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A psychometric analysis of the Ottawa self-injury inventory-f

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ABSTRACT

Objective: This study seeks to evaluate the psychometric properties of the Ottawa Self-Injury Inventory-Functions (OSI-F) for assessing nonsuicidal self-injury (NSSI), a condition for further study in the DSM-5. **Participants:** Participants included 345 students who indicated a history of self-injury in a university counseling center over six semesters from August 2009 to May 2012. **Method:** Participants completed the OSI-F as a measure on the psychological intake for the university counseling center. **Results:** Factor analysis, Cronbach's alpha coefficients, independent sample *t* tests, and correlations were examined and demonstrated adequate reliability and validity. **Conclusions:** A three-factor solution emerged from the restructured OSI-F relating to *Affect Regulation, Exhilaration, and Release*. Affect regulation dimensions were predictive of continuing to self-injure and related to depression, anxiety, and overall mental health. Additionally, women were more likely to attribute self-injuring to affect regulation.

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Two conflicting trends in American higher education pose important challenges for university mental health professionals. On the one hand, the frequency and severity of mental health issues among the college student population continue to rise.^{1,2} University counseling centers have seen significant increases in the past 5 years in cases of depression, anxiety, suicidal thoughts, self-injury, and eating disorders among many others.^{3,4} On the other hand, the persistent declines in government funding for higher education have necessitated cutbacks in both personnel and services across the university.^{5,6} The present collision of these two broader social trends in higher education has left many university counseling centers overworked, understaffed and searching for cost-effective methods to improve the efficiencies of handling large volumes of students with mental health needs.⁷

Psychological intake

To more efficiently service the large volumes of students and to eliminate lengthy waiting lists, university counseling professionals have employed a variety of innovative practices that include quick screening tools, technology aided counseling, and standardized programs of treatment.⁸ One approach to the quick screening tool that has been employed is to automate the psychological intake process. In this process, students complete a

battery of psychological instruments whose results are used by university counselors to diagnose mental health issues and establish respective treatment plans. However, the continued addition of new instruments to further assess the growing mental health needs of college students has resulted in lengthy automated intake processes that can take 30–45 minutes to complete. Although automated, a lengthy intake process subjects clients to test fatigue and potentially threatens the accuracy of the results for the full battery of intake instruments.

Periodic evaluations of intake processes strengthen the measurement outcomes potentially threatened by client test fatigue. The evaluation of the automated intake process often takes one of two forms—an assessment of individual instruments and an assessment of the total composition of its instruments. An assessment of the composition of intake instruments enables researchers to add/remove specific psychological tests or to strategically embed an instrument within a broader schema.^{9–11} Embedding an instrument “hides” the instrument from the view of the client unless it is activated for completion due to a specific self-reported response. In contrast, the assessment of an individual instrument enables researchers to consider modifications to a given instrument based on psychometric analyses. Further psychometric inspection permits the possibility of shortening the given instrument via the principles of dimension

reduction in factor analysis.^{12,13} Over time, the combined dimension reduction efforts of individual instruments can result in shorter, more effective intake processes. As such, the evaluation of select instruments that measure nonsuicidal self-injury (NSSI) poses one such opportunity to improve intake processes given the persistent increases in the behavior among the college student population.

Assessing non-suicidal self-injury

NSSI is the intentional harming of one's body without suicidal intent, carried out in forms that damage the tissue, such as cutting, burning, biting, and scratching. In adolescent and college student populations, 14–17% have reported self-injurious behaviors; however, in clinical populations this number increases to 40–60%.^{14–16} Cutting is the most common form of self-injury, as 70–97% of those who self-injure cut themselves; however, many people have more than one method of self-injury.^{14,15,17} The onset for self-injurious behavior is usually after puberty around the age of 16. It typically begins between the ages of 14 and 24 and is more common in women than men.¹⁴ Though self-injury is often associated with borderline personality disorder, it has also been linked to depression, anxiety, eating disorders, substance abuse, and suicidal behavior, all of which are more prevalent forms of mental illness.^{18–20} Psychological instruments that measure NSSI warrant further evaluation given persistent increases in NSSI among the college student population.^{14,18,21}

For those focused on working with adolescents and college student populations, it has become necessary to understand the dynamics related to the onset, frequency, and treatment of NSSI. Originally, NSSI was classified as a symptom of borderline personality disorder (DSM-III). In the process of revising the latest diagnostic manual (ie, DSM-5), NSSI was identified as needing more consideration as a separate disorder rather than as a symptom.²² The revised criteria provide motivational factors of NSSI which include the relief of a negative feeling or cognitive state, a way to manage interpersonal relationships, and/or to induce a positive state.²² Moreover, the DSM-5 itself suggests that additional studies are needed regarding the factors which may predict the course of self-injury.²² As a result of these changes, a more refined understanding of patients' motivations for self-injury is essential for understanding the dynamics of onset. Moreover, distinctly diagnosing NSSI from other forms of psychopathology (ie suicidal thoughts and behaviors or underlying personality disorders) will improve treatment options.

The recent increase in NSSI in society has correspondingly resulted in the development of multiple psychological instruments used to assess the behavior. Examples

include the Chronic Self-Destructiveness Scale (CSDS), the Self-Harm Behavior Survey, the Self-Injury Survey, the Impulsive and Self-Harm Questionnaire, and the Self-Injurious Behavior Questionnaire (SIB-Q).²³ Furthermore, numerous assessments have been developed for assessing the functions of self-injury, such as the Functional Assessment of Self-Mutilation (FASM), the Self-Injury Questionnaire (SIQ), the Self-Injury Motivation Scale (SIMS), Firestone Assessment of Self-Destructive Thoughts (FAST), and the Ottawa Self-Injury Inventory-Functions (OSI-F).²⁴ Although robust in their psychometric properties, many of these instruments are lengthy and contribute to client test fatigue when they are given as a component of a multi-instrument battery of psychological intake measures. Of these NSSI instruments, only the OSI-F differentiates between why an individual *starts* to self-injure and why an individual *continues* to self-injure. Thus, the OSI-F possesses important practical implications for counselors and clinicians when creating treatment plans for persons who self-injure, and warrants further examination for possible dimension reduction.²⁵

Ottawa self-injury inventory-functions (OSI-F)

The Ottawa Self-Injury Inventory-Functions (OSI-F) is part of the broader Ottawa Self-Injury Inventory (OSI) self-report questionnaire that is used to assess all aspects of self-injury including environmental, cognitive, affective, and behavioral aspects. The full OSI questionnaire takes approximately 20 minutes to complete and includes both quantitative and qualitative responses, so there is no total score for the assessment.²⁵ While the OSI has been previously evaluated, these studies call for further validation of this assessment.^{26–28} The OSI-F scale has 31 items assessing the motivations for why an individual *starts* to self-injure. Motivations to *continue* self-injuring are assessed with identical responses, with the exception of an item assessing addiction. Previous attempts to validate this scale have provided preliminary support for its psychometric properties and evidence of convergent validity.²⁶ Despite these preliminary analyses of the OSI-F, further validation is necessary.

The additional evaluation of the OSI-F is particularly poignant for university counseling centers presently facing resource constraints. We argue that further validation of the OSI-F is necessary for three reasons. First, while a number of assessments have been developed in recent years as a way of evaluating the functions of NSSI in the clinical setting, all were validated prior to the DSM-5 reclassification of NSSI as a separate disorder. The publication itself called for validation of assessments according to the new DSM-5 criteria for NSSI. Second, since NSSI often begins between the ages of 14 and 24, validation using data from this

population is ideal. Finally, the OSI-F is one of the only measures that differentiate between why an individual *starts* to self-injure and why an individual *continues* to self-injure, which has many practical implications for counselors and clinicians when creating treatment plans for persons who self-injure.²⁵ Therefore, the purpose of this study is to modify the Ottawa Self-Injury Inventory-Functions (OSI-F) instrument so that it is more closely aligned with the DSM-5 diagnostic criteria for assessing NSSI, and to evaluate the psychometric properties of the modified scale in a college sample seeking counseling.

Methods

Measures

The Ottawa Self-Injury Inventory-Functions (OSI-F) is an assessment tool for use in clinical settings.²⁹ Reasons

for starting and continuing self-injurious behavior can be attributed to several factors, and the OSI-F has divided these factors into nine categories: affect regulation, anti-dissociation, anti-suicide, interpersonal boundaries, interpersonal influence, self-punishment, sensation seeking, addictive features, and other. On the OSI-F, the motivations to start and continue self-injury are assessed with the intent of better understanding which of the nine functions may be contributing to the self-injurious behavior. Below is a definition of each scale and a description of what they measure. Refer to [Table 1](#) for the specific questions relating to each scale.

Affect regulation

Affect regulation is a motivation to self-injure in which an individual attempts to relieve negative feelings, typically due to a stressful event. It is one of the most

Table 1. Ottawa self-injury inventory scales and factor placement of items.

Item and scale	Survey question: why did you start to self-injure?	Three-factor oblimin
Affect Regulation: to alleviate acute negative affect/aversive affective arousal		
1	To release unbearable tension	3
4	To stop feeling alone and empty	1
8	To relieve nervousness/fearfulness	1
10	To distract me from unpleasant memories	1
13	To release anger	3
21	To relieve feelings of sadness or feeling “down”	1
26	To release frustration	3
Anti-Dissociation: to end the experience of depersonalization or dissociation		
17	To help me escape from uncomfortable feelings or moods	1
19	To experience physical pain in one area, when the other pain I feel is unbearable	1
25	To produce a sense of being real when I feel numb and “unreal”	1
Anti-Suicide: to replace, compromise with, or avoid impulse to commit suicide		
23	To stop me from thinking about ideas of killing myself	Removed ^a
24	To stop me from acting out ideas of killing myself	Removed ^a
Interpersonal Boundaries: to assert one’s autonomy/distinction b/w self and others		
11	To change my body image and/or appearance	Removed ^a
22	To have control in a situation where no one can influence me	1
Interpersonal Influence: to seek help/influence		
3	To stop my parents from being angry with me	Removed ^b
5	To get care or attention from other people	Removed ^b
9	To avoid getting into trouble for something I did	Removed ^c
12	To belong to a group	2
14	To stop my friends/boyfriend/girlfriend from being angry with me	Removed ^c
15	To show others how hurt or damaged I am	Removed ^c
16	To show others how strong or tough I am	Removed ^c
20	To stop people from expecting so much from me	Removed ^b
27	To get out of doing something that I don’t want to do	Removed ^b
Self-Punishment: to derogate/express anger toward oneself		
6	To punish myself	Removed ^d
Sensation Seeking: to generate exhilaration or excitement		
7	To provide a sense of excitement that feels exhilarating	2
29	To prove to myself how much I can take	Removed ^c
30	For sexual excitement	Removed ^a
31	To diminish feeling of sexual arousal	Removed ^a
Addictive Features		
2	To experience a “high” that feels like a drug high	2
32	I am “addicted” to doing it	Removed ^a
Other		
18	To satisfy voices inside or outside of me telling me to do it	Removed ^a
28	For no reason that I know about—it just happens sometimes	Removed ^a

Note. ^aItems did not meet DSM-V criteria for NSSI.

^bRemoved²: items did not have correlations greater than .32.

^cRemoved³: items were included in a factor with 2 or less items.

^dRemoved⁴: items had crossloadings greater than or equal to .32 on at least two factors.

reported reasons for starting and continuing to self-injure. Individuals often report self-injuring as a way of reducing negative affect, and they report less negative affect after self-injuring than prior to self-injuring.^{30–32} When Klonsky³⁰ used an ordinal scale to ask participants their reasons for starting to self-injure, the primary motivator was overwhelmingly affect regulation. Also, experiencing the greatest reduction in negative affect predicted more self-injury, suggesting that those who reported the greatest reduction in negative affect after self-injuring may be more likely to have a lifetime prevalence of self-injury.

Anti-dissociation

In contrast to self-injuring for affect regulation, anti-dissociation is a motivation to self-injure as an attempt to experience pain in a different way than the individual's current pain. It is the desire to feel something again after long periods of numbness. Where affect regulation is typically linked to experiencing negative affect, anti-dissociation is typically linked to experiencing low positive affect. Dissociation, also referred to as feeling generation, has been described as the motivation for approximately 25% of self-injurious behaviors. This motivation is often an attempt to counteract experiences such as dissociation and emptiness.³³ Those experiencing these states typically describe feeling numb or not feeling anything at all. As a result, they engage in self-injury for relief from an unpleasant emotional state with the hope of feeling something again.³⁴

Anti-suicide

Anti-suicide is a motivation to self-injure in which individuals attempt to replace or compromise with their urge to commit suicide. Some report self-injury as a way of helping with suicidal ideation or expressing their suicidal thoughts without actually committing suicide. Self-injury may act as a coping mechanism when people are experiencing suicidal thoughts they wish to resist and is often an act meant to sustain their life rather than to end it.^{17,35} It is important to note that those whose self-injury is considered non-suicidal self-injure without the intent of suicide; however, those who self-injure may be at greater risk for suicide in the future and may be experiencing suicidal thoughts they wish to cope with through the use of self-injury.^{18,36}

Interpersonal boundaries

Interpersonal boundaries is a motivation to self-injure as a way of feeling in control. Further, it is an attempt to differentiate oneself from others and assert autonomy.¹⁷ Additionally, the personality trait of perfectionism may play a role in this motivation, as self-injury may act as a

coping mechanism when individuals feel they have lost control in a situation.³⁷

Interpersonal influence

Interpersonal influence is a motivation to self-injure with the intent of receiving attention from others or influencing those around an individual.^{38,39} It has been suggested that imitation may play a role in self-injury.⁴⁰ For example, previous studies have found that approximately 38% of those who self-injure learned it from a friend, and exposure to self-injury increased the likelihood a person would self-injure.^{41,42} Additionally, self-injurious behavior by a best friend has been found to be predictive of self-injurious behavior, while self-injury in a friend group has been found to be predictive of the frequency of self-injurious behavior. Thus, like many other maladaptive behaviors, it seems that self-injury can be a norm that people in a group conform to.⁴¹

Self-punishment

Self-punishment is a motivation to self-injure as a punishment for something. Often, those who self-injure as a form of punishment do it as a way of expressing anger toward themselves or as a derogatory action toward themselves. Furthermore, self-injury as a form of punishment is often learned from one's environment.⁴³

Sensation seeking

Sensation seeking is a motivation to self-injure for the thrill an individual feels while doing it. Sensation seeking is a personality trait that has been described as predictive for many risky behaviors, such as drug and alcohol abuse and unsafe sexual behavior. Approximately 7.1% of those who self-injure describe their motivation as seeking excitement. In addition to being predictive of self-injurious behavior, the personality trait of sensation seeking is predictive of more self-injury episodes during a lifetime.⁴⁴

Addictive features

Addictive features are those features that cause a person to want to continue self-injuring. Several studies have found that self-injurious behavior can have addictive aspects. In a study by Nixon, Cloutier, and Aggarwal,⁴⁵ it was found that 98% of participants had at least three of the DSM-IV criteria for substance addiction. Also, all of the participants reported wanting to self-injure after an event they would describe as stressful. This is consistent with the findings of Victor, Glenn, and Klonsky,⁴⁶ who found that addictive features of self-injurious behavior mainly came from an attempt to regulate negative affect. In other words, participants would self-injure in order to alleviate their negative feelings after a stressful event.

This addiction differs from substance addiction in that participants did not report wanting to self-injure for any positive reinforcement such as gaining pleasure.

Procedure

Materials and procedures for this study were approved by an institutional review board, and students signed an informed consent before completing the intake. Data were collected from a university counseling center in which students visiting the counseling center completed a psychological intake for assessment purposes. The intake included the Brief Symptom Inventory (BSI) and the Ottawa Self-Injury Inventory-F (OSI-F) as two of eight different assessments in the standard intake process which takes approximately 30–35 minutes to complete.

The BSI is a shortened version of the Symptom Checklist-90-Revised (SCL-90-R) used to assess nine dimensions of symptoms (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism). Additionally, the BSI assesses three global indices of distress associated with these nine dimensions: the General Severity Index (GSI), the Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST).⁴⁷ For the purposes of this paper, the depression and anxiety subscales and the GSI will be used. Of the three global indices of distress, the GSI is the best to use as a measure of overall mental health; it measures both the number of symptoms and the level of perceived distress.⁴⁷

While the BSI has demonstrated good test–retest reliability and internal consistency, previous studies have found that only four of the subscales can be used with confidence in their validity: depression, anxiety, somatization, and hostility.⁴⁸ Depression and anxiety were chosen due to the acceptable reliability and validity of these subscales and because these would be most relevant in the college student population used for this study. The BSI was selected to measure validity for this study due to the archival nature of the data and because this is one of the eight assessments included in the intake process.

The OSI-F is used to assess why those with a history of self-injury start and continue to self-injure. These two measures (“Why did you start?” and “If you continue, why do you continue?”) have a total of 63 sub-questions, 31 of which are the same on both measures. The measure assessing reasons to continue self-injuring has one extra item related to addiction that is not included in the measure assessing reasons for starting to self-injure. Data were collected over six semesters (August 2009–May 2012), and a total of 1,064 students completed the intake in the university counseling center. Of those who

completed the intake, 36.4% indicated a history of self-injurious behavior, and 11% indicated self-injuring or thinking about self-injuring in the past 30 days. For this study, both men and women who indicated a history of self-injury and scored above 0 on the OSI-F items were included in the analysis ($n = 345$). Of the 345 participants in the sample, 77% were women, 78.3% were white, and 91% lived on campus as residential students. The motivations for self-injuring that were indicated most by the sample as “always a reason” for self-injuring included to release unbearable tension ($n = 81$), to release anger ($n = 74$), and to release frustration ($n = 71$).

The focus of this analysis is to consider the reliability and validity of the OSI-F assessment using a factor structure on the first set of 31 sub-questions, which are responses to “Why did you start to self-injure?” Each of the items were examined relative to their consistency with the DSM-5 diagnostic criteria. Only those items that could be clearly connected to NSSI diagnostic criteria were included in the analysis. These motivational criteria include the relief of a negative feeling or cognitive state, a way to manage interpersonal relationships, and/or to induce a positive state.²² The items excluded for were either better accounted for under another diagnosis (eg, Suicidal Behavior Disorder) and/or did not meet the DSM-5 criteria. For example, self-injuring “to satisfy voices inside or outside of me telling me to do it” suggests the individual is experiencing something beyond NSSI and was therefore removed. A factor analysis with principal axis factoring (PAF) extraction and an oblimin rotation was performed. The factor placement of items and the items removed from the factor analysis are discussed in the next section.

Results

Factor structure

To assess the dimensionality of a set of 14 items selected from the OSI-F asking individuals why they started to self-injure, a factor analysis was performed using PAF extraction. The default criterion was to retain only factors with eigenvalues greater than 1, and oblimin rotation was requested. The items included self-reported ratings on reasons for starting to self-injure (eg, to release unbearable tension, to stop feeling alone and empty). Each item was rated on a five-point scale ranging from 0 to 4 in which 0 is “never a reason” and 4 is “always a reason.” It is important to note that the OSI question used (Why did you start to self-injure?) has 31 responses, but those items that did not uniquely address NSSI as described in the DSM-5 were removed, reducing it to a total of 24 items. Additionally, items with

correlations of .32 or smaller, items included in a factor with two or less items, and items with a crossloading greater than or equal to .32 on at least two factors were eliminated, resulting in a total of 14 items. In the analysis of 14 items, the PAF extraction yielded three eigenvalues greater than 1.0, so three factors were retained and rotated. Table 1 shows those items that were removed and to which factor each item belongs. After the oblimin rotation, the three factors accounted for a total of 50.6% of the variance. Refer to Table 2 for the rotated factor loadings for the 14 items retained.

Reliability

Based on the factor analysis, items were divided into three subscales. Reliability was assessed using Cronbach's coefficient alpha. Items on each of the factors were combined, and internal consistency reliability was assessed for each of the three factors. Internal consistency reliability is considered acceptable above .60 for exploratory research.⁴⁹; therefore, internal consistency reliability was found to be acceptable with the following Cronbach's alpha values: .822 (factor 1), .665 (factor 2), and .790 (factor 3).

Validity

Predictive validity

Predictive validity was assessed using an independent sample *t* test to examine whether each factor was predictive of whether an individual continued to self-injure. Scores were significantly higher on factors 1 and 3 for those who took the assessment and were continuing to self-injure rather than having had a history of self-injuring. This suggests that those who indicate items

from factors 1 or 3 as motivations to self-injure may be more likely to continue self-injuring. Factor 2 was not found to be significantly different for those with a history of self-injury and those who continue to self-injure, suggesting that those who indicate items from factor 2 as motivations to self-injure may be less likely to continue to self-injure. Table 3 displays the results from this independent samples *t* test.

Predictive validity was also assessed using an independent sample *t* test to examine whether each factor was predictive of higher scores for men or women. There was not a significant difference in overall scores on the OSI-F for men and women. Scores were significantly higher on factor 1 for women, suggesting that women who self-injure are more likely to attribute self-injuring to the items in this factor. Factors 2 and 3 were not found to be significantly different for men and women. Results from this independent sample *t* test are summarized in Table 3.

Concurrent validity

Concurrent validity was assessed by examining Pearson product-moment correlations between the factors and the scores on other constructs in order to understand whether these factors were predictive of other outcomes, specifically the GSI, depression, and anxiety. Factors 1 and 3 were correlated with scores on the GSI (factor 1 = .246, factor 3 = .251), depression (factor 1 = .177, factor 3 = .157), and anxiety (factor 1 = .185, factor 3 = .199), suggesting that these factors may be predictive of scores on overall mental health, especially scores on depression and anxiety. Factor 2 was correlated with scores on the GSI (.124) and depression (.166) suggesting that this factor may be predictive of scores on overall mental health and depression, but not anxiety.

Table 2. Pattern matrix for a three-factor oblimin rotation.

Item	Survey question: Why did you start to self-injure? Total variance = 50.6%	Factor		
		1 ^a	2 ^b	3 ^c
17	To help me escape from uncomfortable feelings or moods	.736		
4	To stop feeling alone and empty	.732		
19	To experience physical pain in one area, when the other pain I feel is unbearable	.706		
10	To distract me from unpleasant memories	.691		
25	To produce a sense of being real when I feel numb and "unreal"	.682		
21	To relieve feelings of sadness or feeling "down"	.654		
22	To have control in a situation where no one can influence me	.467		
12	To relieve nervousness/fearfulness	.349		
5	To provide a sense of excitement that feels exhilarating		.832	
15	To experience a "high" that feels like a drug		.737	
26	To belong to a group		.456	
13	To release frustration			-.949
1	To release anger			-.789
22	To release unbearable tension			-.546

Note. Values < .32 are left blank. ^aFactor 1—*Affect Regulation*: desire for release from negative emotions and to stimulate feeling in response to low positive affect (Affect regulation, anti-dissociation, and interpersonal boundaries scales).

^bFactor 2—*Exhilaration*: indicate self-injuring for a sense of thrill (interpersonal influences, sensation seeking, and addictive features scales).

^cFactor 3—*Release*: indicate self-injuring for a release from tension, anger, and frustration (affect regulation scale).

Table 3. Independent samples *t*-test results.

Factor	<i>n</i>	Mean	Standard deviation	<i>t</i>	Sig.
History					
Affect Regulation					
History	188	2.702	.958	4.217	.000
Continue	148	2.257	.962	4.215	.000
Exhilaration					
History	188	1.323	.625	.432	.666
Continue	148	1.293	.635	.431	.666
Release					
History	188	3.197	1.200	2.612	.009
Continue	148	2.842	1.277	2.593	.010
Sex					
Affect Regulation					
Male	73	2.163	.928	−3.269	.001
Female	269	2.582	.983	−3.379	.001
Exhilaration					
Male	73	1.425	.776	1.700	.090
Female	269	1.284	.582	1.444	.152
Release					
Male	73	3.055	1.268	.168	.867
Female	269	3.027	1.237	.165	.869

Comment

The results of this study support the OSI-F as a measure of patient motivation to self-injure in a manner consistent with the DSM-5 criteria for NSSI. Two of the factors, *Affect Regulation* and *Release*, retained from the analysis can be identified by patterns found within the original OSI-F scales (located in Table 1). A third factor, *Exhilaration*, was comprised of three items, each from a different subscale of the OSI-F. The two strongest loading items of the three-item scale were thematically consistent with the original sensation-seeking dimension of OSI-F. Furthermore, the results of this study are consistent with previous NSSI literature in four primary areas. First, the factors *Affect Regulation* and *Release* were found to be predictive of continuing to self-injure. This is consistent with literature stating that those who experience the greatest reduction in negative affect may be more likely to have a lifetime prevalence of self-injury.³⁰ Second, consistent with previous findings, *Affect Regulation* and *Release* were found to be predictive of psychopathology such as depression and anxiety.^{50,51} Third, according to Leadbeater, Blatt, and Quinlan (1995),⁵² women are more likely to experience depressive symptoms related to sad affect and loneliness. This is consistent with the finding that women were more likely than men to attribute their self-injury to the *Affect Regulation* factor. See Table 2 for results of the factor analysis. Finally, the *Exhilaration* factor was related to overall mental health and depression. *Exhilaration* was not consistent motivation to self-injure which is inconsistent with the somewhat limited work on self-injury and sensation seeking⁴⁴. These results may be due to the nature of the sample (eg, non-clinical and relative low-levels of Exhilaration).

Limitations

This study has three limitations that should be recognized. First, while the OSI-F was found to be reliable and valid within a counseling center for assessing NSSI criteria in the DSM-5, further validation of the OSI-F is necessary in clinical samples as opposed to the college counseling center used in this study. Furthermore, this measure could be assessed using a larger sample that is more diverse and has a better sex ratio. Second, two factors include only three items. These factors may require expansion and should be further considered in future studies. As a general rule, factors should comprise at least three items, while factors with at least five items are considered stable and desirable. Factors with at least three items are more likely to be replicated and demonstrate greater levels of reliability and validity.^{53,54} Finally, all the factors could use strengthening when the reliability coefficients of the factors are considered.

Conclusions

College campus counseling centers are challenged to deal with a wide range of mental health issues. The development of tools that facilitate the improved efficiency of psychological intake processes is essential for colleges and universities given that they simultaneously possess limited resources but must also increase accessibility in order to adequately meet the mental health needs of students. The purpose of this study was to evaluate the psychometric properties and validate the use of a measure of self-injurious behavior in a clinical setting for the diagnosis of NSSI according to the DSM-5. Self-injurious behavior is an increasing issue and is especially prevalent within the adolescent and young adult populations. We see concerning trends within this study, as 36.4% of the 1,064 students who visited the student counseling center indicated a history of self-injurious behavior and 11% indicated having self-injured or thought about self-injuring in the past 30 days. This suggests the importance of awareness regarding NSSI for counselors of young adults and adolescents. Thus, a *validated* and *reduced* measure of self-injurious behavior is necessary for the evaluation of NSSI among a set of mental health issues presently being addressed by university mental health professionals.

This research offers three important applied contributions for the college counseling milieu—interviews, placement, and treatment. First, the OSI-F may be especially useful in clinical interviews to understand why an individual started and continues self-injurious behaviors. Not only this, but it provides a means for counselors to understand what motivations are primary and secondary, allowing them to work more effectively with individuals

seeking counseling. Second, the OSI-F may be useful for appropriate placement of individuals with clinicians given the ability of the instrument to predict whether individuals will continue to self-injure. For example, the counselor can better understand what it means for a client if their motivation to self-injure is *Affect Regulation*, considering this was found to be predictive of continuing to self-injure, overall mental health, depression, and anxiety. Third, the OSI-F may have implications for treatment or further assessment. For example, clients that use self-injury for *Affect Regulation* or *Release* may respond to treatments specifically introducing more adaptive strategies for managing their dysregulation. Alternatively, given that there is some evidence suggesting a relationship between personality dimensions and self-injury for sensation-seeking⁴⁴, those clients scoring highly on *Exhilaration* may need a more thorough personality assessment. The present study has found the OSI-F to be a useful assessment of self-injury for the criteria in the DSM-5; however, the OSI-F may benefit from further evaluation of its psychometric properties, especially within a larger, more generalizable population in a clinical setting.

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