

**RESEARCH ARTICLE**

Understanding the social context of adolescent nonsuicidal self-injury

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Abstract

Objective Research investigating the social context of adolescent nonsuicidal self-injury (NSSI) has been limited. We therefore examined social characteristics of NSSI, such as knowledge of friends' NSSI and the role friends play in continuing NSSI, and their relationships to other known NSSI correlates, such as suicidality.

Method We assessed NSSI characteristics, including social features, in a community sample of 89 self-injuring adolescents. We also assessed psychosocial correlates of NSSI, including impulsivity, self-concept, and psychiatric symptoms.

Results Knowledge of friends' NSSI was relatively common among self-injurers. In addition, knowledge of friends' NSSI was associated with use of more NSSI methods, cutting behaviors, and suicidal ideation, but not with other NSSI correlates. However, teaching or encouragement of NSSI by friends was rare.

Conclusions Knowledge of friends' NSSI may serve as marker of increased severity among adolescent self-injurers. These findings have implications for identifying and intervening with high-risk self-injuring youth.

KEYWORDS

adolescents, nonsuicidal self-injury, social, suicide

1 | INTRODUCTION

Nonsuicidal self-injury (NSSI) is the intentional, direct destruction of one's own body tissue without suicidal intent (International Society for the Study of Self-Injury, 2007). Although NSSI occurs in all age, gender, and ethnic groups, NSSI is especially common among adolescents, with cross-national prevalence rates up to 25% (Plener, Libal, Keller, Fegert, & Muehlenkamp, 2009). Adolescent NSSI is associated with a host of concerning outcomes, including depression and anxiety (O'Connor, Rasmussen, & Hawton, 2014), disordered eating and substance use (Brausch & Boone, 2015), and suicidality (You & Lin, 2015).

Researchers and clinicians have long been interested in how social contexts and influences relate to NSSI (e.g., Jarvi, Jackson, Swenson, & Crawford, 2013). Understanding the social context of NSSI is particularly important for

conceptualizing these behaviors in youth, given the susceptibility to peer influence during this developmental period (Prinstein & Dodge, 2008). Although the meaning of “friend” has changed with the advent of social media (Xie, 2014), and exposure to NSSI through online services or web-based friendships is a notable concern (Dyson et al., 2016), research in social context of NSSI has focused on the idea of peers and friends broadly, frequently without explicit definition of “friend” or “peer” (e.g., Hasking, Andrews, & Martin, 2013; Yates, Carlson, & Egeland, 2008). Although knowledge of friends’ NSSI is common among adolescents with and without a personal history of NSSI, adolescents who themselves self-injure are more likely to report knowing about friends’ NSSI than adolescents without personal NSSI histories (Claes, Houben, Vandereycken, Bijttebier, & Muehlenkamp, 2010; Heath, Ross, Toste, Charlebois, & Nedecheva, 2009; Lloyd, 1997; O’Connor, Rasmussen, & Hawton, 2014). Longitudinal research in adolescents has repeatedly demonstrated a relationship between self-reported NSSI and friends’ NSSI (Hasking et al., 2013; Yates et al., 2008; You, Lin, Fu, & Leung, 2013), although other studies have failed to find these effects (Giletta, Burk, Scholte, Engels, & Prinstein, 2013) or found effects only in girls (Prinstein et al., 2010). Other friend characteristics are also associated with NSSI, such as friends’ depression (Giletta et al., 2013), friends’ impulsivity (You, Zheng, Lin, & Leung, 2016), and “goth” identity (Bowes et al., 2015).

Beyond knowledge of friends’ NSSI, few studies have investigated nuances of the social context of NSSI. For example, although knowledge of friends’ NSSI predicts later individual NSSI (You et al., 2013), less than one-quarter of young adult self-injurers report first considering NSSI because of peers’ NSSI (Heath et al., 2009). Explicit instruction to engage in NSSI appears to be even more rare; in a small study of adolescents using ecological momentary assessment, fewer than 2% of all NSSI thoughts and 4% of NSSI episodes were preceded by someone else “encouraging” the behavior (Nock, Prinstein, & Sterba, 2009).

There are also many unanswered questions about how knowledge of friends’ NSSI relate to clinical outcomes among self-injuring youth. Knowledge of friends’ NSSI could relate to negative outcomes due to reinforcement of NSSI, lack of modeling of alternative emotion regulation strategies, or selection effects whereby more severely impaired adolescents are more likely to choose friends with similar difficulties. Some evidence supports this possibility, insofar as self-injuring high school students who report more self-injuring friends also have lower self-concept and self-esteem (Claes et al., 2010). It is also possible, however, that knowledge of friends’ NSSI could be related to positive outcomes, perhaps due to better ability to access social support; for example, recent research suggests that peer co-rumination relates to less subsequent NSSI (Latina, Giannotta, & Rabaglietti, 2015).

The present work addressed several important questions regarding social contexts and characteristics of NSSI in adolescents. First, we examined the phenomenology of several social aspects of NSSI that have not yet been characterized in the literature, including the extent to which self-injurers report: learning about NSSI from friends, suggesting NSSI to friends, giving practical assistance for NSSI to friends, and continuing NSSI because friends also engage in NSSI. Understanding the relative prevalence of these experiences may confirm or disconfirm common beliefs about NSSI (e.g., the belief that adolescents self-injure primarily to get attention from others; Heath et al., 2009). Second, we investigated the relationship between NSSI characteristics, such as methods, functions, and desire to stop NSSI, and knowledge of friends’ NSSI, which have not been addressed in research with community adolescents. Finally, we considered how knowledge of friends’ NSSI was related to relevant psychological constructs, including psychiatric disorders, suicidality, emotion dysregulation, impulsivity, self-concept, and loneliness. Due to the limited existing literature addressing these questions in adolescents, these analyses were largely exploratory in nature, and we did not have a priori hypotheses regarding the potential risks or benefits associated with knowledge of friends’ NSSI.

2 | METHODS

2.1 | Participants and procedures

Participants were adolescents enrolled at a single high school in the northeastern United States. The student population ranged from 13 to 17 years old and included Caucasian (53%), Hispanic (19%), Asian (15%), African American

TABLE 1 NSSI characteristics by friends' NSSI group

	No friends' NSSI		Friends' NSSI		Statistical results		
	<i>N</i>	<i>M</i> (<i>SD</i>) or <i>n</i> (%)	<i>n</i>	<i>M</i> (<i>SD</i>) or <i>n</i> (%)	<i>t</i> (<i>df</i>) or χ^2 (<i>df</i>)	Cohen's [95% CI]	<i>P</i> -value
Age of onset	18	10.39 (4.82)	54	12.48 (1.63)	1.81 (18.31)	0.76 [−0.21, 1.30]	0.09
Want to stop	21	17 (80.95)	52	36 (69.23)	1.03 (1)	−0.35 [−1.03, 0.33]	0.31
NSSI functions							
Emotion regulation	23	1.74 (1.45)	56	2.64 (1.47)	2.50 (41.46)	0.61 [0.12, 1.11]	0.02
Emotion generation	22	0.55 (1.22)	56	1.55 (1.55)	3.03 (48.40)	0.68 [0.18, 1.19]	0.004
Communication	22	0.36 (.79)	56	0.84 (1.20)	2.04 (58.25)	0.44 [−0.06, 0.93]	0.05
Social avoidance	21	0.19 (.51)	56	0.52 (0.99)	1.89 (67.35)	0.37 [−0.13, 0.88]	.06
NSSI methods							
Cut	23	5 (21.74)	58	44 (75.86)	20.19 (1)	1.34 [0.70, 1.98]	<0.001
Bite	23	8 (34.78)	58	18 (31.03)	0.11 (1)	−0.09 [−0.66, 0.47]	0.75
Burn	23	1 (4.35)	58	5 (8.62)	0.44 (1)	0.40 [−0.81, 1.62]	0.51
Carve	23	0 (0)	58	7 (12.07)	3.04 (1)	NA	0.08
Severe scratch	23	6 (26.09)	58	19 (32.76)	0.34(1)	0.17 [−0.42, 0.77]	0.56
Bang	23	16 (69.57)	58	28 (48.28)	3.01 (1)	−0.49 [−1.06, 0.07]	0.08
Rub rough surfaces	23	2 (8.70)	58	7 (12.07)	0.19 (1)	0.20 [−0.71, 1.11]	0.66
Other	23	0 (0)	58	6 (10.34)	2.57 (1)	NA	0.11
Number of methods	23	1.65 (0.83)	58	2.31 (1.39)	2.61 (66.39)	0.52 [0.03, 1.01]	0.01

Note. For binary variables (e.g., history of specific NSSI methods), *n* (%) refers to the number of participants in that group endorsing that variable. Interval variable comparisons are *t* tests, and binary variable comparisons are χ^2 tests. Degrees of freedom (*df*) for *t* tests are not whole numbers due to the use of the Welch's *t*-test to address unequal variances between groups. Positive Cohen's *d* values indicate higher mean values or greater prevalence in the friends' NSSI group. No Cohen's *d* is available for NSSI methods of carving and "other" due to 0 individuals in the no friends' NSSI group endorsing these methods. Forms of NSSI reported under "other" methods: biting fingers, skin picking, hitting things, punching walls, poking self, hair pulling, holding breath until faint, and pinching.

(11%), and biracial/multiracial (3%) individuals. Four hundred thirty-three adolescents provided both parental consent and assent to participate in the study and completed measures of NSSI behaviors. All study measures and procedures were approved by and administered in accordance with the Institutional Review Board.

2.2 | Measures

2.2.1 | Assessment of NSSI behaviors and characteristics

Participants reported their lifetime frequency of eight NSSI methods (see Table 1) by responding to the following prompt: "Below is a list of non-suicidal self-harm behaviors. For each one, please write the number of times you have performed the behavior by writing a number such as 0, 1, 5, 100, etc. Please only count self-harm behaviors that were done *on purpose* and *not for suicidal reasons*." Participants also reported age of NSSI onset (in years) and whether they do or did want to stop NSSI (yes or no). To assess NSSI functions corresponding to the four-factor model (Nock & Prinstein, 2004, 2005), participants rated four items from the Self-Injurious Thoughts and Behaviors Interview (Nock, Holmberg, Photos, & Michel, 2007) on a Likert scale from 0 (a little) to 4 (very much).

2.2.2 | Social characteristics of NSSI

Participants with lifetime NSSI also reported on social characteristics of their NSSI. Participants were asked, "to your knowledge, how many of your friends self-harm?" and asked to respond with a number, as well as how often they discussed NSSI with friends and how often they engaged in NSSI with friends (never, sometimes, often). These items were

then dichotomized to scores of 0 (for 0 friends' NSSI or "never") and 1 (for ≥ 1 friends' NSSI or "sometimes" or "often"). Participants also completed several binary (yes or no) items assessing whether participants provided help or practical assistance in someone else's first NSSI, knew about friends' NSSI prior to their own NSSI, suggested NSSI to others, and or felt that friends play a role in continuing to engage in NSSI. The term "friend" was used throughout the measure, and was not explicitly defined for the participant, consistent with other research focused on social context and NSSI (e.g., Hasking et al., 2013; Heath et al., 2009; Yates et al., 2008).

2.2.3 | Measures of psychological correlates of NSSI

Participants completed the Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), a 36-item measure of emotion dysregulation, which is associated with increased suicidality among self-injurers (Hamza & Willoughby, 2013). This scale has exhibited strong construct and predictive validity (Gratz & Roemer, 2004), and has been validated with adolescents (Weinberg & Klonsky, 2009). The total scale score exhibited excellent internal consistency (Cronbach's $\alpha = 0.93$) in this sample.

Participants also completed two self-report measures of psychiatric symptoms: the adolescent version of the Patient Health Questionnaire (PHQ-A; Johnson, Harris, Spitzer, & Williams, 2002), a measure of mood, anxiety, eating, and substance use disorders, and the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD; Zanarini et al., 2003), a measure of Borderline Personality Disorder (BPD) symptoms. The PHQ-A has shown good convergence with clinical interview measures for psychiatric disorders (Johnson et al., 2002), although we did not evaluate convergent validity with clinician-rated diagnoses in this sample. Each disorder's presence or absence was determined using published cut-off scores, and the number of disorders for which participants met diagnostic threshold was used as a measure of overall psychiatric comorbidity. Psychiatric diagnoses were included for analysis due to the relationship between number of Axis I disorders and NSSI in adolescents (Glenn & Klonsky, 2013). The MSI-BPD has shown adequate convergent validity with diagnostic interview measures of BPD (Zanarini et al., 2003), and has been used to study the relationship between NSSI and BPD in nonclinical samples of adolescents (You, Leung, Lai, & Fu, 2012). To avoid conflating NSSI history and BPD symptoms, the total score without the NSSI/suicide item was used. The scale exhibited good internal consistency (Cronbach's $\alpha = 0.77$) in this sample.

As social characteristics of NSSI may be related to other interpersonal constructs, we also assessed loneliness, using the 10-item version of the UCLA Loneliness Scale (Russell, 1996). This scale has shown similar test-retest reliability and construct validity as the longer version of the measure, and is reliable when used with adolescents (Shevlin, Murphy, & Murphy, 2015). The measure exhibited good internal consistency (Cronbach's $\alpha = 0.88$) in this sample.

Personality features associated with NSSI were also evaluated. Participants completed a shortened, 16-item version of the UPPS Impulsive Behavior Scale (Glenn & Klonsky, 2010; Whiteside & Lynam, 2001), a self-report measure of impulsivity that includes the four highest loading items on each of four factors from the original scale: Urgency, (lack of) Perseverance, (lack of) Premeditation, and Sensation Seeking. This short form has exhibited good internal consistency in previous research related to NSSI (Glenn & Klonsky, 2010; Klonsky & May, 2010) and suicide (Valderrama & Miranda, 2017). Participants also completed seven self-report items assessing self-derogation/low self-esteem from the *Schedule for Nonadaptive and Adaptive Personality*—2nd edition (Clark, Simms, Wu, & Casillas, 2008). Test-retest reliability for this scale is similar for adolescents and adults (Calabrese, Rudick, Simms, & Clark, 2012), and self-derogation has been shown to relate to NSSI in nonclinical samples (Klonsky, Oltmanns, & Turkheimer, 2003). Both the UPPS and the self-derogation scale exhibited adequate internal consistency (Cronbach's α UPPS = 0.72, self-derogation = 0.78) in this sample.

Further, participants completed the self-worth and physical appearance subscales from the Harter Self-Perception Profile for Adolescents (Harter, 1988, 2012). Each of these subscales has been widely validated in a variety of populations of adolescents (Harter, 2012), and problems with self-perceptions frequently co-occur with NSSI (Claes et al., 2010; Hooley & St. Germain, 2014). In this sample, good internal consistency was found for both the self-worth (Cronbach's $\alpha = 0.82$) and the physical appearance (Cronbach's $\alpha = 0.81$) subscales.

Finally, participants also completed two items from the Youth Risk Behavior Survey (Centers for Disease Control, 2016) assessing lifetime history of suicidal thoughts and suicide attempts (present or absent). These items have exhibited appropriate convergent and discriminant validity in high school students (May & Klonsky, 2011).

2.3 | Data analytic strategy

Only adolescents with lifetime NSSI were included in our analyses. Participants who reported only NSSI methods associated with minimal medical severity (rubbing against rough surfaces, scratching, pinching, and “other”) were excluded, in order to ensure that all analyses focused on clinically meaningful NSSI. Participants who reported these methods in addition to other, more severe methods were retained for analyses. Participants with and without friends who also engaged in NSSI were then compared using χ^2 analyses (for binary variables) or independent samples Welch's *t* tests (for dimensional variables). We used Welch's *t* tests, regardless of the Levene's test for equality of variances, to account for the difference in sample sizes across groups. For analyses involving multiple variables, binary logistic regression was used. Tests for mediation were conducted in accordance with recommendations of Preacher, Rucker, and Hayes (2007) using the SPSS PROCESS Macro. With a total of 15 analyses of interest, we adjusted our threshold for statistical significance to $P < 0.01$ (from $P < 0.05$) to reduce the likelihood of Type I error. To make comparisons between analyses more straightforward, results of each analysis were converted to Cohen's *d* (Cohen, 1988), which provides a standardized measure of effect size, with results from 0.3 to 0.5 considered small, 0.5 to 0.8 considered medium, and 0.8 and above considered large.

3 | RESULTS

3.1 | Descriptive characteristics of NSSI

Eighty-nine adolescents reported at least one lifetime episode of NSSI that met eligibility criteria described above. Self-injuring adolescents primarily identified as female ($n = 60, 67.42\%$), although there was no relationship between lifetime NSSI and female gender ($d = 0.19, 95\% \text{ CI } [-0.09, 0.46], P = 0.18$). Self-injuring adolescents reported between 1 and 7 NSSI methods, with a mean of 2.07 ($SD = 1.25$), and a mean age of NSSI onset of 12 ($SD = 2.86$). The most common methods of NSSI were cutting ($n = 50, 56.18\%$), banging/hitting ($n = 49, 55.06\%$), and biting ($n = 29, 32.58\%$). The most highly rated functions of NSSI was “to get rid of bad feelings” ($M = 2.39, SD = 1.51$).

3.2 | Social characteristics of NSSI

Among adolescents engaging in NSSI, almost three-quarters had friends who also self-injured ($n = 58, 71.60\%$). Adolescents who knew of friends' NSSI reported between 1 and 20 self-injuring friends, with an average of 3.79 ($SD = 3.54$). There was a significant relationship between reporting friends' NSSI and gender, with a higher proportion of female adolescents reporting friends' NSSI ($d = 0.73, 95\% \text{ CI } [0.17, 1.30], P = 0.01$). Although many self-injuring adolescents reported discussing NSSI with friends ($n = 42, 50\%$) and knowledge of friends' NSSI before their own NSSI began ($n = 32, 39.02\%$), very few adolescents reported providing practical assistance for a friends' NSSI ($n = 11, 13.25\%$), suggesting NSSI to someone else ($n = 4, 4.82\%$), or feeling that friends play a role in continuing self-injury ($n = 3, 3.66\%$). Further, almost no adolescents reported actually engaging in NSSI with friends ($n = 2, 2.44\%$).

3.3 | Friends' NSSI and NSSI characteristics

Adolescents with knowledge of self-injuring friends ($n = 58$) reported more NSSI methods ($d = 0.52, 95\% \text{ CI } [0.03, 1.01], P = 0.01$) than adolescents without friends who self-injure ($n = 23$); although this difference was of small to medium effect, it did not meet our alternative statistical significance threshold ($P < 0.01$). Using binary logistic regression to

TABLE 2 Clinical characteristics by friends' NSSI group

	No friends' NSSI		Friends' NSSI		Statistical results		
	<i>n</i>	<i>M (SD) or n (%)</i>	<i>n</i>	<i>M (SD) or n (%)</i>	<i>t(df) or χ^2 (df)</i>	Cohen's <i>d</i> [95% CI]	<i>P</i> -value
Emotion dysregulation	23	90.91 (26.57)	55	96.98 (22.36)	0.96 (35.68)	0.26 [−0.26, 0.74]	0.34
Number of diagnoses	23	0.48 (0.99)	58	0.66 (1.19)	0.68 (48.23)	0.16 [−0.33, 0.64]	0.50
Loneliness	23	20.35 (5.70)	54	22.30 (5.28)	1.40 (38.87)	0.36 [−0.13, 0.85]	0.17
Impulsivity	23	38.96 (7.29)	55	40.09 (5.75)	0.67 (34.00)	0.18 [−0.31, 0.67]	0.51
BPD (no NSSI/suicide item)	23	3.35 (2.89)	56	4.84 (2.04)	2.26 (31.46)	0.64 [0.15, 1.14]	0.03
Self-derogation	20	1.25 (1.59)	53	1.75 (2.07)	1.11 (44.47)	0.26 [−0.26, 0.77]	0.27
Self-worth	22	10.23 (3.29)	54	11.70 (3.32)	1.77 (39.28)	0.44 [−0.06, 0.94]	0.09
Phys. appearance perception	22	12.36 (3.03)	54	13.20 (3.92)	1.00 (50.14)	0.23 [−0.27, 0.72]	0.32
Suicidal ideation	23	6 (26.09)	55	34 (61.82)	6.41 (1)	0.84 [0.25, 1.43]	0.01
Suicide attempt	23	2 (8.70)	55	18 (32.73)	4.91 (1)	0.90 [0.04, 1.76]	0.03

Note. For binary variables (e.g., history of suicide attempt), *n (%)* refers to the number of participants in that group endorsing that variable. Interval variable comparisons are *t* tests, and binary variable comparisons are χ^2 tests. Degrees of freedom (*df*) for *t* tests are not whole numbers due to the use of the Welch's *t*-test to address unequal variances between groups. Positive Cohen's *d* values indicate higher mean values or greater prevalence in the friends' NSSI group.

predict knowledge of friends' NSSI from all specific NSSI methods, we found that cutting, but no other specific method, was significantly associated with knowledge of friends' NSSI ($d = 5.21$, 95% CI [1.63, 14.90], $P < 0.001$). We also evaluated the four functions of NSSI jointly using binary logistic regression; no specific function differentiated between adolescents with and without knowledge of friends' NSSI. Further, groups did not differ on the desire to stop NSSI. To see a summary of these analyses, see Table 1.

As number of NSSI methods was related to knowledge of friends' NSSI, and is a known marker of severity among self-injurers (Victor & Klonsky, 2014), we evaluated whether number of NSSI methods would mediate the relationship between cutting and knowledge of friends' NSSI. There was no significant effect of number of NSSI methods on either the presence or absence of cutting, or on the rank-transformed frequency of cutting, and there were no significant indirect effects of knowledge of friends' NSSI on either cutting variable through number of NSSI methods. In each analysis, cutting retained a significant direct relationship to knowledge of friends' NSSI.

3.4 | Friends' NSSI and related psychological characteristics

Adolescents with and without knowledge of friends' NSSI did not exhibit significant differences in most measures of clinically relevant NSSI correlates (see Table 2). Specifically, there were no significant differences between groups with respect to number of psychiatric diagnoses ($d = 0.16$, 95% CI [−0.33, 0.64]), emotion dysregulation ($d = 0.26$, 95% CI [−0.26, 0.74]), self-worth ($d = 0.44$, 95% CI [−0.06, 0.94]), perception of physical appearance ($d = 0.23$, 95% CI [−0.27, 0.72]), self-derogation/low self-esteem ($d = 0.26$, 95% CI [−0.26, 0.77]), impulsivity ($d = 0.18$, 95% CI [−0.31, 0.67]), or loneliness ($d = 0.36$, 95% CI [−0.13, 0.85]). Both BPD symptoms (excluding the NSSI/suicide criterion) and history of attempted suicide were associated with knowledge of friends' NSSI, but these results yielded *P* values above our adjusted cutoff (BPD $d = 0.64$, 95% CI [0.15, 1.14], $P = 0.03$; suicide attempt $d = 0.90$, 95% CI [0.04, 1.76], $P = 0.03$).

Adolescents reporting knowledge of friends' NSSI were, however, significantly more likely to report ever experiencing serious suicidal ideation ($d = 0.84$, 95% CI [0.25, 1.43], $P = 0.01$). As suicidal ideation was associated with number of NSSI methods ($d = 0.75$, 95% CI [0.31, 1.19], $P = 0.001$), we again evaluated whether number of NSSI methods would mediate the relationship between knowledge of friends' NSSI and suicidal ideation. There was a significant indirect relationship between knowledge of friends' NSSI and suicidal ideation through the use of more NSSI methods, but the direct effect of knowledge of friends' NSSI was no longer significantly associated with suicidal ideation after including the indirect effect in the model.

4 | DISCUSSION

This study addressed several important aspects of the social context of adolescent NSSI. First, we found that, while many self-injuring youth reported knowing about friends' NSSI and talking about NSSI with others, there was little evidence of friends directly assisting with, suggesting, or encouraging NSSI. Second, we considered the relationship between knowledge of friends' NSSI and one's own NSSI; reporting friends' NSSI was associated with use of more NSSI methods, higher rates of cutting, and higher frequency of cutting. Finally, we evaluated how knowledge of friends' NSSI related to important psychological correlates of NSSI; adolescents who reported knowledge of friends' NSSI were more likely to report suicidal ideation than adolescents without knowledge of friends' NSSI. These results, taken together, may have implications for health providers and other adults who work with adolescents, as well as for researchers focused on understanding, assessing, and treating NSSI.

In spite of adolescents' reported communication with friends about NSSI, very few participants reported supporting friends' NSSI or continuing their own NSSI due to friends' NSSI, suggesting that NSSI is unlikely to be directly or overtly reinforced by friends in nonclinical contexts. It is important, however, to recognize that these results only address *continued* NSSI among adolescents already self-injuring; we cannot draw conclusions about how talking about NSSI with others relates to *initial* engagement in NSSI. Future research should clarify how knowledge of friends' NSSI before starting NSSI may relate to later NSSI social context.

Our results further suggest that adolescents who report knowledge of friends' NSSI differ from those without knowledge of friends' NSSI in several ways. Knowledge of friends' NSSI was associated with use of cutting as an NSSI method, greater frequency of cutting, higher number of NSSI methods, and greater likelihood of suicidal ideation, all of which indicate greater clinical severity. This is particularly important given research that number of NSSI methods and use of cutting is associated with attempted suicide among self-injurers (Klonsky & Olino, 2008; Victor & Klonsky, 2014). Adolescents who report knowledge of self-injuring friends may require greater or earlier intervention to address their potentially elevated risk for suicidality and other negative outcomes related to NSSI.

While these results are an important step in improving our understanding of how social context is related to NSSI and its correlates, there are several important limitations to consider. First, we cannot determine whether adolescents who self-injure choose to become friends with others who self-injure (selection effects) or whether adolescents who self-injure influence other adolescents to begin or maintain NSSI (socialization effects). For example, adolescents with more severe psychopathology may be more likely to be referred for psychiatric care, and therefore meet and befriend other adolescents engaging in NSSI who are also in treatment. We are also unable to know whether changes in how adolescents think about friends in the context of online relationships and social media "friends" impacted our results, or whether future research explicitly considering these new social networks might yield different patterns of results. Adolescents engaging in NSSI may also develop peer relationships in other settings, such as while receiving treatment for NSSI; future research will benefit from using explicit definitions of "friends" when assessing adolescents, or from explicitly enquiring about multiple domains in which potentially important peer relationships may develop, to determine whether and how our findings apply when considering different types of friendships.

Second, all friends' NSSI was reported by participants, not by friends themselves; therefore, our data reflect the extent to which our participants knew about friends' NSSI, not the true extent of friends' actual NSSI behaviors. While having a friend disclose NSSI is likely related to friends' engagement in NSSI, our results could be explained by other friend characteristics (e.g., comfort disclosing distressing material) or participant characteristics (e.g., openness about one's own NSSI). Further, although responses to the survey were anonymous, social desirability biases may have impacted participants' willingness to fill out our measures accurately, particularly with respect to behaviors that may be more highly stigmatized (e.g., providing assistance to others to engage in NSSI).

Finally, our results characterize a specific sample of high school students in the United States; these findings may not generalize to other populations, such as individuals who are receiving psychiatric care or who are incarcerated, or to other age ranges or cultural contexts. Additionally, subgroups of self-injurers may show different patterns of relationships between these variables; for example, some earlier work has shown socialization effects for NSSI only in female adolescents (Prinstein et al., 2010). In our data, female adolescents were more likely to report knowing about friends'

NSSI, and it is possible that gender is a third variable contributing both to knowledge of friends' NSSI and to more severe NSSI and problematic psychological correlates; unfortunately, due to the relatively smaller number of male participants in our sample, we lacked the statistical power to thoroughly evaluate the effects of gender on our results. Further, gender differences found in this sample are unlikely to be attributable primarily to biological sex; it is probable that differences in socialization, peer relationship preferences, psychopathology risk, interpersonal communication styles, and myriad other factors contribute to individual differences for which gender is only a proxy. It is also important to note that the measure used did not allow participants to self-report a gender identity other than "male" and "female," which, unfortunately, excluded consideration of adolescents with other gender identities (e.g., genderqueer, transgender, nonbinary).

Our findings have implications for adults working with adolescents, both in nonclinical and clinical settings, who may be engaging in NSSI. In particular, it may be valuable to educate adults who interact with adolescents (such as parents, teachers, and healthcare workers) that self-injuring adolescents who present with knowledge of friends' NSSI may be at elevated risk for higher severity NSSI and for other negative psychological experiences, such as suicidality. Researchers can also build and extend upon these findings in several ways; for example, rigorous, longitudinal studies that incorporate peer nomination procedures can help identify potential causal pathways from social contextual factors to relevant outcomes of interest. Further, studies can be designed to assess these relationships in a variety of populations, ages, and cultural contexts. Our work provides a valuable set of findings that inform current and future assessment and intervention strategies with youth, as well as to provide a foundation upon which clinicians and researchers can build in further investigating the social context of NSSI during the critical developmental period of adolescence.

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