The Self-Injury Questionnaire: evaluation of the psychometric properties in a clinical population

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This paper presents the findings, from a clinical study, on the reliability and validity of a new measure for intentions in self-harm behaviour, the Self-Injury Questionnaire (SIQ). Eighty-three patients, who had presented to an emergency department with an episode of self-harm/suicidal behaviour, were given the SIQ as part of a battery of measures to evaluate differentiation in self-harm intentions based upon a history of childhood physical and/or sexual abuse. The internal consistency for the total scale was strong (α = 0.83). Construct validity demonstrated significant correlations with standardized measures. A principle component analysis of responses yielded a five-factor solution with ‘affect regulation’ items loading on the first factor. Cronbach’s alphas were adequate for each subscale (α = 0.72–0.77). These preliminary findings indicate that the SIQ is a valid and reliable measure for research in an acute self-harming population.

Keywords: childhood physical sexual abuse, self-harm, suicide

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Introduction

Suicidal and self-harm behaviours present healthcare providers and researchers with complex dilemmas. Generally, self-injury, self-mutilation and deliberate self-harm refer to self-destructive behaviours without the intent to die, and are frequently associated with the method of cutting or burning; while suicidal behaviour and suicidal gestures tend to include a wish for death, and are frequently associated with the method of overdosing. Inconsistencies in the operational definitions have inhibited interpretation and generalizations across research findings. Consequently, clinical assessment of and interventions for the behaviours vary with little evidence of treatment efficacy (Hawton et al. 1998). Clarification of intentions in self-harm behaviour may assist in the debate about the phenomenon itself and, further, may direct clinical assessment and management of self-injurious clients.

Rates of self-harm without the intent to die are estimated to be as high as 750 per 100 000 (Favazza & Contario 1988, Hawton et al. 1997). Suicide rates persist in Canada at 19.5 males and five females per 100 000 residents (Statistics Canada 2004, Langlois & Morrison 2002) and are similar to rates in major English-speaking coun-
tries. The UK suicide rate is reported at 18.1 males and 5.8 females per 100 000 (UK National Statistics 2004) and the reported rate in the USA is 11 persons per 100 000 (National Center for Health Statistics 2004). Although individuals with histories of previous self-harm episodes are at risk for completed suicide (Evans et al. 1996, Hawton et al. 1998), it is clear that not all suicidal acts are driven by a wish to die. However, intentions in suicidal and self-harm behaviour have been conceptualized historically from the death wish perspective, with depression and hopelessness as key risk factors (Dyer & Kreitman 1980, Lester 1994, Fuse 1997). Subsequently, suicidal and/or self-harm intent is measured with scales which capture the absence or presence of the death wish and its severity (Beck et al. 1974, 1988, Beck & Lester 1976, Potter et al. 1998).

Recently, the multifactorial nature of intentionality has been raised. Authors debate self-harm and suicidal behaviours as separate or overlapping phenomena (Linehan 1986, Beautrais 2001), often citing intentions as the distinguishing feature. However, researchers choose various ways to distinguish intention between these two groups. Some authors label all self-harmers as suicide attempters, and then ask for reasons for attempting suicide (Holden & McLeod 2000). Others define intent by method initially, and then measure differences in severity (Haw et al. 2003). In addition, intent has been compared between medical diagnostic groups: cluster B personality disorder with self-mutilation history; and cluster B personality disorder without self-mutilation history, as per Diagnostic and Statistical Manual of Mental Disorders Third Edition (Revision) (Stanley et al. 2001); or based upon parasuicide inventories (Brown et al. 2002). However, all differentiations are premised on ‘intent’ as contextualized by the researcher/clinician according to its potential, extreme outcome: suicide. Subsequent clinical interventions are suggested as per the designation of the participant to either category. This excludes the possibility to assess and plan for the complex, multidimensional nature of this phenomenon, as articulated by the participant.

There is a critical need to better understand the motivations of self-harming individuals in an effort to tailor accurate assessments, self-harm prevention and appropriate clinical treatment, where currently ‘gold’ standards are absent (Hawton et al. 1998). As proximal predictors of self-harming behaviours, intentions may be cognitive and/or affective factors that can become direct targets of interventions. As yet, there are few empirically based measures that capture the variations in self-harm intentions. This study measures multiple intentions within a self-harm behaviour event, inclusive of ‘suicide attempt’. Therefore, simultaneously held intentions, ascribed by the participant, can be evaluated and incorporated in the treatment plan. Conversely, assessments emphasize the absence, presence and severity of suicide intent as associated with the extreme outcome (death); and treatments are predominantly, singularly focused, with the goal to avoid suicide, rather than to intervene with all motivations.

An important clinical reality is the knowledge that many individuals who self-injure and seek mental health services have histories of childhood abuse and/or neglect. A traumatized group may be one important subpopulation, for whom the negative effects of abuse include problems in sustaining a healthy, coherent and consistent sense of self, forming positive attachment relationships and adapting personal affect regulation (Linehan 1986, Beautrais 2001, Stanley et al. 2001, Wekerle & Wolfe 2003). Childhood abuse and neglect has been seen therefore as a distal or potential predictor of self-harm. Trauma theorists propose a multi-intentional, adaptation perspective, whereby adult self-harm behaviours (particularly cutting) reflect a coping mechanism to sustain life. Alternative intents, which may operate simultaneously in this population, are suggested: the management of overwhelming affect, the management of dissociation and the re-enactment of trauma (van der Kolk 1994, Arnold 1995, Alexander 1999).

This paper describes the exploratory analyses of the psychometric properties of a new measure for the intentions of self-injury, the Self-Injury Questionnaire (SIQ) (Alexander 1999). The SIQ was developed with a non-clinical population. This study tests the SIQ in an adult emergency, psychiatric population, presenting with suicidal or self-harm behaviour. This population has yet to be considered along a multi-intentionality approach. Assessment for a history of childhood abuse is incorporated to determine whether intentionality varies along this potentially defining dimension of a self-injury population. The research questions are: (1) Is the SIQ a valid, reliable measure for self-injury intentions? (2) In an adult psychiatric population, what factor structure of intentionality would emerge? (3) Are there intentionality differences among psychiatric clients with and without childhood histories of physical and/or sexual abuse?

**Background for the SIQ**

The SIQ is a 30-item, self-report instrument, conceptualized from the trauma literature and tested initially in a community sample. The SIQ, based on Connors’s (1996) classification of self-injury, measures intentions for self-harm per method (overdose, cut, hang, etc.) across all four subscales (i.e. body alterations, indirect self-harm, failure to care for self and overt self-injury). It measures the frequency, type and functions of self-harm behaviours and their associations with histories of childhood trauma. The
items represent eight conceptual themes for self-injurious behaviour: regulation of feelings, regulation of realness, safety, communication with self, communication with others, fun, social influence and regulation of body sensations.

Findings from Alexander’s (1999) pilot work indicated good face validity, although internal consistency was not reported. The test–retest reliability was variable at the individual reason item level. However, for the total intention item score, the test–retest reliability was adequate (r = 0.76–0.96). Alexander’s work suggested that overt self-injurious behaviours were associated with items consistent with the concepts: affect dysregulation and dissociation.

**Methodology**

Upon ethics approval from the University of Toronto and the research site ethics board, participants were recruited from the Crisis Service and the Inpatient Mental Health Unit of an inner city teaching hospital. One hundred and thirteen clients, who presented with a self-harm episode, were approached; and 83 signed an informed consent and participated, on average, within 3 days from the time of the self-harm episode, for a response rate of 73%. All participants were competent and not certified at the time of participation, under the provincial Mental Health Act. Nineteen participants reported non-abused and 64 reported physical and/or sexual abuse. The sample consisted of 51.8% male, 48.2% female; with an age range of 18–69 years (mean = 37.28, SD = 11.05); 50% engaged in overdoses, 25% in cutting and 25% in a variety of other methods. There was no statistically significant difference in the age range, gender or method between the non-abused or abused groups. Participants completed multiple self-report standardized measures to evaluate the key concepts of their self-harm intent: Suicide Intent Scale (SIS) (Beck & Lester 1976), SIQ: overt self-injury subscale (Alexander 1999), Self-Inflicted Injury Severity Form (SIISF) (Potter et al. 1998), Dissociative Experiences Scale (DES) (Bernstein Carlson & Putnam 1993), Structured Interview for Disorders of Extreme Stress: affective and dissociative subscales (SIDES) (van der Kolk et al. 1996), Trauma Symptom Checklist-40 (TSC-40) (Elliot & Briere 1992), Beck Hopelessness Scale (BHS) (Beck et al. 1974) and Beck Depression Inventory II (BDI II) (Beck et al. 1988).

**Results**

There was no difference in intentions between the non-abused and abused groups. The abused group reported greater levels of dissociation (DES) (t = 2.50, d.f. = 81, P = 0.04) and affect liability (TSC-40) (t = 2.05, d.f. = 81, P = 0.01) than the non-abused.

**Internal consistency of the SIQ**

Internal consistency indicated strong reliability for the total SIQ scale (α = 0.83, 95% confidence interval (CI), 0.78–0.86). Two SIQ subscales, the affective subscale and the dissociation subscale, were created to test further the construct validity. Seven items linked conceptually to reasons related to the management of affect: ‘to distract from feelings or thoughts’, ‘to deal with physical pain instead of mental pain’, ‘to distract from memories’, ‘to show the pain I feel inside’, ‘to express anger or frustration at someone else’, ‘to achieve a feeling of peace’ and ‘to reduce tension or anxiety’ (total score 0–7). Four items linked conceptually to reasons related to dissociation: ‘to bring myself back to reality’, ‘to feel real or alive’, ‘to numb out or space out’ and ‘to escape from reality’ (total score 0–4). The internal validity was adequate for the affective and dissociative subscales, respectively (α = 0.72, 95% CI, 0.62–0.80; α = 0.77, 95% CI, 0.68–0.84). Cronbach alphas were also adequate for each of the subsequent five subscales from the SIQ principle component analysis (Factor I: α = 0.74, 95% CI, 0.65–0.81; Factor II: α = 0.72, 95% CI, 0.62–0.81; Factor III: α = 0.73, 95% CI, 0.63–0.81, Factor IV: α = 0.76, 95% CI, 0.67–0.83; Factor V: α = 0.76, 95% CI, 0.67–0.83). The correlations between each of the SIQ response items and their respective total subscale scores were calculated. The item-to-total correlations were moderate (r > 0.50) for all subscales (dissociative subscale: r = 0.63–0.76; Factor II: r = 0.69–0.71; Factor III: r = 0.50–0.67; Factor IV: r = 0.58–0.84; Factor V: r = 0.55–0.74) except the affective subscale and Factor I affect regulation subscales, which were weak to moderate (affective subscale: r = 0.35–0.75; Factor I affect regulation: r = 0.34–0.65). Mean inter-item correlations were moderate (affective subscale: r = 0.57; dissociative subscale: r = 0.68; Factor I: r = 0.53; Factor II: r = 0.66; Factor III: r = 0.59; Factor IV: r = 0.68; Factor V: r = 0.67). All item-to-total score correlations (two-tailed) were significant at the 0.01 level.

Examination of the individually selected SIQ items revealed that 81 participants chose more than one reason for their self-harm behaviour (60% chose ‘suicide attempt’ plus other reasons, 38% chose multiple reasons and not ‘suicide attempt’, and 2% chose ‘suicide attempt’ only).

**Analysis of construct validity of the SIQ**

**Convergent validity**

Convergent validity tested the correlations (Pearson r, two-tailed) between the SIQ item ‘suicide attempt’ and the measures for the key concepts of suicide: SIS total score, SIS objective subscale score, SIS subjective subscale score, SIISF severity, BHS and BDI II (Table 1). Results indicated a
weak, positive correlation only with the SIS total ($r = 0.34$, $P < 0.001$) and SIS subjective subscale ($r = 0.44$, $P < 0.001$).

The SIQ affective subscale and the SIQ dissociation subscale were correlated (Table 2) (Pearson $r$, two-tailed) with measures for affect regulation (TSC-40, SIDES affective current severity subscale) and dissociation (DES, SIDES current severity dissociation subscale). Results indicated a weak, positive correlation between the SIQ affective subscale and the TSC-40 ($r = 0.24$, $P < 0.02$) and a moderate positive correlation between the SIQ dissociation subscale and the DES ($r = 0.39$, $P < 0.001$).

**Divergent validity**
Divergent validity tested the correlations (Pearson $r$, two-tailed) for the item ‘instead of suicide to avoid suicide’, and the measures for the key concepts of suicide: SIS total score, SIS objective subscale score, SIS subjective subscale score, SIISF severity, BHS and BDI II (Table 1). Results indicated weak, negative correlations between ‘to avoid suicide’ and the SIS total score ($r = −0.25$, $P < 0.02$) and the SIS subjective subscale ($r = −0.27$, $P < 0.01$).

**Principle component analysis**
A principle component analysis, using the Kaiser–Meyer–Olkin Measure of Sampling (0.614), was selected for use with this data set. A five-factor solution, based upon the theoretical underpinnings for reason themes – affect regulation, management of dissociation, suicide, communication and stimulation – was conducted. Five factors were accepted as they met the criteria: eigenvalue >1.0, accounted for >5% of the variance, had a clear factor pattern (i.e. items loading >0.3 on one factor) and were theoretically meaningful. The items loaded on five factors and accumulatively explained 49.63% of the variance (Table 3). The reason themes – affect regulation, coping
Table 4
Factor correlations with suicide, affect regulation and dissociation concept

<table>
<thead>
<tr>
<th>Factor</th>
<th>SIS total</th>
<th>BDI II (n = 74)</th>
<th>BHS (n = 74)</th>
<th>SIISF</th>
<th>SIQ affective subscale</th>
<th>TSC-40</th>
<th>SIDES 1 (n = 80)</th>
<th>SIDES 2 (n = 70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>NS</td>
<td>r = 0.23* (P = 0.03)</td>
<td>NS</td>
<td>r = −0.25* (P = 0.03)</td>
<td>r = 0.89** (P = 0.001)</td>
<td>r = 0.27* (P = 0.01)</td>
<td>NS</td>
<td>r = 0.68** (P = 0.001)</td>
</tr>
<tr>
<td>II</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>III</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>r = −0.26* (P = 0.03)</td>
<td>r = 0.43** (P = 0.001)</td>
<td>NS</td>
<td>NS</td>
<td>r = 0.42** (P = 0.001)</td>
</tr>
<tr>
<td>IV</td>
<td>r = −0.37* (P = 0.001)</td>
<td>r = −0.25* (P = 0.03)</td>
<td>NS</td>
<td>NS</td>
<td>r = −0.23* (P = 0.04)</td>
<td>NS</td>
<td>r = 0.43** (P = 0.001)</td>
<td>NS</td>
</tr>
<tr>
<td>V</td>
<td>r = 0.29** (P = 0.01)</td>
<td>r = −0.25* (P = 0.03)</td>
<td>r = −0.25 (P = 0.02)</td>
<td>r = 0.45** (P = 0.001)</td>
<td>r = 0.23* (P = 0.04)</td>
<td>r = 0.23* (P = 0.04)</td>
<td>r = 0.57** (P = 0.001)</td>
<td>r = 0.52** (P = 0.001)</td>
</tr>
</tbody>
</table>

Sample size = 83 unless otherwise indicated.

Factor I, Affect Regulation; Factor II, Coping; Factor III, Protection; Factor IV, Stimulation; Factor V, Dissociation; SIS total, Suicide Intent Scale total; BDI II, Beck Depression Inventory II; BHS, Beck Hopelessness Scale; SIISF, Self-Inflicted Injury Severity Form; SIQ, Self-Injury Questionnaire; TSC-40, Trauma Symptom Checklist-40; SIES 1, Structured Interview for Disorders of Extreme Stress Affective Severity Subscale; SIES 2, Structured Interview for Disorders of Extreme Stress Dissociative Severity Subscale; DES, Dissociative Experiences Scale; NS, non-significant results.

*Significant at 0.05 level (two-tailed). **Significant at 0.01 level (two-tailed).

Evaluation of the SIQ’s psychometrics in a clinical population is limited to this convenience sample. Homogeneity of demographics and restriction of the independent variable to childhood physical and/or sexual abuse limits interpretation of this instrument’s performance across the full spectrum of childhood maltreatment and the self-harm population. The SIQ is conceptualized from the trauma literature. It is not known whether this study’s non-abused group represents the population who have never experienced any childhood trauma. If not, additional reasons for self-harm that have no grounding in an abuse history may not have been detected by this instrument. It is more likely that this non-abused group may have experienced other forms of trauma and the study may lack an actual non-abused sample.

There is no ‘gold standard’ measurement for validation of the complex construct: self-harm intent. The SIS is premised upon the wish to die, and as such does not investigate other reasons. This study’s validation of reasons other than suicide incorporates instruments designed to measure disparate abuse severity sequelae and as such does not provide congruence in findings across the measures. Additional factor themes beyond the two described in the trauma literature emerged and no measures had been incorporated for validation of these concepts.

Discussion

In this study with a clinical population, childhood maltreatment focused on those aspects that have been most frequently investigated: childhood physical and sexual abuse. Different results may emerge if the full spectrum of child-

Evaluations...
hood maltreatment was considered, including physical and emotional neglect, as well as emotional abuse and witnessing domestic violence. The reasons for direct self-harm behaviour, in a clinical sample, across all aspects of childhood maltreatment, have yet to be investigated.

The psychometric test results support the reliability and validity of the SIQ as a measure of self-harm intentions in a clinical population. The internal consistency was adequate for the total scale and the seven subscales. The significant correlations between the item response and total subscale scores indicate that the SIQ is a reliable measure.

Evidence of construct validity was supported by convergent and divergent validity tests. The correlations between the SIQ subscales and its individual items with seven pre-existing measures for the key constructs in self-harm intentions demonstrated significance. The factor analysis and subscale correlations supported the adaptive reasons of self-harm as theorized by the trauma literature. Factors I and V represented the same themes: affect regulation and dissociation regulation, as the initial theory-based subscales created by the authors. The significant correlations between SIQ dissociative subscale and all factors and the affective subscale and four factors may suggest item redundancy. In addition, the factor analysis accounted for almost 50% of the variance. Future work may indicate separate gender analyses with a larger sample size as males differ in self-harm, suicide and sexual abuse characteristics. This study supports work from other authors who emphasize the focus on self-harm meanings as ascribed by the person (Redley 2003).

In summary, construct validity was demonstrated with convergent validity of: (1) the SIQ ‘suicide attempt’ item with the SIS total score and SIS subjective subscale score; (2) the SIQ affective and dissociative subscales across factors and with the TSC-40 and DES (respectively); and (3) each of the five factors correlated across standardized measures. As anticipated, divergent validity was evident with: (1) the SIQ item ‘to avoid suicide’ and the SIS total score and SIS objective subscale score; and (2) SIQ Factor V: dissociation subscale with two standardized measures for suicide. Reasons for self-harm that are situated within the dissociative process may be counter to an actual wish for death. Neither the SIQ item ‘suicide attempt’ nor ‘to avoid suicide’ correlated with the SIS objective subscale scores. It is possible that, whether or not people wish to die, they may lack knowledge of what is required to cause death.

The SIQ scores did not correlate predictably across all standardized measures of key concepts. For example, there was not convergent validity of the SIQ ‘suicide attempt’ item with the BDI II, BHS or SIISF; nor was there divergent validity between the SIQ ‘to avoid suicide’ with any of these standard measures. Also, the SIQ affective and dissociative subscales correlated with one measure each (TSC-40 and DES, respectively) and not with the respective SIDES severity subscales. This lack of validity may suggest that further research with this measure is required to revise items for precise wording, to be sensitive to severity in affect and dissociation and to remove any redundancy. The SIQ may become a measure with fewer but more accurately worded items.

However, there is sufficient evidence of the strength of this measure to warrant evaluation of the instrument’s clinical utility. In an acute, self-harming population, assessment of the breadth of intentions may direct care to be more inclusive. Patients, who are given the opportunity to identify the spectrum of self-harm functions, may be less inclined to frame them solely within the context of suicide. Ultimately, the patient, not the researcher/clinician, determines intent and the direction of care. The clinical utility of this instrument is therefore an important area of research to pursue. Its usefulness for the patient and/or the clinician as an assessment instrument, at the time of the self-harm episode, is yet to be explored. Such a tool may inform clinical practice and contribute to the development of new interventions.

Implications for mental health nursing practice

Mental health nurses may be the initial clinician to receive and care for the self-harming client. It is important to educate nurses regarding the multi-intentional nature of self-harm behaviour and the importance for all mental health care clinicians to develop and to conduct multifocused self-harm assessments, regardless of gender, method or an abuse history, and to provide interventions which target the motivations. In addition, mental health nurses need to develop competency in assessment and support clients through potential disclosures of histories of childhood trauma and the possible sequelae.

Conclusion

The psychometric properties of the SIQ demonstrate its validity and reliability as a research instrument for self-injury intentions with a clinical, self-harm population. Patient-specified self-harm intentions are multiple within one episode, with a factor structure demonstrating adaptive, affect management purposes among others, and no difference between clients with and without histories of childhood physical and/or sexual abuse. This instrument emerges as a promising clinical tool worth further empirical investigation. It may lead to different therapeutic approaches, including training in distress tolerance and...
affective coping if, for example, affect regulation is a key intent for self-harm behaviours.

References


