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Measurement of Deliberate Self-Harm: Preliminary Data on the Deliberate Self-Harm Inventory¹

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Deliberate self-harm has recently begun to receive more systematic attention from clinical researchers. However, there remains a general lack of consensus as to how to define and measure this important clinical construct. There is still no standardized, empirically validated measure of deliberate self-harm, making it more difficult for research in this area to advance. The present paper provides an integrative, conceptual definition of deliberate self-harm as well as preliminary psychometric data on a newly developed measure of self-harm, the Deliberate Self-Harm Inventory (DSHI). One hundred and fifty participants from undergraduate psychology courses completed research packets consisting of the DSHI and other measures, and 93 of these participants completed the DSHI again after an interval of 2–4 weeks ($M = 3.3$ weeks). Preliminary findings indicate that the DSHI has high internal consistency; adequate construct, convergent, and discriminant validity; and adequate test-retest reliability.

KEY WORDS: deliberate self-harm; self-mutilation; self-injury; assessment.

Deliberate self-harm (the deliberate, direct destruction or alteration of body tissue without conscious suicidal intent, but resulting in injury severe enough for tissue damage to occur) is a behavior increasingly coming to the attention of clinical researchers (Favazza, 1998). This behavior is considered by many researchers to be a non-adaptive coping mechanism or emotion regulation strategy (Favazza, 1998; Haines & Williams, 1997; Linehan, 1993; van der Kolk, 1996), as self-harm may be used to alleviate overwhelming emotions and decrease tension. In addition to its obvious negative physical consequences, self-harm is associated with a range of other negative outcomes. It interferes with therapy and interpersonal relationships (Favazza, 1989), and can, albeit unintentionally, result in death (Kehrberg, 1997). Furthermore, researchers suggest that deliberate self-harm is steadily increasing in prevalence (Conterio & Lader, 1998; Walsh & Rosen, 1988),

with one study finding that 14% of a sample of 500 college students admitted to having engaged in self-harm at least once in their lives (Favazza, 1992).

Despite growing interest in this clinically important phenomenon, however, there remains a general lack of consensus among researchers as to how to define and measure deliberate self-harm. Also, there is still no standardized, empirically validated measure of self-harm (Simeon et al., 1992; Zlotnick et al., 1996), making it more difficult for research in this area to advance. As shared theoretical and operational definitions of self-harm are needed before research in this area can systematically progress, the purpose of this study was to develop and validate a measure of deliberate self-harm that is based firmly on clear and clinically useful conceptual and operational definitions of self-harm. Therefore, this paper (a) reviews the various conceptual and operational definitions of deliberate self-harm used in the literature; (b) provides an integrative, conceptual definition of deliberate self-harm that may be used in future research in this area; and (c) begins to explore the psychometric properties of the Deliberate Self-Harm Inventory (DSHI), a recently developed, behaviorally based measure of self-harm.

As noted above, one of the primary weaknesses in the existing literature on deliberate self-harm behavior,

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due, perhaps, simply to the newness of this area of research, is the lack of a consistent and agreed-upon definition of deliberate self-harm (Romans, Martin, Anderson, Herbison, & Mullen, 1995). One source of inconsistency is that the terms deliberate self-harm, self-injury, and self-mutilation are used interchangeably to denote the same phenomenon (see, e.g., Baral, Kora, Yuksel, & Sezgin, 1998; Brodsky, Cloitre, & Dulit, 1995; Dulit, Fyer, Leon, Brodsky, & Frances, 1994; Simeon et al., 1992; Winchel & Stanley, 1991). Another significant problem and source of inconsistency is the use of the term deliberate self-harm to describe inherently different behaviors. For example, although many researchers using the term deliberate self-harm distinguish between self-harm and suicide-related behaviors, conceptualizing self-harm as antithetical to suicide attempts (e.g., Boudewyn & Liem, 1995a; Pattison & Kahan 1983; Sabo, Gunderson, Najavits, Chauncey, & Kisiel, 1995), other researchers have not distinguished between intent to self-harm and intent to die, thereby confounding self-harm behavior and suicide attempts (e.g., Goddard, Subotsky, & Fombonne, 1996; Gupta, Sivakumar, Smeeton, 1995; Martin & Waite, 1994; Myers, 1988; Pettigrew & Burcham, 1997; Pillay & Pillay, 1987; Romans et al., 1995; for a related discussion in the suicide literature of the importance of distinguishing amongst suicide-related behaviors on the basis of the individual's intent to die, see O'Carroll et al., 1996).

One of the classic papers on deliberate self-harm, referred to by many researchers in the field when defining this phenomenon (e.g., Sabo et al., 1995), was written by Pattison and Kahan in 1983. In this paper, the authors provide a detailed description of deliberate self-harm behavior, defining it as a distinctive type of self-destructive behavior, distinguished by direct, repetitive self-harm behavior with low lethality. They further specify that direct self-destructive behavior occurs within a short time frame, is accompanied by personal awareness of the effects of one's actions, and involves a conscious intent to harm oneself. In addition, their emphasis on the low lethality of deliberate self-harm behavior distinguishes it from suicide attempts, where the intent is to die. In addition, given that the level of lethality and conscious intent to die are indeterminable for drug overdoses, Pattison and Kahan exclude cases of overdoses from their definition of deliberate self-harm, stating that this type of behavior is too ambiguous for classification as deliberate self-harm.

Favazza (1998) provides one of the most detailed and explicit descriptions of the phenomenon he calls self-mutilation, defining it as the deliberate, direct destruction or alteration of body tissue without conscious suicidal intent. He distinguishes between pathological and culturally sanctioned self-mutilation and delineates three cat-

egories of pathological self-mutilation, including major, stereotypic, and superficial-moderate. The superficial-moderate category is itself composed of three subtypes: compulsive, episodic, and repetitive. It is the latter two subtypes that are of most relevance for this paper as they appear to be related to the aforementioned definition of deliberate self-harm (Pattison & Kahan, 1983), and include the behaviors most commonly observed among clients with dissociative disorders, post-traumatic stress disorder, and borderline personality disorder, such as skin cutting, carving, burning, severe scratching, needle sticking, and interference with wound healing. Also, similar to Pattison and Kahan (1983), Favazza excludes overdoses and swallowing objects from his definition of self-mutilation, as these behaviors are not direct methods of affecting body tissue.

One way to synthesize the aforementioned literature is to use the term *deliberate self-harm* to denote the behaviors categorized by Favazza (1998) as episodic and repetitive forms of superficial-moderate self-mutilation. Deliberate self-harm may then be specifically defined as the deliberate, direct destruction or alteration of body tissue without conscious suicidal intent, but resulting in injury severe enough for tissue damage (e.g., scarring) to occur. The primary reason for using the term deliberate self-harm, as opposed to any of the other terms that exist in the literature, is that it appears to have the least negative connotation. This is an important consideration, given the stigma attached to these behaviors and the tendency of this phenomenon to arouse negative feelings, strong reactions, and prejudice in both clinicians and the general public (Barstow, 1995; Conterio & Lader, 1998; Feldman, 1988; Linehan, 1993; Tantam & Whittaker, 1992; Walsh & Rosen, 1988).

Given the inconsistent conceptual definitions of self-harm found in the literature, it is not surprising that there is also a lack of consensus among researchers about the operational definition of deliberate self-harm. Consequently, the self-harm literature is replete with numerous operational definitions of deliberate self-harm, resulting in the likelihood that different researchers are actually measuring different constructs and behaviors. For example, some researchers operationally defined self-harm as the response(s) given to one or two broad questions that allow participants to define self-harm as they understand it (e.g., Boudewyn & Liem, 1995a; Martin & Waite, 1994; Sabo et al., 1995; Zweig-Frank, Paris, & Guzder, 1994a, 1994b). Although operational definitions such as these have the benefit of not constricting participants' responses and thereby sampling the entire domain of behaviors that participants feel are harmful, their use also has certain disadvantages. That is, the use of single-item measures

of self-harm makes it difficult to determine if similar responses from different participants reflect the same behaviors and experiences, and if the participants' responses reflect the constructs and behaviors of interest to the researchers.

Likely because of the exploratory nature of many studies on self-harm, many operational definitions of this phenomenon have not assessed the frequency of the self-harming behavior. For example, many studies use a dichotomous self-harm variable, indicating the presence or absence of a history of self-harm (e.g., Baral et al., 1998; Schaffer, Carroll, & Abramowitz, 1982; Zweig-Frank et al., 1994a, 1994b). However, it is likely that there are clinically significant differences between individuals who chronically engage in repetitive deliberate self-harm and those who have engaged in self-harm behaviors once or twice in their lives, making the frequency of self-harm an important area of assessment.

Other researchers have measured deliberate self-harm through the use of structured and semistructured clinical interviews originally devised for other purposes (e.g., Demitrack, Putnam, Brewerton, Brandt, & Gold, 1990; Ross et al., 1990; Simeon et al., 1992). Semistructured interviews have the advantage of providing more detailed information about frequency, severity, and duration of self-harm through the use of follow-up questions. However, their validity still rests on the specificity and validity of the initial question, as a nonaffirmative response to this question will preclude any follow-up. Also, the use of interviews to measure self-harm has the disadvantage that interviews are frequently lengthy and cumbersome, thus prohibiting their use in large-scale studies of prevalence and etiological pathway, which are needed.

Researchers have acknowledged the need for a standardized and validated measure of self-harm (Simeon et al., 1992). However, three of the measures developed thus far have not yet been empirically validated (Favazza & Conterio, 1989; Zlotnick et al., 1996), and/or have been based on a less exclusive definition of self-harm than that proposed earlier, assessing both deliberate self-harm and indirect self-destructive behaviors, such as reckless driving and substance abuse (Sansone, Wiederman, & Sansone, 1998; Zlotnick et al., 1996). The measure of self-harm developed by this author, the Deliberate Self-Harm Inventory (DSHI), is a behaviorally based, 17-item, self-report questionnaire based on the conceptual definition of deliberate self-harm as the deliberate, direct destruction or alteration of body tissue without conscious suicidal intent, but resulting in injury severe enough for tissue damage (e.g., scarring) to occur (see Measures for complete details). The primary purpose of this study was to begin to explore the psychometric properties of the DSHI, thereby

aiding in the development of an empirically validated and standardized measure of deliberate self-harm.

METHOD

Participants

One hundred and fifty-nine students from undergraduate psychology courses offered at the University of Massachusetts Boston participated in this study. Nine participants were excluded from the analyses because of extensive missing data. The final sample of 150 participants ranged in age from 18 to 64, with a mean age of 23.19 ($SD = 7.13$). Sixty-eight percent of these participants were female. Sixty percent of the participants were Caucasian American, 18% were Asian American, 13% were African American or another ethnic group of African descent, 5% were Hispanic American, and 4% were of another racial/ethnic background. Participants were predominantly single (81%) and heterosexual (97%). There was little difference, demographically, between participants who completed all of the measures and those who did not.

Measures

Deliberate Self-Harm Inventory

The Deliberate Self-Harm Inventory (DSHI) is a 17-item, behaviorally based, self-report questionnaire developed by the author to assess deliberate self-harm (see Appendix). The DSHI is based on the conceptual definition of deliberate self-harm as the deliberate, direct destruction or alteration of body tissue without conscious suicidal intent, but resulting in injury severe enough for tissue damage (e.g., scarring) to occur. This measure assesses various aspects of deliberate self-harm, including frequency, severity, duration, and type of self-harming behavior. The specific acts of deliberate self-harm listed in the questionnaire were based on clinical observations, numerous testimonies of individuals who engage in self-harming behavior, and common behaviors reported in the literature.

In order to collect preliminary psychometric data on the DSHI, two variables were derived from information obtained from the DSHI. A continuous variable was created to measure frequency of reported self-harm behavior. Participants' scores on the frequency questions for each of the 17 items (when Item 17 was judged to be a deliberate self-harm behavior) were summed to create a variable of the total frequency of self-harm behavior (including "0"). A dichotomous self-harm variable was also created by assigning a score of "1" to participants who answered yes

to any of the first 16 items on the DSHI, or whose affirmative answer to Item 17 on the DSHI described a behavior consistent with the conceptual definition of self-harm described above. All other participants (i.e., those who did not answer “yes” to any of the DSHI items) were assigned a score of “0” on this dichotomous self-harm variable.

General Self-Harm Questionnaire

This is a brief questionnaire containing some of the common items traditionally used in the literature to measure deliberate self-harm. It consists of (a) four questions (Items 102 through 105) taken from Boudewyn and Liem’s Mental Health History Form (Boudewyn & Liem, 1995b), which read “Have you ever had the desire to hurt or harm yourself in some way? How many times have you had the desire to hurt or harm yourself? Have you ever acted on these feelings (i.e., hurt or harmed yourself in some way)? How many times have you acted on these feelings?”; (b) Item 72 on the Diagnostic Interview for Borderlines, Revised (DIB-R; Zanarini, Gunderson, Frankenburg, & Chauncey, 1989), which reads “Have you deliberately hurt yourself without trying to kill yourself anytime in the last two years?” (as cited in Zweig-Frank et al., 1994a, p. 261); and (c) the self-harm acts item from the Suicide Behaviors Questionnaire (SBQ; Linehan, as cited in Sabo et al., 1995), which reads “In the past six months, have you intentionally harmed yourself in a way which at the time was NOT considered by you or anyone else a suicide attempt?” Boudewyn and Liem’s self-harm acts question (Item 104), Item 72 on the DIB-R, and the self-harm acts item from the SBQ are single questions asking participants whether or not they have engaged in self-harm. Therefore, dichotomous self-harm variables were created for each of these three items, with participants who answered yes receiving a score of “1” for the respective variable, and participants who answered no receiving a score of “0.” These variables were used to assess the construct validity of the DSHI.

Borderline Personality Organization Scale

The Borderline Personality Organization Scale (BPO; Oldham et al., 1985) is a 30-item, self-report measure used to assess experiences, behaviors, and beliefs common among individuals with borderline personality disorder (BPD). The BPO was derived through factor analysis of items designed by the authors and administered to psychiatric inpatients, outpatients, and normal controls. The BPO contains three subscales: (a) identity diffusion, a poorly integrated sense of self or others; (b) primitive defenses, including splitting, idealization, devaluation, omnipotence,

denial, projection, and projective identification; and (c) reality testing, reflecting the transient psychotic episodes common among individuals with BPD. The BPO has good internal consistency (Cronbach’s $\alpha = .92, .87, \text{ and } .84$ for the identity diffusion, primitive defenses, and reality testing subscales, respectively; Oldham et al., 1985). In addition, the subscales are all highly correlated with one another ($r_s > .74$; Oldham et al., 1985). Finally, the BPO has good construct validity, as scores on each of the BPO subscales are significantly correlated with scores on the C (Borderline) subscale of the Millon Clinical Multiaxial Inventory-II ($r_s = .79, .72, \text{ and } .74$ for the identity diffusion, primitive defenses, and reality testing subscales, respectively, $p_s < .01$; Dutton, 1994). The BPO was included to assess the convergent validity of the DSHI.

Demographics Questionnaire

This questionnaire elicited basic demographic information from the participants, such as their age, gender, work history, and ethnicity. Also, this questionnaire asked respondents to indicate whether they had ever been in therapy. Finally, this questionnaire elicited information on history of suicide attempts. Participants were asked, “Have you ever attempted to end your life (i.e., attempted suicide)?” If they provided an affirmative response to this initial question, participants were asked to describe the circumstances surrounding one such attempt, thereby enabling confirmation by this researcher that the behavior did in fact qualify as a direct suicide attempt, as opposed to an indirect, self-destructive behavior. The variables of age, hours employed per week, history of therapy, and history of suicide attempts were used to assess the discriminant validity of the DSHI, as these variables are thought to be unrelated to self-harm (or, in the case of suicide attempts, fundamentally different from self-harm; see Favazza, 1998; Pattison & Kahan, 1983).

Marlowe–Crowne Social Desirability Scale

The Marlowe–Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) is a 33-item, self-report measure that was used to control for response sets and biased responses. The MCSDS has been shown to have adequate internal (Cronbach’s $\alpha = .88$) and test-retest reliability ($r = .89$; Crowne & Marlowe, 1960). Items were all scored in the same direction, and ratings were summed over all items. Higher scores indicate a greater propensity to answer in socially desirable ways. The MCSDS was included to assess the discriminant validity of the DSHI.

Procedure

At the time of recruiting, participants were fully informed about the purpose of the study, as well as the potentially distressing subject matter. In addition, the content and format of the DSHI was explained in detail. During recruiting, participants were told:

The purpose of the study is to examine people's experiences with self-harm, including the different kinds of ways in which people sometimes intentionally harm themselves physically when they are under stress. You will be asked to fill out a questionnaire consisting of a list of different behaviors in which people may engage to physically harm themselves. Since the questionnaire is behaviorally-based, it may be somewhat shocking and potentially distressing. If you find this topic distressing, or if you are currently having difficulty not hurting yourself in some way, it is advised that you do not participate in this study.

Students who chose to participate in the study completed research packets consisting of the DSHI and other measures described above (see Measures), and 93 of these participants completed the DSHI again after an interval of 2–4 weeks ($M = 3.3$ weeks). After completing the questionnaire packet, participants were provided a debriefing form containing information on resources available for individuals who engage in self-harm and clinical referrals. Participants received research credits in exchange for their participation.

RESULTS

Data Screening

As the raw scores of two measures were skewed, variable transformations were required. Specifically, the BPO scores were moderately, positively skewed, requiring a square root transformation. The DSHI scores for frequency of self-harm were also positively skewed, and a logarithm was used to transform these scores. Following transformations, both variables approximated normal distributions.

Prevalence of Self-Harm

Thirty-five percent of the sample ($N = 53$) reported a history of deliberate self-harm, with 15% reporting more than 10 incidents of self-harm in the past and 9% reporting more than 100 incidents in the past. The vast majority of self-harming individuals (83%) had harmed themselves more than one time. The majority of self-harming individuals (68%) reported using multiple methods to harm

themselves (i.e., they reported a history of engaging in more than one type of self-harm behavior). In fact, 9% of the total sample, and 26% of self-harming individuals, reported engaging in four or more self-harm behaviors. The most frequently reported self-harm behaviors were skin cutting and needle-sticking, each endorsed by 14% of the participants, followed by scratching, reported by 12% of the participants (see Table I for frequency of individuals reporting a history of the self-harm behaviors assessed in the DSHI).

Impact of Gender

Interestingly, contrary to literature suggesting that deliberate self-harm behavior is much more common among women than men (Boudewyn & Liem, 1995a; Suyemoto, 1998), frequency of self-harm was not significantly associated with gender of participant ($r_b = -.09$). In fact, the present study found that rates of self-harm among women and men (34% and 38%, respectively) did not differ significantly from one another ($\chi^2 = .15, p > .10$). In regard to the impact of gender on the particular forms of self-harm used by participants, the most notable finding was the fundamental *lack* of gender differences in choice of self-harm behavior (see Table II for the frequencies of women and men reporting each of the self-harm behaviors assessed in the DSHI). A significant gender difference in prevalence was found for only one form of self-harm behavior; specifically, more women

Table I. Frequency of Individuals Endorsing the DSHI Items ($N = 150$)

Self-harm behavior	Frequency	Percentage
Cutting	21	14
Burning with cigarette	7	5
Burning with lighter or match	5	3
Carving words into skin	13	9
Carving pictures into skin	6	4
Severe scratching	18	12
Biting	8	5
Rubbing sandpaper on skin	2	1
Dripping acid on skin	0	0
Using bleach or oven cleaner to scrub skin	0	0
Sticking pins, needles, staples into skin	21	14
Rubbing glass into skin	4	3
Breaking bones	1	1
Banging head	17	11
Punching self	14	9
Interference with wound healing	10	7
Other forms of self-harm	10	7

Table II. Frequencies of Women ($N = 102$) and Men ($N = 48$) Endorsing the DSHI Items

Self-harm behavior	Women		Men	
	Frequency	Percentage	Frequency	Percentage
Cutting	14	14	7	15
Burning with cigarette	4	4	3	6
Burning with lighter or match	4	4	1	2
Carving words into skin	12	12	1	2
Carving pictures into skin	4	4	2	4
Severe scratching	12	12	6	13
Biting	6	6	2	4
Rubbing sandpaper on skin	1	1	1	2
Dripping acid on skin	0	0	0	0
Using bleach or oven cleaner to scrub skin	0	0	0	0
Sticking pins, needles, staples into skin	12	12	9	19
Rubbing glass into skin	2	2	2	4
Breaking bones	0	0	1	2
Banging head	12	12	5	10
Punching self	10	10	4	8
Interference with wound healing	8	8	2	4
Other forms of self-harm	6	6	4	8

(12%) than men (2%) reported having carved words into their skin ($\chi^2 = 3.87, p < .05$).

Reliability of the DSHI

Internal Consistency

Cronbach's alpha was calculated to determine the internal consistency of the dichotomous DSHI items. Results indicate that the DSHI had high internal consistency ($\alpha = .82$). Although two of the items on the scale (dripping acid and using bleach or oven cleaner) were not endorsed by any of the participants, excluding these items from the scale did not appreciably change its internal consistency ($\alpha = .83$), suggesting that these items need not be excluded from the scale in the future. For the 15 DSHI items endorsed by participants in this sample (i.e., items for which there was some variance in this sample), item-total correlations ranged from $r_b = .65$ and $r_b = .63$ for the items needle-sticking and skin-cutting, respectively, to $r_b = .12$ and $r_b = .14$ for bone-breaking and sand-papering the skin, respectively. Thirteen of the items had item-total correlations above $r_b = .33$ (see Table III for item-total correlations for the DSHI items).

Test-Retest Reliability

For the 93 participants who completed the DSHI a second time, scores on the first and second administration

of the DSHI were correlated to determine the test-retest reliability of the dichotomous DSHI scores. Results indicate that the DSHI had adequate test-retest reliability over a period ranging from 2 to 4 weeks, with a mean of 3.3 weeks ($\phi = .68, p < .001$), suggesting that the DSHI reliably classifies participants as self-harming or not. Also, the number of self-harming behaviors endorsed by participants on the first and second administrations of the DSHI were highly correlated ($r = .92, p < .001$).

Table III. Corrected Item-Total Correlations for DSHI Scale Items ($N = 150$)

DSHI scale item	Corrected item-total correlation
Cutting	.63
Burning with cigarette	.34
Burning with lighter or match	.49
Carving words into skin	.47
Carving pictures into skin	.45
Severe scratching	.51
Biting	.54
Rubbing sandpaper on skin	.14
Sticking pins, needles, staples into skin	.65
Rubbing glass into skin	.35
Breaking bones	.12
Banging head	.57
Punching self	.44
Interference with wound healing	.49
Other forms of self-harm	.36
Dripping acid on skin	.00
Using bleach or oven cleaner to scrub skin	.00

Validity of the DSHI

Correlations were computed to determine the validity of the DSHI. Specifically, the construct validity of the DSHI was determined by measuring the association between the dichotomous DSHI variable and the other dichotomous measures of self-harm. However, as the use of a behaviorally based measure of self-harm such as the DSHI was expected to decrease the likelihood of false negative classifications of self-harm, it was expected that the relationship between the DSHI and the other, less exclusive, measures of self-harm would be moderate but not perfect. It was also expected, however, that the DSHI would correlate more highly with the other measures of self-harm than with measures of other constructs conceptualized as fundamentally different from self-harm, such as history of suicide attempts (see, e.g., Favazza, 1998; Pattison & Kahan, 1983). Therefore, correlations between the DSHI variables and a measure of history of suicide attempts were computed to determine the discriminant validity of the DSHI, as were correlations between the DSHI and age, hours employed per week, history of therapy, and the MCSDS (variables thought to be unrelated to self-harm). The convergent validity of the DSHI was determined by measuring the association between frequency of self-harm and scores on a measure of borderline personality organization, as self-harm is a common behavioral correlate of borderline personality disorder (Dubo, Zanarini, Lewis, & Williams, 1997).

As shown in Table IV, the DSHI was significantly, moderately correlated with all of the other measures of self-harm as well as the measure of borderline personality organization. Also, despite the significant (albeit small) correlations between the DSHI variables and measures of

history of suicide attempts, social desirability, and history of therapy, the DSHI was correlated more highly with the measures of self-harm and borderline personality organization than with measures of history of suicide attempts, age, hours employed per week, history of therapy, or social desirability (variables thought to be unrelated to, or, in the case of suicide attempts, fundamentally different from, self-harm). Specifically, the correlation between the dichotomous DSHI variable and the DIB-R self-harm item was significantly higher than the correlation between the dichotomous DSHI variable and the measure of history of suicide attempts ($t = 2.13, p < .05$). Similarly, the correlation between the dichotomous DSHI variable and the Mental Health History self-harm item was significantly higher than the correlation between the dichotomous DSHI variable and the measure of history of suicide attempts ($t = 42.38, p < .01$). The correlation between the DSHI and the SBQ self-harm item, while higher than the correlation between the DSHI and history of suicide attempts, was not significantly higher ($t = 1.45, ns$). Likewise, the correlation between the DSHI frequency variable and the BPO was significantly higher than the correlations between the DSHI frequency variable and the measure of history of suicide attempts ($t = 2.94, p < .01$), the measure of history of therapy ($t = 2.90, p < .01$), and the measure of social desirability ($t = 5.94, p < .01$). Thus, these results provide preliminary evidence for the construct validity, convergent validity, and discriminant validity of the DSHI.

In terms of comparisons between the DSHI and extant measures of self-harm, Table V shows the correlations between each of the measures of self-harm included in this study (i.e., the DSHI, and the DIB-R, SBQ, and Mental Health History self-harm items) and measures of borderline personality organization, suicide attempts, and social desirability, thereby enabling a preliminary comparison of the convergent and discriminant validity of these measures. Results suggest that the DSHI is comparable (or, in the case of the Mental Health History self-harm item, superior) in convergent and discriminant validity to the single-item measures of self-harm commonly used in the literature. In addition, given Nunnally's contention that multiple-item measures (such as the DSHI) are inherently more reliable than single-item measures (Nunnally, 1970), as well as the fact that the use of behaviorally based measures increases the likelihood that participants' responses reflect the constructs and behaviors of interest to the researchers, further research will likely show the DSHI to have greater reliability and construct validity than the extant single-item measures of self-harm.

Table IV. Correlations Between the DSHI and Other Measures ($N = 150$)

	Dichotomous DSHI	DSHI frequency
Mental health history self-harm item	.49***	
DIB-R self-harm item	.43***	
SBQ self-harm item	.35***	
BPO		.48***
Suicide attempts	.20*	.21*
Age	-.11	-.11
Hours employed per week	-.10	-.09
History of therapy	.12	.21**
MCSDS		-.21*

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table V. Correlations Between Extant Measures of Self-Harm and Measures of Borderline Personality Organization, Suicide Attempts, and Social Desirability ($N = 150$)

	Dichotomous DSHI	DSHI frequency	Mental health history	SBQ	DIB-R
BPO	.40**	.48***	.44**	.29**	.42**
Suicide attempts	.20*	.21*	.55**	.10	-.05
MCSDS	-.25**	-.21*	-.25**	-.17*	-.24**

* $p < .05$. ** $p < .01$. *** $p < .001$.

DISCUSSION

The primary purpose of this study was to develop and validate a measure of deliberate self-harm that is based firmly on clear and clinically useful conceptual and operational definitions of self-harm—a necessary step before research in this area can systematically advance. Before discussing the preliminary psychometric properties of the DSHI, however, the prevalence of self-harm found among this sample warrants a brief discussion, as does the prevalence of self-harm found among the men in this sample.

The extent of self-harm reported in this college sample was quite striking, as 35% of the sample reported a history of self-harm and 15% reported a history of more than 10 incidents of self-harm. In the past, studies of self-harm among college students have reported a lower prevalence rate of this behavior than that found in the present study (e.g., 11% reported by Boudewyn & Liem, 1995a; 14% reported by Favazza, 1992). Factors that may account for the discrepancy in prevalence rates include differences in the measures used to assess self-harm, differences in the decade in which the studies were conducted, and differences in the recruitment methods used (i.e., participants in this study were fully informed during recruitment that the purpose of the study was to examine deliberate self-harm). Therefore, until the prevalence rates of self-harm obtained in this study are replicated in other studies, they cannot be considered indicative of the prevalence of this behavior among a random population of college students (for a more thorough discussion of these issues, see Gratz, Conrad, & Roemer, in press). The results of this study also clearly highlight the presence of self-harm behavior among men, with 38% of the men in this study reporting a history of self-harm. This suggests that contrary to the general perception in the field, this behavior may be as prevalent among men as it is among women (as 34% of the women in this study reported a history of this behavior). At the very least, the results of this study clearly indicate the need for further examination of this behavior among men.

For several years, researchers in this area have commented on the need for a standardized and empirically validated measure of deliberate self-harm (Zlotnick et al.,

1996). The results suggest that the DSHI may be just such a measure. Preliminary findings suggest that the DSHI has high internal consistency; adequate test-retest reliability; and adequate construct, convergent, and discriminant validity. Of course, it is important to note that the results of this study are preliminary, and further research is needed to establish the validity of the DSHI. That is, replication of the results of this study with different samples and across different circumstances is necessary to ensure the robustness of the findings and the validity of the measure for other populations (Haynes, Richard, & Kubany, 1995). In addition, the validity of any measure must be periodically reassessed (Haynes et al., 1995).

Since the DSHI is a behaviorally based measure of deliberate self-harm, its use would leave little doubt as to the construct being measured by different researchers across different studies, thus facilitating the comparison and aggregation of results of different studies. Also, use of the DSHI would increase the likelihood that participants' responses reflect the constructs and behaviors of interest to researchers in this area. This is not necessarily the case when other measures of self-harm are used, as some self-harm behaviors may be underreported unless specifically listed as acts of self-harm (Zlotnick et al., 1996), and single-item measures that ask participants to define self-harm as they understand it provide no way to determine the precise behaviors reported by the participants (or the extent to which these behaviors reflect the construct of interest to the researchers). In addition, the use of a measure of self-harm (such as the DSHI) that specifically directs participants to report only behaviors that did not involve an intent to die increases the likelihood of distinguishing between self-harm behavior and suicide attempts—a distinction that likely has substantial clinical relevance and important treatment implications. (However, as discussed below, further research is needed to examine the discriminant validity of the DSHI with respect to suicide attempts, particularly when the individual was ambivalent about her or his desire or intent to die).

Two of the items listed in the DSHI were not endorsed by any of the participants in this study; specifically, none of the participants reported a history of dripping acid

onto their skin or using bleach, comet, or oven cleaner to scrub their skin. These items were originally included in the scale because they are behaviors that have been observed among some of the self-harming individuals with whom this author has worked. However, these individuals had histories of severe and chronic deliberate self-harm requiring frequent inpatient hospitalization. In retrospect, it makes sense that these rather extreme forms of self-harm behavior would not be observed among a nonpsychiatric population of relatively high-functioning individuals. However, as these behaviors may be observed among individuals with histories of more severe and chronic self-harm, and as the exclusion of these two items from the scale did not appreciably change the internal consistency of the DSHI, it is suggested that these items be retained in the scale for future use.

Preliminary findings suggest that the DSHI may provide an improvement over extant measures of self-harm for several reasons: (a) it is behaviorally based, thereby enabling researchers to know the precise behaviors they are measuring and ensuring that participants report only behaviors of interest to the researchers; (b) it has some (albeit preliminary) psychometric data suggesting its validity and reliability, an improvement over existing measures that have no established psychometric data; and (c) it provides an assessment of the frequency of self-harm behavior (an aspect that likely has important clinical implications), as opposed to simply the presence or absence of the behavior.

One limitation of this study involves the measures used to establish the construct validity of the DSHI. These measures were chosen because they are routinely used in the literature to measure self-harm. Unfortunately, however, the very problem that necessitates this study (and that this study seeks to address) is the same problem that detracts from the validity of the results. That is, because the DSHI was developed in response to the lack of empirically validated measures of self-harm in the literature, there are no empirically validated measures of self-harm with which to compare the DSHI for the purpose of assessing its construct validity. Assessing the validity of the DSHI with measures that do not themselves have established validity, while the only possible choice at present, does limit the validity of these findings. Therefore, it is necessary for future research to examine the construct validity of the DSHI through the use of clinical interviews or examination of psychiatric records.

Another limitation of the study is related to the external validity and generalizability of the results. That is, since all of the participants in this study were college students, the validity of the DSHI for a clinical population has yet to be determined (see Haynes et al., 1995). It is important to note, however, that the college sample used in

this study is rather atypical. The university from which the sample was drawn is a diverse urban university that draws heavily from the community and attracts a large number of older, nontraditional, and first-generation college students. Examination of the demographics of the sample (as reported in the Methods section above) confirms that this sample is in fact older and more ethnically/racially diverse than many college samples used in psychological research. Thus, this sample may more accurately be conceptualized as a high-functioning community sample rather than a typical college sample, thereby contributing to the external validity of this study.

In light of the aforementioned limitations, one useful area for future research would be to compare DSHI scores with clinical assessments of self-harm behavior, so as to provide an additional (and likely more valid) measure of self-harm with which to compare the DSHI for the purpose of establishing its construct validity. In addition, further research is needed to examine the discriminant validity of the DSHI, especially with respect to other measures of psychopathology, such as anxiety and depression. Also, given the important theoretical distinction between self-harm behavior and suicide attempts, future research should examine self-injurious behaviors for which the intent to die is ambiguous (i.e., behaviors for which the individual expresses ambivalence as to their intent), exploring the complexity that the range of awareness of intent to die may introduce into the assessment of self-harm, and more specifically, the ability to distinguish between self-harm behavior and suicide attempts. In light of the suggestion by some researchers that self-harm behavior is not only different from suicide-related behavior but antithetical to suicide (see Boudewyn & Liem, 1995a; Pattison & Kahan, 1983; Sabo et al., 1995), exploring the distinction between these behaviors seems clinically relevant and may have important treatment implications.

Future research will also explore the possible ways to incorporate all of the information provided in the DSHI (including frequency, duration, and severity of self-harm) into a single score of self-harm. The use of all of the valuable information provided in the DSHI will facilitate the detection of the most clinically significant risk factors for self-harm behavior. Also, the possibility of including tattooing as one of the items on the DSHI will be explored. Given the general stance in the literature that tattooing and self-harm are separate phenomena, tattooing was not included in the DSHI. However, interviews with several male participants in this study suggest the need to reconsider this decision, as three self-harming participants reported that they considered tattooing to be a form of self-harm and two of these participants specifically reported having personally substituted tattooing for another

self-harm behavior because both behaviors served the same function. Thus, given this preliminary evidence that tattooing may, for some individuals, serve the same function as the other self-harm behaviors listed in the DSHI, future research is needed to further clarify this issue and determine the best course of action with respect to the inclusion of tattooing on the DSHI.

APPENDIX: DELIBERATE SELF-HARM INVENTORY

This questionnaire asks about a number of different things that people sometimes do to hurt themselves. Please be sure to read each question carefully and respond honestly. Often, people who do these kinds of things to themselves keep it a secret, for a variety of reasons. However, honest responses to these questions will provide us with greater understanding and knowledge about these behaviors and the best way to help people. Please answer yes to a question only if you did the behavior intentionally, or on purpose, to hurt yourself. Do not respond yes if you did something accidentally (e.g., you tripped and banged your head on accident). Also, please be assured that your responses are completely confidential.

1. Have you ever intentionally (i.e., on purpose) cut your wrist, arms, or other area(s) of your body (without intending to kill yourself)? (circle one):

1. Yes 2. No

If yes,

How old were you when you first did this? _____

How many times have you done this? _____

When was the last time you did this? _____

How many years have you been doing this? (If you are no longer doing this, how many years did you do this before you stopped?) _____

Has this behavior ever resulted in hospitalization or injury severe enough to require medical treatment? _____

In the questionnaire given to participants, the above format is used for each of the following items, with each index question followed by the five follow-up questions. Like Item 1, each of the following items begins with the phrase: Have you ever intentionally (i.e., on purpose)

2. Burned yourself with a cigarette?
3. Burned yourself with a lighter or a match?
4. Carved words into your skin?
5. Carved pictures, designs, or other marks into your skin?

6. Severely scratched yourself, to the extent that scarring or bleeding occurred?
7. Bit yourself, to the extent that you broke the skin?
8. Rubbed sandpaper on your body?
9. Dripped acid onto your skin?
10. Used bleach, comet, or oven cleaner to scrub your skin?
11. Stuck sharp objects such as needles, pins, staples, etc. into your skin, not including tattoos, ear piercing, needles used for drug use, or body piercing?
12. Rubbed glass into your skin?
13. Broken your own bones?
14. Banged your head against something, to the extent that you caused a bruise to appear?
15. Punched yourself, to the extent that you caused a bruise to appear?
16. Prevented wounds from healing?
17. Done anything else to hurt yourself that was not asked about in this questionnaire? If yes, what did you do to hurt yourself? _____

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