Non-suicidal self-injury among female inmates in Oregon prisons

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Recommended Citation
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Abstract
Non-suicidal self-injury (NSSI) is defined as deliberate self-harm without the intent to die. NSSI has received increased attention in the past several years and has even been suggested for inclusion into future editions of the Diagnostic and Statistical Manual of Mental Disorders (Selby, Bender, Gordon, & Nock, 2012). Little research has been focused specifically on NSSI in a prison setting (DeHart, Smith, & Kaminski, 2009), which is said to pose unique challenges to the correctional system (DeHart et al., 2009; Fagan, Cox, Helfand, & Auderheide, 2010). In this study, adult female inmates responded to a questionnaire regarding frequency, method, and reasons for engaging in NSSI behaviors. Scores on various Personality Assessment Inventory (PAI) scales of inmates who engaged in NSSI behaviors were compared to scores of those inmates who did not engage in NSSI. Results did not indicate significant differences between the two groups. Implications of the findings are discussed.

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NON-SUICIDAL SELF-INJURY AMONG FEMALE INMATES
IN OREGON PRISONS

A DISSERTATION PROPOSAL
SUBMITTED TO THE FACULTY
OF
SCHOOL OF PROFESSIONAL PSYCHOLOGY
PACIFIC UNIVERSITY
HILLSBORO, OREGON

BY
ALISA NIEHUSER
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
DOCTOR OF PSYCHOLOGY
April 22, 2013

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ABSTRACT

Non-suicidal self-injury (NSSI) is defined as deliberate self-harm without the intent to die. NSSI has received increased attention in the past several years and has even been suggested for inclusion into future editions of the *Diagnostic and Statistical Manual of Mental Disorders* (Selby, Bender, Gordon, & Nock, 2012). Little research has been focused specifically on NSSI in a prison setting (DeHart, Smith, & Kaminski, 2009), which is said to pose unique challenges to the correctional system (DeHart et al., 2009; Fagan, Cox, Helfand, & Auderheide, 2010). In this study, adult female inmates responded to a questionnaire regarding frequency, method, and reasons for engaging in NSSI behaviors. Scores on various Personality Assessment Inventory (PAI) scales of inmates who engaged in NSSI behaviors were compared to scores of those inmates who did not engage in NSSI. Results did not indicate significant differences between the two groups. Implications of the findings are discussed.
ACKNOWLEDGEMENTS

This project could not have been completed without the support and guidance of Genevieve Arnaut, Psy.D., Ph.D., Michelle Guyton, Psy.D., and the Oregon Department of Corrections. Margot Schuerman, M.S. provided invaluable help in directing my attention to the topic. Lastly, I am thankful for the support from my peers, research group, friends, and family.
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INTRODUCTION

Non-suicidal self-injury has been increasingly documented in clinical and nonclinical populations in the United States (Klonsky, Oltmanns, & Turkheimer, 2003). Non-suicidal self-injurious behavior (NSSI) is defined as deliberate self-harm without suicidal intent (Andover, Primack, Gibb, & Pepper, 2010). According to Roe-Sepowitz (2007), approximately 750 to 1,800 individuals per every 100,000 people in the general population engage in self-injurious behavior, compared to nearly 50% of prisoners. However, these estimates may be inaccurate due to the fact that the number of unreported incidents of NSSI behaviors in the general population and prisons is largely unknown. Furthermore, the estimated number of people engaging in NSSI behaviors while incarcerated is also likely inaccurate due to differences in definitions of self-injurious behavior across prisons as well as differences in tracking methods.

The purpose this study was to assess the prevalence and frequency of NSSI behaviors in incarcerated adult females. Additionally, in this study I aimed to explore whether individuals who engaged in this behavior also showed differences in reported mental health symptoms (as measured by various Personality Assessment Inventory [PAI] scales) relative to those who did not demonstrate the behaviors.
REVIEW OF THE LITERATURE

Non-suicidal self-injury (NSSI) has been defined as deliberate self-harm without suicidal intent (Andover et al., 2010); however, much of the prior literature does not incorporate a consistent definition, often including incidents of piercing, tattooing, hair pulling, and suicidal or parasuicidal behaviors as NSSI behaviors (Nock, 2010). For the current investigation, NSSI will be defined in the same manner as it was defined by Andover et al. (2010), noted above.

Currently, there is no formalized system for classifying subtypes of NSSI behaviors; however, there has been general agreement that such behaviors tend to vary in frequency and severity (Nock, 2010). There has also been disagreement in the literature about what motivates an individual to engage in NSSI behavior (Fagan et al., 2009). With regard to assessing NSSI, self-report has been the primary means of determining whether a person has engaged in the behavior. Furthermore, self-report has also been the primary means of understanding the causal and maintenance factors that contribute to the behaviors (Nock, 2010).

Several authors have focused on self-injury among prisoners (e.g., Crighton & Towl, 2002; Fagan et al., 2010; Franklin, 1988; Ireland, 2000; Jones, 1986; Lohner & Konrad, 2006; Roe-Sepowitz, 2007; Smith & Kaminski, 2010; Snow, 2002, 2006; Vollum & Dolan, 2009). Overall, there seems to be consensus that there is a marked difficulty in assessing, managing, and treating inmates who engage in NSSI. Several authors have noted that self-injurious behaviors present a number of challenges to correctional, medical, and mental health staff (Coid, Wilkins, Coid, & Everitt, 1992;
DeHart et al., 2009; Fagan et al., 2009). In particular, challenges arise when attempting to decide whether a serious injury resulted unintentionally from NSSI behavior or from a suicide attempt. Challenges also arise in determining whether NSSI behavior was manipulative or whether it represented a symptom of a mental disorder or personality disorder (DeHart et al., 2009). Financial difficulties arise when considering the cost of treatment, availability of treatment, and best treatment practices for NSSI (Fagan et al., 2009). Furthermore, it is assumed that staff or friends and family may be emotionally impacted by an inmate’s self-injurious behavior, perhaps resulting in personal distress (DeHart et al., 2009).

To date, few researchers have addressed institutional responses to NSSI or explored the perspectives of correctional, mental health, and medical professionals on NSSI (e.g., DeHart et al., 2009; McHugh & Towl, 1997). Because of the noted challenges of assessing, treating, and managing NSSI behavior in prison, it is important to better understand how to identify people who are at risk of engaging in such behaviors, as well as to be better able to differentiate those who use NSSI as a means of emotional coping from those who utilize it as a means of instrumental coping within the prison system. That is not say the two are always mutually exclusive but to recognize that the needs of these two groups may differ. In this section, I provide an overview of the and causal and maintenance factors of NSSI, review of estimated prevalence rates of NSSI, and review previous research on NSSI among incarcerated populations.
Causal and Maintenance Factors of NSSI

Despite researchers having proposed numerous explanations of the causes and maintaining factors of NSSI (Nock & Cha, 2009), current literature still lacks an evidence-based theoretical framework from which to understand such factors (Chapman, Gratz, & Brown, 2006). Some researchers of self-injurious behaviors have concentrated on psychosocial correlates as possible explanations of NSSI (e.g., posttraumatic stress, anxiety, or suicidal ideation; Nock & Cha, 2010), whereas other researchers have focused their explanations on NSSI as a means of emotional regulation (Brown, Comtois, & Linehan, 2002). Multiple causal and maintenance factors such as biological (Sher & Stanley, 2009) and interpersonal factors (Prinstein, Guerry, Browne, & Rancourt, 2009) have also been explored.

Nock and Prinstein’s (2004) conceptualization of NSSI maintenance incorporated both emotion regulation and interpersonal factors in a four-factor model of NSSI. Nock and Prinstein proposed that NSSI is either intrapersonal and automatically reinforcing (e.g., to alleviate negative emotions or to reduce positive emotions) or interpersonal and socially reinforcing (i.e., environmental effects). In addition, they also proposed that NSSI is reinforced either positively (e.g., reward with a positive stimulus) or negatively (e.g., removal of an aversive stimulus). Expanding on the concept of engaging in NSSI for reinforcement, the Functional Assessment of Self-Mutilation (FASM) was developed and utilized by Lloyd, Kelley, and Hope (1997) in a study to indicate whether female and male adolescents engaged in NSSI behavior for an automatic positive or negative reinforcement and/or a negative or positive social reinforcement. A total of 633 adolescents, recruited through classroom announcements completed the anonymous
FASM. A total of 46.5% reported engaging in NSSI behaviors and results indicated that NSSI functioned more as an automatic reinforcement than as a social reinforcement. However, there was also evidence to support the notion that engaging in NSSI was socially reinforcing, thus supporting the idea that the function of engaging in NSSI behavior can be conceptualized from a four-factor model of automatic positive and negative reinforcement and positive and negative social reinforcement.

Similar to the four-factor model, the experiential avoidance model (EAM) of NSSI is an example of an emotional regulation theory of self-injury (Chapman et al., 2006). Experiential avoidance refers to the unwillingness of an individual to endure unpleasant or aversive internal experiences (i.e., feelings, thoughts, and memories; Hayes, Wilson, Gifford, Follette, & Strohsahl, 1996). According to the EAM model of NSSI, one may engage in self-injury to alleviate aversive internal experiences, such as the unsettling feelings sometimes associated with anxiety and depression or other mental health disorders (Chapman et al., 2006). Chapman et al. (2006) hypothesized several factors that may contribute to the unwillingness of an individual to endure these unpleasant internal experiences. Such factors include high emotion intensity, poor distress tolerance, and emotion regulation skills deficits. The EAM model of NSSI explains maintenance of the NSSI behaviors via reinforcement through the experience of emotional relief that occurs from engaging in the behavior. For example, an individual may engage in cutting him- or herself as a form of physical relief or reinforcement of negative thoughts such as “I am a horrible person.” As with most behaviors, Chapman et al. suggested that, with repetition, NSSI behavior has the potential to become an automatic and conditioned response to emotional arousal and/or thoughts.
In studies of both clinical and nonclinical populations, there is a small but growing body of evidence of a link between NSSI and experiential avoidance. For example, Najmi, Wegner, and Nock (2007) demonstrated a positive correlation between thought suppression and NSSI in a cross-sectional study with adolescents. Similar findings were obtained by Gratz, Specht, and Cellucci (2005), who demonstrated a positive correlation between thought suppression and NSSI in female inmates diagnosed with Borderline Personality Disorder. In another study of women diagnosed with Borderline Personality Disorder, an acceptance-based intervention for emotion regulation had positive effects on NSSI by reducing the occurrence (Gratz & Gunderson, 2006).

Nock (2010) proposed a theoretical model of NSSI suggesting that NSSI assisted in the regulation of affective experiences as well as in the regulation of social situations. In this model, which is similar to the experiential avoidance model, it is assumed that NSSI is a repetitively performed effective method of immediately regulating one’s affect or cognitive experiences as well as influencing one’s social environment. In this model, it is also assumed that the risk of NSSI is greatly increased by factors that predispose individuals to difficulty in regulating their affects/cognitions and social environment. Finally, there is an assumption that one may be at an increased risk of engaging in NSSI rather than other coping behaviors based on social modeling and a desire for punishment (Nock, 2009).

With regard to maintenance of NSSI, from a functional perspective NSSI has been theorized to be maintained by four possible reinforcements: positive reinforcement, negative reinforcement, interpersonal (automatic) consequences, and intrapersonal (social) consequences (Nock, 2010). Thus, NSSI can be examined in regard to
automatic-negative reinforcement, such as to stop a distressing or negative thought; automatic-positive reinforcement, such as to feel pain; social-negative reinforcement, such as to avoid punishment or other aversive stimuli; or social-positive reinforcement, such as to get a reaction (Nock & Prinstein, 2004). According to Nock (2010), “this four-function model of self-injury can help to organize and understand descriptions of the behavior, and has been supported by self-report, behavioral, and physiological data collected across a wide range of studies, samples, and contexts” (p. 349).

The functions of NSSI were also examined by Klonsky (2009) in 39 male and female college students with a history of NSSI. To be included in the study, participants had to report a minimum of five instances of non-suicidal skin-cutting both on a screening measure and at a subsequent interview. Participants completed a structured interview that assessed for the consequences of engaging in NSSI, their affect states pre- and post-NSSI behavior, and the reasons associated with engaging in the self-injurious behavior. Results indicated that, in general, those who engaged in NSSI reported negative consequences, such as feelings of anger, guilt, and shame. However, based on other research, Nock (2010) noted that, for many participants, the rewards of engaging in NSSI seemed to outweigh the negative consequences associated with such behaviors. Most people who engage in NSSI do so when they are alone and distressed or having negative thoughts (Nock et al., 2009). Of those who engage in NSSI, many use multiple methods, with cutting being the most common method (Nock, 2010).

Although researchers have examined the prevalence of NSSI, fewer studies have focused on why individuals decide to engage in such behavior to cope with their distress/experiences (Nock, 2010). However, Lloyd-Richardson, Perrine, Dierker, and
Kelley (2007) did just this with the FASM. In their study of NSSI among 633 male and female adolescents in Louisiana, they cited that common reasons for engaging in NSSI included trying to get a reaction from someone (interpersonal reinforcement), trying to get control of a situation (intrapersonal reinforcement), and trying to stop bad feelings (intrapersonal reinforcement). Similarly, Penn, Esposito, Schaeffer, Fritz, and Spirito (2003) and Nock and Prinstein (2004) noted that intrapersonal reinforcement was endorsed more frequently than were social reasons among adolescent psychiatric inpatients.

In summary, the above researchers have explained NSSI behavior by postulating psychosocial correlates (e.g., posttraumatic stress, anxiety, and suicidal ideation; Nock & Cha, 2009), biological factors (Sher & Stanley, 2009), emotion regulation (Brown et al., 2002), and interpersonal factors (Prinstein et al., 2009). Recent researchers (Martin, White, Flanagan, Yensel, & Bloomberg, 2011) on emotion regulation have examined the relationship between substance use and NSSI behavior. Using an inpatient sample (N = 455) from alcohol abuse centers in the Northeastern United States, and controlling for Axis II disorders, Posttraumatic Stress Disorder, substance abuse severity, childhood factors, and demographic variables, the authors found that the most frequent method of NSSI was cutting (31%), the prevalence was higher in women (39%) than in men (16%), and individuals with a history of substance abuse and NSSI reported significantly higher levels of emotional deregulation, emotional non-acceptance, and limited access to emotion regulation strategies than those without substance abuse.

Black and Mildred (2013) aimed to support the notion of progression from compulsive NSSI (e.g., hair pulling, nail biting, skin picking, and scratching) to
impulsive NSSI (e.g., cutting, burning, carving, pin sticking, and punching). In a sample of 106 adult women from various countries, Black and Mildred analyzed factors predictive of NSSI such as disordered eating, age, and personality with regard to progression of NSSI behaviors from compulsive to impulsive. Compulsive behavior was described as habitual, symbolic, and ritualized, and impulsive behavior was described as spontaneous and reactive to triggers. Similar to previous studies on NSSI (Gratz, 2006; Klonsky, May, & Glenn, 2012; Klonsky, 2009; Klonsky et al., 2003; Nock 2010; Snow 2002), many women used multiple methods of self-injury, with cutting and scratching being the most common. Findings suggested that, over time, compulsive NSSI such as skin picking was a risk factor for developing or progressing to impulsive NSSI behaviors such as cutting. Urgency, defined as the tendency to behave rashly when experiencing negative emotions, was a significant predictor for impulsive NSSI behaviors, which lends support to the experiential avoidance model (Chapman et al., 2006) as well as the affect regulation model of NSSI (Klonsky, 2009). Other predictors such as age and disorganized eating did not significantly predict impulsive NSSI.

**Prevalence of NSSI**

As noted previously, it is difficult to compile accurate prevalence rates of NSSI because researchers have incorporated varied definitions of these behaviors. Nock (2010) noted that it was common to see terms such as suicidality, deliberate self-harm, self-mutilation, cutting, and para-suicide used throughout the literature to refer to various types of self-injurious behaviors. Keeping the accuracy of prevalence rates in mind, research has indicated that rates of NSSI are reportedly highest among male and female adolescents in the community (13% to 60%; Nock, 2010). In college populations, the
average rate of NSSI among males and females has been reported to be anywhere from 1% to 38% (Roe-Sepowitz, 2007). Among male and female clinical adult populations, rates of NSSI have been reported to range from 21% to 71% (Roe-Sepowitz, 2007). Adult male and female incarcerated sample rates have reportedly ranged from 4% to 45% (Ireland, 2000; Lloyd-Richardson et al., 2007). According to Nock, assuming that the lower estimates of NSSI are accurate, such rates suggest that the prevalence rate of NSSI behaviors is higher than rates of Anorexia Nervosa and Bulimia, Panic Disorder, Obsessive Compulsive Disorder, and Borderline Personality Disorder. Adding to the concern of prevalence, clinicians, and other health professionals have reported that NSSI has increased in recent years (Nock, 2010).

What makes these prevalence rates even more concerning is that the relationship between NSSI behavior and suicide is moderate, with NSSI behaviors being second to suicidal ideation and previous suicide attempts in predicting suicide (Klonsky et al., 2012). Thus, NSSI can be considered a risk factor for suicide. In their study, Klonsky et al. (2012) noted the relationship between NSSI as a predictor of attempted suicide across adolescent psychiatric patients (\(N = 139; r = .50\)), adolescent community samples (\(N = 426; r = .38\)), university undergraduates (\(N = 1,351; r = .28\)) and randomly dialed U.S. adults (\(N = 438; r = .34\)). Results of the study indicated that NSSI had a stronger predictive relationship with suicide than did depression, anxiety, impulsivity, or diagnoses of Borderline Personality Disorder.

**Previous Research on NSSI among an Incarcerated Population**

Prior to the 1970s, few studies on self-injury could be found in psychological literature. Although the numbers have grown, few studies have focused solely on NSSI
in an adult incarcerated population. Further complicating the matter, Crighton and Towl (2002) noted the difficulty of comparing studies of NSSI in the general population with studies of NSSI in an incarcerated population due to the often high lethality of NSSI in incarcerated settings. A recent PsycINFO search using several keywords (deliberate self-harm, intentional self-injury, self-injury, non-suicidal self-injury, self-harm, self-inflicted violence, prisoners, inmates, offenders) yielded extensive literature. However, when narrowing down the literature to studies with an adult incarcerated population with NSSI, only 21 articles were found (Andover, Schatten, Crossman, & Donovick, 2011; Coid et al., 1992; Crighton & Towl, 2002; DeHart et al., 2009; Dear, Thomson, & Hills, 2000; Fagan et al., 2010; Franklin, 1988; Fulwiler, Forbes, Santangelo, Folstein, 1997; Hillbrand, 1993; Jones, 1986; Lekka, Argyriou, & Beratis, 2006; Livingston, 1997; Lohner & Konrad, 2006; McHugh, & Towl, 1997; Roe-Sepowitz, 2007; Smith & Kaminski, 2010; Snow, 2002, 2006; Vollum & Dolan, 2009). Studies on suicidal behavior or self-poisoning alone were excluded. The majority of articles relating to both NSSI and an adult incarcerated population were focused on female populations. Similar results were found in searches of other databases, including Criminal Justice Periodicals, Social Service Abstracts, and Medline. Such results from PsycINFO, which provides worldwide coverage of references within psychology and related disciplines, reveal a significant need for expansion of the study of NSSI to an adult incarcerated female population.

Other researchers have attempted to further understanding of NSSI by identifying differences between groups exhibiting self-injurious (SI) behaviors and non-self-injurious behaviors (e.g., Jones, 1986; Vollum & Dolan, 2009), but the focus of such studies was
not directly related to NSSI behaviors or perceptions. Additionally, many of the studies were not representative of an adult incarcerated population. Therefore, although they will be discussed here, they will not be reviewed in detail.

Fliege, Lee, Grimm, and Klapp (2009) reviewed empirical literature looking for possible factors in the etiology of deliberate self-harm. Their review included 59 studies, only one of which included prisoners in the sample. Despite the lack of empirical literature, researchers have estimated rates of NSSI among the male and female prison population to range from 2% to 52% (DeHart et al., 2009; Roe-Sepowitz, 2007). The literature also indicates that some individuals appear to be at higher risk for NSSI than are others. For example, self-injurious behavior (SIB) has been found to be most common among individuals diagnosed with Borderline Personality Disorder and Antisocial Personality Disorder (Hillbrand, 1993). Furthermore, individuals who engage in NSSI have been found to be more likely to have a drug and alcohol disorder than were people without another identified disorder (Nock et al., 2009). Because prisons often have higher proportions of individuals with drug and alcohol disorders and mental health disorders when compared to the general population, the incarcerated population is at increased risk of NSSI (Hillbrand, 1993). Furthermore, NSSI is a rapid, effective, and easily implemented method of emotional self-regulation (Nock, 2010), which may lend itself to a prison environment where there may be a lack of immediate reinforcement combined with high levels of distress.

Nock (2010) noted that obtaining accurate rates of NSSI is essential for understanding the scope of the problem, allocating services for those who engage in NSSI, and monitoring change with respect to such behaviors. However, because the
definition of self-injury and NSSI often varies, as noted above, prevalence estimates of NSSI in prisons may include incidents of suicidal self-injuries, piercings, tattoos, drug use, and hair pulling. Further confounding the ability to obtain accurate prevalence rates for NSSI among an incarcerated population is the concern that the number of cases that go unreported is unknown. Furthermore, NSSI is difficult to study because such behaviors typically consist of brief repeated episodes performed in private (Nock, 2010).

Earlier studies on NSSI indicated that Whites were overrepresented in groups engaging in what was termed self-mutilation behavior (Albanese, 1983; Johnson, 1973; Jones, 1986; Orchowski, 1978; Toch, 1975). In another early study, using record review from the Virginia Department of Corrections, Jones (1986) compared 67 self-mutilating male and female offenders to a random sample of 68 non-mutilating male and female offenders on 15 variables. Results indicated that individuals in the self-mutilating group were more likely to be White, to have signs of previous physical self-mutilation upon admission to prison, and to have attempted suicide while incarcerated. The act of self-mutilation was more likely to occur in restrictive settings than in general settings and was positively correlated with the severity of disciplinary reports, which were found to be the single most important variable in predicting self-mutilation. However, this study was limited by the fact that it used archival records. Additionally, Virginia prisoners may not be representative of the overall prison population. But perhaps the biggest limitation in comparing this study to other research was a failure to clearly define self-mutilation. It was unclear whether parasuicidal attempts, piercings, or tattoos were considered self-mutilation.

Franklin (1988) conducted a record review of 64 adult male offenders who were
admitted to a mental health treatment facility at Central Prison in Raleigh, North Carolina. Individuals who engaged in self-injury were dichotomized into two groups: those who engaged in superficial cutting and/or self-injury and those whose actions were perceived as more lethal. The participants’ self-reported reasons for self-injury were then categorized into one of three groups: (a) suicidal intent, (b) manipulation, or (c) no identifiable reason. The lethal group’s NSSI behaviors ranged from deep cutting to shooting or hanging. Results indicated that 50% of inmates who reported self-injury also reported manipulation as their goal of such behavior. Inmates who engaged in self-injury were older than suicidal inmates and were more frequently diagnosed with Borderline Personality Disorder. Limitations of this study included a small sample size, the use of records review rather than firsthand information, and the use of self-report measures, which may lead to less than honest responding. In addition, many of the lethal group participating offenders had been referred for hospitalization based on their self-injurious behaviors. Thus, the sample was not reflective of those who engage in less severe forms of self-injurious behaviors, which may not lead to a referral for hospitalization.

Coid et al. (1992) utilized a cluster analytical approach to identify self-mutilation in remanded female prisoners (i.e., prisoners incarcerated before a trial) in London, England. Specifically, Coid et al. sought to distinguish subgroups of remanded prisoners who engaged in self-mutilation as self-relief from those remanded prisoners who engaged in self-mutilation for other reasons. A total of 74 remanded female prisoners with a history of self-mutilation were interviewed. In all, 25 variables were selected for inclusion in the cluster analysis. Results indicated two groups: endogenous and reactive. The endogenous group was characterized by a buildup of symptoms that came for no
apparent reason. This group’s symptoms were alleviated by engaging in self-injurious behavior. The authors stated, “The most striking feature of this group was the number of subjects with diagnoses of Borderline Personality Disorder and Antisocial Personality Disorder” (Coid et al., 1992, p. 5). The second group, the reactive group, was characterized by reactivity to external stimuli or mental illness; this group did not specifically report self-injurious behavior as means of relief. Limitations of this study included the use of retrospective self-report data with remanded prisoners. It is possible that remanded prisoners may suffer different levels of distress than incarcerated prisoners. Thus, the rates and reason for engagement in NSSI may differ. Additional limitations were a small sample size and a vague definition of self-mutilation.

Hillbrand (1993) compared adult self-injurious inmates (gender was not specified) to non-self-injurious inmates as well as to self-injurious non-correctional patients. Self-injurious behavior (SIB) was defined according to Winchell and Stanley’s (1991) definition of the willful infliction of physical harm to self without suicidal intent. The researcher identified two different patterns of SIB when comparing non-correctional self-injurious patients to self-injurious inmates: SIB patterns in non-correctional patients were associated with lack of self-control, whereas SIB patterns among inmates were associated with manipulation. The author concluded that treatment of SIB in incarcerated populations was dependent on the etiology of the behavior.

McHugh and Towl (1997) sought to explore organizational reactions to self-injury and suicide in the prisons of England and Wales. However, they focused primarily on suicide attempts and did not clearly distinguish self-injury from such attempts. As a result, they concluded that a more standardized definition of what constitutes self-injury
in prisons was needed. Additionally, they called for more effective monitoring and tracking of such behaviors.

In the Australian prison system, Dear et al. (2000) attempted to determine whether self-harm and suicide were indeed mutually exclusive. Seventy-four male and female prisoners were interviewed within three days of engaging in self-injurious behavior. Attempts were made to assess for suicidal intent (using the Suicide Intent Scale) and the potential risk to the prisoner’s own life (through medical staff’s perception of life-threatening risk). Of the 74 prisoners interviewed, 18 reported self-injurious behaviors for manipulative reasons. Of these 18 prisoners, three (16.6%) had inflicted self-harm that was deemed by medical staff to be at least a moderate risk to their own lives. The authors concluded that their data did not support the notions that manipulative self-harm was negatively correlated with suicidal intent or that such behavior was devoid of risk to life. Thus, it is not safe to assume that there is an absence of suicidal intent for all prisoners who self-harm, even when they report doing so with the clear intent to gain attention or manipulate.

Snow (2002) examined 143 English and Welsh prisoners’ motives for self-injury and attempted suicide. The sample included 36 adult male prisoners (of whom 20 had attempted suicide), 49 adolescent male prisoners (of whom 24 had attempted suicide), 28 adult female prisoners (of whom nine had attempted suicide), and nine adolescent female prisoners (of whom five had attempted suicide). Somewhat in contrast to Dear et al. (2000), Snow proposed that, although NSSI and suicide attempts were similar, the differences between the two should far outweigh the similarities. Self-injury was defined as intentional infliction of self-injury for a purpose/reason other than ending life. Via in-
depth interviews, prisoners were asked to describe their reasons for self-injury in their own words. Prisoners were also asked if they had intended to die. However, the researchers used discretion in ruling out prisoners who answered this affirmatively when death was an unlikely result of the inmate’s self-injury. Results indicated that prisoners who engaged in self-injury were more likely than those who engaged in suicide attempts to describe their NSSI behaviors as being related to anger toward others; experiencing physical pain; relieving stress, tension or anger; and/or wishing to see blood. Additionally, those in the group that engaged in NSSI were also likely to use such behaviors as an alternative to drugs and alcohol as well as an alternative to outward expressions of anger. Results also indicated five motivational dimensions for self-injury and suicide (i.e., offense-related, situational, interpersonal, instrumental, and symptom relief). The self-injury group was most likely to report symptom relief of negative emotions as a motivation, whereas the suicide group explained their behavior as having been related to concrete events and motivated by grief, feelings of hopelessness, and relational concerns.

Using the same data set from the study just described, Snow (2006) attempted to distinguish between self-injury and suicide groups by looking at demographic information and several other variables (i.e., sentence length, offense type, substance use, and method of injury). Those who had attempted suicide were indistinguishable from the self-injury group when only considering these demographic variables. According to Snow, this result may have reflected the sample size (N = 124) or simply the fact that the sample was a homogenous group of offenders in terms of the sociodemographic, criminological, and psychiatric/health-related variables that were examined. Snow also
examined mood states prior to either behavior. Statistical significance was found with respect to depression and anger; specifically, more prisoners who attempted suicide reported feeling depressed prior to the incident than did prisoners who exhibited self-injurious behaviors, whereas prisoners inflicting self-injury reported experiencing more anger than did those attempting suicide. Regarding the prisoner’s mood after either behavior, those who self-injured felt better in regard to their overall mood whereas those who attempted suicide felt worse than previously reported. The author concluded that such results gave support to the idea of self-injury being functional by providing a sense of relief. An additional analysis aimed at distinguishing the two groups in regard to life experiences (i.e., negative home life, rejection events, and personal violence and loss) was not significant.

Lohner and Konrad (2006) attempted to classify 49 male prisoners in Berlin custodial institutions into low and high self-injurious groups using a variety of instruments (Structured Clinical Interview for DSM Disorders [SCID-I], First, Spitzer, Gibson, & Williams, 1996; SCID-II, First, Spitzer, Gibson, & Williams, 1997; Psychopathology Checklist Revised [PCL-R], Hare, 2003; Beck Depression Inventory [BDI-II], Beck, Steer, & Brown, 1996; BHS, Beck & Steer, 1993; BSS, Beck & Steer 1993; SIS, Beck, Schuyler & Herman, 1974; Lethality of Suicide Attempt Rating Scale [LSARS], Smith, Conroy, & Ehler, 1984) and institutional data. In this study, both completed suicides and suicide attempts were classified as high self-injurious behaviors. Thus, the definition of deliberate self-harm in this study included both non-suicidal self-harm as well as suicide attempts. Results indicated a negative correlation between Factor 1 scores on the PCL-R (i.e., a measure of interpersonal or affective emotion) and
seriousness of deliberate self-harm. Consistent with previous research (Snow, 2002, 2006), differences were noted between subgroups of inmates who self-harmed and those who attempted suicide. Specifically, inmates who engaged in NSSI were perceived as acting more impulsively and with less lethality than were inmates who attempted suicide. Additionally, those who engaged in NSSI reported more of a numbing effect during their behavior than did the attempted suicide group, again supporting the idea that NSSI may function as a means of emotional relief. Thus, the authors concluded that the two behaviors (NSSI and suicide attempts) were separate entities. However, consistent with previous research (Coid et al., 1992; Snow, 2002, 2006), no statistical significance was found between groups with respect to demographic variables.

Roe-Sepowitz (2007) aimed to establish an association between childhood abuse and self-mutilation among adult incarcerated females. The sample consisted of 256 female inmates from five prisons in a large southern state. It should also be noted that these participants were women who had volunteered to attend a 12-week trauma and abuse intervention group. The Child Maltreatment Interview Schedule (CMIS; Briere, 1992), the Trauma Symptom Inventory (TSI; Briere, 1995), and a demographic survey were used to assess for a history of any type of abuse as a child as well as current and past symptoms of trauma. In this study, self-injury was defined as an affirmative response to whether the respondent had intentionally hurt herself without the intention of suicide. Overall, 42% of participants reported engaging in self-mutilation. Those who self-mutilated were found to score significantly higher in regard to emotional, sexual, and physical abuse than did those who did not engage in self-harm. Additionally, they scored significantly higher than did those who did not engage in self-harm with respect to risk-
taking behaviors, excessive alcohol and drug use, sex with strangers, binge eating and vomiting, not eating for long periods, involvement with social services, and a history of prostitution. Furthermore, they also scored significantly higher on all subscales of the TSI than did those who did not engage in self-harm. Results of a logistic regression indicated that a prior suicide attempt, a history of emotional abuse, a history of sexual abuse, past binge eating/vomiting, and impaired self-reference (i.e., identity confusion and lack of self-support) predicted group membership among those who engaged in self-mutilating behaviors. Thus, the author concluded that incarcerated women who had experienced abuse during their lifetime were more likely to self-mutilate than were incarcerated women who had not been abused. Limitations of the study included the fact that the sample came from a voluntary population attending a 12-week trauma and abuse psychosocial intervention group and thus may not have been representative of the entire prison population, the use of self-report measures, and a vague description of self-mutilation.

Vollum and Dolan (2009) also aimed to identify distinguishing differences associated with incarcerated females who engaged in self-harm and those who did not. Unfortunately, self-harm and suicide attempts were not well parsed out in this study. Thus, the study will not be reviewed in detail. The final sample consisted of 262 self-selected female prisoners in the UK (339 inmates had been invited to participate). Nearly half of their sample reported a history of self-injury or suicide attempts. Additionally, the authors noted that a large number of prisoners had begun engaging in self-harm after their imprisonment, but they did not provide specific estimates of prevalence.
Smith and Kaminski (2010) found significant differences between inmates who engaged in NSSI and those who did not with regard to demographic, health, and criminogenic correlates. The inmates in this study were incarcerated in the South Carolina Department of Corrections and were included if there was documentation from staff regarding incidents of NSSI. Of the 22,983 inmates in prison at the time of the study, 189 (0.82%) male and 11 (0.04%) females had one or more documented incidents of NSSI. Results indicated that, when compared to the 22,794 inmates who did not engage in NSSI, those who did engage in NSSI were more likely to be young, white, and single, and to have had disciplinary reports/infractions. They were less likely to have higher education levels, to have children, and to have medical problems with no work restriction. Additionally, those who engaged in NSSI were more likely to have a medical problem related to work restriction, to be eligible for parole, to have been incarcerated for a sex-related or violent crime, and to be imprisoned longer. Regarding frequency of NSSI, Smith and Kaminski concluded there were three groups of inmates: (a) those who did not engage in NSSI, (b) those who engaged in NSSI on one or two occasions, and (c) those who frequently engaged in NSSI. This study was limited by the fact that correctional staff provided reports of incidents that they had witnessed. Thus, again, given that most people engage in NSSI in private, the base rates of NSSI may not have been accurate.

Most recently, Andover et al. (2011) compared neuropsychological functioning in 173 men in a maximum-security prison (40.5%) and maximum-security forensic psychiatric facility (59.5%). All participants were referred for participation in the study based on failure to comply with regulations, disruptive behavior, disorientation, or
dramatic changes in functioning. Participants were categorized into three groups based on their behaviors: NSSI only, suicide attempts and NSSI, and non-NSSI. Participants completed the Wechsler Adult Intelligence Scale-III (WAIS-III; Psychological Corporation, 1997), the Trail Making Test Parts A and B (TMT; Reitan, 1955), the Controlled Oral Word Association Test (COWA; Benton, Hamsher, & Sivan, 1994), the Purdue Pegboard Test Tiffin, 1968; Tiffin & Asher, 1948), the California Verbal Learning Test, Second Edition (CVLT-II; Delis, Kramer, Kalpan, & Ober, 2000), and the Rey Complex Figure Test (RCFT; Meyers & Meyers, 1995). Of the sample, 28% reported a history of only NSSI, and 16.8% reported a history of both NSSI and attempted suicide. Overall, participants performed 1 to 2 standard deviations below the mean on all measures. The groups did not differ significantly on any of the measures.

Based on the observed cognitive deficits in overall functioning across groups, Andover et al. recommended self-injury prevention programs such as the Real Understanding of Self-Help program (RUSH; Eccleston & Sorbello, 2002) which considers cognitive deficits. RUSH is a prisoner-centered adaptation of Dialectical Behavior Therapy (DBT; Linehan, 1993) that includes modified traditional DBT techniques with more visual exercises and games (Eccleston & Sorbello, 2002). Andover et al. also recommended shorter sessions, use of simple language, and more visual aids when addressing NSSI behaviors among prison populations.

In sum, prior research has been hindered by a lack of consistency in the definition of NSSI. Also, the majority of the studies were most concerned with identifying predictive variables associated with lethality of suicide and not NSSI. The studies were also limited by the use of retrospective data, which may have been affected by recall bias.
Few researchers have addressed concerns regarding how NSSI is perceived by correctional officers or by mental health and medical professionals (DeHart et al., 2009). Furthermore, to date no researchers have compared adult female inmates who engage in NSSI with those who do not in relation to other mental health symptoms as measured on a personality inventory. Age, sex, and criminal history have all had mixed results with respect to whether they are variables that are related to NSSI behaviors (Fagan et al., 2009). Previous researchers have hypothesized that NSSI may be associated with emotional regulation (Brown et al., 2002) and borderline personality traits (Hillbrand, 1993), and it may be a means of coping with anxiety or depressive symptoms (Nock & Cha, 2009; Prinstein et al., 2009). Overall, some common interpretations of the functionality of NSSI in an incarcerated population are that the behaviors are engaged in as a means of manipulation, relief from emotional distress, gaining control, ending dissociation, and expressing emotions (Coid et al., 1992; Franklin, 1988; Hillbrand, 1993; Jones, 1986).

**Purpose of the Present Study**

Currently, accurate self-report base rates of NSSI in an incarcerated female population are unknown because most previous studies have failed to use a random sample and have used institutional reports for rates of NSSI. Additionally, some studies have used secondhand reporting methods using samples with self-injury severe enough to warrant medical attention. The purpose of the present study was to identify base rates, frequency, and reasons for NSSI in an adult female incarcerated population in the Oregon Department of Corrections (ODOC). In this study, I used a random sample rather than only considering individuals known by officials or medical personnel to have engaged in
NSSI behavior. Establishing more accurate base rates can further future research on NSSI in prisons as current base rates may not be representative of the population.

Hypothesis 1 indicated that, based on previous literature indicating adolescents have higher rates of NSSI than adults (Nock & Prinstein, 2004), there would be a significant difference in age between inmates who did and did not report engaging in NSSI. Specifically, I hypothesized that those who engaged in NSSI would be younger than those who did not. Hypothesis 2, based on Smith and Kaminski’s (2010) finding, was that there would be a significant difference in length of time incarcerated (i.e., time served in months) between the group of inmates who engaged in NSSI and inmates who did not engage in NSSI. Specifically, those who engaged in NSSI were predicted to have had longer incarceration lengths than those who did not engage in NSSI.

Finally, given that NSSI has been associated with higher rates of diagnosis of additional disorders (Fagan et al., 2010), with Hypothesis 3 I explored whether scores on a measure of a variety of disorders, such as the Personality Assessment Inventory (PAI; Morey, 1991), were correlated with NSSI. The PAI is being used with increased frequency in correctional settings to identify inmates who may have mental health problems (Edens & Ruiz, 2008). However, there are no published studies of the PAI and its potential usefulness in predicting NSSI among female inmates. Thus, in this study, I examined whether scores on the PAI were correlated with NSSI behaviors as measured by the Functional Assessment of Self-Mutilation (FASM; Lloyd et al., 1997).

I focused on the following PAI clinical scales as they may relate to NSSI: Anxiety (ANX), Anxiety Related Disorders (ARD), Depression (DEP), Borderline personality features (BOR), Antisocial (ANT), Alcohol Problems (ALC), and Drug Problems (DRG).
Both the ANX and ARD clinical scales focus on signs, symptoms, and behaviors related to anxiety (Morey, 2003). These scales as well as the DEP clinical scale, which focuses on symptoms of depression (Morey, 2003), were selected because, according to the experiential avoidance model of NSSI, one may engage in self-injury to alleviate feelings associated with anxiety and depression (Chapman et al., 2006). Additionally, persons engaging in NSSI are typically diagnosed with depressive, anxiety, or externalizing disorders (Fliege et al., 2009; Nock, 2010), making it important to explore PAI scales associated with such disorders. Because self-injury is a criterion included in Borderline Personality Disorder, elevations on the BOR scale may also be correlated with NSSI behaviors. The ANT clinical scale was explored in relation to NSSI because previous research indicates a relationship between NSSI and manipulation in prison settings (Crighton & Towl, 2002). The ALC and DRG problem scales may relate to an individual’s use of drugs to escape from emotions. Again, according to an experiential avoidance model of NSSI (Chapman et al., 2006) these scales could be valuable indicators that inmates may have been using NSSI as a means to cope with emotions when prior coping behaviors were not readily transferable to the prison setting (e.g., use of drugs and alcohol). Additionally, the ALC and DRG scales were considered because NSSI carries the risk of becoming addictive over time and often coexists with alcohol and/or drug addiction (Crowe & Bunclarck 2000; Slee, Garnefski, van der Leeden, Arensman, & Spinhoven, 2008).

With respect to the treatment scales on the PAI, I examined whether there was a correlation between NSSI and the following scales: Aggression (AGG), Suicidal Ideation (SUI), Stress (STR), and Non-support (NON). The AGG treatment scale focuses on
hostility, anger, and aggression (Morey, 2003). In a prison setting it is conceivable that one may not be able to act on these emotions without reprimand. Thus, individuals may turn to NSSI to alleviate or cause emotions and feelings. The SUI scale focuses on suicidal ideation, hopelessness, and suicidal intentions (Morey, 2003). Previous research has established a correlation between NSSI and suicidal ideation and behaviors (Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Laye-Gindhu & Schonert-Reichl, 2005). Lekka et al. (2006) found that 59.7% of inmates with suicide ideation also had a history of self-injurious behaviors. Likewise, a lack of social support and perceived ability of support could lead one to feelings of anxiety, depression, and suicide. Thus, the NON scale was also explored for correlations to NSSI.
METHOD

The present study incorporated a survey methodology using a questionnaire. In this section, I describe recruitment and data collection procedures, as well as the specific content of the questionnaire.

Recruitment Sources

At the time of data collection (March 2010), approximately 1,144 female inmates were incarcerated in the ODOC. The inmates sampled were from Coffee Creek Correctional Facility (CCCF). To participate, individuals had to be at least 18 years old and have adequate English proficiency. English proficiency was determined by having a valid PAI because all inmates are screened for reading level and English proficiency prior to completing the PAI, which requires a fourth-grade reading level. With respect to the PAI, the sample was drawn from female inmates who entered the facility within the year prior to data collection in the hope that the PAI scores would still be relatively accurate. Inmates were only added to the list if they had valid PAIs. Participants who endorsed their NSSI behaviors as suicidal behaviors were not included in the statistical analysis.

The ODOC Office of Research generated a list of the names of 500 randomly selected inmates. All of these inmates were called out and offered the chance to participate; a total of 260 participated (52% response rate). After excluding 43 inmates for incomplete consent forms, the final sample consisted of 217 inmates who met participation criteria (83% response rate). However, it should be noted that the total number of inmates who responded to the call-out but who refused to participate is not known.
Instrumentation

Functional Assessment of Self-Mutilation

The Functional Assessment of Self-Mutilation (FASM; Lloyd et al., 1997) is a self-report measure that asks about the antecedents and consequences of self-injury in an attempt to understand the functions and/or potential reinforcers of the self-injurious behavior (see Appendix A; Nock, 2010). The FASM was initially developed with both community and psychiatric populations (Lloyd et al., 1997). On the FASM, individuals are asked whether or not they engage in NSSI and how often they intentionally engaged in any of the 11 listed NSSI behaviors during the previous year. The frequency of NSSI behaviors are rated on a Likert-scale ranging from 1 (0 times) to 5 (> 11 times). The 11 NSSI behaviors load onto two factors: moderate/severe self-harm behaviors and mild self-harm behaviors (Lloyd et al., 1997). The moderate/severe factor has five NSSI items including cutting/carving, burning, self-tattooing, scraping, and erasing. The mild factor has six NSSI items: hitting self, pulling hair, biting self, inserting objects under nails or skin, picking at a wound, and picking areas to draw blood (Guertin et al., 2001).

The second half of the FASM consists of 22 statements that identify the individuals’ reasons for engaging in self-injurious behavior by asking about a variety of motivating/reinforcing factors. These 22 statements are presented in a checklist format and also rated on a four-point Likert scale with anchors ranging from never to often. Nock and Prinstein (2004) proposed a goodness-of-fit model with the second half of the FASM that supports the earlier discussed four-factor model of NSSI. As proposed by Nock and Prinstein, the 22 items on the checklist that indicates a reason for engaging in
NSSI are grouped into the four categories: Automatic-negative reinforcement (A-NR), Automatic-positive reinforcement (A-PR), Social-negative reinforcement (S-NR), and Social-positive reinforcement (S-PR). Items 2 and 14 load on A-NR; Items 4, 10, and 22 load on A-PR; Items 1, 5, 9, and 13 load on S-NR; and the remaining items load on S-PR. Additionally, as proposed by Guertin et al. (2001), inmates were classified as engaging in NSSI if they endorse one or more NSSI episodes.

On a separate form, participants were also asked whether they had engaged in any of the 11 behaviors as a suicide attempt. In line with the definition of NSSI, participants who endorsed suicidal behaviors were not included in the statistical analysis. The FASM has demonstrated acceptable psychometric properties among adolescent samples (Guertin et al., 2001). The measure and each of its subscales has a fair internal consistency ($r = 0.65 - 0.66$; Esposito, Boergers, Spirito, & Donaldson, 2003; Guertin et al., 2001; Penn et al., 2003). Adequate concurrent validity has been demonstrated by significant associations with measures of recent suicide attempt, hopelessness, depressive symptoms (Nock & Prinstein, 2005), suicidal ideation, and past suicide attempts (Guertin et al., 2001).

**Personality Assessment Inventory**

The PAI (Morey, 1991) is a 344-item multiscale self-administered measure designed to provide information regarding diagnosis, treatment planning, and screening for psychopathology. According to Morey, it was developed for individuals age 18 through adulthood who read at the fourth-grade level. The PAI contains 22 non-overlapping full scales, four validity scales, 11 clinical scales, five treatment consideration scales, and two interpersonal scales. The clinical scales are designed to
measure somatic complaints (SOM), anxiety (ANX), anxiety-related disorders (ARD), depression (DEP), mania (MAN), paranoia (PAR), schizophrenia (SCZ), borderline personality features (BOR), antisocial features (ANT), drug problems (DRG) and alcohol problems (ALC). Each clinical scale contains three subscales, except for BOR, which contains four subscales.

The PAI scoring consists of raw scores transformed into $T$-scores (Morey, 1991). The mean score for non-psychiatric populations is 50 with a standard deviation of 10. A score of 70 is 2 standard deviations above the mean and is considered clinically significant (Morey, 1991). The PAI has shown satisfactory reliability and validity (Morey, 1991; Mozley et al., 2005). In a recent study, Edens and Ruiz (2005) researched the utility of several PAI scales to identify broad mental health diagnostic categories in a sample of prisoners. The PAI is widely used in the ODOC and is administered to all inmates at intake who meet the fourth-grade reading capabilities for the test.

Data Collection

Before beginning data collection, approval was obtained from the Pacific University Institutional Review Board as well as the ODOC Review Board. Subsequently, the general data collection procedure was as follows: The inmates’ names were placed on the institutional call-out sheet, which directed them to a group room in the facility. The groups varied in size from three to 15 inmates. Once they were in the group room, I verbally informed inmates of the invitation for them to participate in the study. In addition to receiving a verbal explanation of the study, the inmates were given paperwork that described the study aims, procedures, and inclusion criteria. All participants were presented with an informed consent form (Appendix A) and were asked to verify their
age and English proficiency. If an inmate chose not to participate, she was excused and left the room. Individuals were given a chance to ask questions. If the individual’s questions were answered and she agreed to and signed the informed consent, she was given the FASM (Appendix B) to complete at that time.

After completion of the FASM, all participants were also requested to complete demographic questions (see Appendix C) pertaining to age, gender, sexual orientation, race/ethnicity, length of sentence, number of times incarcerated, mental health treatment and/or diagnosis, and time served for current sentence. Although no participants utilized it; they were allowed to discontinue the study at any point without penalty. After completion of the measures, the inmates left the room and received no compensation for their effort. All completed forms were coded for confidentiality.
RESULTS

Sample Characteristics

Demographic data for the total population (i.e., minimum and medium security) of 1,033 female inmates in Coffee Creek around the same time that this study was conducted (ODOC, 2010) are compared to the sample demographics in Table 1. The majority of participants and non-participants were Caucasian and unmarried. Charges across groups were wide-ranging in type, with convictions for drug-related crimes, theft and identification theft, robbery and other violent crimes. For the total female inmate population, on average, the median number of months served of their current sentence was 34.46 months. In contrast, the sample on average had only served 5.66 months. The average age for the total female general population was slightly younger than the average age of the sample (35 and 38 years, respectively). For both the population and the sample, race was reported as indicated by the ODOC. The majority of the prison population (83.54%) and study participants (82.48%) were Caucasian; in general, ethnicities in the general population and in the sample were comparable. Table 1 illustrates race data for both the study participants and the total female prison population.
### Table 1

**Demographics of the General Population and the Study Sample**

<table>
<thead>
<tr>
<th>Age</th>
<th>General Population</th>
<th>Total Sample</th>
<th>NSSI</th>
<th>Non-NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 1,033</td>
<td>N = 194</td>
<td>n = 66</td>
<td>n = 128</td>
</tr>
<tr>
<td>18-19</td>
<td>5 (0.48%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
</tr>
<tr>
<td>20-30</td>
<td>340 (32.91%)</td>
<td>66 (34.02%)</td>
<td>24 (36.36%)</td>
<td>42 (32.81%)</td>
</tr>
<tr>
<td>31-40</td>
<td>333 (32.23%)</td>
<td>58 (29.89%)</td>
<td>19 (28.78%)</td>
<td>39 (30.46%)</td>
</tr>
<tr>
<td>41-50</td>
<td>223 (21.58%)</td>
<td>44 (22.68%)</td>
<td>19 (28.78%)</td>
<td>25 (19.53%)</td>
</tr>
<tr>
<td>51-60</td>
<td>102 (9.87%)</td>
<td>26 (13.40%)</td>
<td>4 (6.06%)</td>
<td>22 (17.81%)</td>
</tr>
<tr>
<td>61+</td>
<td>30 (2.98%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
<td>0 (0.00%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>General Population</th>
<th>Total Sample</th>
<th>NSSI</th>
<th>Non-NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 1,033</td>
<td>N = 217</td>
<td>n = 66</td>
<td>n = 151</td>
</tr>
<tr>
<td>White</td>
<td>863 (83.54%)</td>
<td>179 (82.48%)</td>
<td>55 (83.33%)</td>
<td>124 (82.11%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>45 (4.35%)</td>
<td>9 (4.14%)</td>
<td>3 (4.54%)</td>
<td>6 (3.97%)</td>
</tr>
<tr>
<td>Black</td>
<td>76 (7.35%)</td>
<td>19 (8.75%)</td>
<td>6 (9.09%)</td>
<td>13 (8.60%)</td>
</tr>
<tr>
<td>Native American</td>
<td>37 (3.58%)</td>
<td>8 (3.68%)</td>
<td>1 (1.51%)</td>
<td>7 (4.63%)</td>
</tr>
<tr>
<td>Asian</td>
<td>11 (1.06%)</td>
<td>1 (0.46%)</td>
<td>1 (1.51%)</td>
<td>0 (0.00%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (0.09%)</td>
<td>1 (0.46%)</td>
<td>0 (0.00%)</td>
<td>1 (0.66%)</td>
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<table>
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<tr>
<th>Offense group</th>
<th>General Population</th>
<th>Total Sample</th>
<th>NSSI</th>
<th>Non-NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person</td>
<td>N = 927</td>
<td>N = 217</td>
<td>n = 66</td>
<td>n = 151</td>
</tr>
<tr>
<td>Property</td>
<td>295 (31.82%)</td>
<td>89 (41.01%)</td>
<td>26 (39.39%)</td>
<td>63 (41.72%)</td>
</tr>
<tr>
<td>Sex</td>
<td>203 (21.89%)</td>
<td>47 (21.63%)</td>
<td>17 (25.75%)</td>
<td>30 (19.86%)</td>
</tr>
<tr>
<td>Drug offenses</td>
<td>88 (9.49%)</td>
<td>11 (5.06%)</td>
<td>4 (6.06%)</td>
<td>7 (4.63%)</td>
</tr>
<tr>
<td>Driving offenses</td>
<td>117 (12.62%)</td>
<td>20 (9.21%)</td>
<td>7 (10.06%)</td>
<td>13 (8.60%)</td>
</tr>
<tr>
<td>Other offenses</td>
<td>185 (19.95%)</td>
<td>45 (20.73%)</td>
<td>10 (15.15%)</td>
<td>35 (23.17%)</td>
</tr>
</tbody>
</table>

| Marital Status | General Population | Total Sample | NSSI     | Non-NSSI |
|               | N = 997            | N = 215      | n = 64   | n = 151  |
| Single        | 470 (47.14%)       | 88 (40.93%)  | 31 (48.43%)| 57 (37.74%)|
| Married       | 211 (21.16%)       | 47 (21.86%)  | 13 (20.31%)| 34 (22.51%)|
| Divorced      | 176 (17.65%)       | 50 (23.25%)  | 15 (23.43%)| 35 (23.17%)|
| Separated     | 107 (10.73%)       | 14 (6.51%)   | 2 (3.12%) | 12 (7.94%)|
| Widowed       | 33 (3.30%)         | 16 (7.44%)   | 3 (4.68%) | 13 (8.60%)|

<table>
<thead>
<tr>
<th>Time Served in months</th>
<th>General Population</th>
<th>Total Sample</th>
<th>NSSI</th>
<th>Non-NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34.46</td>
<td>5.66</td>
<td>2.70</td>
<td>2.96</td>
</tr>
</tbody>
</table>

---

*Note. Because of omitted data the total N and n change to reflect the total number of responses per group per demographic category.

With respect to marital status, inmates were categorized as single, married, divorced, or widowed. The inmates’ marital status was noted at the time they entered prison. As noted in Table 1, at time of entry into the prison nearly half of all female inmates were single. At the time of the study, a slightly lower percentage of inmates in the sample were single when compared to the relationship status of all inmates upon entry to prison. Across the general population and sample a similar percentage of inmates were
married. The percentage of inmates who were widowed and divorced was higher in the study sample than in the general population, whereas the percentage of separated inmates was lower in the study sample than in the general population. Table 1 summarizes the data related to marital status.

Of the 217 inmates who completed the survey, ages ranged between 20-66 years of age, with a mean age of 38.14 years ($SD = 10.11$). The ages in the sample were similar to the ages of the total female prison population at the time of the study ($M = 35.00$ years; $SD = 10.77$).

**NSSI Participant Information**

Of the 217 inmates, a majority ($n = 151, 69.58\%$) denied engaging in NSSI behaviors. The ages of the 66 inmates who endorsed NSSI ranged from 21 years to 60 years. The mean age was 36.09 years ($SD = 9.29$), and a majority of these inmates (56.1%; $n = 37$) were 35 years of age or younger. Table 2 shows ages of the two groups.

**Table 2**

*Age of Participants in NSSI and Non-NSSI Groups*

<table>
<thead>
<tr>
<th>Age group</th>
<th>NSSI</th>
<th>Non NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>20–30</td>
<td>24 (36%)</td>
<td>42 (27%)</td>
</tr>
<tr>
<td>31–40</td>
<td>19 (28%)</td>
<td>39 (25%)</td>
</tr>
<tr>
<td>41–50</td>
<td>19 (28%)</td>
<td>25 (16%)</td>
</tr>
<tr>
<td>51–60</td>
<td>4 (6%)</td>
<td>22 (14%)</td>
</tr>
<tr>
<td>61+</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Mean</td>
<td>36.09</td>
<td>39.04</td>
</tr>
<tr>
<td>SD</td>
<td>09.29</td>
<td>10.35</td>
</tr>
</tbody>
</table>

Of the 66 inmates who affirmed NSSI, about one-quarter (25.75%; $n = 17$) said
they had not engaged in NSSI prior to prison, and 9.09% (n = 6) indicated that they engaged in the behavior in prison at the same or higher frequency than when not incarcerated.

Of the 66 inmates who affirmed engaging in NSSI, most inmates indicated they tattooed, picked at a wound, or cut and carved on themselves (see Table 3 below). However, two problems became evident after data collection. First, as noted above, 74.25% of respondents indicated that they had engaged in such behaviors prior to incarceration. Given the FASM instructions asking respondents to identify behaviors they had engaged in during the last year and the fact that the average length of incarceration at the time of taking the survey was 5.66 months, it was not possible to distinguish whether all inmates reporting NSSI had actually engaged in the reported behaviors in prison or in the community, or both. Roughly 26% of the NSSI group indicated that they started NSSI in prison, and 9% indicated that they engaged in these behaviors with equal frequency in both the community and in prison. These results suggest that at least 35% of the women engaged in these behaviors in prison. Whether the other 65% engaged in these behaviors in prison cannot be determined.

A second potential problem is that tattooing is a commonly accepted behavior that is done for reasons other than self-injury both inside and outside of prison. It should also be noted that tattooing is not included in the definition of NSSI used in this study, but it was included in the FASM. Thus, I checked to see whether any inmates were classified as engaging in NSSI due only to tattooing behaviors; if there were, this group would have been excluded from analysis. However, all inmates who indicated tattooing as a form of NSSI also noted additional forms of NSSI. Thus, there was not a tattoo-only group of
inmates to exclude.

Table 3 \( (n = 66) \)

*Types of Non-Suicidal Self-Injury*

<table>
<thead>
<tr>
<th>Self-Injurious Behavior</th>
<th>( n^a )</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tattooed</td>
<td>30</td>
<td>45.5</td>
</tr>
<tr>
<td>Picked wound</td>
<td>28</td>
<td>42.4</td>
</tr>
<tr>
<td>Cut/carved</td>
<td>25</td>
<td>37.9</td>
</tr>
<tr>
<td>Picked self to point of blood</td>
<td>18</td>
<td>27.3</td>
</tr>
<tr>
<td>Scraped skin</td>
<td>17</td>
<td>25.8</td>
</tr>
<tr>
<td>Hit self</td>
<td>16</td>
<td>13.4</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
<td>22.7</td>
</tr>
<tr>
<td>Bit self</td>
<td>14</td>
<td>21.2</td>
</tr>
<tr>
<td>Pulled hair out</td>
<td>13</td>
<td>19.7</td>
</tr>
<tr>
<td>Erased</td>
<td>10</td>
<td>15.2</td>
</tr>
<tr>
<td>Inserted objects under skin</td>
<td>7</td>
<td>10.6</td>
</tr>
<tr>
<td>Burned</td>
<td>6</td>
<td>9.1</td>
</tr>
</tbody>
</table>

*Note.* The total adds up to more than 66 because respondents were able to select more than one behavior.

Of the 66 individuals who affirmed NSSI, 39.39% \( (n = 26) \) reported that they had spoken to Behavioral Health Staff (BHS) concerning their own NSSI, 40.09% \( (n = 27) \) claimed they had not previously had contact with BHS regarding their NSSI, 3.03% \( (n = 2) \) indicated that no answer was applicable (no explanation was given as to why), and 16.66% \( (n = 11) \) failed to respond. Of the 66 individuals who affirmed NSSI, 51.51% \( (n = 34) \) reported receiving previous mental health treatment in prison for NSSI, and 37.87% \( (n = 25) \) denied receiving any such treatment. An additional 10.60% \( (n = 7) \) of the inmates failed to provide an answer.

A majority of inmates from the total sample \( (n = 160, 73.39\%) \) reported not knowing someone who engaged in NSSI while in prison. About one-fifth of inmates \( (n = 42, 19.26\%) \) said they did have such knowledge, and 7.34% \( (n = 16) \) failed to provide an
answer.

As shown in Table 4, the most common reasons for NSSI were to relieve feeling “numb” or empty, to stop bad feelings, to feel something even if it was pain, and to punish oneself. Frequencies for NSSI were rated on a scale with the following values and corresponding anchors: 0 (never), 1 (rarely), 2 (sometimes), 3 (frequently), and 4 (often). Analyses also indicated that when the inmate was engaging in NSSI it was less likely to be for positive social reinforcers ($M = 2.28$, $SD = 3.30$), such as a reaction from other people, or automatic positive reinforcers ($M = 3.08$, $SD = 2.35$), such as a self-stimulating sensation, and more likely to be for social negative reinforcers ($M = 4.18$, $SD = 4.27$), such as escape or removal of something in the prison environment, or automatic negative reinforcers ($M = 3.91$, $SD = 3.09$), such as removal of or escape from an unwanted feeling or emotion. Overall, a small percentage of inmates who engaged in NSSI ($n = 3$, 4.54%) admitted to engaging in the behavior in prison for external gain, such as removal or addition of something in their prison environment.

Table 4

<table>
<thead>
<tr>
<th>Common Reasons for NSSI in % (n = 66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason</td>
</tr>
<tr>
<td>To stop bad feelings</td>
</tr>
<tr>
<td>To relieve feeling “numb” or empty</td>
</tr>
<tr>
<td>To feel something, even if it was pain</td>
</tr>
<tr>
<td>To punish yourself</td>
</tr>
<tr>
<td>To feel relaxed</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>To avoid being with people</td>
</tr>
<tr>
<td>To get control of a situation</td>
</tr>
<tr>
<td>To let others know how desperate you were</td>
</tr>
<tr>
<td>To avoid having to do something unpleasant</td>
</tr>
<tr>
<td>To try to get a reaction from someone, even if it’s negative</td>
</tr>
<tr>
<td>To give yourself something to do when alone</td>
</tr>
<tr>
<td>To get attention</td>
</tr>
<tr>
<td>To get other people to act differently or change</td>
</tr>
<tr>
<td>To avoid punishment or paying the consequences</td>
</tr>
<tr>
<td>To get your parents to understand or notice you</td>
</tr>
<tr>
<td>To get help</td>
</tr>
<tr>
<td>To make others angry</td>
</tr>
<tr>
<td>To avoid school, work, or other activities</td>
</tr>
<tr>
<td>To receive attention from family/friends</td>
</tr>
</tbody>
</table>
Of the 66 inmates who reported they engaged in NSSI, the most common current self-reported mental health diagnosis was some form of depression, followed by Posttraumatic Stress Disorder and Bipolar Disorder. However, as indicated in Table 5 below, a substantial portion of the inmates ($n = 17, 25.75\%$) did not answer the question.

Table 5

*Frequency of Mental Health Diagnosis in NSSI Inmates ($n = 49^a$)*

<table>
<thead>
<tr>
<th>Current Diagnosis</th>
<th>N</th>
<th>%</th>
<th>Yes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD</td>
<td>34</td>
<td>69.39</td>
<td>15</td>
<td>30.61</td>
</tr>
<tr>
<td>Depression</td>
<td>31</td>
<td>63.26</td>
<td>18</td>
<td>36.73</td>
</tr>
<tr>
<td>Anxiety</td>
<td>44</td>
<td>89.79</td>
<td>5</td>
<td>10.20</td>
</tr>
<tr>
<td>Bipolar Disorder</td>
<td>37</td>
<td>75.51</td>
<td>12</td>
<td>24.49</td>
</tr>
<tr>
<td>Borderline Personality Disorder</td>
<td>38</td>
<td>77.55</td>
<td>11</td>
<td>22.45</td>
</tr>
<tr>
<td>Substance Use Disorders</td>
<td>49</td>
<td>100.00</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>44</td>
<td>89.79</td>
<td>5</td>
<td>10.20</td>
</tr>
<tr>
<td>No Diagnosis</td>
<td>41</td>
<td>83.67</td>
<td>8</td>
<td>16.33</td>
</tr>
</tbody>
</table>

*a Note. 17 inmates did not provide a current diagnosis.

As noted below in Table 6, the overall, PAI scores for both NSSI and Non-NSSI groups were relatively high, suggesting that this is a group of women experiencing significant distress. This inference is supported by the reported diagnoses listed above.

Table 6

*T scores on PAI Scales*

<table>
<thead>
<tr>
<th>MAI Scale</th>
<th>Non-NSSI Mean</th>
<th>SD</th>
<th>NSSI Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANX</td>
<td>59.17</td>
<td>15.38</td>
<td>60.61</td>
<td>14.49</td>
</tr>
<tr>
<td>ARD</td>
<td>61.71</td>
<td>14.79</td>
<td>60.11</td>
<td>15.56</td>
</tr>
<tr>
<td>DEP</td>
<td>63.01</td>
<td>14.08</td>
<td>63.68</td>
<td>14.25</td>
</tr>
<tr>
<td>AGG</td>
<td>52.48</td>
<td>14.41</td>
<td>53.09</td>
<td>15.68</td>
</tr>
<tr>
<td>ANT</td>
<td>59.17</td>
<td>15.38</td>
<td>60.61</td>
<td>14.49</td>
</tr>
<tr>
<td>BOR</td>
<td>64.02</td>
<td>14.26</td>
<td>63.47</td>
<td>14.67</td>
</tr>
<tr>
<td>ALC</td>
<td>59.46</td>
<td>19.25</td>
<td>60.21</td>
<td>20.29</td>
</tr>
<tr>
<td>DRG</td>
<td>78.31</td>
<td>22.68</td>
<td>74.82</td>
<td>25.29</td>
</tr>
<tr>
<td>SUI</td>
<td>53.14</td>
<td>14.84</td>
<td>56.76</td>
<td>16.75</td>
</tr>
</tbody>
</table>
Hotelling’s $T$-squared test to assess all dependent measures (PAI scales) yielded the following results; Hotelling’s $T(3, 262) = 6.79, p = .303$. Therefore, no significant differences existed between the inmates who engaged in NSSI and those who did not engage in NSSI across the PAI scales.

**Statistical Analyses**

**Assessment of Statistical Assumptions**

The assumption of normality was assessed by two methodologies. A Kolomogrov-Smirnov’s test of significance was performed to check for kurtosis and skew. The test was not significant for age (SSIB group: skewness = 0.53, kurtosis = -0.49; NSSIB group: skewness = 0.38, kurtosis = -0.36). However, the test was significant ($p < .001$) for time served (SSIB group: skewness = 1.86, kurtosis = 3.991; NSSIB group: skewness = 1.69, kurtosis = 4.37); therefore, the assumption of normality was violated (Pallant, 2005). As Tabachnick and Fidell (2001) recommended, the shape of the distribution was inspected by using a histogram to test for kurtosis and skewness.

Evaluation of the histograms for dependent variables was positively skewed, indicating the data do not follow a normal distribution, which suggested that nonparametric statistics should be used.

The assumption of homogeneity of variance – that is, the assumption that samples were obtained from populations with equal variances – was assessed by Levene’s test of error variance. The Levene’s score was not significant for time served, $F (1, 208) = .14, p = .71$, or age, $F (1, 216) = .45, p = .50$; therefore, normality was assumed. Because there was no evidence of violation of homogeneity of variance and normality, a more stringent
alpha level was not required. As such the alpha level of .05 was set and used in the analysis (Keppel & Wickens, 2004).

This study met the assumption of independence of observations in that each observation or measurement was not influenced by any other observation or measurement (Pallant, 2005).

Hypothesis Testing

Hypothesis 1 indicated that, based on previous literature indicating adolescents have higher rates of NSSI than adults (Nock & Prinstein, 2004), there would be a significant difference in age between inmates who did and did not report engaging in NSSI (see Table 2). Specifically, those who engaged in NSSI would be younger. In order to test this hypothesis, an independent-samples t-test was conducted. This test was significant, \( t(216) = -1.99, p = .04 \), indicating that inmates who reported engaging in NSSI were younger (\( M = 36.09 \) years, \( SD = 9.29 \)) than those who did not report doing so (\( M = 39.04 \) years, \( SD = 10.35 \)). The 95% confidence interval for the difference in means ranged from -0.028 to -5.86, indicating that 95% of the NSSI group participants were between the ages of 35.84 and 36.16 years old, whereas 95% of the non-NSSI group participants were between 38.84 and 39.16 years of age. Therefore, the hypothesis was supported.

Hypothesis 2 stated that, based on Smith and Kaminski’s (2010) finding, there would be a significant difference in length of time incarcerated (i.e., time served in months) between the group of inmates who engaged in NSSI and inmates who did not engage in NSSI. Specifically, those who engaged in NSSI were predicted to have served longer incarceration lengths. Because the data for time served were not normally
distributed, a Mann-Whitney $U$ test was employed to test the differences between groups. The NSSI group ($M = 2.70$ months, $SD = 88.62$) did not differ significantly from the Non-NSSI group ($M = 2.96$ months, $SD = 105.32$), $U(217) = 4490$, $Z = -1.16$, $p = .247$. Therefore, this hypothesis was not supported.

Hypothesis 3 stated that, based on the posited relationships discussed above (Smith & Kaminski, 2010), there would be a significant difference between NSSI and non-NSSI inmates when comparing elevations on certain PAI scales. For example, compared to those who do not engage in NSSI, those who engage in NSSI were predicted to have significantly higher elevations on the following scales: ANX, ARD, DEP, AGG, ANT, BOR, ALC, DRG, SUI, STR, and NON. Because there were multiple PAI scales (dependent variables) a Hotelling’s $T$-squared test (the multivariate equivalent of a $t$-test) was used instead of multiple $t$-tests in order to reduce type one error. A Hotelling’s $T$-squared test to assess all dependent measures (PAI scales) yielded results that did not support Hypothesis 3, Hotelling’s $T(3, 262) = 6.79$, $p = .303$. No significant differences existed between the inmates who engaged in NSSI and those who did not engage in NSSI across the PAI scales.
DISCUSSION

This study was designed to assess the prevalence and manifestation of NSSI in an incarcerated female population as well as potential differences in PAI scores between those who engaged in NSSI and those who did not. In terms of prevalence, the majority of respondents (69.58%) did not endorse engaging in NSSI behaviors over the year prior to completing the survey; however, 30.42% did endorse such behaviors. As previously noted, I cannot say what percentage of these NSSI behaviors occurred within the prison because the survey asked about the past 12 months and the sample had an average incarceration length of less than six months. Still, roughly 26% of the sample NSSI group reported that they started NSSI in prison, and another 9% reported engaging in NSSI at the same frequency both in prison and in the community. Clearly, whether these behaviors occurred during or prior to incarceration, these women had engaged in NSSI behaviors at some point in the prior year, which suggests that they were in distress and that there may be a need to help these inmates develop alternative coping skills. Of those inmates who did endorse NSSI, nearly 50% reported treatment for such behaviors; however, it is also unknown if this treatment was within the ODOC.

Analyses also indicated that when an inmate did engage in NSSI it was less likely to be for positive social reinforcers or automatic positive reinforcers and more likely to be for social negative reinforcers or automatic negative reinforcers. That is, inmates engaged in NSSI to reduce emotion or avoid a perceived negative interaction; they were less likely to engage in NSSI in order to gain positive attention or induce feelings of pleasure. Of the 66 inmates who affirmed engaging in NSSI, most inmates indicated they
tattooed, picked at a wound, or cut and carved on themselves.

In my first hypothesis I predicted that, based on previous literature indicating adolescents have higher rates of NSSI than adults (Nock & Prinstein, 2004), there would be a significant difference in age between inmates who did report engaging in NSSI and those who did not. Specifically, it was expected that those who engaged in NSSI would be younger. This hypothesis was supported. The average age of those who engaged in NSSI was 36 years, and the average age of those who did not engage in NSSI was 39 years.

My second hypothesis was that, based on Smith and Kaminski’s (2009) finding that “each additional year in prison is associated with a 25% increase in the number of self-injury incidents” (p. 90.), there would be a significant difference in length of time served between the group of inmates who engaged in NSSI and inmates who did not engage in NSSI. Specifically, those who engaged in NSSI were predicted to have longer incarceration lengths. This hypothesis was not supported. The average incarceration length of those who engaged in NSSI was 81 days, and the average incarceration length of those who did not engage in NSSI was 89 days. However, I selected a population who had only been in prison for up to one year, thus limiting the utility of this statistic.

In my third hypothesis, I predicted that, based on the posited relationships between mental health symptoms and NSSI discussed by Smith and Kaminski (2010), there would be a significant difference between NSSI and non-NSSI inmates when comparing elevations on certain PAI scales. For example, compared to those who do not engage in NSSI, those who engage in NSSI were predicted to have significantly higher elevations on the following scales: ANX, ARD, DEP, AGG, ANT, BOR, ALC, DRG,
SUI, STR, and NON. This hypothesis was not supported; no significant differences existed between the inmates who engaged in NSSI and those who did not engage in NSSI across any of the above listed PAI scales. However, given the relatively high PAI scores in both groups it would be difficult to find a statistical difference between the groups as that would have required the NSSI group to have had extremely high PAI scores (i.e., above three standard deviations). At that level of distress, it would be surprising to find those inmates in the general population of the prison, let alone willing to participate in a survey.

Comparison to Prior Research

Following the theoretical EAM underpinnings of NSSI, the findings from the current study corroborate the NSSI literature discussed earlier. The prevalence of NSSI in this study (30%) was consistent with prior estimated rates for prison populations, which have ranged from 2% to 52% (Andover et al., 2011; DeHart et al., 2009; Roe-Sepowitz, 2007). Similarly, Smith, and Kaminski (2011) reported common NSSI prevalence rates of approximately 33% in incarcerated populations.

Prior NSSI literature has suggested the most common motivation for NSSI was achievement of immediate relief from negative affect (Nock, 2010; Klonsky & Glenn, 2008; Snow, 2002; Gifford et al. 1996). This finding was supported in the current study, with the most common reasons for engaging in NSSI being social negative reinforcers and automatic negative reinforcers. Similar results were found in manifestations of cutting and carving as prevalent methods of NSSI (Nock, 2010; Smith & Kaminski, 2011). Results of the current study add support to previous findings that, in stressful situations such as incarceration, engaging in NSSI may help individuals to feel relief.
(Klonsky, 2009). Unlike previous research (Franklin, 1988) indicating that 50% of all inmates (i.e., both men and women) who reported self-injury also reported manipulation as their goal of such behavior, fewer than 5% percent of the inmates in this study admitted to manipulation as their goal. This proportion is also lower than Dear et al.’s (2000) finding that 24% of all inmates admitted engaging in NSSI for manipulation. No studies were found that included only female incarcerated inmates in the sample for comparison.

Results for psychosocial correlates such as anxiety, depression, drug and alcohol disorders, and Borderline Personality Disorder as measured by the PAI did not support the notion that inmates with symptoms of Borderline Personality Disorder (Hillbrand, 1993) or drug and alcohol disorders (Nock et al., 2009) were more likely to self-harm. The findings did not support the use of the PAI as a tool for early intervention because the PAI was not useful in distinguishing the two groups. However, the PAI was completed at the time of incarceration, not at the time of this study. Therefore, it is possible that the PAI scores would be useful predictors of NSSI if the time between PAI administration and NSSI reports were shorter. The results are also consistent with research indicating that NSSI can be found in the absence of a diagnosis of Borderline Personality Disorder (Selby et al., 2011) given that the BOR scale on the PAI was not predictive of NSSI; however, a high score on the BOR scale is not equivalent to Borderline Personality Disorders, and the time lag between PAI administration and NSSI reports may have also influenced the lack of significance.

Finally, results of this study suggested that this population was more likely to engage in NSSI for social negative reinforcers than automatic negative reinforcers. Which indicates they were likely engaging in NSSI to have something removed from
their environment than to escapes a negative emotion. Additional results of the present study were similar to previous research by Nock (2010), cutting was a frequent method of NSSI. NSSI as a means of manipulation was found to be lower than the 50% previously reported by Franklin (1988).

Strengths and Limitations of the Present Study

Several methodological limitations in the current study design could have affected the reliability of the data. First, this study utilized solely self-reported data which resulted in the reporting of common prevalence rates. However, because of the use of the self-report data (FASM) was based on recalling incidents of NSSI, there was no way to check for accuracy of the reports, potentially limiting the reliability of the results. Therefore, results of the current study may be strengthened by direct observation of NSSI and immediate and accurate documentation of such events. Other researchers have used institutionally documented NSSI events in their data. However, given that most instances of NSSI take place in private, this option may be unrealistic. Perhaps asking individuals to keep an NSSI tracking journal may lead to more accurate data. A second limitation was that recruitment was carried out through a call-out list and participation was voluntary; therefore, selection biases may be present in the sample, potentially threatening the ability to accurately generalize the data. For example, inmates experiencing extreme physical or mental stress, inmates who were called out of classes or jobs, or inmates who were less confident in their responses being kept confidential may have been less likely to participate in a survey. It is unclear how these variables contributed to the refusal rate of 48. Additionally, the sample may not generalize to other prison populations, which may differ in ethnic diversity and other demographic characteristics; participants were predominantly Caucasian females with young children.
Furthermore, during the course of data collection it became apparent by overhearing the inmates outside of the data collection room that a variety of information was being passed among the inmates about the survey subject matter, which may have affected inmate participation as well. For example, several inmates reported disbelief to this author when they were informed of the survey topic. When the inmates were introduced to the study purpose while entering the testing room, several inmates stated they thought the survey was going to be in regards to the Prison Rape Elimination ACT (PREA) or drug and alcohol abuse. Lastly, I selected inmates who had only been incarcerated less than one year so their PAI would remain valid. Previous studies (Smith & Kamanski, 2010) which compared NSSI behaviors with longer incarcerated time frames ranging to several years yielded different results.

In addition to the methodological issues identified above, inmates’ answers may have also been shaped by a variety of confounding variables in the immediate environment. For example, several inmates asked questions about NSSI in a manner that could have been perceived as judgmental by others in the group setting. Some inmates quietly laughed while completing the survey, whereas others had what could best be described as loud visceral reactions to some of the questions. Furthermore, there appeared to be multiple dynamics in the room, ranging from romantic partnerships to enemy relationships. Some inmates appeared to take the surveys seriously and voiced their appreciation and concern for the topic, but others appeared less motivated to take the survey seriously. One inmate voiced concern over the possibility of prison staff removing personal items due to this survey. Given that all of these factors likely limited the accuracy and generalizability of the findings, future researchers should attempt to
address these limitations by utilizing individual interview formats, sampling from the infirmary, and comparing inmate self-report with institution data, if they exist.

The survey design itself also suffered from several limitations. First, interpretation of NSSI as presented on the survey was sometimes difficult for the inmates to understand. For example, several inmates asked if drug and alcohol use/abuse was considered “self-injurious.” Once it was brought to my attention that many of the inmates considered drug and alcohol abuse self-injurious, it was specifically addressed in each following group of participants as non-self-injurious in the context of this study. Therefore, it is unclear how many prior respondents may have indicated NSSI based on drug abuse. In addition, the survey was originally designed for use with adolescents and contained required responses to items that were not as relevant to the prison environment (e.g., reasons to engage in NSSI: to get your parents to understand you). Additionally, open-ended questions and responses (such as “other”) made it difficult to summarize responses. For example, “other” was marked but not often elaborated on, reducing the opportunity for qualitative analysis. Overall, to obtain more accurate information it would have been helpful to have individual interviews with the inmates. Such inquiries would have allowed broader depth and quality of information for better comparison.

In regard to more accurate information, two problems became evident after data collection. First, as noted above, it was not possible to differentiate whether inmates endorsing NSSI behaviors had engaged in the reported NSSI behaviors in prison or in the community, or both. Second, tattooing is a commonly accepted behavior that is done for reasons other than self-injury both inside and outside of prison, yet is was included as an NSSI behavior on the FASM. It should also be noted that tattooing is not included in the definition of NSSI used in this study, but it was included in the FASM. Thus, I checked
to see whether any inmates were classified as engaging in NSSI due only to tattooing behaviors; if there were, this group would have been excluded from analysis. However, all inmates who indicated tattooing as a form of NSSI also noted additional forms of NSSI. Thus, there was not a tattoo-only group of inmates to exclude.

As noted previously, all inmates who indicated tattooing as a form of NSSI also reported engaging in additional forms of NSSI. Thus, although tattooing may be an acceptable behavior both inside and outside of prison and thus not an NSSI behavior in many contexts, the inmates who reported tattooing also reported additional forms of NSSI and thus did not appear to have been a unique group. Finally, the study was limited by the amount of time that passed between the administration of the PAI and the completion of the survey.

Despite these limitations, the current study was useful in obtaining information prevalence rates, motivations, and methods for NSSI behaviors in an adult female inmate population. The current study also adds to prior NSSI literature that utilized self-report from inmates to gain further understanding as to why they engage in NSSI.

Recommendations for Future Research

Future studies should involve a broader sample of inmates; for example, males and those housed in the infirmary should be included. Future researchers could employ stratified sampling procedures in order to ensure a more diverse sample. Additionally, to eliminate some of the dynamics in the room during survey participation, smaller groups or individual interviews should be used. Administration of the PAI and the survey within the same time period may also provide new information. Additional research has also led to NSSI survey measures better suited for adults, such as the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001), which is a 17-item NSSI questionnaire normed on
college participants. The questionnaire is designed to assess for frequency, method, severity, and duration of NSSI behaviors.

Implications

Despite the aforementioned limitations, the current research provides a prevalence rate as well as some insight into the manifestations and dynamics of NSSI within the Oregon State female prison population. Results indicated that engaging in NSSI was less likely to be related to positive social reinforcers or automatic positive reinforcers and more likely to be related to negative affect control. Such information may be useful to the prison system in terms of understanding the common function of the behavior. Additionally, 26% of the sample indicated engaging in NSSI for the first time in prison; perhaps teaching a psychoeducational class on emotion regulation and reasonable distress tolerance options within the prison system may reduce the incidence of NSSI. Although such psychoeducation may already be available in DBT groups, broader instruction in such skills to all inmates may be helpful. Following Andover et al.’s (2011) recommendations for programs such as RUSH (Eccleston & Sorbello, 2002) with shorter sessions, increased visual aids, and simple language is also recommended.

Given that NSSI behavior is immediately reinforcing, approved distress tolerance options would also need to be immediate in order to compete with the NSSI behavior. According to Martin et al. (2011), treatment for NSSI among a substance-using population should include mindfulness- or acceptance-based interventions that actively seek to teach ways to incorporate nonjudgmental stances towards one’s own internal and emotional experiences. Most importantly, given Klonsky et al.’s (2012) finding of NSSI as a moderate predictor of suicide, it is recommended that the ODOC take NSSI seriously
and integrate questions of NSSI and suicide when assessing an inmate for psychological risk.
REFERENCES


New Orleans, LA.


APPENDIX A

BE PART OF AN IMPORTANT STUDY
NONSUICIDAL SELF-INJURY AMONG FEMALE INMATES IN OREGON PRISONS

Study Invitation, Purpose, Location, and Dates
A researcher from Pacific University is doing a study. This study is interested in the prevalence (how common) and frequency (how often) of non-suicidal self-injury (NSSI) behaviors (i.e., cutting, etc.) in adult women who are in prison. This information may help to design programs that are more helpful to women who use self-injury for coping.

Participant Characteristics and Exclusionary Criteria
You can participate if you are female, at least 18 years-old, and can speak and read English. You cannot participate if you are younger than 18 years-old or you do not speak or write English fluently.

Study Materials and Procedures
What Will I Have To Do?
You will take a survey. The survey will take about 30 minutes. The survey will ask you questions about these topics:
- Your age.
- Your race.
- Your self-harm behavior.
- Agree to give access to my Personality Assessment Inventory (PAI) scores (e.g., the multiple choice test you took during the intake process).

Why Should I Take the Survey?
- There is no direct benefit to you. At most it may help you to think about these things and focus in parts of your life you would like to change. You will be helping us figure out how to help other inmates just like you.
- It may help the Oregon DOC develop a program to help women who have these issues.

Risks, Risk Reduction Steps and Clinical Alternatives
Are There Any Risks?
- You might feel sad because of some of the questions on the survey.
- As a prisoner, you don’t have a lot of privacy. While in a locked setting, the researcher may not have complete control over who hears or sees information about you. There is a risk that authorities might overhear or take answers about you from the researcher, and that your answers could be used against you. The researcher will make every effort to protect your privacy.
- You don’t have to answer questions that could get you into trouble.
- You also don’t have to tell anyone that you took the survey unless you want to.
- If you start taking the survey and then change your mind, you can stop.
- While you are taking the survey, all rules and regulations of ODOC still count. For example, if you behave badly when you are taking the survey, you could get in trouble and that might have an effect on your parole.
- You won’t get in trouble with ODOC or anyone else if you take the survey or if you don’t take the survey.
- This survey is for research only. It won’t change your sentence in any way. It won’t change your parole.

What Are You Doing To Protect Me?
We won’t tell anyone if you take this survey or not. We won’t tell the prison. We won’t tell your parole officer. We won’t tell your counselor. We won’t tell the police.

We also won’t tell anyone about what you said on the survey.

Since we are only asking about things that you did to yourself, we don’t have to report anything you say to the police.

Your SID number and other personal information, which we need so we can keep track of who takes the survey, will be kept in a locked file cabinet. We will keep your SID number and name secret.

The answers to your survey will be identified by a secret number, not your name or SID number, so that no one can match up your name or SID number with your answers except for trained researchers.

When we write or talk about what we learned in this study, we will leave things out so no one will be able to tell who we are talking about.

We must follow ODOC Counseling and Treatment Services reporting regulations. Reportable information includes danger to self or others, abuse of identifiable children, disabled or elderly persons, staff abuse of inmates, escape plans or attempts, and sexual assault. If you report any of this information on the questionnaire or to us, we might have to contact a ODOC staff member. We will not ask for names of inmates and/or staff who committed the crime and/or their State Identification (SID) numbers; however, if this information is given, the researchers might have to tell BHS. If you do not want this information to be given to BHS, do not tell us any names of people committing these crimes. If at any time a participant discloses that he has committed a crime while in the ODOC, we might be required to tell an ODOC staff member. We will also have to tell Pacific’s IRB by the next business day.

10. Medical Care and Compensation In the Event of Accidental Injury

During your participation in this study, you are not a Pacific University clinic patient or client. You will not receive mental health care for your participation. If you are injured during your participation, and it is not due to negligence by Pacific University, the researchers, or any organization associated with the research, you should not expect to receive compensation or medical care from Pacific University, the researchers, or any organization associated with the study.

Any Questions? If you have concerns about your participation in this study or about your rights as a research subject, the researcher(s) will be happy to answer any questions you have at any time during the study. If you are not satisfied with the answers, please call Pacific University’s Institutional Review Board, at (503) 352-1478 to discuss your questions or concerns. If you become hurt in some way and feel it is related to your participation in this study, please contact the investigators and/or the IRB office. All concerns and questions will be kept confidential. You can also mail Pacific University a letter and send it to: Pacific University IRB Office, 2043 College Way, UC Box A-133, Forest Grove, OR 97116.
APPENDIX B

Functional Assessment of Self-Mutilation (FASM)

A. In the past year, have you engaged in the following behaviors to deliberately harm yourself (check all that apply):

<table>
<thead>
<tr>
<th>Behavior</th>
<th>No</th>
<th>Yes</th>
<th>How many times?</th>
<th>Have you gotten medical treatment?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. cut or carved on your skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. hit yourself on purpose</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. pulled your hair out</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. gave yourself a tattoo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. picked at a wound</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>6. burned your skin (i.e., with a cigarette, match or other hot object)</td>
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<td></td>
<td></td>
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<tr>
<td>7. inserted objects under your nails or skin</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. bit yourself (e.g., your mouth or lip)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>9. picked areas of your body to the point of drawing blood</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>10. scraped your skin</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. &quot;erased&quot; your skin</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>12. other: __________________</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. If not in the past year, have you EVER done any of the above acts?

_______ Yes

_______ No

If yes to any of the above behaviors in the past year, please complete the
questions (C-H) below:

C. While doing any of the above acts, were you trying to kill yourself?
   _____ Yes
   _____ No

D. How long did you think about doing the above act(s) before actually doing it?
   _____ none
   _____ “a few minutes”
   _____ < 60 minutes
   _____ > 1 hour but < 24 hours
   _____ more than 1 day but less than a week
   _____ greater than a week

E. Did you perform any of the above behaviors while you were taking drugs or alcohol?
   _____ Yes
   _____ No

F. Did you experience pain during this self-harm?
   _____ severe pain
   _____ moderate pain
   _____ little pain
   _____ no pain

G. How old were you when you first harmed yourself in this way?
   __________

H. Did you harm yourself for any of the reasons listed below? (check all reasons that apply):

<table>
<thead>
<tr>
<th>Reasons:</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. to avoid school, work, or other activities</td>
<td></td>
</tr>
<tr>
<td>2. to relieve feeling &quot;numb&quot; or empty</td>
<td></td>
</tr>
<tr>
<td>3. to get attention</td>
<td></td>
</tr>
<tr>
<td>4. to feel something, even if it was pain</td>
<td></td>
</tr>
<tr>
<td>5. to avoid having to do something unpleasant you don't want to do</td>
<td></td>
</tr>
<tr>
<td>6. to get control of a situation</td>
<td></td>
</tr>
<tr>
<td>7. to try to get a reaction from someone, even if its a negative</td>
<td></td>
</tr>
</tbody>
</table>
8. to receive more attention from your parents or friends
9. to avoid being with people
10. to punish yourself
11. to get other people to act differently or change
12. to be like someone you respect
13. to avoid punishment or paying the consequences
14. to stop bad feelings
15. to let others know how desperate you were
16. to feel more a part of a group
17. to get your parents to understand or notice you
18. to give yourself something to do when alone
19. to give yourself something to do when with others
20. to get help
21. to make others angry
22. to feel relaxed
23. other:

Thank you for your responses!
APPENDIX C

Demographic Questionnaire and Mental Health History

Date of birth: ________________

Age: ________

Sex: male  female  transgendered/other

Race/ethnic category:
- Caucasian
- African-American
- Hispanic/Latino
- Asian-American
- Native-American
- Bi-/Multi-racial
- Other

Legal marital status:
- Single, never married
- Married
- Separated
- Divorced
- Widowed
- Other

Number of times legally married: ________

Highest grade completed: ________
- 1-12 for grade school
- 12-16 for college years
- 16+ for graduate education

If no HS diploma, did s/he earn her GED?

________ yes ________ no

Number of biological children: ________

Number of adopted/foster children: ________
Index of offense(s). List name(s) of each charge.

Length of sentence.

________________ in months

1. Is this your first time in prison? YES NO

2. Did you engage in self-injury before coming to prison? YES NO

3. Do you engage in self-injury more frequently, less frequently, or with the same frequency as when you were not in prison?

4. While in prison, have you ever engaged in self-injury for external gain or manipulation? YES NO

5. Do you speak with BHS staff about your self-injury behavior? YES NO

6. What is your current mental health diagnosis?

7. What was your previous mental health diagnosis?

8. Have you had treatment for your self-injury behavior(s)? YES NO

9. Do you know of other inmates who self-injure? YES NO

10. Did you engage in any of the self-injurious behavior in an attempt at suicide? YES NO