = 0.95$ ), tattoos (sexual/romantic,  $\alpha = 0.97$  and nonsexual/nonromantic,  $\alpha = 0.95$ ), and nonintentional disfigurement (sexual/romantic,  $\alpha = 0.98$  and nonsexual/nonromantic,  $\alpha = 0.95$ ).

### Semantic differential scale (SDS)

The SDS is another explicit measure that is often used in conjunction with IATs to evaluate explicit (i.e., self-reported) ratings of attributes used in the implicit tasks. SDS measures were developed using the semantic differential methodology described in the previous literature (Maguire, 1973; Osgood, Suci, & Tannenbaum, 1957; Schibeci, 1982) and used a bipolar scale to rank a group on a pair of attributes. SDS measures for NSSI ( $\alpha = 0.75$ ), tattoos ( $\alpha = 0.77$ ), and nonintentional disfigurement ( $\alpha = 0.69$ ) were designed to assess the extent to which individuals endorse qualities taken from the attribute trials of the IAT, including good/bad, safe/dangerous, and accepted/rejected. Each item used a 7-point bipolar scale anchored at either end by one word of the dichotomous pair, such as -3 (*positive attribute*), 0 (*neutral*), and +3 (*negative attribute*). Participants were first provided with a description of a person with each characteristic (i.e., NSSI, tattoos, or nonintentional disfigurement) and then asked to rate each group on the three pairs of attributes. Ratings were recoded from -3 to +3 into scores ranging from 1 to 7, with higher scores representing more negative attributes. A mean score of 3.5 was used to represent neutral ratings towards the group.

### Implicit association test (IAT)

Participants completed four IATs administered via computer using E-Prime software (Psychological Software Tools Incorporated, 2016): an accept/reject NSSI/nonintentional disfigurement IAT (split-half  $\alpha = 0.54$ ), an accept/reject NSSI/tattoo IAT (split-half  $\alpha = 0.43$ ), a good/bad NSSI/nonintentional disfigurement IAT (split-half  $\alpha = 0.61$ ), and a good/bad NSSI/tattoo IAT (split-half  $\alpha = 0.52$ ). The IAT procedure was modeled after the IAT used in a previous study on implicit attitudes about anxiety (Wong, Morrison, Heimberg, Goldin, & Gross, 2014).

In each IAT, participants were asked to quickly categorize concept and attribute descriptors (see Table 1 for a complete list of attributes). In the accept/reject NSSI/nonintentional disfigurement IAT, participants categorized concepts describing *NSSI scars* (i.e., cutting, self-harm, self-injury, self-mutilation) and *accident scars* (i.e., injury, wounds, hurt, disfigurement), and *accept* and *reject* attributes. In the accept/reject NSSI/tattoo IAT, participants categorized concepts describing *NSSI scars* and *tattoos* (i.e., tat, branded, body modification, inked) and *accept* and *reject* attributes. In the good/bad NSSI/nonintentional disfigurement IAT, participants categorized concepts describing *NSSI scars* and *accident scars* and *good* and *bad* attributes. In the good/bad NSSI/tattoo IAT, participants categorized concepts describing *NSSI scars* and *tattoos* and *good* and *bad* attributes.

This dual categorization task consisted of five blocks of trials with three practice blocks of 24 trials each and two critical blocks of 48 trials each. The practice blocks were single categorizations (i.e., categorization of only attributes or only concepts), and the critical blocks were dual categorization tasks (i.e., categorization of both attributes and concepts). The first block included 24 practice trials for attribute discrimination (i.e., good and bad or acceptance and rejection). Participants categorized good/acceptance attributes with the A key and bad/rejection words with the L key. The second block included 24 practice trials of concept discrimination (i.e., NSSI scars and tattoos or NSSI scars and accident scars). Participants categorized NSSI concepts with the A key and accident scars/tattoos concepts with the L key. The third block was a dual categorization task consisting of 48 critical trials in which participants categorized concepts and attributes on the same key. NSSI scars concepts and good/acceptance attributes were categorized with the A key, and accident scars/tattoos concepts and bad/rejection attributes were

categorized with the L key. The fourth block included another practice block of 24 trials for concept discrimination similar to the second block, however, the key assignments switched. Participants now categorized NSSI scars concepts with the L key and accident scars/tattoos concepts with the A key. The fifth block was another dual categorization task consisting of 48 critical trials similar to block three, but here the concept categorization keys switched. Accident scars/tattoos concepts and good/acceptance attributes were categorized with the A key, and NSSI scars concepts and bad/rejection attributes were categorized with the L key. All IATs followed the same procedure. Participants had as much time as needed to respond to each trial.

### Single-category implicit association test (SC-IAT)

In the second half of the study, participants completed a series of three SC-IATs, designed to examine the absolute strength of implicit attitudes towards NSSI, without comparing NSSI attitudes to another concept category (e.g., tattoos or scarring from nonintentional incidents) as in the IAT. Participants completed three SC-IATs: a good/bad SC-IAT (split-half  $\alpha = 0.36$ ), an accept/reject SC-IAT (split-half  $\alpha = 0.42$ ), and a safe/dangerous SC-IAT (split-half  $\alpha = 0.64$ ). All SC-IATs were modeled after original research using the SC-IAT (Karpinski & Steinman, 2006).

In each SC-IAT, participants categorized concept and attribute words. Across all SC-IATs, NSSI scar concepts (e.g., cutting, self-harm, self-injury, NSSI, self-mutilation, self-burning) remained the same; however, the attributes varied. Participants categorized *good* and *bad* attributes in the good/bad SC-IAT, *dangerous* and *safe* attributes in the dangerous/safe SC-IAT, and *accept* and *reject* attributes in the accept/reject SC-IAT. The SC-IAT NSSI concepts and good/bad and accept/reject attributes were the same as in the IAT. The safe (i.e., safe, innocent, naive, guarded) and dangerous (i.e., threatening, alarming, risky, hazardous) attributes were unique to the SC-IAT. (For a complete list of attribute words, see Table 1.)

Each SC-IAT consisted of three blocks of trials with one practice block of 30 trials and two critical blocks of 96 trials each. The first block included 30 practice trials in which participants categorized attributes. Participants categorized safe/good/accept attributes with the A key and dangerous/bad/reject attributes with the L key. The second block included 96 critical trials in which participants categorized NSSI concepts and attributes. Participants categorized NSSI concepts and safe/good/accept attributes with the A key and dangerous/bad/reject attributes with the L key. The third block included 96 critical trials in which the key for NSSI concepts categorization switched. Participants categorized safe/good/accept attributes with the A key and NSSI concepts and dangerous/bad/reject attributes with the L key. Participants had a total of 1500 ms to respond to each trial. Participants received response feedback for 500 ms after each trial. A green OOO appeared following correct categorizations, a red XXX

**TABLE 1** Complete list of words for the implicit association test (IAT) and Single-Category IAT attribute categories

Good vs. bad		Accept vs. reject		Safe vs. dangerous	
Kind	Untrustworthy	Loved	Forgotten	Sheltered	Threatening
Considerate	Evil	Welcomed	Alienated	Secure	Alarming
Caring	Selfish	Admired	Deserted	Shielded	Jeopardous
Just	Manipulative	Included	Shunned	Innocent	Risky
Moral	Dishonest	Respected	Disliked	Naïve	Hazardous
Generous	Cruel	Accepted	Outcast	Guarded	Unreliable
Loving	Gross	Valued	Pushed out	Gentle	Terrible
Trustworthy	Deceptive	Treasured	Denied	Harmless	Aggressive
Honest	Immodest	Integrated	Isolated	Peace	Hostile
Pure	Hate	Incorporated	Rejected	Trust	High-risk

appeared following incorrect categorizations, and the phrase, "Please respond more quickly!" appeared if participants responded too slowly.

## 2.2.2 | Procedure

Participants were recruited using an online screener survey. Participants who completed the screener survey and met inclusion/exclusion criteria received an e-mail instructing them to sign up for the current study. Participants arrived at the lab and completed the IAT and SC-IAT tasks. They then completed self-report measures assessing psychiatric symptoms and personality traits that were not included in this current study. Finally, participants completed self-report measures of explicit attitudes towards NSSI, tattoos, and nonintentional disfigurement, as well as the BIQs. Participants received compensation in the form of course credit.

## 2.3 | Data analytic plan

A priori power analyses were conducted to determine the number of participants necessary to detect small to moderate (i.e., 0.20–0.50) effects in the implicit association tasks. Results suggested that 210 participants were necessary. We recruited beyond this number to account for data with response times and error scores that were outside our cutoffs. Our sample size of 236 participants suggested that the study was well powered to detect effects. Standardized  $D$  scores were calculated for both the IAT and SC-IAT according to the methods described in the previous literature and are reported here as the mean  $D$  score ( $M_D$ ; Greenwald, Nosek, & Banaji, 2001; Karpinski & Steinman, 2006). Exclusion criteria were implemented using the recommendations for the IAT (Greenwald et al., 2001) and the SC-IAT (Karpinski & Steinman, 2006). That is, participants who exhibited error values of >40% were excluded from the IAT study analyses, and participants who exhibited error values of greater than 20% were excluded from the SC-IAT study analyses. We conducted a repeated measures analysis of variance (ANOVA) to compare participants' scores on the explicit measures (i.e., SDS and BIQs) across conditions. We examined pairwise comparisons between NSSI and tattoo or nonintentional disfigurement conditions using a Bonferroni correction to adjust for multiple comparisons.

Before conducting study analyses, we evaluated whether scores on implicit and explicit measures differed significantly based on gender. Scores on implicit measures (i.e., IAT and SC-IAT) did not differ based on gender. Likewise, scores on the NSSI SDS explicit measure did not differ based on gender. However, total scores on the NSSI BIQ and nonintentional disfigurement BIQ differed across gender. We evaluated gender differences further in a series of post hoc analyses.

## 3 | RESULTS

### 3.1 | Implicit measures

Participants with error values outside of the stated cutoffs were excluded from each set of analyses. There were no significant differences between those who were included and those who were excluded from IAT or SC-IAT analyses on demographic variables and explicit measures.

#### 3.1.1 | Accept/reject NSSI/nonintentional disfigurement IAT

Participants ( $n = 35$ ) were excluded from the accept/reject NSSI/nonintentional disfigurement IAT analyses for having error scores greater than 40%. One-sample  $t$ -test analyses of the accept/reject NSSI/nonintentional disfigurement IAT scores revealed that participants showed an overall acceptance of nonintentional disfigurement and rejection of NSSI scarring,  $M_D = 0.92$ ,  $SD = 0.45$ , 95% confidence intervals [CIs; 0.85, 0.98],  $t(204) = 28.83$ ,  $p < 0.001$ ,  $|d| = 2.01$ .

### 3.1.2 | Accept/reject NSSI/tattoo IAT

Participants ( $n = 15$ ) were excluded from the accept/reject NSSI/tattoo IAT analyses for having error scores greater than 40%. One-sample  $t$ -test analyses of the accept/reject NSSI/tattoo IAT scores revealed that participants showed an overall acceptance of tattoos and rejection of NSSI scarring,  $M_D = 1.09$ ,  $SD = 0.46$ , 95% CI [1.03, 1.15],  $t(215) = 35.11$ ,  $p < 0.001$ ,  $|d| = 2.39$ .

### 3.1.3 | Good/bad NSSI/nonintentional disfigurement IAT

Participants ( $n = 3$ ) were excluded from the good/bad NSSI/nonintentional disfigurement IAT analyses for having error scores greater than 40%. One-sample  $t$ -test analyses of the good/bad NSSI/nonintentional disfigurement IAT scores revealed that participants demonstrated greater associations between nonintentional disfigurement and good and between NSSI scarring and bad,  $M_D = 0.38$ ,  $SD = 0.37$ , 95% CI [0.33, 0.43],  $t(222) = 15.21$ ,  $p < 0.001$ ,  $|d| = 1.02$ .

### 3.1.4 | Good/bad NSSI/tattoo IAT

No participants were excluded from the good/bad NSSI/tattoo IAT analyses, as all participants had error scores <40%. One-sample  $t$ -test analyses of the good/bad NSSI/tattoo IAT scores revealed that participants demonstrated greater associations between tattoos and good and between NSSI scarring and bad,  $M_D = 0.60$ ,  $SD = 0.34$ , 95% CI [0.56, 0.65],  $t(226) = 26.41$ ,  $p < 0.001$ ,  $|d| = 1.75$ .

### 3.1.5 | Good/bad SC-IAT

Participants ( $n = 14$ ) were excluded from the good/bad SC-IAT analyses for having error scores >20%. One-sample  $t$ -test analyses of the good/bad SC-IAT scores revealed that participants were more likely to associate NSSI scarring with bad than good,  $M_D = -0.49$ ,  $SD = 0.32$ , 95% CI [-0.54, -0.45],  $t(204) = -22.23$ ,  $p < 0.001$ ,  $|d| = 1.55$ .

### 3.1.6 | Accept/reject SC-IAT

Participants ( $n = 15$ ) were excluded from the accept/reject SC-IAT analyses for having error scores greater than 20%. One-sample  $t$ -test analyses of the accept/reject SC-IAT scores revealed that participants were more likely to associate NSSI scarring with rejection than acceptance,  $M_D = -0.39$ ,  $SD = 0.33$ , 95% CI [-0.43, -0.34],  $t(203) = -16.95$ ,  $p < 0.001$ ,  $|d| = 1.19$ .

### 3.1.7 | Safe/dangerous SC-IAT

Participants ( $n = 35$ ) were excluded from the safe/dangerous SC-IAT analyses for having error scores greater than 20%. One-sample  $t$ -test analyses of the safe/dangerous SC-IAT scores revealed that participants were more likely to associate NSSI scarring with danger than safety,  $M_D = -0.43$ ,  $SD = 0.37$ , 95% CI [-0.48, -0.38],  $t(185) = -15.89$ ,  $p < 0.001$ ,  $|d| = 1.17$ .

## 3.2 | Explicit measures

Separate repeated measures ANOVAs were conducted to compare participants' scores on explicit measures across conditions. Pairwise comparisons between NSSI, tattoos, and nonintentional disfigurement conditions were examined using a Bonferroni correction to adjust for multiple comparisons.

### 3.2.1 | SDS

A repeated measures ANOVA with a Greenhouse–Geisser correction demonstrated that total SDS score differed across the three comparison conditions,  $F(1.89, 433.83) = 250.79$ ,  $p < 0.001$ ,  $\eta^2 = 0.52$ . Post hoc tests using a Bonferroni correction revealed that participants responded significantly differently on the NSSI SDS compared with the tattoo SDS,  $M_D = -4.40$ ,  $SD = 0.30$ , 95% CI  $[-5.14, -3.67]$ ,  $p < 0.001$ ,  $|d| = 0.96$ . Similarly, results suggested a significant difference between NSSI SDS scores and nonintentional disfigurement SDS scores,  $M_D = -6.07$ ,  $SD = 0.29$ , 95% CI  $[-6.76, -5.38]$ ,  $p < 0.001$ ,  $|d| = 1.39$ . These results indicate that participants assigned more negative ratings to NSSI.

### 3.2.2 | BIQ

A repeated measures ANOVA with a Greenhouse–Geisser correction demonstrated that BIQ scores for nonsexual/nonromantic interactions differed across comparison conditions,  $F(1.73, 405.30) = 106.09$ ,  $p < 0.001$ ,  $\eta^2 = 0.31$ . Post hoc tests using a Bonferroni correction revealed that there was a significant difference between nonsexual/nonromantic NSSI BIQ scores and nonsexual/nonromantic tattoo BIQ scores,  $M_D = -7.71$ ,  $SD = 0.92$ , 95% CI  $[-9.92, -5.50]$ ,  $p < 0.001$ ,  $|d| = 0.55$ , as well as a significant difference between nonsexual/nonromantic NSSI BIQ scores and nonsexual/nonromantic nonintentional disfigurement BIQ scores,  $M_D = -12.96$ ,  $SD = 1.03$ , 95% CI  $[-15.44, -10.48]$ ,  $p < 0.001$ ,  $|d| = 0.84$ . These results indicate that participants were less willing to engage in a nonsexual/nonromantic interaction with an individual who had a history of NSSI.

A second repeated measures ANOVA demonstrated that BIQ score for sexual/romantic interactions also differed across comparison conditions,  $F(2, 470) = 55.73$ ,  $p < 0.001$ ,  $\eta^2 = 0.19$ . Post hoc tests using a Bonferroni correction revealed that there was a significant difference between sexual/romantic NSSI BIQ scores and sexual/romantic tattoo BIQ scores,  $M_D = -1.97$ ,  $SD = 0.24$ , 95% CI  $[-2.56, -1.38]$ ,  $p < 0.001$ ,  $|d| = 0.53$ , as well as a significant difference between sexual/romantic NSSI BIQ scores and sexual/romantic nonintentional disfigurement BIQ scores,  $M_D = -2.23$ ,  $SD = 0.23$ , 95% CI  $[-2.79, -1.68]$ ,  $p < 0.001$ ,  $|d| = 0.63$ . These results indicate that participants also were less willing to engage in a sexual/romantic interaction with an individual who had a history of NSSI.

## 3.3 | Correlations between implicit and explicit measures

Zero-order correlational analyses were conducted between implicit and explicit measures (Table 2). Correlations between the traditional IATs were positive and small,  $r(222) = |0.22|$ , to moderate,  $r(196) = |0.40|$ , and correlations between the SC-IATs were positive and small,  $r_s < |0.30|$ . Both sets of correlations were statistically significant. Correlations between implicit and explicit measures were small,  $r_s < |0.25|$ , and often were not statistically significant. Finally, correlations between explicit measures ranged from small,  $r(233) = |0.02|$ , to large,  $r(236) = |0.75|$ , and many associations achieved statistical significance.

## 3.4 | Post hoc tests

### 3.4.1 | Relationship between familiarity and implicit and explicit measures

Participants reported on the number of people they knew who had engaged in NSSI. The total number of people a participant knew was not associated with any of the implicit measures. However, the total number of people a participant knew was significantly positively correlated with total scores on the NSSI BIQ,  $r(233) = 0.23$ ,  $p < 0.001$ , tattoo BIQ,  $r(233) = 0.20$ ,  $p = 0.002$ , and nonintentional disfigurement BIQ,  $r(233) = 0.14$ ,  $p = 0.030$ . This number also was significantly negatively correlated with NSSI SDS total,  $r(233) = -0.20$ ,  $p = 0.002$ . This suggests that the more people participants knew who had engaged in NSSI, the more positive their intended behaviors were towards people with NSSI, tattoos, and nonintentional disfigurement. Additionally, the more people participants knew who had engaged in NSSI also was related to more positive explicit ratings of NSSI.

**TABLE 2** Correlational analyses between implicit and explicit measures

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	
1. Nonintentional disfigurement IAT: Accept/reject	1																					
2. Nonintentional disfigurement IAT: Good/bad	0.26**	1																				
3. Tattoo IAT: Accept/reject	0.40**	0.12	1																			
4. Tattoo IAT: Good/bad	0.33**	0.22**	0.30**	1																		
5. Accept/reject SC-IAT	-0.10	-0.09	-0.07	-0.07	1																	
6. Good/bad SC-IAT	0.09	-0.11	0.04	-0.13	0.26**	1																
7. Safe/dangerous SC-IAT	-0.05	-0.19**	-0.03	-0.14	0.19**	0.25**	1															
8. NSSI familiarity	-0.04	-0.01	-0.09	0.03	0.10	0.10	0.03	1														
9. Participant BDI score	-0.13	-0.05	-0.11	-0.02	0.08	0.07	0.17*	0.15*	1													
10. SDS: NSSI, accept/reject	0.07	-0.02	0.08	0.05	-0.03	-0.10	-0.12	-0.23**	0.13*	1												
11. SDS: NSSI, good/bad	0.03	0.06	0.13	0.04	0.00	-0.02	-0.21**	-0.11	0.10	0.39**	1											
12. SDS: Nonintentional disfigurement, accept/reject	-0.09	-0.18**	0.01	0.01	0.03	0.09	-0.02	0.06	0.11	0.18**	0.06	1										
13. SDS: Nonintentional disfigurement, good/bad	-0.04	-0.03	-0.03	0.03	-0.03	0.02	-0.07	-0.09	0.04	0.31**	0.33**	0.38**	1									

(Continues)

**TABLE 2** (Continued)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
14. SDS: Tattoo, accept/reject	-0.02	-0.20**	0.03	-0.04	0.21**	0.02	0.07	-0.05	0.17*	0.26**	0.03	0.40**	0.25**	1							
15. SDS: Tattoo, good/bad	-0.04	-0.16*	-0.04	0.04	0.07	-0.06	-0.00	-0.19**	0.04	0.25**	0.28**	0.25**	0.37**	0.46**	1						
16. BIQ: NSSI, nonromantic	-0.00	-0.00	-0.01	-0.00	0.12	0.11	0.14	0.21**	0.04	-0.32**	-0.32**	-0.06	-0.15*	-0.02	-0.30**	1					
17. BIQ: NSSI, romantic	-0.04	-0.04	0.01	-0.00	0.08	0.15*	0.18*	0.26**	0.07	-0.28**	-0.31**	0.14*	0.02	0.04	-0.16*	0.63**	1				
18. BIQ: Nonintentional disfigurement, nonromantic	0.05	0.10	0.04	0.01	-0.01	-0.03	-0.04	0.11	-0.07	-0.10	-0.11	-0.31**	-0.32**	-0.07	-0.28**	0.54**	0.24**	1			
19. BIQ: Nonintentional disfigurement, romantic	-0.05	0.01	0.10	0.06	-0.11	0.02	0.09	0.12	0.03	-0.17*	-0.12	-0.14*	-0.11	-0.02	-0.18**	0.33**	0.48**	0.55**	1		
20. BIQ: Tattoo, nonromantic	0.10	0.11	0.07	0.01	-0.06	0.05	0.02	0.17*	-0.07	-0.12	-0.11	-0.26**	-0.19**	-0.22**	-0.46**	0.67**	0.36**	0.75**	0.43**	1	
21. BIQ: Tattoo, romantic	0.01	0.08	0.10	0.09	-0.05	0.04	0.05	0.21**	0.07	-0.04	-0.08	-0.02	-0.07	-0.15*	-0.36**	0.36**	0.47**	0.33**	0.56**	0.52**	1

Note. Correlational analyses were conducted by selecting out participants with IAT error scores > 0.40, resulting in different samples sizes for each IAT. All correlations between IAT variables were conducted on sample size of n = 196–222. All correlations between IAT and SC-IAT variables were conducted on sample size of n = 171–204. All correlations between SC-IAT variables were conducted on sample size of n = 186–200. Correlational analyses conducted between the accept/reject NSSI–nonintentional disfigurement IAT and explicit variables used sample size of n = 194–205. Correlational analyses conducted between the good/bad NSSI–nonintentional disfigurement IAT and explicit variables used sample size of n = 212–223. Correlational analyses conducted between the accept/reject tattoo–NSSI IAT and explicit variables used sample size of n = 205–216. Correlational analyses conducted between the good/bad tattoo–NSSI IAT and explicit variables used sample size of n = 215–227. Correlational analyses conducted between explicit variables used sample size of n = 230–236.

Correlational analyses conducted between the accept/reject SC-IAT and explicit variables used sample size of n = 195–204. Correlational analyses conducted between the good/bad SC-IAT and explicit variables used sample size of n = 196–205. Correlational analyses conducted between the safe/dangerous SC-IAT and explicit variables used sample size of n = 178–186.

BDI: Beck depression inventory–II; BIQ: behavioral intention questionnaire; IAT: implicit association task; NSSI: nonsuicidal self-injury; SC-IAT: Single-Category implicit association task; SDS: semantic differential scale.

\*p < 0.05.

\*\*p < 0.001.

### 3.4.2 | Relationship between gender and behavioral intentions

Independent samples *t* tests were conducted to determine whether there were gender differences across behavioral intention measures. The total score on the NSSI BIQ significantly differed between men and women,  $M_D = -7.08$ ,  $SD = 3.52$ , 95% CI [-14.03, -0.14],  $t(230) = -2.01$ ,  $p = 0.045$ ,  $|d| = 0.35$ . Additionally, the total score on the nonintentional disfigurement BIQ significantly differed between men and women,  $M_D = -10.38$ ,  $SD = 2.72$ , 95% CI [-15.75, -5.01],  $t(230) = -3.81$ ,  $p < 0.001$ ,  $|d| = 0.63$ . We then examined whether there were significant gender differences across each of the BIQ subscales. Overall, women were more accepting of a sexual/romantic interaction with individuals who had a history of NSSI compared with men. Women also were more accepting towards individuals with nonintentional disfigurement compared to men.<sup>1</sup>

## 4 | DISCUSSION

This study examined implicit and explicit stigma towards NSSI. Young adults without a history of NSSI exhibited negative implicit biases against NSSI, as demonstrated by examining NSSI scarring alone and by comparing it to nonintentional (i.e., accidents) and self-determined (i.e., tattoos) forms of disfigurement. Results from the analyses of explicit measures largely echoed the results for implicit measures. Participants demonstrated a significant negative bias towards NSSI when asked to explicitly rate individuals with NSSI on the same attribute characteristics that were included in the implicit tasks (i.e., good/bad, accept/reject, and safe/dangerous). Results from the behavioral intention measures were consistent with other analyses. Participants demonstrated a significant negative bias towards individuals with a history of NSSI, compared with individuals with tattoos or nonintentional disfigurement, when asked to consider nonsexual/nonromantic interaction (e.g., hiring an employee). Similarly, participants also demonstrated a significant negative bias towards individuals with a history of NSSI, as compared to the other groups, when asked to consider engaging in a sexual/romantic interaction (e.g., initiating a dating or sexual relationship). Overall, these results suggest that individuals demonstrate a strong and significant implicit and explicit negative bias towards individuals with a history of NSSI.

Results from the implicit tasks were consistent with study hypotheses and with previous literature. Researchers have demonstrated that participants exhibit negative implicit biases towards mental illness (Wang et al., 2012) and that these negative biases towards those with mental illness are stronger than the biases towards individuals from comparison conditions, such as those with physical illness (Pettit & Monteith, 2011; Teachman et al., 2006). Prior research suggests that participants are more likely to implicitly categorize individuals with mental illness as bad, helpless, and blameworthy as compared to individuals with physical illness (Pettit & Monteith, 2011). Furthermore, researchers also have demonstrated the presence of a negative implicit bias (e.g., rating NSSI as bad) among both individuals with and without a history of self-injury (Nock & Banaji, 2007). These findings are consistent with results from the current study, which demonstrated a strong and significant negative bias towards NSSI, classifying it as bad and rejection-worthy as compared with tattoos and nonintentional disfigurement using the traditional IAT, and as bad, rejection-worthy, and dangerous when classifying NSSI alone using the SC-IAT.

Furthermore, analyses using explicit measures suggest that individuals were more likely to explicitly rate those with NSSI scarring as bad, rejection-worthy, and dangerous, rather than good, acceptance-worthy, and safe, compared to those with tattoos or nonintentional disfigurement ( $|d|$ 's = 0.96, 1.39). These findings are in keeping

<sup>1</sup>Women's desire for nonromantic interactions with someone with a history of NSSI did not significantly differ from men's desire for such interactions,  $M_D = -4.46$ ,  $SD = 3.08$ , 95% CI [-10.52, 1.60],  $t(232) = -1.45$ ,  $p = 0.148$ ,  $|d| = 0.24$ . In contrast, women's desire for romantic or sexual interactions with someone with a history of NSSI significantly differed from men's desire for such interactions,  $M_D = -1.28$ ,  $SD = 0.58$ , 95% CI [-2.42, -0.14],  $t(232) = -2.20$ ,  $p = 0.028$ ,  $|d| = 0.37$ , such that men were significantly less likely to desire such interactions. Additionally, women's desire for nonromantic interactions with someone with nonintentional disfigurement was significantly greater than men's desire for such interactions,  $M_D = -8.26$ ,  $SD = 2.34$ , 95% CI [-12.87, -3.64],  $t(232) = -3.53$ ,  $p = 0.001$ ,  $|d| = 0.57$ . Similarly, women's desire for romantic or sexual interactions with someone with nonintentional disfigurement also was significantly greater than men's desire for such interactions,  $M_D = -2.37$ ,  $SD = 0.56$ , 95% CI [-3.48, -1.26],  $t(232) = -4.20$ ,  $p < 0.001$ ,  $|d| = 0.68$ .

with study hypotheses, although the magnitude of the effects for explicit measures were not consistently smaller than the magnitude of effects for implicit measures. Overall, these results are consistent with social distancing theories and findings from previous literature. For example, a previous study used vignettes of individuals with various psychiatric disorders to demonstrate that healthy individuals were more likely to avoid individuals who experienced addiction or depression, as opposed to individuals who were experiencing general stress (Link et al., 1999). Similarly, a German nationwide survey revealed that individuals from the general population described individuals with schizophrenia as unpredictable and incompetent. These views were associated with a greater desire to engage in social distancing (i.e., greater desire to reject an individual with schizophrenia from a series of social relationships; Angermeyer & Matschinger, 2004).

Accordingly, participants were less likely to report that they would accept individuals with a history of NSSI as a friend, roommate, or classmate, as compared to those with tattoos or nonintentional disfigurement ( $|d|$ 's = 0.55, 0.84; medium-large effect size). Likewise, participants also were significantly less likely to desire a sexual/romantic relationship with an individual who had a history of NSSI, compared to an individual with tattoos or nonintentional disfigurement ( $|d|$ 's = 0.53, 0.63; medium effect size). Overall, these results suggest that participants were less accepting of social relationships with an individual who had a history of NSSI compared to an individual with either tattoos or nonintentional disfigurement. Interestingly, the effect sizes for the comparisons between the NSSI and nonintentional disfigurement conditions were larger than the effect sizes for the comparisons between the NSSI and the tattoo conditions, potentially suggesting that tattoos, while culturally sanctioned, are viewed more negatively than nonintentional disfigurement.

Additionally, exploratory post hoc analyses indicated that individuals who reported that they were more familiar with NSSI (e.g., having a family member or friend with a history of NSSI) were more likely to hold accepting and inclusionary attitudes towards NSSI when considering both sexual/romantic and nonsexual/nonromantic relationships. This finding is consistent with previous literature that suggests that mental health stigma is typically decreased among family and friends of those with mental health symptoms (Jorm & Oh, 2009). These results may suggest that increased familiarity and contact with individuals who have engaged in NSSI may promote greater acceptance of NSSI among their peers. Although there were some noted gender differences, the direction of these effects was largely consistent with findings from the entire sample.

Most research to date has focused primarily on the immediate affective consequences of NSSI (Klonsky, 2009) and long-term psychological consequences, including suicidal behavior (Hamza, Stewart, & Willoughby, 2012). However, prior literature has neglected to elucidate the presence and extent of stigmatization from others based on this self-injurious behavior. This stigmatization arguably has a lasting interpersonal and psychological impact on those who engage in NSSI. This is the first study to examine implicit and explicit beliefs about NSSI. Strengths of this study include the use of two comparison conditions, especially the tattoo comparison condition, which represents a unique extension of the current literature. Previous studies have primarily compared mental illness (e.g., schizophrenia or depression) to physical illness (Pettit & Monteith, 2011; Teachman et al., 2006). As tattoos are a voluntary form of body modification that is largely culturally sanctioned, this comparison condition may help to provide context for evaluating the difference between NSSI, which is self-inflicted and nonsanctioned, and scarring from nonintentional disfigurement, which may be viewed as uncontrollable and involuntary. Additionally, the use of the SC-IAT in addition to the traditional IAT allowed for the examination of NSSI stigma in an absolute sense, without assessing it in relation to comparison conditions, compared to previous studies that have exclusively used the traditional IAT or other implicit tasks that use comparison conditions (e.g., brief IAT, Sriram & Greenwald, 2009; go/no-go association tasks, Nosek, 2001).

Notably, there were few significant associations between implicit and explicit measures. Such findings are largely consistent with other studies that use both implicit and explicit measures (Pettit & Monteith, 2011; Teachman et al., 2006; Wang et al., 2012). However, results from a meta-analysis suggested that the relationship between implicit and explicit measures may be moderated by participant factors, such as the degree of controlled responding that participants exhibit when responding to self-report (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). For example, implicit and explicit ratings are more closely associated when participants respond to explicit ratings in a more

spontaneous manner (i.e., relying on their initial, automatic reaction vs. carefully considering the question). Accordingly, it may be that participants in this study responded to explicit measures more carefully and less spontaneously, contributing to the few significant associations between the implicit and explicit ratings.

## 4.1 | Limitations

The current results should be considered in light of the limitations of this study. First, this study used a sample of undergraduates, and thus, the generalizability of these findings may be limited. Future research may consider replicating this study among community samples of varying demographics. Second, we did not control for the presence of tattoos or nonintentional disfigurement, which may have influenced the strength and direction of the bias scores. Future studies focused on bias towards tattoo or nonintentional disfigurement may want to include the presence of tattoos or nonintentional disfigurement in study analyses to account for the effect of self-stigma. Third, the current study did not directly examine whether implicit attitudes towards NSSI predict stigmatizing behavior. Previous research has demonstrated that implicit attitudes can predict behavior (e.g., Dasgupta, 2010; Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Kurdi et al., 2018); future studies utilizing experimental designs should examine whether implicit attitudes towards NSSI predict discriminatory behavior. Finally, this study focused on better understanding the bias towards NSSI among those without a history of the behavior. We believe that this subset of individuals is important to study to understand the stigmatization faced by those with a history of NSSI. However, it is also important to understand attitudes towards those with a history of NSSI among self-injurers. Indeed, self-stigmatization may occur when public stigmatization ideas are accepted, and can in turn, lead to decreases in self-esteem (P. W. Corrigan & Watson, 2002). Although beyond the scope of the current study, our team aims to examine self-stigmatization among those with a history of NSSI in future work.

## 4.2 | Conclusions

Results indicated that negative bias towards individuals with a history of NSSI is strongly present in both implicit and explicit measures. Measuring stigma-related attitudes can be useful for identifying, preventing, and addressing stigma against mental health. For example, research has demonstrated that educational programs, especially those that facilitate contact with an individual who has struggled with mental illness, reduced scores on explicit or behavioral stigma measures, such as social distancing (Pinfold et al., 2003; Schulze, Richter-Werling, Matschinger, & Angermeyer, 2003). However, Stier and Hinshaw (2007) argue that antistigma interventions may increase the risk of social desirability bias, which may reduce the validity of explicit measures, underscoring the need for assessment of implicit attitudes in prevention and intervention efforts. For example, Teachman, Gapinski, Brownell, Rawlins, and Jeyaram (2003) demonstrated that negative implicit bias could be modified by manipulating information about the etiology of obesity. This suggests that there is a role for researchers to measure both explicit and implicit attitudes when designing research studies that could help improve existing prevention and intervention efforts.

Interventions that integrate education regarding risk factors and reasons for engaging in NSSI coupled with disclosure from individuals who have engaged in NSSI and are in recovery may be helpful in mitigating stigma towards NSSI (P. W. Corrigan & Fong, 2014). These interventions may be best implemented via a multipronged approach that combines both education and contact with individuals who have a history of NSSI. Researchers have demonstrated that contact with individuals who have a history of mental illness may be an important factor in developing efficacious antistigma interventions (Rüsch, Angermeyer, & Corrigan, 2005). For example, interventions in high schools designed to challenge stigma towards mental illness demonstrated that educational programs, especially those that facilitated contact with an individual who struggled with mental illness, reduced explicitly measured stigma, such as social distancing (Pinfold et al., 2003; Schulze et al., 2003).

Results from this study also may assist in guiding clinical interventions and navigating the therapeutic relationship between mental health professionals and individuals who engage in or have a history of NSSI. Although evidence (including the results from some of the post hoc analyses in this study) suggests that increased contact with people with mental disorders is associated with decreased social distancing (as described in Jorm & Oh, 2009), this protective relationship may not extend to mental health professionals. Research suggests that mental health providers engage in similar amounts of social distancing as members of the general community, despite increased contact (Nordt, Rossler, & Lauber, 2005; Stuart & Arboleda-Flórez, 2001; Van Dorn, Swanson, Elbogen, & Swartz, 2005), although there is some evidence to counter this finding (Chung, Chen, & Liu, 2001; Rivera, Rossetto, Pesqueira, & Otero, 2007). Thus, based on some direction from previous literature, we urge clinicians who work with individuals who self-injure to carefully examine any personal biases that they may hold towards individuals who self-injure during their work with these individuals.

Similarly, results from this study also may be helpful for clinicians to better understand and validate discriminatory experiences that clients may face, especially in social interactions. For example, results from the stigma literature suggest that accepting and owning one's stigmatized identity (e.g., through disclosure) may decrease the negative effects of stigma (as discussed by P. Corrigan & Matthews, 2003). Thus, clinicians may encourage clients to consider disclosing or displaying their scarring as an important part of the recovery process. Indeed, from a public health perspective, such displays would increase contact and awareness of individuals who engage in NSSI and may contribute to antistigma efforts. Notably, however, there is some research that suggests self-injury disclosure among youth may lead to contagion (Hasking, Rees, Martin, & Quigley, 2015), an important caveat when contemplating the public health perspective. Moreover, based on the results from this study that demonstrated negative implicit and explicit bias and research suggesting that disclosure to peers may lead to reductions in perceived social support (Hasking et al., 2015), the authors caution that disclosure and display may be best conducted in a supportive environment. Helping clients who are navigating these relationships find safe ways to disclose a history of NSSI and provide education about NSSI (e.g., through information provided in outlets such as self-injury outreach and support; University of Guelph & McGill University, n.d.) may ultimately help individuals counter potential discriminatory or invalidating experiences.

Overall, this study provides evidence of implicit and explicit biases towards NSSI and highlights the need for further research to examine the downstream effects of these negative biases, such as self-stigma among those who self-injure. Results also underscore the need for future educational and contact-based interventions for the general public to mitigate the effects of stigma towards mental health and NSSI.

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