

SELF-MUTILATION IN CLINICAL AND GENERAL POPULATION SAMPLES: Prevalence, Correlates, and Functions

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Self-mutilation, examined in samples of the general population, clinical groups, and self-identified self-mutilators, was reported by 4% of the general and 21% of the clinical sample, and was equally prevalent among males and females. Results suggest that such behavior is used to decrease dissociation, emotional distress, and posttraumatic symptoms. Childhood sexual abuse was associated with self-mutilation in both clinical and nonclinical samples.

Intentionally self-injurious or self-mutilating behavior is one of the more perplexing of clinical phenomena. Defined by Walsh and Rosen (1988) as "deliberate, non-life-threatening, self-effected bodily harm or disfigurement of a socially unacceptable nature" (p. 10), the most common forms of self-mutilating behavior (SMB) appear to be cutting and burning of the arms or legs. More extreme forms include acts such as inoculation of the skin; eye enucleation; mutilation of the nose, tongue, and genitals; deep tissue wounding; auto-cannibalism; and self-inflicted castration (Lester, 1972; Ross & McKay, 1979; Walsh & Rosen, 1988).

As indicated by Walsh and Rosen's (1988) definition, SMB is a) intentional, and thus probably goal-directed; b) usually nonfatal; and c) socially unacceptable. In light of such characteristics, self-mutilation can be perturbing to clinicians and others simply because it seems irrational: why would some-

one intentionally engage in painful self-injury, especially if the ultimate goal was not suicide? Although some early clinicians considered deliberate self-injury to be a form of suicidality (Menninger, 1935), recent writers have suggested otherwise. Ross and McKay (1979), for example, stated that "self-mutilation is actually counter-intentional to suicide." Similarly, Kroll (1993) noted that "borderline patients with histories of self-mutilation (without accompanying major depression or alcohol dependence) are at very low risk of suicide" (p. 136).

While a strong case has been made for differentiating SMB from suicide, it should be noted that the presence of self-mutilation is not an anti-suicide indicator per se. For example, research and clinical experience suggests that some suicidal individuals self-mutilate, some self-mutilators report suicidal ideation, and some of what seems to be SMB may actually represent "dry runs" at self-destructive behavior in individ-

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uals planning actual suicide (Briere, 1996; Jones, Congin, Stevenson, Straus, & Frei, 1979; Pattison & Kahan, 1983; Walsh & Rosen, 1988).

In contrast to a primarily suicidal motive, the most frequently cited function of SMB in the modern literature is that of affect regulation. SMB may reduce anxiety, depression, tension, loneliness, feelings of emptiness, guilt, dissociation, and the impacts of intrusive phenomena such as flashbacks or obsessive ruminations (Briere, 1996; Favazza & Conterio, 1989; Grunebaum & Klerman, 1967; Jones et al., 1979; Rosenthal, Rinzler, Walsh, & Klausner, 1972; Wilkins & Coid, 1991; Walsh & Rosen, 1988).

In an intriguing test of this notion, Kemperman, Russ, and Shearin (1997) asked 38 female inpatient self-mutilators with borderline personality disorder to rate changes in mood and dissociation before, during, and after a typical incident of SMB. They found that SMB reportedly increased positive affect, decreased negative affect, and reduced dissociative symptoms. Unfortunately, the small sample and narrowly specified subject characteristics in that study may, to some extent, limit generalization to the typical self-mutilator.

The role of SMB as a method of reducing negative internal states has been noted by the first author in the context of a more general class of "tension-reduction behaviors" (Briere, 1992). Such behavior is thought to include external activities that distract, soothe, or otherwise draw attention away from internally experienced emotional distress, thereby indirectly reducing the impact and duration of these negative experiences. Tension-reduction activities may also provide specific relief from unwanted dissociation, primarily by focusing the individual on bodily sensations (physical pain in the case of SMB) that disrupt ego-dystonic derealization or depersonalization experiences. Ultimately, through a process of negative reinforcement, tension-reduction activities such as SMB may be rewarded by

their capacity to reduce distress, and thereby increase the likelihood that they will be used repetitively in the future.

The clinical and research literature suggests a number of phenomena or conditions that might predispose an individual to SMB, including loss of a parent, childhood illness or surgery, childhood sexual or physical abuse, alcoholism in the family, witnessing family violence, peer conflict, intimacy problems, body alienation, and impulse-control disorders (Walsh & Rosen, 1988). Of these potential etiologic factors, recent research has focused on childhood sexual and physical abuse as being associated most powerfully with the development of SMB.

Van der Kolk, Perry, and Herman (1991), for example, reported that within a sample of subjects with personality disorders or bipolar II disorder, self-cutting was predicted by childhood histories of sexual and physical abuse. Zlotnick et al. (1996) found that inpatient women who self-mutilated had a significantly greater likelihood of self-reported childhood sexual abuse than did comparable women who did not engage in SMB. Similarly, Darche (1990) reported that adolescent female inpatients with histories of nonsuicidal self-mutilatory behavior were characterized by higher frequencies of sexual abuse histories than were nonmutilators. This has been supported by findings of other studies (Briere, 1988; Briere & Zaidi, 1989; Shapiro, 1987; Walsh & Rosen, 1988), although one research team failed to find a relationship between child abuse and self-mutilation (Zweig, Paris, & Guzder, 1994a, 1994b).

Despite clinical suppositions that SMB may serve useful psychological functions (e.g., distress reduction) for some individuals, especially those abused or neglected in childhood, the vast majority of information in this area is anecdotal. Only two studies known to the authors empirically document individuals' actual reasons for SMB (Favazza & Conterio, 1989; Wilkins & Coid, 1991), and there is only one that examines subjects' reports of the actual effectiveness

of SMB as an affect-regulation technique (Kemperman *et al.*, 1997).

Further, although SMB is thought to be more prevalent among mental health patients than in the general population, there is little research available that compares prevalence in clinical and nonclinical groups. Part of the difficulty in this regard is that SMB often occurs in secrecy. Clinical experience suggests, for example, that self-mutilators usually engage in SMB in private, may injure areas easily covered by clothing, and may explain SMB-related wounds or disfigurement that are visible as accidental rather than intentional. Nonetheless, Walsh and Rosen (1988) speculated that somewhere between 14 and 600 people per 100,000 in the general population self-mutilate to some degree each year.

In response to the relative dearth of systematic research on SMB, the present paper reports on the results of three studies. In the first, the prevalence of self-reported SMB is estimated in a representative sample of the United States, and the relationship of such behavior to demographics and abuse history is examined. The second study evaluates the prevalence of SMB in clinical groups, assesses the relative role of childhood and adult traumas in subsequent self-mutilation, and examines the relationship between SMB and other relevant psychological symptoms, including dissociation and posttraumatic stress. The final study considers a group of self-reported self-mutilators in detail, documenting the specific acts engaged in by this group, the potential developmental antecedents of SMB, reasons given by subjects for their SMB, and the self-reported effectiveness of SMB in altering a variety of feeling states.

STUDY 1: GENERAL POPULATION SAMPLE

Method

Subjects for Study 1 were taken from a study of trauma and its effects (Elliott, 1997) that was also the primary normative trial for the Trauma Symptom Inventory

(TSI) (Briere, 1995). A national sampling service generated a stratified, random sample of the U.S., based on geographical location of registered owners of automobiles and individuals with listed telephones. They were mailed a questionnaire containing the TSI and the Traumatic Events Survey (TES) (Elliott, 1992). Subgroups of subjects were administered other measures as well, as part of the TSI standardization trials. Three follow-up mailings were sent to nonrespondents at approximately one month intervals.

At the time of the TSI publication, of 1,442 subjects with deliverable addresses, 855 had returned substantially completed surveys. The current sample includes these subjects as well as an additional 72 individuals who returned surveys after the TSI standardization was completed, yielding a total 927 subjects and a return rate of 64%. The mean age of the full sample was 46 years ($SD=17$; range=18–90). Most subjects were married (56%), followed by separated or divorced (17%) and single (18%). Of the total sample, 50% were male, and 75% were white, 11% black, 7% Hispanic, 3% Asian, 2% Native American, and 2% "other." The two most common income levels were \$10,000–\$19,999 (20%) and \$20,000–\$29,999 (19%).

Self-mutilation in this study was assessed by subjects' responses to TSI item 48 ("Intentionally hurting yourself [e.g., by scratching, cutting, or burning] even though you weren't trying to commit suicide"), rated on a scale of 0 (never) to 3 (often) over the last six months.

Subjects were categorized according to their self-reported history of child abuse on the TES. Sexual abuse was defined as endorsements on the TES that reflected actual sexual contact before age 17 that was physically forced or that occurred with someone five or more years older. Physical abuse was defined as reports of parental actions committed before the subject was 17 years old that were either *a*) intentional and resulted in bruises, scratches, broken bones,

or broken teeth; or *b*) involved punching, kicking, or biting.

Results

Endorsement of the TSI self-mutilation item was relatively rare in the general population sample. Eight hundred ninety-four subjects (96%) indicated that they had never intentionally hurt themselves without suicidal intent over the previous six months. Thirty-three (4%) indicated at least occasional instances of self-mutilation; of these, three subjects (0.3%) reported often engaging in such behavior.

Logistic regression analysis revealed a significant relationship between subject variables and SMB when self-mutilation was dichotomized into never vs. occasionally or more ($\chi^2(9)=35.01, p<.0001$). Specifically, two variables were associated with SMB: a younger age ($M=35$ vs. $M=47$; Wald's coefficient=11.38, $p<.0007$, odds ratio=.95) and childhood sexual abuse (52% vs. 22%; Wald's coefficient=9.35, $p<.0001$, odds ratio=3.25). There were no sex differences in SMB: 19 of 461 females (4%) reported SMB, compared to 14 of 466 males (3%)

STUDY 2: CLINICAL SAMPLE

Method

Data used in Study 2 were taken from an investigation of victimization history and TSI scores in several clinical samples (Briere, Elliott, Harris, & Cotman, 1995), and included an additional 20 clinical subjects who were collected after that investigation was completed. A total of 390 individuals were studied: 203 women and 43 men recruited by ten therapists from their outpatient clinical practices, and 101 females and 43 males from two general psychiatric inpatient units. All subjects completed the TSI and the Childhood Maltreatment Interview Schedule-Short Form (CMIS-SF) (Briere, 1992).

Subjects were categorized according to their self-reported history of sexual and

physical abuse on the CMIS-SF, using criteria equivalent to that of the TES in Study 1. Psychological abuse was measured via the psychological maltreatment scale (Briere & Runtz, 1988), included in the CMIS-SF. Similarly, parental substance abuse history and exposure to parental domestic violence were determined by positive endorsement of relevant CMIS-SF items (i.e., for parental substance abuse: "Before age 17, did any parent, stepparent, or foster parent ever have problems with drugs or alcohol that led to medical problems, divorce, or separation, being fired from work, or being arrested for intoxication in public or while driving?"; for exposure to domestic violence: "Before age 17, did you ever see one of your parents hit or beat up your other parent?").

Adult "rape or sexual assault" was defined as such,* whereas battering was described as "Being beaten or hit or battered in a sexual or romantic relationship," and physical assault as "Physically attacked or assaulted by someone who wasn't a sex partner or husband/wife." As per Study 1, self-mutilation was defined by subjects' responses to TSI item 48.

The mean age of subjects in the combined clinical sample (inpatient and outpatient) was 36 years ($SD=10$; range=18–58). Three hundred fifteen (81%) were white, 45 (12%) Hispanic, 25 (6%) black, and five (1%) Asian.

Results

Endorsement of the self-mutilation item on the TSI was more common in the clinical sample than in the general population. Of 390 clinical subjects, 308 (79%) reported never having self-mutilated over the previous six months, whereas 82 (21%) indicated at least occasional self-mutilation within that period. There was no significant difference between the SMB rate for outpatients vs. inpatients (25% and 19%, respectively), $\chi^2(1)=1.70, NS$. Of those reporting

*Because this definition (i.e., "rape or sexual assault") lacks behavioral descriptors, it probably underestimated adult sexual victimization in the present study.

SMB, 32 subjects (8% of the entire sample) reported often engaging in self-mutilation.

Logistic regression analysis indicated a significant relationship between subject variables and SMB ($\chi^2[10]=31.83$, $p<.0004$), equivalent to the Study 1 results. Those who reported SMB were younger than those who did not ($M=33$ vs. $M=37$; Wald's coefficient=12.57, $p<.0004$, odds ratio=.94) and more likely to report a sexual abuse history (84% vs. 54%; Wald's coefficient=14.04, $p<.0002$, odds ratio=4.27). No adult trauma variables were associated with SMB and, as per the general population results, there was no sex difference in SMB.

A 2(sex) $\times$ 2(SMB status) MANOVA, with the ten scales of the TSI as dependent variables, indicated no interaction between sex and self-mutilation on psychological symptoms ($F(10,377)=1.16$, NS), nor a main effects of sex ($F(10,377)=1.64$, NS), but a main effect of self-mutilation ($F(10, 377)=10.08$, $p<.001$). Posthoc ANOVAs indicated that self-mutilators had significantly higher scores on all TSI symptom scales ($p<.001$ in all cases except Dysfunctional Sexual Behavior, $p<.013$; see TABLE 1 for scale means and standard deviations). Using the recommended clinical cut-off of $T=65$ for TSI scores (Briere, 1995), self-mutilators were in the clinical range for all scales but Defensive Avoidance, Sexual Concerns, and Dysfunctional Sexual Behavior, whereas those who reported no self-mutilation were in the normal range

for all TSI scales. The highest T-scores for self-mutilators were on the Dissociation scale ($M=74$ and 73 for males and females, respectively).

STUDY 3: SELF-MUTILATING SAMPLE

Method

Advertisements soliciting individuals with a history of self-mutilation were placed in popular magazines (e.g., *Good Housekeeping*, *Parents*) and publications aimed at child abuse survivors (e.g., *Moving Forward*, *Treating Abuse Today*), and were distributed at abuse-survivor conferences on both East and West coasts. Self-reported abuse survivors were intentionally oversampled in this study in order to maximize the number of self-mutilating subjects, given the results of Study 2. (Because of the way in which subjects were solicited, it is impossible to determine what proportion of those who saw the ads or received questionnaires at conferences chose to participate.)

The above procedure yielded 98 subjects who completed a detailed questionnaire. However, despite identifying themselves as having engaged in SMB, five subjects did not endorse any self-mutilation items, or endorsed only one of the following "low-level" items: nail/cuticle-biting, biting the inside of the mouth, self-pinching, or hair-pulling. These subjects were removed from further analysis, leaving a final sample of 93.

Of the 93 subjects, 89 (96%) were female. The average age was 35 years ($SD=9$

Table 1
TSI SCORES AS A FUNCTION OF SEX AND SMB IN CLINICAL SUBJECTS

TSI SCALE	SELF-MUTILATION							
	MALES				FEMALES			
	NO (N=76)		YES (N=10)		NO (N=232)		YES (N=72)	
	M	SD	M	SD	M	SD	M	SD
Anxious Arousal	54.2	11.5	65.3	11.2	59.4	10.0	67.0	9.3
Depression	56.9	11.4	71.1	10.4	60.0	10.1	69.5	8.6
Anger Irritability	56.8	10.2	65.9	8.1	57.8	10.1	65.7	8.7
Intrusive Experiences	52.1	9.1	68.4	15.9	57.3	10.8	69.2	10.5
Defensive Avoidance	55.5	10.1	63.2	8.3	57.5	10.0	65.3	8.3
Dissociation	54.4	11.4	74.4	14.9	61.9	12.0	73.2	12.2
Sexual Concerns	55.0	13.1	62.1	19.4	58.8	12.8	68.3	14.2
Dysfunctional Sexual Behavior	53.8	13.6	60.4	17.5	53.8	13.2	60.2	17.5
Impaired Self Reference	58.7	12.2	71.2	9.2	62.1	10.5	68.4	11.1
Tension Reduction Behavior	56.0	10.3	71.7	16.6	56.9	12.0	71.7	13.1

ys) and the modal race was white ($N=85$, 91%). Marital status was well-represented across three groups: single ($N=38$, 41%), married ($N=29$, 31%), and separated/divorced ($N=25$, 27%). Modal education was some college/university ($N=29$, 31%), followed by an undergraduate degree ($N=19$, 20%).

Most subjects in this sample were in therapy at the time of their participation ($N=89$, 96%). The most common psychiatric diagnoses subjects reported having received at some point in treatment (more than one diagnosis was reportable per subject) were: posttraumatic stress disorder ($N=68$, 73%), unspecified dissociative disorder ($N=37$, 40%), borderline personality disorder ($N=34$, 37%), and multiple personality disorder (dissociative identity disorder) ($N=27$, 29%).

Because abuse survivors were oversampled, and given the potential role of sexual abuse in some self-mutilating behavior, sexual abuse reports were very common in this group ($N=86$, 93%). As a result, analyses of childhood sexual victimization were limited to specific characteristics of the abuse, rather than the presence or absence of sexual abuse per se. Abuse variables examined in this study included age at first sexual contact, total number of sexually abusive contacts, total number of perpetrators, whether the sexual abuse ever involved intercourse, and whether any abuse experiences were incestuous (i.e., involving a family member). Per Studies 1 and 2, CMIS-SF items were used to assess other childhood maltreatment variables: parental substance abuse, exposure to parental domestic violence, psychological abuse, and physical abuse.

Because this sample consisted solely of those reporting SMB, reliance on the TSI self-mutilation item as the primary dependent variable was not indicated. Instead, subjects were asked to rate the extent to which they had engaged in a wide range of SMB over the last year, on a scale ranging from 0 (never) to 7 (every day), as well as

Table 2
TYPE AND FREQUENCY OF SMB

BEHAVIOR ^a	N	%
Cutting: arms, legs	66	71
Biting: inside mouth	56	60
Scratching—with blood	55	59
Scratching—without blood	53	57
Punching self	41	44
Biting nails/cuticles, with blood	40	43
Punching walls	40	43
Biting—other than mouth	34	37
Taking scalding showers, baths	33	35
Pinching	32	34
Burning	29	31
Pulling out head hair	28	30
Stabbing	18	19
Pulling out eyebrow or eyelash hair	16	17
Cutting genitals	13	14
Pulling out genital hair	12	13
Very hot enemas	5	5
Cutting off body parts	1	0

^aRanked by frequency, "about once a year" or more.

at what age in their lives each such act had first occurred. As shown in TABLE 2, they range from very low-severity activities that nonetheless meet the definition of SMB (e.g., biting nails or cuticles to the point of bleeding) to high-severity acts (e.g., cutting off body parts). The modal number of different self-injurious acts reported by this group was four, with a range of 1–13.

From the acts in which subjects reported having engaged, three summary dependent variables were designated: 1) the sum of subjects' endorsements across all SMB, referred to as self-mutilation-total; 2) the sum of subjects' endorsements of the most severe of these acts (cutting on arms or legs, stabbing self, burning self, giving self very hot enemas, cutting off body parts), referred to as severe self-mutilation; and 3) subjects' endorsement of the single item "cutting on genitals," referred to as sexual self-mutilation.

Subjects were next asked to indicate why they engaged in self-injury (defined in the questionnaire as per TSI item 48), using a list of reasons that, in the authors' experience, are often cited by self-mutilating clients (see TABLE 3). Those reasons endorsed by 20% or more of subjects were retained for factor analysis. Finally, subjects in Study 3 were asked to indicate which of

Table 3
REASONS AND FREQUENCY FOR SELF-MUTILATION^a

REASON	N	%	REASON	N	%
Feel body is real	40	43	Prevent disclosure	18	19
Get rid of anger	66	71	Manage stress	72	77
Stop guilt	35	38	Feel safe	24	26
Distraction from memories	54	58	Sexual arousal or pleasure	11	12
Distraction from painful feelings	74	80	Stop hurt to others	27	29
Feel inside body	40	43	Stop hurt by others	42	45
Mark to show pain inside	56	60	Ownership of body	24	26
Stop flashbacks	36	39	Facilitate or hinder switching ^b	19	20
Self-punishment	77	83	Reduction of tension	70	75
Self-protection	26	28	Get medical attention	8	9
Feel alive	35	38	Feel closer to someone who hurt you	9	10
Feel self-control	66	71	Remember prior abuse	16	17
Feel control over others	15	16	Feel something	53	57
Get attention, ask for help	37	40	Release pent-up feelings	72	77
Make body unattractive	34	37	Get therapist's attention	15	16

^aAn expanded version of this table showing factor analysis (with Varimax rotation) is available from the authors.

^bFrom one personality to another (common term in dissociative identity disorder).

12 affects (e.g., anger, guilt, pleasure) corresponded to their "main" feelings immediately before and immediately after an episode of self-mutilation, in order to explore the possible effects of SMB on feeling states.

Results

A variety of self-mutilation behavior was reported by this sample (see TABLE 2). When divided into the three categories described above, the median age of onset across all SMB was 7 years, compared to 14 years for severe self-mutilation, and 18 years for sexual self-mutilation.

Subjects endorsed a wide variety of reasons for engaging in SMB, the most common being "To distract yourself from painful feelings" and "To punish yourself." (See TABLE 3 for the frequency of each reason.) Factor analysis of these reasons revealed nine factors with eigenvalues greater than or equal to 1.0, accounting for 69% of the total item variance. These nine factors suggest that self-mutilation is believed by subjects to 1) decrease dissociative symptoms, especially depersonalization and numbing; 2) reduce stress and tension; 3) block upsetting memories and flashbacks; 4) demonstrate a need for help; 5) ensure safety and self-protection; 6) express and release distress; 7) reduce anger; 8) disfig-

ure self as punishment; and 9) hurt self in lieu of others.

Canonical correlation analysis of the child abuse and self-mutilation variables revealed a single significant variate ($R_c = .55$, $F(40, 290.04) = 1.76$, $p < .005$). As presented in TABLE 4, number of SMB types, total SMB intensity, and SMB severity were positively correlated with this variate, whereas sexual SMB had a strong negative loading. In terms of predictor variables, childhood trauma was positively related to the variate, except for number of sexual abuse perpetrators, parental substance abuse, and abuse involving intercourse, which were

Table 4
CANONICAL CORRELATION ANALYSIS OF
CHILDHOOD TRAUMA AND SELF-MUTILATION

VARIABLE	r^a
Childhood Trauma	
Parental substance abuse	-0.25
Witness to domestic violence	-0.04
Psychological abuse	0.39
Physical abuse	0.40
Sexual abuse with intercourse	-0.24
Sexual abuse: incest	0.34
Sexual abuse with force	-0.04
Age at first sexual abuse	-0.13
No. of sexual abuse incidents	0.20
No. of sexual abuse perpetrators	-0.47
Self-Mutilation	
Number of SMB types	0.45
Severe SMB	0.17
Sum of SMB intensity	0.22
Sexual SMB	-0.67

^aCanonical structure coefficient

negatively related. Using a standard cut-off of $c \geq .30$ for interpretation of the canonical structure coefficients, it appears that, in a sample of individuals who generally report a history of sexual abuse (96% of subjects), self-mutilation behavior characterized by a greater number of SMB types is associated with the additional experience of physical and psychological abuse, and sexual victimization involving incest, whereas sexual SMB is associated with a higher number of sexual abuse perpetrators.

Analysis of subjects' reports of feeling states before and after self-mutilation was accomplished with Wilcoxon Matched-Pairs Signed-Ranks test. As indicated in TABLE 5, self-mutilation was seen by subjects as reducing anger at self, anger at others, fear, emptiness, hurt, loneliness, and sadness, and increasing feelings of relief and shame. Not affected by self-mutilation were self-reported guilt, excitement, or pleasure. The nonsignificant findings appear to represent the tendency for self-mutilation to increase guilt for some and decrease it for others, as well as the low overall endorsement of excitement or pleasure in this sample.

Another test of SMB as a means of reducing distress was performed by calculating a "negative affect score," consisting of the sum of negative affects (e.g., guilt, emptiness) minus the sum of positive affects (e.g., excitement, pleasure), and comparing this score before and after self-mutilation. Based on this calculation, 13% of

subjects ($N=12$) reported a net increase in negative affect after SMB, 10% ($N=9$) reported no net change, and 77% ($N=72$) reported a net decrease in negative affect. There was a mean decrease of 2.7 negative affect units after SMB, substantially greater than what would be expected if there was no effect of SMB on mood state, $t(92)=9.0$, $p<.0001$.

A final issue was the extent to which subjects felt they were in control of their SMB, and whether they would like to be able to stop such behavior in the future. Of the 93 subjects in Study 3, 32 (34%) felt they were in control of their SMB less than half the time, whereas 26 (28%) said they were always in control. Asked if they were able to refrain from injuring themselves on some occasions, 78 (84%) answered affirmatively. Finally, 80 subjects (86%) indicated that they would like to be able to stop engaging in SMB.

DISCUSSION

Findings of the current studies, and their implications for the prevalence, etiology, symptomatic sequelae, and possible psychological functions of self-mutilating behavior are outlined below.

Prevalence

SMB appears to be uncommon in the general population, with only 4% of a representative U.S. sample reporting such behavior within the prior six months, and less

Table 5
PRIMARY FEELING STATES BEFORE AND AFTER SELF-MUTILATION

FEELING STATE	BEFORE ONLY		NO CHANGE		AFTER ONLY		z	p<
	N	(%)	N	(%)	N	(%)		
Anger at others	53	(56%)	38	(41%)	2	(2%)	-5.98	0.001
Anger at self	33	(35%)	55	(59%)	5	(5%)	-3.96	0.001
Fear	35	(38%)	48	(52%)	10	(11%)	-3.25	0.001
Emptiness	37	(40%)	48	(52%)	8	(9%)	-3.76	0.001
Excitement	3	(3%)	89	(96%)	1	(0%)	-0.91	NS
Guilt	14	(15%)	52	(56%)	27	(29%)	-1.77	NS
Hurt	39	(42%)	49	(53%)	5	(5%)	-4.46	0.001
Loneliness	32	(34%)	54	(58%)	7	(8%)	-3.49	0.001
Pleasure	1	(0%)	85	(91%)	7	(8%)	-1.89	NS
Relief	2	(2%)	28	(30%)	63	(68%)	-6.58	0.001
Sadness	28	(30%)	55	(59%)	10	(11%)	-2.55	0.01
Shame	12	(13%)	55	(59%)	26	(28%)	-1.98	0.05

than 1% reporting frequent involvement in it. However, this prevalence is considerably greater than Walsh and Rosen's (1988) estimate of 14–600 cases per 100,000. The current estimate may be the more accurate one, given its use of self-report data from a relatively large, representative sample and its reliance on a specific, literature-driven definition of SMB.

In contrast to its rarity in the general population, recent SMB was reported by 21% of 390 clinical subjects; 8% stated that they mutilated themselves often. It should be noted, however, that the clinical sample was drawn primarily from the TSI validation study, which may have overrepresented childhood trauma to some extent in the outpatient subsample (Briere *et al.*, 1995). Since Studies 2 and 3 indicate that those with childhood abuse histories are more likely to self-mutilate, it is possible that outpatient subjects in Study 2 reported more SMB than would be found in other, more general clinical samples. Nevertheless, the inpatient subsample, for whom there was no known selection bias, had a similar SMB rate of 19%. Thus, even allowing for bias toward childhood trauma in the former group, the finding suggests that SMB may be considerably more frequent among those who seek mental health services, perhaps especially those with childhood trauma histories.

To the extent that clinical groups contain significant numbers of self-mutilators, it may be helpful to include questions about potential SMB in routine diagnostic or intake interviews. As suggested above, the socially unacceptable nature of self-mutilation may discourage spontaneous reports of such behavior; thus specific inquiry may be needed to identify individuals requiring assistance in this area. This suggestion applies to both male and female clients, since it appears that, contrary to common clinical assumption, neither sex is more likely than the other to engage in self-mutilation.

Information on a given client's history of SMB may be important clinically. Self-

mutilation is often repetitive and compulsive in nature (Walsh & Rosen, 1988), such that individuals reporting prior SMB continue to be at risk for SMB in the future. Because such behavior is intrinsically problematic—in terms of disfigurement, scarring, or, in some instances, even threat to life—and can be shame-inducing (per Study 3), prevention of future SMB should be a treatment goal for clients so afflicted.

Etiology

As noted earlier, self-mutilation has been associated with a variety of possible etiological factors in the clinical literature. Logistic analyses in Studies 1 and 2 revealed significant associations between SMB and sexual abuse, but found no evidence for the role of several other variables, including parental substance abuse, parental domestic violence, childhood psychological abuse, or childhood physical abuse. In contrast, Study 3 did, in fact, implicate these variables, albeit in the context of concomitant sexual abuse. Thus, the findings of Study 3 may suggest that nonsexual childhood trauma is associated with SMB when *combined* with a sexual victimization history. Perhaps more importantly, all three studies directly support the growing literature on the overrepresentation of sexual abuse among those involved in SMB.

Symptomatic Sequelae

The current data suggest that SMB may covary with significant psychological symptomatology. Based on the self-report data from Study 3, self-mutilators in clinical settings may be especially likely to have concomitant diagnoses of posttraumatic stress disorder, a dissociative disorder, or borderline personality disorder. However, it should be emphasized that these diagnoses were ascertained solely from the self-report of psychotherapy patients, as opposed to data gathered from clinicians or structured diagnostic interviews.

Apropos of the diagnostic self-report data, self-mutilators in Study 2 had consid-

erably higher scores on all scales of the TSI relative to nonmutilators, including those measuring dissociation, posttraumatic stress, impaired self-capacities, and depression. In most cases, mean TSI scale elevations for those with SMB were in the clinical range (i.e., T scores at or above 65), whereas clients who did not report self-mutilation had mean scale scores in the normal range in all instances.

As would be expected from the self-mutilation literature, the TSI scale most elevated for those reporting SMB was Dissociation, with T-scores of 74 and 73 for males and females, respectively. Scores at this level reflect dissociative symptoms that are over two standard deviations more frequent than that of the general population. This finding is consistent with studies that have specifically examined the relationship between dissociation and self-mutilation (Brodsky, Cloitre, & Dulit, 1994; Coons & Milstein, 1990; Zlotnick et al., 1996).

In combination, the current findings suggest significant comorbidity among child abuse reports, SMB, and a cluster of symptoms involving dissociation, posttraumatic stress, and negative affect. Although the relationship among these variables cannot be determined based on the current data, others have hypothesized that one function of self-mutilation is to disrupt unwanted dissociation and distress arising from traumatic childhood events (Briere, 1996; van der Kolk, et al., 1991; Walsh & Rosen, 1988). In this context, childhood sexual abuse has been shown to be an especially potent source of enduring posttraumatic disturbance, dissociative responses, negative affect, and affect regulation difficulties relative to many other life events or traumas (Anderson, Yassenik, & Ross, 1993; Briere, et al., 1995; Briere, Woo, McRae, Foltz, & Sitzman, 1997; Briere & Zaidi, 1989; Chu & Dill, 1990; Engel, Walker, & Katon, 1996; Herman, Perry, & van der Kolk, 1989), and thus may more powerfully motivate the development of compensatory, tension-reducing mechanisms such as SMB.

Psychological Functions

Results of Study 3 suggest that SMB does, in fact, serve seemingly adaptive psychological functions for some individuals. Subjects reported employing self-mutilation as a way of reducing unwanted dissociation, upsetting memories and flashbacks, and painful affect, as well as punishing themselves and communicating distress to others. Further, subjects reported that, in actual practice, SMB specifically reduced anger at self and others, fear, emptiness, hurt, loneliness, and sadness, as well as increasing feelings of relief. Although SMB apparently ameliorates distress, it also increased subjects' sense of shame—probably by virtue of the social unacceptability of self-injury. Further, Study 3 suggests that many self-mutilators consider SMB to be at least partially out of their control, and would stop such behavior if they could.

As is discussed below, the likelihood that SMB is immediately useful to some individuals—despite its overall deleterious and unwanted aspects—can create a conundrum in therapy, where such behavior typically is discouraged. Further, the potentially distress-reducing components of SMB are likely to support continued SMB in untreated individuals, by virtue of their negatively reinforcing qualities. Such issues may explain the seemingly compulsive nature of SMB and its oft-noted resistance to traditional psychotherapy (Walsh & Rosen, 1988).

CONCLUSIONS

The studies reviewed in this paper suggest that self-mutilation, while rare in the general population, is not uncommon in at least some clinical groups, and is equally prevalent among males and females. Further, in clinical samples, SMB appears to be associated with significant psychological symptomatology, especially dissociation, painful affect, and posttraumatic disturbance. Finally, the data presented here suggest that childhood abuse experiences, especially sexual abuse, may underlie at least

some self-mutilating behavior. The exact mechanism for this linkage is unclear, although one possibility is that sexual abuse can engender trauma-related distress and dissociative symptoms that, in turn, may motivate tension-reduction activities such as SMB. Support for this hypothesis also can be found in Study 3, wherein subjects (almost all of whom reported having been sexually abused as children) described using SMB specifically as a way of reducing dysphoria, painful memories and flashbacks, and dissociation.

The most salient clinical implication of the current studies arises from the finding that SMB, rather than merely representing a psychological symptom, may serve immediately useful purposes for some individuals. As has been noted in earlier work (Briere, 1992, 1996; Walsh & Rosen, 1988), this compensatory or tension-reducing quality of SMB means that self-mutilating clients may be ambivalent about discontinuing such behavior, regardless of its negative consequences or shame-inducing qualities. In this regard, clinicians who seek to "remove" SMB "symptoms" without encouraging the development of new, more benign tension-reduction activities or coping skills may discover that their intentions are resisted by the client, who may fear the loss of an important affect regulation device. Instead, to the extent that SMB is an epiphenomenon of painful affect and inadequate coping strategies, treatment may be most effective when it reduces the former and bolsters the latter.

Given the current data, it may be helpful to treat self-mutilating clients not only by discouraging SMB, but also by intervening in the conditions that support its ongoing application. Effective interventions may include *a)* most immediately, exploration of alternate methods of reducing distress that are less injurious or shame-inducing (e.g., physical exercise, distraction via television or reading, changing environments [by going outdoors, moving to a different room, etc.], or contacting friends or hot-

lines when the desire for SMB is intense); *b)* teaching cognitive and behavioral strategies for dealing with stressful situations and painful internal states; *c)* strengthening internal affect regulation capacities and strategies, such that external methods like SMB become less necessary; and, ultimately, *d)* reducing the distress and dissociative symptoms that may underlie and motivate involvement in SMB (Briere, 1996; Linehan, 1993; Walsh & Rosen, 1988).

Given its prevalence in clinical groups, especially among those who have experienced childhood trauma, further research on self-mutilation is clearly indicated. Among the unresolved issues in this area are the specific causal relationships between both sexual and nonsexual child maltreatment, psychological distress, dissociation, and SMB. Because SMB cannot be studied easily in laboratory settings, research in this area is likely to be limited to cross-sectional data and retrospective reports. Nevertheless, such investigations might evaluate potential causal relationships through the use of structural equation modeling or related statistical procedures.

In addition, although the present data indicate that SMB may serve psychological functions, Study 3 found that not all self-mutilators experience a reduction in negative affect. In fact, a small minority reported an *increase* in negative affect as a function of SMB. Such data suggest that SMB continues in some individuals in the apparent absence of negative reinforcement. To the extent that this is true, further research is indicated to evaluate other possible reasons for its continued use in such subjects.

Finally, future research should address the specific efficacy of different treatment approaches to SMB. Other than Linehan's (1993) work on the cognitive behavioral treatment of borderline personality disorder, most treatment material currently available for SMB is based on theoretical notions, as opposed to empirical data. More effective therapeutic interventions for SMB would be a major contribution to the field, since

clinical work with self-mutilating individuals often is a difficult enterprise at best, for both client and therapist, and the implications of undertreated self-mutilation can be significant.

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