

# Suicide Attempt Self-Injury Interview (SASII): Development, Reliability, and Validity of a Scale to Assess Suicide Attempts and Intentional Self-Injury

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The authors describe the development of the Suicide Attempt Self-Injury Interview (SASII), an instrument designed to assess the factors involved in nonfatal suicide attempts and intentional self-injury. Using 4 cohorts of participants, authors generated SASII items and evaluated them with factor and content analyses and internal consistency statistics. The final measure was assessed for reliability and validity with collateral measures. The SASII assesses variables related to method, lethality and impulsivity of the act, likelihood of rescue, suicide intent or ambivalence and other motivations, consequences, and habitual self-injury. The SASII was found to have very good interrater reliability and adequate validity.

**Keywords:** suicide attempt, suicide, self-injury, deliberate self-harm, measurement

Suicide attempts and nonsuicidal self-injuries are significant, costly health problems. In addition to the psychological impact of these behaviors on individuals and their families, they have enormous social costs in terms of medical treatment and loss of productivity. In the United States, a recent national study (Kessler, Borges, & Walters, 1999) reported lifetime prevalence rates of 4.6% for suicide attempts, with women having a higher rate than men. Data from the World Health Organization/Europe (WHO/Euro) multicenter study of attempted suicide (Kerkhof, 2000) suggest that lifetime prevalence rates of medically treated suicide attempts are approximately 3% for women and 2% for men. Furthermore, the WHO/Euro study (Kerkhof et al., 1998) reported that an estimated 54% of individuals who harm themselves with

some intent to die have done so before. Repeaters commonly have comorbid mental disorders (Arensman & Kerkhof, 1996).

A review of articles published since 1990 examining suicidal behavior in adults and adolescents highlights the utility of definitional clarity in describing suicidal and other self-injurious behaviors and the problems that occur from the lack thereof (see Linehan, 1997, for a review). Some studies assessed *parasuicide* using Kreitman's (1977) definition: "a nonfatal act in which an individual deliberately causes self-injury or ingests a substance in excess of any prescribed or generally recognized therapeutic dosage" (p. 3). This definition has the advantage of being specific, concrete, observable, and reliably measurable and was the basis for the development of the instrument presented here (formerly called the Parasuicide History Interview). Although *parasuicide* as a term has been widely accepted among researchers and was the definition selected for the WHO/Euro multinational study, the definition has not gained popularity both because the term is often interpreted as indicating no suicide intent (i.e., as mutually exclusive of suicide attempts instead of the intended larger category including suicide attempts) and because it does not translate well in other languages. The term *deliberate self-harm* avoids this problem but fails to capture the relationship of the behavior to suicide (De Leo, Bille-Brahe, Kerkhof, & Schmidtke, 2004; Schmidtke, Bille-Brahe, De Leo, & Kerkhof, 2004).

More serious problems arise when researchers study related phenomena, such as suicide attempts (a subcategory within parasuicide) or suicide gesture (which partially but not entirely overlaps with parasuicide), and either fail to operationally define the variable or define it in a way that obfuscates the phenomenon. For example, many researchers (Bronisch, 1992) label all intentional self-injurious behavior not resulting in death as "suicide attempts" without actually assessing for suicide intent, which the term *suicide attempt* implies. This method confuses the topography (i.e., physical aspects) and the intent of the behavior and risks ignoring the significant number of people who engage in self-injurious behavior with no suicide intent (Linehan, 1986). Indeed, one of the

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The Suicide Attempt Self-Injury Interview (SASII) and supplementary questions are available on the Web at <http://www.brtc.psych.washington.edu/pubs/instruments.html>. Contact Marsha M. Linehan for the SASII instruction manual and the computerized direct entry SASII.

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stated goals of the second part of the WHO/Euro study was to address this terminological problem (Bille-Brahe et al., 1996). As a result, the WHO/Euro investigators have revised their nomenclature to replace "parasuicide" with "fatal or nonfatal suicidal behavior with or without injuries" and also require that the behavior be "nonhabitual" to distinguish nonfatal suicidal behavior from the repetitive self-injurious behavior common in some forms of autism (De Leo et al., 2004; Schmidtke et al., 2004).

Examination of previous studies of suicidal behavior and intentional self-injury using these different definitions suggest a number of characteristics that are theoretically and clinically important. In all such studies, of course, the researchers ask whether or not a suicide attempt or self-injury has occurred. Many researchers ask only this question (Andrews & Lewinsohn, 1992; Gould et al., 1998; Ohring et al., 1996) and use the response to compare suicide attempters to nonattempters. Similarly, in other studies researchers ask whether the participant has injured himself or herself once or repeatedly or ask for the exact number of suicidal or otherwise self-injurious acts during a stated time period (Kemperman, Russ, & Shearin, 1997; Mann, Waternaux, Haas, & Malone, 1999), whereas other researchers assess first and most recent act (Kessler et al., 1999). The most frequently described characteristics of an act are method (Herpertz, 1995; Swahn & Potter, 2001), lethality or medical severity (Groholt, Ekeberg, & Haldorsen, 2000), and existence of suicide intent at the time of a self-injurious act (Groholt et al., 2000; Mann et al., 1999). To a lesser extent, researchers have assessed antecedent events or stressors (Kienhorst, de Wilde, Diekstra, & Wolters, 1995; Michel, Valach, & Waeber, 1994), preact behavior and/or impulsivity (e.g., resisting urges, degree of planning, warning others, drinking; Barnes, Ikeda, & Kresnow, 2001), likelihood of "rescue" from an act (e.g., Groholt et al., 2000), and postact behavior or consequences (e.g., Michel et al., 1994; Simon et al., 2001). Some studies ask about instrumental intent or motivation for an act, other than suicide intent (M. Z. Brown, Comtois, & Linehan, 2002; Michel et al., 1994; Schnyder, Valach, Bichsel, & Michel, 1999).

Among the instruments cited by these studies, those with established empirical support generally assess only a selection of these multiple variables involved in suicidal and other self-injurious behavior. Two instruments that rate the lethality of the act and have been used in several studies include the Risk-Rescue Rating (Weisman & Worden, 1972, 1974) and the Lethality of Suicide Attempt Rating Scale (Smith, Conroy, & Ehler, 1984). The Suicide Intent Scale (Beck, Schuyler, & Herman, 1974) is the most frequently cited measure of suicide intent in the literature (Groholt et al., 2000; Mann et al., 1999; Strosahl, Chiles, & Linehan, 1992) and is recommended by many suicide experts (Bongar, 1991; Maris, Berman, Maltsberger, & Yufit, 1992). Two recently published self-report assessments (Gratz, 2001; Gutierrez, Osman, Barrios, & Kopper, 2001) were designed to integrate multiple variables, but they have not yet been tested on clinical populations.

To study and treat suicidal and other self-injurious behavior, researchers and clinicians must examine the multiple factors involved in the behavior. To assess these factors, researchers and clinicians require a comprehensive instrument that allows for reliable data collection across a wide range of settings. Such an instrument will provide useful data for developing a clinical risk management plan for a particular patient as well as allowing a comparison of the diverse research studies on suicidal behavior.

Though several well-developed instruments (Cull & Gill, 1982; Plutchik, van Praag, Conte, & Picard, 1989; Zung, 1974) aim to predict risk of future suicidal behavior, they do not measure or describe the multiple factors associated with past suicidal episodes. To date, no one in the field has published an interview that comprehensively assesses these factors.

To address this gap in the literature, we describe in this article the development of a structured interview, the Suicide Attempt Self-Injury Interview (SASII), designed to provide comprehensive descriptive information about suicidal and other self-injurious behaviors suitable for use by researchers and clinicians. A primary advantage of the SASII is the ability to incorporate all of the above definitions of suicidal behavior. Both the original parasuicide definition of the WHO/Euro study and their current nomenclature of fatal and nonfatal suicidal behavior is included as well as habitual behaviors and self-injuries with no intent to die, which they exclude (De Leo et al., 2004; Schmidtke et al., 2004). Thus, all behavior that was self-initiated with the intent to harm the body (regardless of intent to die) is included.

The goal of the SASII is to assess the topography, context, and intent of the behavior separately so that an assessor using any definition or related concept can gather the necessary information to assess the behavior of interest and clearly distinguish it from other suicidal or self-injurious behaviors. The SASII has been used in several published studies (e.g., M. Z. Brown et al., 2002; Koons et al., 2001; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Verheul et al., 2003) and gathers detailed information about the multiple aspects of suicidal and other self-injurious behavior that the literature suggests are important to researchers and clinicians alike. The interview is intended to assess past behavior, not to predict risk of future suicidal behavior. We describe the development and content of the instrument and present reliability and initial validity.

## Method

### *Instrument Development*

In this section, we describe the process by which we developed the items and scales for the SASII.

### *Participants*

There were five cohorts of participants. Cohort 1 participants were 75 psychiatric inpatients consecutively admitted for a suicide attempt or intentional self-injury on the days prescheduled for assessments to one of two University of Washington teaching hospitals. Mean age was 25.4 years, and 65.3% were women. Cohort 2 participants were 75 patients consecutively admitted to the emergency room (of Harborview Medical Center, the major county teaching hospital operated by the University of Washington) for a suicide attempt or intentional self-injury on the days prescheduled for assessments. Mean age was 35.67 years, and 52% were women.

Participants in Cohorts 3 ( $n = 44$ ), 4 ( $n = 117$ ), and 5 ( $n = 27$ ) were drawn from four clinical trials examining treatments for women meeting criteria for borderline personality disorder (BPD) conducted at the Behavioral Research and Therapy Clinics in the Department of Psychology at the University of Washington. These participants: (a) met criteria for BPD, (b) were women between the ages of 18 and 45 years, and (c) did not meet criteria for schizophrenia, bipolar disorder, or mental retardation and in Cohort 3 did not meet criteria for current substance dependence. Exclusion

of Axis I disorders was evaluated with the National Institute of Mental Health Diagnostic Interview Schedule: Version III (Robins, Helzer, Croughan, & Ratcliff, 1981). Given that data for Cohort 3 were collected before the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, BPD was determined using the Diagnostic Interview for Borderlines (score  $\geq 7$ ; Gunderson, Kolb, & Austin, 1981) and confirmed using the Structured Clinical Interview for *DSM-III* (SCID; Spitzer, Williams, Gibbon, & First, 1990). Criteria for BPD in Cohorts 4 and 5 were determined by the Personality Disorders Exam (Loranger, 1995) and confirmed by the SCID-II (First, Spitzer, Gibbon, & Williams, 1997). Exclusion Axis I disorders were evaluated with the SCID for *DSM-IV*, Axis I (First, Spitzer, Gibbon, & Williams, 1995, 2002). Additional inclusion criteria were at least two suicide attempt or self-injurious episodes in the previous 5 years, with at least one within the previous 8 weeks (for Cohorts 3 and 4), and met criteria for current substance dependence according to the SCID (Cohort 5). Mean age (in years) was 27.2 for Cohort 3, 29.44 for Cohort 4, and 33.7 for Cohort 5. After complete description of the study, written informed consent was obtained from participants in each of the five patient cohorts.

### Assessors

Participants were interviewed by Marsha M. Linehan (Cohort 1) and teams of advanced undergraduate research assistants and master's-level clinicians. All assessors were trained by Marsha M. Linehan or Katherine Anne Comtois.

### Assessment Method

In Cohort 1 participants were interviewed within 72 hr of their admission and in Cohort 2 within one week of normal mental status after the suicide attempt or other self-injury. The focus of the interview was their most recent suicide attempt or intentional self-injury. In Cohorts 3 and 4, participants were interviewed at pretreatment before beginning their respective clinical trials and again at three more consecutive 4-month intervals. We asked about their most recent suicide attempt or self-injurious act at pretreatment, and in subsequent assessments we asked about all acts that had occurred between the last assessment and the current one.

### Instrument Structure

A time-line follow-back assessment procedure was used to structure the interview. This procedure has been shown to have high reliability in measuring alcohol use (Sobell, Sobell, Klajner, Pavan, & Basian, 1986) and is widely used in measuring other domains (Nelson & Clum, 2002; Weinstock, Whelan, & Meyers, 2004). Four screening questions were included at the beginning of the interview to identify how many intentional self-injurious episodes had occurred in a designated time frame. If more than one episode was to be evaluated, separate interviews were completed for each episode reported by the participant. An *episode* refers to either an individual act or a cluster of acts consisting of acts that occur too repetitively or closely in time to be distinguished from each other in any other way than by count (e.g., cutting every day for one month).

### Item Generation

The first aim in item generation was to develop a standard but brief set of items to assess characteristics of self-injurious behavior necessary for both describing the act and determining associated intent so the behavior could be categorized as suicidal or nonsuicidal. The second aim was to develop additional items that would provide a standard format for obtaining supplemental descriptive information useful in specialized contexts.<sup>1</sup>

Items were written based on the universe of suicide attempt and intentional self-injury characteristics cited in the literature or included in exist-

ing measures of suicidal behavior. In addition to obtaining information on the frequency of suicide attempts and self-injurious acts, we developed items to measure the following content areas for each act: (a) detailed description of method of the act, (b) intent and outcome expectations associated with act (including suicide intent), (c) lethality of method used (independent of associated circumstances and outcomes), (d) physical condition resulting from the act, (e) medical treatment received as a consequence of the act, (f) preact planning/preparations, (g) contextual and behavioral factors associated with act, (h) antecedent events, and (i) functional outcomes.

We developed successive drafts of the SASII interview on the basis of pilot testing with patients in Cohort 1. We rewrote questions as needed to improve understandability or to better obtain information the question was designed to address. To ensure content validity of multiple-choice question options, we asked open-ended questions first until no new answers were provided. These responses were then used to determine multiple-choice items, which were then further tested with subsequent participants to be sure wording was clear. We further tested items on Cohort 3 participants and added several items to improve the clarity of information obtained. Items in the final SASII version included open-ended questions (e.g., "What were the specific events leading up to the self-injury?"), checklist questions (e.g., "Would you say you injured yourself for any of the reasons on this list? Which ones?"), forced-choice questions (e.g., "Was the initiation of your action to self-injure deliberate, accidental, or somewhere in between?"), Likert-type scale questions (e.g., "Interviewer: rate medical risk of death based on method and on other substances present at time on a scale of 1 to 6"), and yes/no items (e.g., "Were you drinking during or prior to your self-injury?"). Self-report and interviewer-rated items were included.

### Scale Construction

*Factor analytically derived scales.* Two exploratory factor analyses were conducted. The first analysis factored responses from the 75 Cohort 2 patients presenting for treatment to the emergency room. A second factor analysis was conducted with the 161 suicidal BPD women presenting for treatment in Cohorts 3 and 4. SASII items were excluded a priori from analyses if they provided nominal data (e.g., method) or addressed information ancillary to characteristics of the episode itself (e.g., motives for the act other than to self-injure or die, distal consequences of the act). Maximum likelihood extraction with varimax rotation and pairwise deletion was performed on the remaining 13 SASII items—those describing characteristics of the act and its effects. For the patients admitted to the emergency room in Cohort 2, a four-factor solution accounting for 59.9% of the variance was selected based on a scree test and eigenvalues  $> 1.00$ . The second analysis based on the suicidal BPD women in Cohorts 3 and 4 provided essentially the same four factors that accounted for 59.4% of the variance. As can be seen in Table 1,<sup>2</sup> including only items with factor loading of .4 or above yielded the following four scale scores: (a) Suicide Intent (4 items), (b) Rescue Likelihood (2 items), (c) Suicide Communication (2 items), and (d) Lethality (3 items). We excluded two items from scoring: (a) Suicide Note (because it did not load on any factor in either analysis) and (b) Impulsiveness of Episode (because it loaded on the Rescue Likelihood Factor in Cohort 2 but did not load on any factor in Cohorts 3 and 4). Because both items reflect important aspects of suicide attempts that are of clinical and research importance, we kept both items in the interview as single questions. Factor loadings, communalities, item

<sup>1</sup> Nineteen supplemental items were developed as a SASII appendix for these items. The appendix is available from Marsha M. Linehan.

<sup>2</sup> As indicated in Table 1, the factors were made up of relatively few items, and in some cases the communalities were below .50. This situation raises the possibility that future studies might uncover a different factor structure, specifically one with fewer factors.

Table 1  
Factor Loadings, Communality Estimates, Percentage of Variance, Means, and Standard Deviations for Core Suicide Attempt Self-Injury Core Items

Variable	Factors										Communalities				Cohort 2 <sup>a</sup>				Cohorts 3 and 4 <sup>b</sup>			
	Cohort 2					Cohorts 3 and 4					Cohort 2		Cohorts 3 and 4		M		SD		M		SD	
	SI	RL	SC	L	SI	RL	SC	L	SC	L	Cohort 2	Cohorts 3 and 4	Cohort 2	Cohorts 3 and 4	M	SD	%	M	SD	%	M	SD
Percentage of variance accounted for scale item	25.17	14.62	10.70	9.39	23.49	9.84	9.35	16.75														
Suicide intent (assessor rated)	<b>.864</b>	.378	-.057	.091	<b>.800</b>	.086	.128	.385			.847	.766			3.4	1.4		2.0	1.3			
Consider episode a suicide attempt now	<b>.851</b>	.086	-.060	.028	<b>.755</b>	.176	.099	.253			.732	.664					77			38		
Considered episode a suicide attempt then	<b>.829</b>	.132	-.002	.032	<b>.824</b>	.103	.155	.255			.709	.721					78			40		
Conscious expectation of fatal outcome (assessor rated)	<b>.803</b>	.298	-.035	.105	<b>.757</b>	.034	.057	.345			.748	.703			1.4	0.7		0.7	0.8			
Suicide note	.318	.292	-.114	.023	.252	-.076	.289	.160			.509	.175					19			5		
Impulsiveness of episode (assessor rated)	-.218	<b>-.759</b>	-.011	-.005	-.179	.081	-.118	-.237			.528	.130			5.1	2.0		5.6	1.8			
Probability of intervention (assessor rated)	-.191	<b>-.680</b>	.164	-.271	.069	<b>.824</b>	.099	.064			.550	.376			4.3	1.0		3.6	1.0			
Episode arranged to prevent discovery	.146	<b>.614</b>	-.142	.134	-.073	<b>-.657</b>	-.078	-.011			.534	.348			0.7	0.8		1.0	0.9			
Communicated suicide ideation before (assessor rated)	.108	-.069	<b>.990</b>	-.057	.285	.072	<b>.425</b>	.192			.478	.658			0.7	0.9		0.6	0.8			
Threatened suicide before (assessor rated)	-.154	-.140	<b>.548</b>	-.017	-.024	.160	<b>.911</b>	-.002			.399	.645			0.4	0.8		0.4	0.7			
Physical condition following episode (assessor rated)	.247	.286	-.171	<b>.747</b>	.285	.072	.034	<b>.899</b>			.397	.602			2.8	1.4		2.4	1.3			
Lethality of method used (assessor rated)	.380	.189	-.101	<b>.579</b>	<b>.466</b>	.004	.147	<b>.651</b>			.410	.306			3.2	1.4		2.4	1.2			
Highest level of medical treatment (assessor rated)	-.144	-.009	.064	<b>.457</b>	.364	.200	.127	<b>.653</b>			.247	.260			4.8	1.7		1.9	2.8			

Note. SI = suicide intent, L = lethality, RL = rescue likelihood, and SC = suicide communication. Bold type indicates factor loadings over .4. Extraction method: maximum likelihood. Rotation method: varimax with Kaiser normalization. Rotation converged in 5 iterations. The item anchors were suicide intent (1 = *obviously no intent*, 5 = *extreme intent, careful planning, and every expectation of death*), consider episode a suicide attempt now (0 = *no*, 1 = *yes*), considered episode a suicide attempt then (0 = *no*, 1 = *yes*), conscious expectation of fatal outcome (0 = *no expectation*, 2 = *clear expectations of fatal outcome*), suicide note (0 = *no*, 1 = *yes*), impulsiveness of episode (1 = *commitment to act, followed by very careful or elaborate plan carried out over a period of time, 7 = no active planning and with very strong emotion*), probability of intervention (1 = *chance of intervention remote; act committed by person in a solitary or isolated place without access to telephone, 5 = certain intervention; act committed in the presence of another person/made phone call immediately before or after in order to advise of act or to say good-bye*), episode arranged to prevent discovery (0 = *no*, 2 = *yes*), communicated suicide ideation before (0 = *no*, 2 = *direct communication*), threatened suicide before (0 = *no*, 2 = *direct threat*), physical condition following episode (0 = *no effect, 7 = death occurred*), lethality of method used (1 = *very low:  $\geq 5$  pills [unless medication potentially lethal in low doses]; scratching; reopening partially healed wounds; head banging; swallowing small, nonsharp objects; going underdressed into cold for brief time; lying down at night in the middle of a nonbusy road but getting up when a car doesn't come or swimming out to middle of lake and returning upon getting tired; minor heroin overdose [1.5 times usual dependent dose]; 6 = severe; pulling trigger of loaded gun aimed at vital area [such as torso or head]; Russian roulette; jumping from a high place [more than 20 ft]; hanging [feet above the ground]; asphyxiation [such as carbon monoxide suffocation]; jumping in front of automobile going faster than 30 miles/hr or off overpass in rush hour traffic; attempted drowning after ingesting alcohol or other drugs; swallowing nail polish remover, turpentine, or similar substances; serious heroin overdose [3 or more times usual dependent dose combined with other drugs and/or alcohol]*), highest level of medical treatment (0 = *no medical treatment sought/required, 10 = mortuary*).

<sup>a</sup> Because of missing data, *n* varied from 44 to 75. The "highest medical treatment" variable had data for only 44 people because they were still receiving medical treatment at the time of the interview so highest medical treatment was not yet known. <sup>b</sup> Because of missing data, *n* varied from 108 to 161. The "suicide threat" variable had data for only 108 people because the question was not yet on the Suicide Attempt Self-Injury Interview (SASII), when Cohort 3 participated.



means, and standard deviations are presented in Table 1. To test if the factor structure was replicated in our two samples, we used a bootstrap procedure to generate congruence coefficients (Chan, Leung, Chan, Ho, & Yung, 1999). There was overall adequate congruence (.749) and, specifically, high congruence for two of our factors (.911 for Suicide Intent and .899 for Rescue Likelihood), moderate congruence on one factor (.644 for Suicide Communication), but low congruence for the last factor (.229 for Lethality). Statistical tests indicated we do not reject congruence at the  $\alpha = .05$  level for the factor scores and overall congruence coefficient. However, on the basis of these analyses, the psychometric properties of the impulsiveness of episode item and the Lethality factor need further evaluation.

We assessed internal consistency of the scales by calculating Cronbach's alpha for the items that made up each score using participants in Cohorts 2–4. Alpha coefficients were excellent for Suicide Intent (.93), good for Lethality (.85), acceptable for Rescue Likelihood (.72), and somewhat questionable for Suicide Communication (.63).

**Additional scales.** In a previous study, four rationally derived scales (by consensus between Marsha M. Linehan and Milton Z. Brown; further details provided in M. Z. Brown et al., 2002) were created to quantify the motives and reasons for self-injury and suicide attempts. The scales and their alpha coefficients were as follows: (a) Interpersonal Influence (8 reasons;  $\alpha = .80$ ), (b) Emotion Relief (6 reasons;  $\alpha = .63$ ), (c) Avoidance/Escape (5 reasons;  $\alpha = .37$ ) and (d) Feeling Generation (3 reasons;  $\alpha = .57$ ).

## SASII Items

On the basis of the above analyses, a standard SASII was constructed containing 6 screening items, 9 open-ended questions to provide information for interviewer coding, and 22 items and associated subitems measuring timing and frequency of self-injurious acts, methods used and lethality of the method, suicidal as well as nonsuicidal intent associated with the episode, communication of suicide intent before the episode, impulsivity and rescue likelihood, physical condition, and level of medical treatment. (See SASII appendix for wording of items.) The six scale scores above and a risk/rescue ratio score can be computed. (See Table 2 for a listing of items in each scale.) Interviewers categorize each episode as a nonsuicidal self-injury, an ambivalent suicide attempt, a nonambivalent suicide attempt, or a failed suicide after asking all interview questions for that episode. Descriptive data are presented in Tables 3 and 4.

## Interrater Reliability and Validity of the SASII

Eleven SASII items require the assessors to provide a rating or code a response on the basis of information given by the participant. We calculated reliability using data from Cohorts 4 and 5. All participants were interviewed with the SASII before they began their study treatment and also at the 4-month point. Thirty-nine participants (27% of the total) were randomly selected for reliability analyses, and for each participant an episode was randomly selected from either the pretreatment or 4-month assessment period. A second assessor who was naïve to the first assessor's ratings completed the second ratings after watching the interview on videotape.

## Results

Interrater reliabilities were calculated with single-measure intraclass correlations (ICCs), with raters as a random effect and the measure as a fixed effect, except that kappa was used for the binary variable. The reliabilities correlations were high across the nine SASII assessor-rated items listed in Table 1 ( $Mdn = .956$ , range = .871–.978). The correlations for two additional assessor-coded items were .918 for the summary classification of suicidality of episodes (i.e., intentional nonsuicidal self-injury, ambivalent sui-

Table 2  
Suicide Attempt Self-Injury Interview Scales with Corresponding Items

Suicide Intent Scale	Interpersonal Influence Scale	Emotion Relief Scale	Suicide Communication Scale	Lethality Scale	Rescue Likelihood Scale
1 Suicide intent	1 Make others understand how desperate you are	1 Stop bad feelings	1 Communicated suicide ideation before	1 Physical condition following episode	1 Probability of intervention
2 Consider episode a suicide attempt now	2 Get others to act differently	2 Stop feeling angry, frustrated, or enraged	2 Threatened suicide before	2 Lethality of method used	2 Episode arranged to prevent discovery
3 Considered episode a suicide attempt then	3 Communicate how desperate you were	3 Relieve anxiety or terror		3 Highest level of medical treatment	
4 Conscious expectation of fatal outcome	4 Get help	4 Relieve feelings of emptiness or isolation			
	5 Get back at or hurt someone	5 Stop feeling self-hated/shame			
	6 Show others how wrong they were	6 Relief from terrible state of mind			
	7 Shock or impress others				
	8 Gain admission to hospital or treatment				

Note. The Risk–Rescue Scale is constructed by dividing the Lethality Scale score by the Rescue Likelihood Scale score.

Table 3  
*Proportion of Participants Using Each Self-Injury Method by Type of Behavior*

Method	Nonsuicidal self-injury ( <i>n</i> = 94)	Ambivalent suicide attempts ( <i>n</i> = 48)	Suicide attempts with no ambivalence ( <i>n</i> = 39)	Failed suicide (continued life purely accidental) ( <i>n</i> = 11)	Total ( <i>N</i> = 192)
Alcohol overdose	.03	.00	.08	.36	.05
Drug overdose	.11	.69	.72	.55	.40
Poison	.00	.02	.00	.00	.01
Burning	.07	.02	.03	.00	.05
Cut/scratch	.68	.44	.26	.27	.51
Stab/puncture	.05	.02	.03	.00	.04
Gun	.00	.00	.00	.09	.01
Hanging	.00	.02	.00	.00	.01
Strangling	.02	.00	.00	.00	.01
Asphyxiation	.00	.00	.00	.09	.01
Jumping	.01	.00	.03	.09	.02
Drowning	.00	.00	.00	.00	.00
Other	.12	.02	.03	.18	.08

*Note.* Interviewers categorize each episode as a nonsuicidal self-injury, an ambivalent suicide attempt, a nonambivalent suicide attempt, or a failed suicide after asking all of the interview questions for that episode.

cide attempt, suicide attempt with no ambivalence, or suicide attempt that is a so-called failed suicide) and .843 for the classification of episodes as single event versus a cluster of events.

#### *Validity of Ratings of Method Lethality and Subsequent Physical Condition*

The SASII is designed to be administered by nonmedical interviewers. Thus, it was important to determine whether the ratings of lethality of the method used (i.e., probability of death from the method used) and coding of the person's physical condition following the self-injury would be comparable to ratings provided by persons with medical training. The latter ratings were considered to be the so-called gold standard criterion. For 30 Cohort 3 participants who attempted suicide or self-injured at least once during the treatment year, one assessment period with a self-injurious act was randomly selected and second ratings were provided for all episodes during the assessment period on lethality of method and physical condition following the episode. The second ratings were made by a physician or nurse who rated the verbatim transcribed description of the episode reported by the participants so that they would not be influenced by knowledge of the participants. Interrater reliabilities were calculated using ICCs. Both reliability coefficients were high: .85 for lethality of the method used and .93 for physical condition following the episode.

#### *Validity of SASII Episodes Versus Therapist Notes*

As an initial validity check on self-reports of the presence or absence and the frequency of self-injurious acts, 11 Cohort 3 participants assigned to a behavioral treatment offered in our clinic were selected for a validity check. Independent assessors administered the SASII to participants at 4-month intervals during treatment. All study therapists were simultaneously requested to note self-injurious episodes in their case notes. The treatment notes thus provided an independent source of verification for participants' SASII reports of number of self-injurious episodes. We compared

participants' SASII reports to their therapist's psychotherapy case notes during the three assessment intervals of the treatment year (pretreatment to 4 months, 4 to 8 months, and 8 to 12 months). Agreement on presence or absence of intentional self-injury across the assessment intervals was 83%. Agreement on the exact number of episodes was 76% overall, and in 86% of cases both therapist and the SASII agreed on the occurrence of at least one episode during a particular period.

#### *Validity of SASII Episodes Versus Participant Diary Cards*

A consecutive sample of 24 Cohort 4 participants assigned to behavioral treatment in our clinic were selected for a validity check. As part of treatment, these participants were required to fill out daily diary cards on which they recorded each day whether they had engaged in a self-injurious act. These diary cards were then given to and reviewed by the therapist at weekly therapy sessions. The diary card ratings for the presence or absence of a self-injurious act on a particular day were modified by the therapist if discussion indicated that either an act had not been reported or an act reported did not qualify as intentional self-injury.

We compared the number of self-injurious acts occurring between pretreatment and the 4-month assessment as reported by participants on the SASII at the 4-month point with the number of acts each participant reported on the diary cards during the same period. Five participants were excluded from the analysis because they had completed less than 50% of their weekly diary cards. An ICC on the 19 participants with sufficient data showed high consistency between the two methods of reporting:  $ICC(1,2) = .91$ . In this analysis, an average of 4.5 acts was reported on the SASII, and an average of 4.3 acts was reported on the diary cards.

#### *Validity of Medically Treated SASII Episodes Versus Medical Records*

For each medically treated suicide attempt or self-injury occurring over the 1-year treatment in Cohort 3, participants signed a

Table 4

*Comparison of Standard Suicide Attempt Self-Injury Interview (SASII) Scale Scores and Individual Items Across Types of Behavior*

Variable	Nonsuicidal self-injury ( <i>n</i> = 94) <sup>a</sup>			Ambivalent suicide attempts ( <i>n</i> = 48) <sup>b</sup>			Suicide attempts with no ambivalence ( <i>n</i> = 39) <sup>c</sup>			Failed suicide (continued life purely accidental; <i>n</i> = 11) <sup>d</sup>			Total ( <i>N</i> = 192) <sup>e</sup>		
	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%
Standard SASII scales															
Suicide Intent (SI)	0.8 <sup>a</sup>	1.1		5.3 <sup>b</sup>	1.4		7.1 <sup>a</sup>	0.6		7.9 <sup>c</sup>	0.3		3.6	3.1	
Lethality (L)	3.5 <sup>a</sup>	3.3		7.9 <sup>b</sup>	4.8		7.9 <sup>b</sup>	4.1		12.0 <sup>c</sup>	3.1		6.0	4.6	
Rescue Likelihood (RL)	5.8 <sup>a</sup>	1.7		6.6 <sup>a</sup>	1.6		6.4 <sup>a</sup>	1.7		4.5 <sup>b</sup>	1.8		6.1	1.8	
Risk/rescue Ratio	0.63 <sup>a</sup>	0.57		1.28 <sup>b</sup>	0.85		1.40 <sup>b</sup>	1.10		3.02 <sup>c</sup>	.84		1.08	0.97	
Suicide Communication (SC)	0.99 <sup>a</sup>	1.32		1.59 <sup>a</sup>	1.60		1.03 <sup>a</sup>	1.26		0.64 <sup>a</sup>	0.81		1.12	1.38	
Interpersonal Influence	.24 <sup>a</sup>	.27		.26 <sup>a</sup>	.27		.17 <sup>a</sup>	.26		.13 <sup>a</sup>	.17		.22	.27	
Emotion Relief	.58 <sup>a</sup>	.27		.55 <sup>a</sup>	.34		.65 <sup>a</sup>	.29		.59 <sup>a</sup>	.25		.59	.29	
Standard SASII individual items															
Impulsivity of episode	5.9	1.4		5.4	1.8		4.8	2.1		2.9	1.6		5.4	1.8	
Suicide note			1.1			8.7			22.0			54.5			10.3
Intent to:															
feel something, even if it was pain			50.5			26.1			30.6			00			35.7
punish yourself			69.9			47.8			45.9			36.4			56.7
get a vacation from having to try so hard			18.3			26.1			10.8			36.4			16.9
prove to yourself how bad things were and OK to feel as you did			23.7			17.4			18.9			09.1			19.5
give you something to do			09.7			06.5			13.5			09.1			11.7
make others better off			07.5			30.4			40.5			09.1			18.2
get away or escape			50.5			65.2			73.0			81.8			56.7
stop feeling numb or dead			41.9			30.4			35.1			36.4			37.4
be with people you love			04.3			13.0			29.7			18.2			12.3
prevent being hurt in a worse way			29.9			28.3			43.2			36.4			32.1
distract you from other problems			41.9			13.0			32.4			27.3			32.1
express anger or frustration			55.9			37.0			40.5			09.1			45.5
stop feeling so very sad <sup>e</sup>			32.2			46.4			78.8			80.0			50.8

*Note.* Because of the addition of new variables to Cohorts 2 and 4 subsequent to data collection in Cohort 3, this sample consists of the 75 patients admitted to the emergency room (Cohort 2) and the 117 suicidal patients with borderline personality disorder who were clinical trial participants. Two items with frequencies below 10% were deleted from the item list. Tukey's honestly significant difference tests were used to compare the four parasuicide subtypes on the SASII scale scores; mean scores with the same letter do not statistically differ ( $p > .05$ , two-tailed).

<sup>a</sup> Because of missing data, *n* varied from 91 to 94. <sup>b</sup> Because of missing data, *n* varied from 46 to 48. <sup>c</sup> Because of missing data, *n* varied from 37 to 38. <sup>d</sup> Because of missing data, *n* varied from 10 to 11. <sup>e</sup> Because of adding this variable after data collection began, *n* = 132.

release of information for the hospital or physician providing the treatment. Medical records for each participant were then requested from the providers. In addition, at the last assessment point in the study (24 months), we attempted to estimate a false negative self-injury medical treatment rate for all participants (i.e., the rate of participants not reporting medically treated episodes). After the entire assessment was completed, all participants were asked to sign separate releases of information for each emergency care facility in the greater Seattle area. No participant refused to sign releases. Medical records were then requested for all participants from the care facilities. Only one facility refused to send records. The medical records provided an independent source of verification for the participant's report of number of medically treated parasuicide episodes.

For 28 participants who reported that they had at least one medically treated suicide attempt or self-injury, we verified that 82% of these episodes were in fact medically treated (i.e., 18% false positives). For 75% (21 of 28) of the participants, medical

records verified all medically treated acts reported on the SASII. Finally, no Cohort 3 participant had failed to report a medically treated episode at the 24-month assessment; that is, there were no false negatives.

## Discussion

This article describes the development of the SASII, a structured interview designed to assess comprehensively the multiple factors associated with suicide attempts and nonsuicidal self-injury. The major strength of the SASII is that it uses a standardized definition of suicidal and other self-injurious behavior that does not confound the form or topography of the behavior with the function or intent of the behavior. The most important implication is that the SASII allows researchers to assess the suicidality or suicide intent of an act independent of the form or consequences of the act itself. A second strength of the instrument is that, in contrast to other measures that provide only a summary rating of lethality of the act

(e.g., Smith et al., 1984), the SASII provides individual ratings for the components of lethality (e.g., lethality of the method used, physical consequences of the act, medical treatment required). Another strength of the measure is the empirical data supporting the reliability and validity of the measure. Raters can reliably score the scaled items on the instrument, and collateral informants indicate the validity of participant self-report. As an assessment instrument for research projects focused on suicidal and/or nonsuicidal self-injurious behaviors, the SASII allows flexible scoring to study variables of interest. The SASII is also sensitive to change, a finding demonstrated in treatment outcome studies with suicidal individuals (Linehan et al., 1991, 2006).

The SASII is unique in that, at present, it is the only comprehensive measure of characteristics associated with both suicidal and nonsuicidal self-injury. Such a measure is essential if research on suicide attempts and nonsuicidal self-injurious behaviors is to proceed. In a recent online comprehensive review of 27 adult suicidal behaviors assessment instruments, G. K. Brown (n.d.) identified 16 measures of suicide ideation but only 4 that produced a description of at least some characteristics of past suicide attempts. None of these latter four is comprehensive. The Suicidal Behaviors Questionnaire (Linehan, 1981) asks for a count of previous self-injuries and suicide attempts together with information about medical treatment for each. The Risk-Rescue Scale (Weisman et al., 1972, 1974), the Self-Inflicted Injury Severity Form (Potter et al., 1998), and the Lethality Scales (Beck, Beck, & Kovacs, 1975) address the medical severity of suicide attempts but gather very little other information. In contrast, the SASII provides information not only on the topography of the suicide attempt or self-injury, but also on the precipitating events, consequences of the act, and ongoing correlates of the act of interest to many researchers (e.g., intake of alcohol, command voices). Notably, it provides information for scoring of the major suicide attempt and self-injury variables cited in the literature.

Any measurement instrument is only as good as its psychometric properties. The SASII demonstrates very good interrater reliability. In addition, reports on the SASII of a medically treated intentional self-injury were verified in 83% of the cases, and no false negatives were found. Lethality ratings based on the SASII compared favorably with those rated by medical personnel.

The SASII was developed primarily as a research instrument for assessing self-injurious behavior that could be categorized as non-suicidal intentional self-injury (nonsuicidal habitual self-injury, nonsuicidal nonhabitual self-injury) or a suicide attempt (ambivalent suicide attempt, suicide attempt with no ambivalence, or suicide attempt that is a so-called failed suicide). The instrument was intentionally developed in such a way that it could easily be modified to obtain sufficient information to assess self-injurious behaviors that are accidental (with and without undue risk taking and/or unreasonable expectation of safety) and victim-precipitated self-injury (without intent to be injured but with undue risk taking or with unreasonable expectation of safety or with intent to be injured).

The SASII also assesses variables related to contextual characteristics of the episode, including antecedent events, preact behaviors, and states of mind and consequences. Essentially, the SASII conducts a behavioral analysis of each self-injurious act. The high level of detail also makes the SASII a useful clinical measure—

especially for those unfamiliar with detailed suicide risk assessment. It proceeds logically from an overall description of an act to a detailed assessment of method, context (e.g., prompting events, the presence of alcohol, writing a note, efforts to prevent discovery), and final consequences of the act. Scale scores together with individual items include information needed for documenting risk assessment and clarifying specific and concrete risk factors that the clinician can treat. Breaking down this frightening behavior into manageable problems to solve is as important for the clinician as it is for the suicidal individual.

The data from these cohorts is useful in providing normative data on individuals seeking medical or psychosocial treatments for serious suicidal and self-injurious behaviors. Given that these individuals may not be representative of those from other settings, researchers and clinicians should be cautious in comparing SASII scores from their own participants, clients, or patients to those presented here. It is also important that further research discover whether the SASII is a reliable and valid measure for other populations and individuals not seeking treatment. Future psychometric studies comparing the SASII to standard measures of specific aspects of suicide attempts would also be useful to further test its construct validity. Finally, although the scale scores are intuitively important, the interitem reliability of several is limited and therefore should be used with caution. Clearly, there are limitations to scales that contain few items. Despite these limitations, the SASII is an important addition to the field of suicide assessment that may improve clinical care of suicidal individuals as well as the comprehensiveness of research assessment.

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