FACTORS THAT INFLUENCE SELF-INJURIOUS BEHAVIORS: A NONCLINICAL SAMPLE

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by
Elizabeth Ann Floto
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ABSTRACT

FACTORS THAT INFLUENCE SELF-INJURIOUS BEHAVIORS: A NONCLINICAL SAMPLE

by

Elizabeth Ann Floto

Master of Arts in Psychology
Psychological Science Option
California State University, Chico

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Self-injurious behavior is a worldwide phenomenon. Most research about self-injury is conducted using clinical populations, although of late more research has been exploring self-injury in nonclinical populations. A questionnaire was administered to 635 participants via the Internet to gather information about stress, anxiety, depression, impulsivity, and aggression and how these factors relate to self-injury. Results showed that, in a nonclinical sample, self-injurers scored significantly higher on all five factors (stress, anxiety, depression, impulsivity, and aggression) than those who did not self-injure. Depression had the greatest effect size on self-injury, contradicting past research indicating that anxiety or aggression was the biggest contributor.
CHAPTER I

INTRODUCTION

Background

Self-injurious behavior (SIB—the politically correct term for self-mutilation; Favazza, 2006) is a worldwide phenomenon and has been gaining researchers’ interest of late. Self-injury is not a diagnosis; it is only a behavior. Self-injury is gruesome and in most cases appears as a symptom of borderline personality disorder or is incorrectly identified as a suicide attempt (Favazza, 1998). Research on self-injury is important because it can lead to new treatments and better management of these behaviors (Klonsky, Oltmanns & Turkheimer, 2003). Research investigates a wide variety of components of SIB, including its function, etiology, psychological correlates, and treatment options across a variety of populations.

SIB goes by many names, such as deliberate self-injury (Brown, Williams & Collins, 2007), nonsuicidal self-injury (NSSI; Lloyd-Richardson, Perrine, Dierker & Kelley, 2007), self-mutilative behavior (Herpertz, Sass & Favazza, 1997; Nock & Prinstein, 2005), and self-harm (Ross & Heath, 2002), and there are different definitions of the construct. SIB most often manifests itself as cutting the skin, sticking the body with sharp objects, scratching the body, banging the head, burning the skin, and preventing healing (Brown et al., 2007).
Most previous studies have used clinical (or incarcerated) populations to examine this phenomenon (Brain, Haines & Williams, 1998; Dear, Thomson, Hall & Howells, 1998; Herpertz et al., 1997; Jeglic, Vanderhoff & Donovick, 2005; Nock & Prinstein, 2005). Clinical populations are often the focus of research on SIB, because it occurs more frequently or is more visible in them. However, more recently studies have started to look at self-injurious behavior in nonclinical populations (Brown et al., 2007; Hodgson, 2004; Izutsu et al., 2006; Klonsky et al., 2003; Laye-Gindhu & Schonert-Reichl, 2004; Lloyd-Richardson et al., 2007; Ross & Heath, 2002). There has been growing concern that SIB is increasing in adolescent and young adult populations, despite lack of evidence of increased prevalence (Whitlock, Eckenrode & Silverman, 2006). More recently, SIB has received attention in the media: celebrities such as, Johnny Depp, Courtney Love, and the late Princess Diana have talked about their own struggles with SIB (Messer & Fremouw, 2008). Evidence about the contributing factors is conflicting between studies that sample clinical populations and those that sample nonclinical populations as well as between various studies using similar populations. Past studies included one or two of the following recurring factors: anxiety, stress, impulsivity, aggression, and depression. However, there has yet to be a study that encompasses all five of these factors.

Purpose of the Study

There is currently no effective treatment for self-injurious behaviors (Klonsky et al., 2003). Further research can investigate treatment options or self-help (if applicable) to determine which factors should be the focus of treatment for the majority of cases. This investigation will explore the role that stress, anxiety, depression, impulsivity, and
aggression play in self-injurious behavior. The study will focus on a nonclinical population across a wide age range. Unlike previous studies, this research will focus on five characteristics (depression, stress, anxiety, impulsivity, and aggression) in a nonclinical sample from the Internet.

It is predicted that there is a difference between self-injurers’ and nonself-injurers’ scores on scales of stress, anxiety, depression, impulsivity, and aggression. Also it is hypothesized that impulsivity and aggression will be the two factors with the greatest effect on self-injury in a nonclinical sample.

Definitions

The present investigation will define self-injurious behavior (SIB) as the following: it (a) is deliberate, (b) is direct, (c) is without suicidal intent, (d) causes tissue damage, (e) is not socially acceptable, and (f) is minor or moderate in nature (Brown et al., 2007; Herpertz et al., 1997; Suyemoto, 1998). It does not include activities such as drug use (because of its indirect nature) or major episodes of self-injury such as eye enucleation (Favazza, 2006).
CHAPTER II

LITERATURE REVIEW

Behavioral Characteristics

Self-injurious behavior most often takes the form of skin cutting (Favazza & Conterio, 1989; Klonsky et al., 2003; Laye-Gindhu & Schonert-Reichl, 2005; Lloyd-Richardson et al., 2007; Osuch, Noll & Putnam, 1999) or banging or punching objects to the point of bleeding or bruising (Brown et al., 2007; Izutsu et al., 2006; Whitlock et al., 2006). Most people who engage in SIB often use more than one method (Klonsky et al., 2003); the majority use two to four methods of injury (Whitlock et al., 2006).

Prevalence, Age, and Gender

Prevalence of SIB is estimated at anywhere from 4% to 46% depending on the population being studied. A study of military recruits ($n = 1986$) found that only 4% reported a history of self-injurious behavior (Klonsky et al., 2003). This population was nonclinical and contained an uncharacteristically higher number of males. A study of college students ($n = 2875$) found that 17% reported SIB at some point in their lives (Whitlock et al., 2006). Research on a community sample of adolescents (Lloyd-Richardson et al., 2007) found that 46.5% ($n = 633$) endorsed items that fall under the construct of self-injurious behavior, such as cutting or carving of the skin or more minor acts such as hitting oneself. This is surprisingly high, considering this was a random
sample of high-school adolescents. Even higher incidence rates of up to 60% have been reported for youth in an institutional setting (DiClemente, Ponton & Hartley, 1991).

Self-injurious behaviors often begin in adolescence. This age is similar to that in animal models (primates), in which, as the animal approaches 33–36 months of age, which approximates a human age of 13–16, the animal begins to engage in skin picking and SIB that leads to actual wounding (Dellinge-Ness & Handler, 2006). However, self-injurious behaviors may start as early as 11 in some populations of adolescents (Izutsu et al., 2006). People in clinical populations who engage in SIB are usually female (Herpertz et al., 2007) and most likely have a diagnosed BPD (borderline personality disorder) (Osuch et al., 1999), because SIB is a criterion of the diagnosis of BPD. Studies of nonclinical subjects did not generally find gender differences (Brown et al., 2007; Klonsky et al., 2003) or significant differences in proportion of history of self-injurious behavior (Brown et al., 2007).

Correlates of Self-Injury

The differences between clinical and nonclinical populations seem to range beyond that of a mental health diagnosis. Because the correlates for those who self-injure are different between clinical and nonclinical populations, one could assume these two different populations may vary on measures of other traits and the factors that influence or motivate self-injury.

Clinical Populations

Most past research often links SIB with other mental health issues, mostly because it often mimics suicide attempts or appears to be a result of a psychotic episode.
Self-injurious behavior occurs more often in people with diagnosed personality disorders, but SIB is not limited to individuals who have these or other disorders (Hodgson, 2004). In clinical populations, previous suicide attempts, hopelessness, symptoms of depression and anxiety, past loss or abuse, perfectionism, suicide, and loneliness are correlates of SIB (Nock & Prinstein, 2005). Darche (1990) found that psychiatric inpatient females who self-injured were more likely to have a diagnosis of an eating, anxiety, or affective disorder rather than a conduct or adjustment disorder. Most patients report that they were not using alcohol or drugs during incidents of SIB (Nock & Prinstein, 2005).

**Nonclinical Populations**

In nonclinical populations SIB has been correlated with two maladaptive coping strategies: behavioral disengagement and substance use. “Those with a history of self-injury will be more likely to quit, give up, or put in less effort when confronted with a challenging situation” (Brown et al., 2007, p. 800). This type of disengagement is considered unique to nonclinical populations, because it is more of an avoidance behavior.

Substance-use coping strategies were reported as the highest among people who self-injured in the past. Researchers think that people who previously engaged in SIB may have adopted alcohol and drug use as an alternative to self-injurious behavior because it is more socially acceptable (Brown et al., 2007). Individuals who self-injure may have qualities similar to those of diagnosed individuals (any DSM mental health issue), but often fall short of meeting criteria for a mental health issue. Participants who reported a history of deliberate self-injury scored higher on negative temperament,
mistrust, manipulativeness, aggression, self-derogation, eccentric perceptions, dependency, detachment, disinhibition, impulsivity, and all the DSM-IV personality disorder diagnostic scales, except for the obsessive-compulsive personality disorder scale (Klonsky et al., 2003). Ross and Heath (2003) also report higher levels of anxiety and depression.

Classification of SIB

Armando Favazza has devised the following classification system for self-mutilation. Table 1 lists the types of self-mutilation (Favazza & Simeon, 1995). Self-mutilation can fall into two broad categories; it is either culturally sanctioned or deviant behavior (Favazza, 2006). This classification system was instrumental in creating an operational definition of self-injury.

TABLE 1

Classification of Self-Mutilation

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Culturally Sanctioned

Culturally sanctioned SIB includes practices (earlobe piercing and tattoos) and rituals (rites of passage and scarification) that reveal cultural and societal beliefs (Favazza & Simeon, 1995). Rituals are usually acts that are repeated over generations and are more formal, with deep meaning attached to the acts. Practices are less formal and often alter body tissue so that the person will appear more attractive or provocative (Favazza & Simeon, 1995).

Deviant

Deviant self-injury is any self-injury that falls outside cultural norms. The deviant category includes three main subtypes: major, stereotypic, and superficial/moderate (Favazza & Simeon, 1995). The first two, major and stereotypic, are excluded from studies of SIB. The studies of SIB focus on the superficial/moderate category.

Major. Major acts of self-injury are excluded from studies on SIB because they are not repeated or because they are rare and associated with psychosis (Suyemoto, 1998). These acts result in wounds that are potentially deadly. Major acts of SIB include amputation or self-castration (Favazza & Simeon, 1995).

Stereotypic. Excluded from studies of SIB are the often repetitive actions of those with cognitive impairments, such as the mentally retarded or autistic children (Favazza, 2006). Stereotypic SIB includes such acts as throat and eye gouging, head banging, and joint dislocation (Favazza, 1998). These behaviors fall in the stereotypic category because they are thought have different etiology and function (Suyemoto, 1998).
Stereotypic SIB is often a symptom or associated feature of autism, Tourette’s syndrome, Lesch-Nyhan syndrome, or Rett’s disorder (Favazza, 1998).

**Superficial/moderate: Compulsive.** The compulsive category of SIB includes acts that are repetitive (over time) and ritualistic in nature. They include such acts as skin picking, skin scratching, hair pulling, and nail biting. These behaviors may happen daily and include elements of both impulsivity and compulsion. Only hair pulling (trichotillomania) has its own disorder in the Diagnostic Statistical Manual (DSM), where it is classified as an impulse disorder (Favazza & Simeon, 1995).

**Superficial/moderate: Episodic.** The episodic category of SIB includes such behaviors such as cutting, carving, or burning one’s skin; interfering with wound healing; punching oneself; and breaking one’s bones (Favazza & Simeon, 1995). These behaviors are often associated with personality disorders and often are assumed to help relieve tension and/or unpleasant emotions (Favazza, 2006).

**Superficial/moderate: Repetitive.** Repetitive SIB includes behaviors such as cutting and burning of the skin. The repetitive self-injurer is preoccupied with self-injury and will often identify himself or herself as a “cutter” or “burner” (Favazza & Simeon, 1995). The self-injurious behaviors often develop a pattern and will last for a period of time, usually from adolescence onward (Favazza, 2006). Those who self-injure often feel tension before the act and a sense of relief after performing self-injury.
Function of Self-Injurious Behaviors

Several researchers have proposed different models to explain the development and function of SIB. The model that has the most empirical evidence is the affect-regulation model (Messer & Fremouw, 2008; Suyemoto, 1998).

The affect-regulation model is based on the fact that intense emotions have been found to precede acts of self-mutilation. These may include anxiety, anger at oneself or others, and tension (Messer & Fremouw, 2008). The function of SIB then is to change or eliminate these feelings or to gain control over an emotion that may overwhelm the individual (Suyemoto, 1998). Self-injurious behaviors may also express and externalize negative emotions (Suyemoto, 1998). The response (self-injury) is then strengthened each and every time a person changes or controls an unpleasant emotion via self-injury (Messer & Fremouw, 2008).

Impulsivity

Impulsiveness can be defined as “a tendency to respond quickly to a given stimulus, without deliberation and evaluation of the consequences” (Evans, Platts & Liebenau, 1996, p. 380). Impulsivity is almost always reported as being significantly higher in those who self-injure than in those who do not (Evans et al., 1996; Favazza & Conterio, 1989; Haw, Houston, Townsend, & Hawton, 2001; Herpertz et al., 1997). Some studies suggest impulsivity is higher, but not always at a significant level, in those who self-injure (Simeon et al., 1992). The degree (number of times) to which one engages in SIB has been positively correlated to impulsivity (Simeon et al., 1992). This correlation
inconsistent with the finding that impulsivity is even higher in those who repeatedly self-injure compared to those who do it for the first time (Evans et al., 1996).

It could be other factors, however, that are influencing the impulsivity scores of those who engage in SIB. Haw et al. (2001) found that those who engaged in SIB and had a diagnosis of alcohol dependence had greater trait impulsivity than those self-injurers who were not alcohol dependant.

Among those who self-injure, greater aggression has been correlated with greater impulsivity (Simeon et al., 1992). However, Simeon et al. (1992) suggest that, because impulsivity was not found to be a distinguishing factor between those who self-injure and those who do not, greater impulsivity interacts with greater aggression and often results in self-injury rather than in more minor acts of reduced impulse control such as overspending or promiscuity.

Aggression

Aggression is a broad construct. The term itself may indicate violence, criminal acts, hostility, destructiveness, or anger. Favazza and Simeon (1995) define aggression as any behavior directed toward the goal of harming or injuring a living being. The type of self-injury inflicted is thought to vary by how much aggression the individual is experiencing. Impulsivity is present in the three self-injury categories: compulsive, episodic, and repetitive (Favazza & Simeon, 1995). However, people who engaged in compulsive acts of SIB (hair pulling, skin picking, nail biting, and scratching) have been thought to have lower aggression levels, while those who engaged in episodic or
repetitive SIB (skin cutting or burning, etc.) were associated with higher levels of aggression (Favazza & Simeon, 1995).

A history of aggression and aggressive acts has been significantly higher in those who self-injure compared to those who do not (Simeon et al., 1992). Also, hostility (a component of aggression) has been found at different levels, depending on the current or past status of self-injury. Hostility is defined as the “feelings of ill will and injustice, and represents the cognitive component of aggression” (Buss & Perry, 1992, p. 457). Hostility was found to be the lowest in those who had never self-injured, followed by those who have engaged in SIB in the past. Those who have recently engaged in SIB reported the highest levels (Brown et al., 2007).

Ross & Heath (2003) concluded that the results showed that hostility was a greater contributor to self-injury than anxiety, because reports of hostility were found in a majority of cases. Therefore the researchers supported the hostility model for self-injurious behavior over the anxiety model. Adolescents who self-injure often report high levels of anxiety when compared to controls. It was found that 8% of self-injurers reported only anxiety prior to the act, 26% reported feelings of only hostility, and 54% reported feelings of both (Ross & Heath, 2003).

Anxiety

Favazza and Conterio (1989) found that self-mutilators felt a rapid sense of relief from such emotions as anxiety after completing the self-injurious act. Brain et al. (1998) studied physical and emotional arousal while guiding self-injurers through visualization of self-injury. The findings indicated that anxiety increased as the
visualization progressed, but upon resolution of the imagined act provided a significant decrease in anxiety levels. The reduction in negative affect is what is thought to make self-injury an “addictive” process for some people (Suyemoto, 1998).

Klonsky et al. (2003) found that anxiety, but not depression, plays a major role in the psychopathology of self-injury. They showed that anxiety had a significant unique relationship to SIB even after depression has been controlled for.

Animal models have shown that SIB may be responsible for an overall drop in heart rate, which escalates in response to the experimental introduction of stress (Novak, 2003, as cited in Dellinge-Ness & Handler, 2006). This finding may show a physical manifestation of anxiety and stress that is reduced after a self-injurious behavior is performed. If this finding is generalized to humans, one could assume a similar reduction in heart rate and a noticeable reduction in the symptoms of anxiety.

Depression

Depression is often higher in those who self-injure than in those who do not (Briere & Gil, 1998; Herpertz et al., 1997; Sampson et al., 2004). However, conflicting evidence has been found about the significance of depression. Langbehn and Pföhl (as cited in Klonsky et al., 2003) found that depression is lower in patients who self-injure when compared to those who do not. Simeon et al. (1992) accounted for a nonsignificant difference in depression between those who self-injure and those who do not because the particular scale used (Hamilton Depression Scale) included aspects of depression that include anxiety, somatization, and cognitive disturbances rather than just the vegetative symptoms of depression. Interestingly, differences in scores between the two groups on
the Beck Depression Inventory were not significant. This type of finding indicates that depression alone is not likely to be a major contributor to self-injury. The findings by Simeon et al. (1992) suggest that anxiety and depression interact, and on occasion the symptoms of the two overlap.

Stress and Isolation

In both clinical and nonclinical populations, self-injury has been correlated with stress (Favazza, 2006; Ross & Heath, 2003; Whitlock et al., 2006). In several studies, at least 70% of self-injurers have reported that self-injury is a way they manage their stress (Briere & Gil, 1998; Gratz, 2003). Dellinge-Ness and Handler (2006) state that most primates that develop SIB often come from conditions characterized by neglect, isolation, and lack of care. The three biggest factors that are correlated to primate SIB are isolation, abnormal rearing (attachment), and constant experimentation (stress; Dellinge-Ness & Handler, 2006). Isolation may have a similar quality in humans. Isolation was the single biggest stressor to trigger self-injury as reported by inmates (Dear et al., 1998; Jeglic et al., 2005).
CHAPTER III

METHOD

Sample

Six hundred and thirty-five participants started the questionnaire (described below); 506 completed it. In order to secure participants who engaged in self-injurious behavior, a link to the online questionnaire was posted on the Bodies Under Siege (BUS) Web board. The BUS board is a community of people whose lives have somehow been affected by self-injury. University students were also recruited at California State University, Chico. A third method of recruitment was used during the data-collection period. The researcher posted the link to the survey on craigslist.com, under the volunteers section. Craigslist.com is a classified Web site that hosts a variety of advertisements (buying and selling vehicles, rentals, employment, etc.). Posts were put up for two months in most major metropolitan areas of the United States. Participants were treated in accordance with the guidelines provided by the Institutional Review Board and the American Psychology Association’s ethical standards.

Cases in which responses were missing were eliminated from data analysis \((n = 351)\). Cases in which the participants indicated they had had suicidal intent when engaging in SIB were also eliminated from analysis \((n = 63)\) as well as anyone who had a clinical diagnosis (of any mental health disorder) from a mental health professional \((n = 97)\). This left total of 142 cases to be analyzed (21.7 % of the original sample).
Materials

An online questionnaire was completed consisting of 114 questions. The questionnaire was posted on QuestionPro.com. There were five separate sections: the first to gather demographic information (age and gender) and mental health status; the second to assess self-injurious behaviors; the third to assess depression, anxiety, and stress; the fourth to assess aggression; and the fifth to assess impulsivity.

The first part, which gathered demographic information, asked two questions, regarding age and gender. It also included a question that asked if the participant had ever been diagnosed with a mental health issue.

The second part consisted of a modified version of the Self-Harm Inventory (SHI). The SHI (Sansone, Wiederman & Sansone, 1998) is a 23-question inventory to measure self-harm behaviors in which the participants were asked to respond “yes” or “no” to descriptions of self-harm behaviors. The SHI was modified to exclude behaviors that did not cause direct tissue damage. An example of an item that was excluded is, “Have you ever intentionally, or on purpose, abused alcohol?” This type of question was excluded because of the indirect nature of the self-injury (Brown et al., 2007). An example of a question that was included is, “Have you ever intentionally, or on purpose, cut yourself?” The modified portion of the SHI had six items, and a follow-up question was asked only if respondents indicated that they did engage in the behavior described. The follow-up question asked at what age(s) the behavior occurred most often.

The third part of the questionnaire was the Depression, Anxiety, and Stress Scales (DASS). The DASS (Lovibond & Lovibond, 1995) is 42-question inventory with
three subscales. Participants responded to each of the 14 questions of the three subscales, depression (e.g., “I felt that life was meaningless”), anxiety (e.g., “I was aware of dryness in my mouth”), and stress (e.g., “I found myself getting upset by quite trivial things”), on a four-point Likert scale ranging from “Did not apply at all to me” to “Applied to me very much, or most of the time.” In past research the DASS anxiety subscale correlated 0.81 with the Beck Anxiety Inventory (BAI), and the depression subscale correlated 0.74 with the Beck Depression Inventory (BDI), showing good construct validity for both subscales (Lovibond & Lovibond, 1995). Cronbach’s alpha was 0.97 for the depression subscale, 0.93 for the anxiety subscale, and .95 for the stress subscale, indicating good internal consistency for the current investigation.

The fourth section of the questionnaire contained the Aggression Questionnaire (AQ). The AQ (Buss & Perry, 1992) is a 29-item instrument used to measure aggression. It has four subscales: physical aggression (e.g., “Once in a while I can’t control the urge to strike another person”); verbal aggression (e.g., “I tell my friends openly when I disagree with them”); anger (e.g., “I flare up quickly, but get over it quickly”); and hostility (e.g., “I am sometimes eaten up with jealousy”). Participants responded to the questions on a five-point Likert scale ranging from “Extremely characteristic of me” to “Extremely uncharacteristic of me.” The Cronbach’s alpha for the AQ was 0.92 for the total scale and ranged from 0.73 (anger) to 0.87 (hostility) for the current investigation.

The fifth and final section of the questionnaire contained the Barratt Impulsivity Scale 11 (BIS-11). The BIS-11 (Patton, Stanford & Barratt, 1995) is a 30-
item instrument that assesses impulsivity independent of anxiety as a trait. It has three subscales: impulsive nonplanning (e.g., “I plan tasks carefully”), motor impulsivity (e.g., “I do things without thinking”), and attentional impulsivity (e.g., “I have ‘racing’ thoughts”). Responses ranged on a five-point scale from “Rarely/never” to “Almost always/always.” The internal consistency for the BIS-11 for the current investigation (using Cronbach’s alpha) was 0.70. It has been reported that internal consistency often ranges from 0.79 to 0.83 on a variety of samples from undergraduates to prison inmates (Patton et al., 1995).

Procedures

Participants were recruited by posting a short description of the questionnaire (see Appendix A). Participants were offered an entry in a raffle to win a $50 Visa debit card. A link to the researcher’s blog (Floto, 2008a) provided a quick overview and requirements for answering the questionnaire. The participants were then redirected directly to the QuestionPro Web site, and informed consent (see Appendix B) was obtained from willing participants. QuestionPro.com is a commercial survey Web site that can be customized by the client in order to gather data. After the questionnaire was completed (or consent was not obtained), participants were redirected to a debriefing Web site (Floto, 2008b) containing detailed information and resources for those who struggle with self-injury (National Institute of Mental Health, 2009; “Self-injury—You Are Not the Only One,” n.d.; S.A.F.E. Alternatives, 2007; Wulff, 2005).
CHAPTER IV

RESULTS

Demographics

The average age of the sample ($n = 142$) was 28.15 years (SD = 9.82) and ranged from 18 to 56. The sample was overwhelmingly female (75.4%).

Self-Injurious Behavior

In this sample, 60.6% ($n = 86$) engaged in one or more self-injurious behaviors. The most common method of SIB reported was hitting or slamming one’s appendages against objects (38.7%, $n = 55$), followed by scratching oneself (32.4%, $n = 46$), cutting one’s skin (27.5%, $n = 39$), banging one’s head (24.6%, $n = 35$), preventing wounds from healing (19.7 %, $n = 28$), and burning one’s skin (12.7%, $n = 18$). A greater majority, 52.3% ($n = 45$), of those who reported SIB stated they engaged in only one to two methods of SIB, while 34.9% ($n = 30$) reported having engaged in three to four methods, and 12.8% ($n = 11$) reported having engaged in five to six methods of self-injury.

MANOVA Results

A one-way between-groups (self-injury and no self-injury) MANOVA was performed to investigate differences in those who engage in SIB and those who do not on measures of depression, anxiety, stress, impulsivity, and aggression. The independent variable was self-injury (whether people had or had not engaged in SIB). Self-injury was
recorded if the individual reported having engaged in any of the six methods of self-injury. There was a significant difference between those who self-injure and those who do not in the multivariate composite dependent variable (depression, anxiety, stress, impulsivity, and aggression), $F(5, 136) = 3.605, p = .004$, Wilk’s $\lambda = .883$. When the results of the dependent variables were considered separately using univariate tests, stress, $F(1, 140) = 9.92, p = .002$, anxiety, $F(1, 140) = 7.14, p = .008$, depression, $F(1, 140) = 12.89, p < .001$, impulsivity, $F(1, 140) = 10.23, p = .002$, and aggression, $F(1, 140) = 11.78, p < .001$, were all significantly higher for those who self-injure. The means and standard deviations are reported in Table 2. Depression had the greatest effect size, as calculated by a Cohen’s $d, .627$, followed by aggression ($d = .597$), stress ($d = .553$), impulsivity ($d = .550$), and anxiety ($d = .464$).

**MANOVA of Aggression**

There was a significant difference between those who self-injure and those who do not in the multivariate composite of aggression (physical aggression, verbal aggression, anger, and hostility), $F(4, 137) = 3.78, p = .006$, Wilk’s $\lambda = .901$. When considered separately using univariate tests, the results were all statistically significant: physical aggression, $F(1, 140) = 10.30, p = .002$, anger, $F(1, 140) = 6.60, p = .011$, and hostility, $F(1, 140) = 12.00, p < .001$. Verbal aggression was nonsignificant, $F(1, 140) = 3.04, p = .083$. Effect sizes were compared. Hostility had the largest effect size ($d = .60$), followed by physical aggression ($d = .56$), anger ($d = .45$), and verbal aggression ($d = .29$, nonsignificant).
TABLE 2

Means and Standard Deviations of Those Who Do and Do Not Engage in Self-Injury

<table>
<thead>
<tr>
<th>Measure</th>
<th>Yes (n = 86)</th>
<th>No (n = 56)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>12.35</td>
<td>5.91</td>
</tr>
<tr>
<td>Anxiety</td>
<td>7.86</td>
<td>4.43</td>
</tr>
<tr>
<td>Stress</td>
<td>14.08</td>
<td>8.70</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>68.86</td>
<td>63.07</td>
</tr>
<tr>
<td>Aggression</td>
<td>68.16</td>
<td>55.84</td>
</tr>
</tbody>
</table>

MANOVA of Impulsivity

There was a significant difference between those who self-injure and those who do not in the multivariate composite of impulsivity, $F(3, 138) = 3.65, p = .014$, Wilk’s $\lambda = .926$. When considered separately using univariate tests, impulsive nonplanning, $F(1, 140) = 8.99, p = .003$, motor impulsivity, $F(1, 140) = 6.97, p = .009$, and attentional impulsivity, $F(1, 140) = 4.86, p = .029$, were all significant.
The effect sizes were compared using Cohen’s $d$. Impulsive nonplanning had the largest effect size ($d = .52$), followed by motor impulsivity ($d = .45$) and attentional impulsivity ($d = .37$).
CHAPTER V

DISCUSSION

Findings

This study was conducted to explore whether there were differences in depression, anxiety, stress, aggression, and impulsivity between those who self-injure and those who do not in a nonclinical population. This research was conducted to help expand the understanding of SIB in nonclinical populations. The most widely used method of SIB in this sample was slamming one’s appendages against objects or hitting oneself (38.7%). Most studies find that cutting is the number-one method of SIB (Klonsky et al., 2003, Ross & Heath, 2002). However, hitting oneself is still a common form of SIB (Messer & Fremouw, 2008).

Significant differences were found between those who engage in SIB and those who do not on all five variables of the multivariate component (stress, anxiety, depression, impulsivity, and aggression). This finding is consistent with most of the literature on self-injury. However, it is interesting that depression was found to have the greatest effect size. This finding conflicts with many studies on nonclinical populations. Previous studies indicate that increased anxiety (Klonsky et al., 2003) and aggression (Brown et al., 2007; Laye-Ginghu & Schonert-Reichl, 2005; Ross & Heath, 2003) are key components of self-injury.
This study included a wide variety of participants from around the country. Because the questionnaire was conducted online, it is most likely that the sample contained a greater variety of people, unlike previous studies that used inpatient groups or a specific community sample (Dear et al., 1998; Haw et al., 2001; Ross & Heath, 2003). This unique sample may account for the finding that depression has the greatest effect on SIB. Because a majority of the sample came from an Internet-based support group for self-injury, one could assume that these individuals may be experiencing higher levels of depression. From the current investigation, it appears that for those for whom depression is the greatest influence, the chosen method of SIB is different than in most other studies. In this case, the current sample used the slamming of appendages more often than the cutting of skin, which is the “classic” method of SIB (Klonsky et al., 2003).

Aggression

It was hypothesized that aggression would be higher in those who self-injure. When aggression was analyzed using subscales as variables in a multivariate component, hostility, anger, and physical aggression were all significant, with verbal aggression being the only component that was nonsignificant.

Hostility. Hostility had by far the greatest effect size. This is consistent with the finding from other studies of self-injury that hostility is present before a majority of cases of SIB occur (Ross & Heath, 2003). Hostility is the cognitive component of aggression. Hostility, therefore, must involve some sort of planning or obsessing about when and how to engage in SIB. Because hostility involves cognition, it seems that those
who are more hostile should therefore be slightly less impulsive, especially on the
impulsive nonplanning subscale, because they think about their aggression.

**Anger.** Anger is the physiological arousal and emotional component of
aggression (Buss & Perry, 1992). Anger is involved in all other aspects of aggression,
because it is thought to precede hostility and actual aggressive behaviors (physical or
verbal; Buss & Perry, 1992). It seems almost counterintuitive that a person experiencing
unpleasant affect would increase unpleasant emotions by getting angry and then feel a
sense of relief by self-injuring. Perhaps the anger is directed more at oneself than at
outside stimuli. It would be interesting to investigate the direction of the anger. It would
be likely that those who self-injure have higher levels of inward anger rather than anger
directed outward. One would assume that anger that was directed toward outside stimuli
would result in the possibility of physical aggression.

**Physical Aggression.** Physical aggression is an instrumental or motor
compONENT of aggression (Buss & Perry, 1992). It is the behaviors presented by the
person. It is not unexpected that levels of physical aggression are higher in those who
engage in SIB. By definition, self-injury is damage to one’s body tissue outside of social
norms (Suyemoto, 1998), and aggression is the goal of harming a living being (Favazza
& Simeon, 1995).

**Verbal Aggression.** Verbal aggression is also an instrumental or motor
component of aggression (Buss & Perry, 1992). Verbal aggression was nonsignificant,
but this finding is not surprising. Self-injury is thought to be a form a coping with
distressing affect. If someone could verbalize his or her aggression, hypothetically the release would be found in an outlet other than self-injury.

**Impulsivity**

Impulsivity was also analyzed using subscales to determine which component had the greatest effect size on SIB. All three subscales, impulsive nonplanning, motor impulsivity, and attentional impulsivity, were all significant.

**Impulsive Nonplanning.** Impulsive nonplanning had the greatest effect size. The impulsive nonplanning scale represents a disregard for the future and a fixation on the present (Patton et al., 1995). If SIB is a way of managing current distressing affect, then finding an outlet for the distress now, rather than later, would be important for a person who self-injures.

**Motor Impulsivity.** Motor impulsivity is defined as acting on the spur of the moment (Patton et al., 1995). This is also relevant to those who self-injure. If individuals get the idea that self-injury may make them feel better, they are less likely to think it through and may commit the act before they can fully assess the consequences of it. It also appears that the sample from the current investigation chose the quickest method of SIB, hitting oneself, which may deal with motor impulsivity.

**Attentional Impulsivity.** It was surprising that attentional impulsivity was significant. Attentional impulsivity assessed a person’s inability to focus on the task at hand (Patton et al., 1995). Because the method of choice for SIB of the current sample was hitting oneself, it would not take much attention to do so. Attentional impulsivity may not be significant for those who choose a method of SIB that is more involved, such
as cutting or burning the skin, because these methods require some planning to gather materials (sharp object or heat source) and attention to the task at hand (self-injury with the material) to complete the act.

Suggestions for Future Research

Future studies of SIB should examine the way the method of SIB interacts with aggression and impulsivity. Are those who use cutting or burning as their main method of SIB less impulsive than those who hit or slam their bodies? Future studies should also investigate how aggression varies across methods of SIB. Research about methods of SIB and factors (such as impulsivity and aggression) may help researchers and clinicians understand which skills (anger management, planning, stress reduction, etc.) are most critically in need of development to help end self-injurious behaviors.

Limitations

The present investigation was limited by the fact that data was gathered from the Internet, which allows participants greater anonymity, but may also allow greater dishonesty. The participants had no incentive to be honest with their answers; however, they also had no incentive to be dishonest. Also, by using the Internet to gather the data, a very broad sample was reached with regard to age and location. The questionnaire was designed to be as brief as possible to encourage participants to answer all the questions. Perhaps a greater incentive would encourage more participation.
REFERENCES


APPENDIX A
Research Participants Needed!

Liz Floto
efloto@mail.csuchico.edu

Research participants are needed to complete a questionnaire on the subject of self-harm behaviors and personal attributes. You are being asked to complete the questionnaire online in your spare time. It should not take you longer than 20 to 35 minutes to complete. Your information will be kept anonymous and confidential. If you choose to participate you may enter into a drawing to win a $50 Visa debit card. Please visit the site below to take the questionnaire or read more about the study. Thanks!

http://csucresearch.blogspot.com/
INFORMED CONSENT FORM

A Study of Self-Harm Behavior
Informed Consent for Research Participation
Investigator: Liz Floto, efloto@mail.csuchico.edu

Read this consent form. The Department of Psychology supports the practice of protection for human participants in research and related activities. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time, and that if you do withdraw from the study, you will not be subjected to reprimand or any other form of penalty. This survey is on the subject of self-harm behaviors and personal attributes. You are being asked to complete the questionnaire. It should not take you longer than 20 to 35 minutes to complete, and you may enter into a drawing to win a $50 Visa debit card. These questionnaires are to be completed anonymously, and your participation is completely voluntary. All data submitted will be given and ID number that is not linked to you identity. Your personal information will be kept confidential, and you are encouraged to answer each question honestly. No individual data will be analyzed; the data is being used to find general correlations between groups. As experimenters, we have no foreseen harm that could be caused to participants. You are reminded that you are free to withdraw at any time from the experiment with no repercussions. If you have and questions, concern or comments about the study or the informed consent process, please contact Liz Floto, efloto@mail.csuchico.edu. The results of this study will be posted in May of 2009 at www.csucresearch.blogspot.com. I understand that by clicking yes below acts as my signature. I acknowledge that I have received a description of my participation in this study, and that I have read and understood the description, and that I am voluntarily agreeing to participate in this research. I am aware that may choose to end my participation in this study at anytime without penalty. I also acknowledge that I am at least 18 years old.

Yes, I would like to participate

No, I decline to participate
APPENDIX C
MEMORANDUM

October 22, 2008

To: Liz Floto

From: Linda Kline, Chair
ETHIC – Department of Psychology

Subject: Research Involving Human Subjects,
Feedback on Exemption from Review

As chair of the Ethical Treatment in Human Investigation Committee, I am pleased toinform you that your application entitled, “Characteristics of maladaptive copingbehavior: An investigation of self-harm behaviors”, has been approved under exemptclassification. Your Experiment ID Number is 208-03. You may begin contactingpotential participants. If you are contacting participants through the bulletin board orparticipant sign-up, please get the appropriate, stamped sign-up forms from thepsychology department (Modoc 215). If you create your own sign-up form, please haveit stamped in the psychology department. If you are using a different participant source,be sure you have obtained permission from the appropriate individuals.

When providing participants with proof of extra credit, please use the form and stampavailable in the psychology department. If you are using a raffle or drawing for a prize asan incentive to participants, please give me (Modoc 119) the names and contactinformation of those who won prizes.

When collection of your data has concluded, you will need to complete in the attachedPost Data Collection Form for final approval. This form is to be completed and returnedto Diane Smith (SSC 440).

If this research study is a part of your Master’s thesis or project, you must provide a copyof this approval memo and a copy of the Post Data Collection Form (signed by JohnMahoney) to your graduate committee for inclusion in your thesis or project.
APPENDIX D
POST DATA COLLECTION
QUESTIONNAIRE

HUMAN SUBJECTS IN REVIEW COMMITTEE
Post Data Collection Questionnaire

Under Federal law relating to the protection of Human Subjects, this report is to be completed by each Principal Investigator at the end of data collection.

Please return to: Diane Smith, FISRC Assistant
Graduate and International Programs
Student Services Center (SSC), Room 440
CSU, Chico
Chico, CA 95929-0875

Or Fax to: Diane Smith, 530-898-6889

Name: Elizabeth Floto Chico State Portal ID#: 664632902
Phone(s) 503 580 9845 Email: Floto99@gmail.com

Faculty Advisor name (if student): Dr. Ennis Phone 898-4963

College/Department: Psychology


Date application was approved (mo/yr.): 10/08 Date collection completed (mo/yr.): 01/09

How many subjects were recruited? 30 How many subjects actually completed the project? 518

HAVK -- Did subjects have severe reactions or extreme emotional response? NO

If yes, please attach a detailed explanation:

Your signature: ___________ Date: 03/09/09

*Final clearance will not be granted without a complete answer to this question.

Approved By: _______ Date: 3/1/09

John Mahoney, Chair

******************************************************************************

VERY IMPORTANT: If you will or have used this research in your project or thesis you are required to provide a copy of this form (with John Mahoney’s signature in place) to your graduate committee.

Do you want a photo copy of this form mailed to you? YES

If yes, provide address:

Liz Floto
2530 Eaton Rd #53
Chico, CA 95928

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