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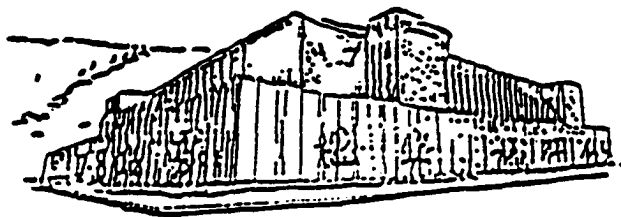
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CHARACTERISTICS ASSOCIATED WITH A RANGE OF
SELF-HARM BEHAVIORS IN UNIVERSITY UNDERGRADUATES

by

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B.S., University of Utah, 1994

M.A., University of Montana, 1997

presented in partial fulfillment of the requirements

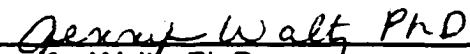
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Characteristics Associated with a Range of Self-Harm Behaviors in University Undergraduates

Director: Jennifer Waltz, Ph.D.



Self-harm includes a range of behaviors including subclinical self-harm, defined here as mildly injurious behaviors such as skin picking and fingernail biting, more injurious self-harm, such as cutting and burning, and self-harming behaviors that are clearly clinical levels of self-harm, such as highly lethal cutting. This study examined characteristics associated with subclinical and more injurious self-harm within an undergraduate population. Participants were 280 University of Montana students enrolled in Introductory Psychology. 190 (68%) reported some history of subclinical self-harm, with 87 (31%) reporting subclinical self-harm within the last three years. 98 (35%) reported some history of more injurious self-harm, such as punching or cutting oneself, with 55 (20%) reporting more injurious self-harm within the last three years.

Both subclinical and more injurious self-harm were not associated with significant negative direct consequences, such as emotional distress or interference with important areas of life, although a subgroup of participants in both groups reported some negative emotional response to their histories of self-harm. Both types of self-harm were associated with disordered eating behaviors, impulsivity, and more somatic symptoms in comparison to those who did not self-harm, suggesting that subclinical and mildly to moderately injurious self-harm are signs of a more general tendency to express and modulate distress using physical or behavioral means. Subclinical self-harm was also associated with decreased emotional clarity. Both types of self-harm were not associated with significant general negative affect, DSM-IV Axis II features, obsessive-compulsive features, or history of physical or sexual abuse, although more injurious self-harm was associated with a history of emotional abuse. Similarities and differences with clinical self-harm are discussed, as well as implications for further research and treatment of self-harm.

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Introduction and Literature Review

Self-harm is commonly discussed in the psychological literature as though it only includes extreme forms of self-mutilation that occur in the context of a personality disorder. However self-harm encompasses a tremendously broad range of behaviors, from skin picking and hair pulling, to cutting and burning, to self-surgery and autocastration. Efforts to understand self-harm have typically focused on the more extreme and disturbing behaviors, such as serious cutting and burning (for example, see Zlotnick et al., 1996; Herpertz, 1995). However, there are also a number of "subclinical" self-harming behaviors, including skin picking and scratching, hair pulling, interfering with wound healing, serious fingernail biting, and minor cutting and burning. Although not generally well understood, there has been some research on subclinical self-harm which has found it to have negative associated features. For example, dermatological research on skin picking (Gupta, Gupta, & Haberman, 1987; Koblenzer, 1993), research focused on body dysmorphic disorder and skin picking (Stein, Hutt, Spitz, & Hollander, 1993; Phillips & Taub, 1995), and research focused on obsessive-compulsive disorder (Phillips, McElroy, Hudson, & Pope, 1995) have all found subclinical self-harm to be associated with characteristics of both Axis I and Axis II disorders.

This study seeks to increase our understanding of the less injurious end of the continuum of self harming behaviors. Specifically, characteristics of individuals who engage in subclinical self-harm will be investigated, including associated features of psychopathology, possible consequences of engaging in self-harm, and possible functions of self-harm. Increasing knowledge of subclinical self-harm may contribute to attempts to understand both this overlooked area and self-harm in general. First, self-harm in general will be discussed, including theories about why

self-harm occurs. Second, attempts to define and categorize self-harm will be addressed. Third, a rationale for the current study will be presented.

Definitional Issues

A variety of labels have been used to refer to self-harm including “parasuicide,” “self-mutilation,” and “self-injurious behavior.” Most authors use these labels to refer to a wide range of behaviors including, but not limited to, cutting, burning, swallowing toxic or harmful substances (including cleaning solutions, glass, or pins), punching or hitting oneself, bone-breaking, self-surgery, interfering with wound healing, pulling out hair, and skin picking. However, determining which behaviors should fall under the general category of self-harm has been surprisingly controversial. Definitions have differed in several ways. The roles of several specific factors such as intentionality (i.e. did the person intend to harm himself or herself), level of suicidal intent, social unacceptability (i.e. unacceptable mutilation versus cosmetic body piercing), ingestion of drugs or substances to cause harm, harm acted out by another person, and harm as repetitive versus single incident, are understood differently by experts in the field. The following discussion will review four representative definitions in the literature (Favazza & Conterio, 1989; Herpertz, 1989, Linehan, 1993; & Walsh & Rosen, 1988). These theorists’ thinking on what constitutes self-harm will be discussed.

Intentionality is generally emphasized in definitions of self-harm or self-mutilation. Most authors require that self-harm be “intentional” (Linehan, 1993) or “deliberate” (Walsh & Rosen, 1988; Favazza & Conterio, 1989; Herpertz, 1995). This excludes accidental injuries that occur in the course of everyday life. A subtle issue in this area is that subclinical self-harm may be effected from a deliberate action without the injury itself being deliberate. For example, serious skin scratching or

picking can be initiated by a desire to remove an impurity in the skin, such as a pimple (Gupta, Gupta, & Haberman, 1986), but can result in scabbing and eventual scarring. In this case, it is difficult to say whether the self-harm was completely deliberate. Additionally, self-harm at any level may become repetitive and habitual (see for examples Gupta, Gupta, & Haberman, 1986; Favazza & Simeon, 1995). Questions of intentionality become more difficult to answer when there is little conscious thought or premeditation surrounding habitual self-harm. Also, other cases in which an individual claims to have no conscious intent of action or injury, such as in cases of dissociation, are difficult to categorize by intentionality. These issues are typically not addressed in the literature.

Some authors define self-harm as self-injurious behavior in which there is *no* intent to die (for example, see Favazza & Conterio, 1989; Herpertz, 1995). Others avoid separating intent to die from intent to cause harm. For example, Linehan states that parasuicide must show "clear intent to cause bodily harm or death" (p. 13-14, 1993). In some cases, particularly among seriously distressed individuals, the individual may not be certain whether they actually want to hurt themselves or die. Linehan's definition helps to address this scenario. However, it may be inappropriate to group less distressed individuals who are engaging in lower levels of harm with suicide attempters.

Another approach is to avoid the issue of intent altogether. Walsh and Rosen (1988) use this approach, simply stating that self-mutilative behavior must be "non-life-threatening." This seems problematic, as individuals who seriously self-harm may accidentally produce life-threatening injuries that seem more consistent with self-mutilation than a suicide attempt. Conversely, individuals who are attempting suicide may unintentionally choose a method that is not life-threatening, such as

cutting in a non-vital area. According to Walsh and Rosen's definition this behavior would be classified as self-mutilation, but it may actually have more in common with suicide attempts.

Most researchers either explicitly require that self-harm be socially unacceptable or imply this through selection of participants, while others either ignore this issue, or explicitly state that self-harm can be socially acceptable or unacceptable. For example, Walsh and Rosen (1988) require that self-mutilative behavior be of a "socially unacceptable nature." The difficulty with this approach is that in some deviant subgroups, such as in prisons or youth homes, self-harm may become a socially acceptable or even encouraged activity (Ross & McKay, 1979). It is unclear whether self-harm of this type would meet Walsh and Rosen's explicit criteria of social unacceptability. Other authors simply avoid this issue by not mentioning social acceptability in definitions (Linehan, 1993). A third approach is to explicitly include both culturally sanctioned and deviant behaviors as self-mutilative. Favazza and Conterio (1989) take this stand, which fits well with one of Favazza's research emphases on culturally sanctioned mutilation. However including culturally sanctioned behaviors opens up what may be an entirely different area of research. For example, it seems inappropriate in most cases to group someone who burns themselves in private in response to intense negative affect with a child who gets her ears pierced to fit in with her social group. Social acceptability is also a difficult issue to assess at low levels of self-harm. For example, burning oneself purposefully even once is generally not socially acceptable. But picking at a wound, such as a child picking at a scab, is accepted although it is certainly not encouraged. It is unclear when interfering with wound healing becomes unacceptable. Is it after a scab has been removed and the wound reopened twice, five times, ten times? At some point it

certainly becomes unacceptable.

Ingestion of drugs or substances (such as cleaning solutions) to cause harm is also a controversial point. Some authors emphasize that self-harm can be effected through ingestion of drugs or substances. For example, in her definition of parasuicide, Linehan (1993) includes "any ingestion of drugs or other substances not prescribed or in excess of prescription with clear intent to cause bodily harm or death" (p. 14). However most authors do not include ingestion of drugs or substances in their definitions (Herpertz, 1995; Favazza & Conterio, 1989; & Walsh & Rosen, 1988). This is a tricky area. It seems that people who harm themselves in a visible, external way may be motivated by different factors and may be exhibiting a different relationship with their body than people who choose to ingest substances. Additionally, substance ingestion is often chosen as a method of suicide rather than for self-harm. For example, individuals who repetitively externally self-harm are at a greater risk for suicide attempts by drug overdose due to their despair about ever controlling their external self-harm (Favazza & Conterio, 1989).

Other definitional issues that have received less attention concern harm acted out by another person, harm as repetitive, and indirect self-harm (such as smoking or risky behaviors). Most authors typically include only direct self-harm that is acted out specifically by the individual, whether or not it is repetitive (Walsh & Rosen, 1988; Linehan, 1993). However, others include self-harm that is actually carried out by another person. For example, Favazza and Conterio (1989) propose that self-mutilation includes when people "willingly allow others to alter or destroy their body tissue" (p. 89), although they clarify that it does not include medical treatment unless the physician is tricked into providing it. This fits with their stand that self-mutilation includes both culturally sanctioned and deviant behavior.

Another issue proposed by some is that self-harm is repetitive (Herpertz, 1995). This excludes single instances of self-harm and is not a commonly used criterion, except when specifically studying habitual or repeated self-harm. Finally, behaviors that are clearly harmful but have a less direct effect on the body, such as risky sexual behaviors, smoking, or reckless driving, are typically not included in definitions of self-harm. Although direct and indirect self-injurious behaviors have been examined together, authors still differentiate the two types. For example, in an investigation of a broad range of self-injurious behaviors, Zlotnick and colleagues (1996) distinguished direct self-injurious behaviors (i.e. self-mutilation) from indirect self-injurious behaviors (i.e. bingeing, reckless driving, etc.). Extreme accident proneness may also be a type of self-harm for some individuals, but is typically not addressed in this literature at all.

Given these issues, the following definition will be used for the purposes of this study. Self-harm will be defined as socially unacceptable, intentional alteration or destruction of body tissue without conscious suicidal intent. This definition includes most of the significant parts of the above definitions, yet excludes socially accepted means of self-harm (cosmetic tweezing, tattoos, body piercing, etc.) and self-harm by drug overdose. Additionally, the term *self-harm* will be used in this study rather than other terms, such as *self-mutilation* or *parasuicide*. Self-harm appears to be the most appropriate term when discussing a broad range of behaviors, including low level behaviors. Self-mutilation or parasuicide will only be used below when referring directly to another author's work that favors the term.

Prevalence, Demographic Characteristics, and Associated Diagnoses

A large body of work exists that has identified some common characteristics of people, particularly inpatients, who engage in severe self-harm. According to

Conn and Lion (1983), wrist cutting is one of the most common forms of self-harm. They state that there was general agreement up until the 1970s on the characteristics of patients who cut their wrists. "The typical cutter was described as an attractive young woman, usually quite intelligent, with impaired interpersonal relationships and poor sexual adjustment, who tended to be easily addicted to alcohol and drugs" (Conn & Lion, 1983, p. 24). The problem with this description was that it was based on patients in private hospitals to which this type of female wrist cutter may have been preferentially referred and admitted (Clendenin & Murphy, 1971; as cited in Conn & Lion, 1983). More recent and well-designed research has shed more light on common demographic characteristics of people who self-harm.

First, data regarding prevalence, age of onset, and demographic characteristics vary. It is difficult to accurately estimate prevalence of self-harm. Favazza and Conterio (1988) estimate the occurrence of higher level self-harm, such as cutting and burning, to be 750 per 100,000 in the general population. Within college undergraduate samples, data indicates that higher level self-harm occurs in between 8 and 12 percent of the population (Favazza, 1989; Favazza, DeRosear, & Conterio, 1989). It is difficult to estimate what additional proportion of the population engages in lower level self-harm, such as skin picking and hair pulling.

Estimates of average age of onset of self-harm range from the early teens to the late teens and early twenties. In their 1988 survey, Favazza and Conterio found an average age of first self-harm of 13.5 years. In an epidemiological survey of 12-14 year olds, Garrison, Addy, McKeown, Cuffe, Jackson, and Waller (1993) found that between 2.5 and 2.8 percent already engaged in self-damaging acts. However, other estimates cite later age of onset. For example, Herpertz (1995) found a peak age of onset between 18 and 24 years in a sample of 54 inpatients with a history of

at least three incidents of self-harm.

Self-harm typically also occurs more frequently among women and may or may not show racial differences in prevalence. In their 1988 survey, Favazza and Conterio had a self-selected sample that was 96% women (total $N=268$). However, it should be noted that Favazza and Conterio had a rather unusual method of recruitment for this study, which probably inflated the number of women included. All participants responded to a request on a national daytime television show (Phil Donahue) that was focused on self-harm. Herpertz' 1995 sample of inpatients with at least three incidents of self-harm was also primarily composed of women. Additionally, although according to Favazza & Conterio (1989) the clinical impression of most therapists is that there are no racial differences in self-harm, many studies report rates of 75% percent or higher Caucasian self-harming participants (Favazza & Conterio, 1989; Zlotnick, Shea, Pearlstein, Simpson, Costello, & Begin, 1996; Garrison, Addy, McKeown, Cuffe, Jackson, & Waller, 1993). The research needed to conclusively address prevalence across race is not available.

Most studies have indicated that individuals who engage in self-harm, particularly high level self-harm, also experience comorbid Axis I and Axis II disorders. Herpertz (1995) found that 78% of a sample of 54 inpatients with self-mutilation histories met criteria for at least one DSM-III-R Axis II diagnosis with the most frequent being Borderline Personality Disorder (52%) and the second most frequent being Histrionic Personality Disorder (23%). All other Axis II diagnoses were also represented. Comorbid Axis I disorders were quite diverse (as diagnosed using ICD-10 criteria). 54% had an eating disorder, 33% had a psychoactive substance use disorder, 20% had an affective disorder diagnosis, and 19% were diagnosed with some type of schizophrenia. This study included more individuals with a

schizophrenia diagnosis and less with an affective disorder diagnosis than most of the literature has found. For example, a study of 124 inpatients with Borderline Personality Disorder found no schizophrenia comorbidity and high Major Depression comorbidity (82% in frequent self-mutilators versus 53% in non-self-mutilators; Dulit, Fyer, Leon, Brodsky, & Frances, 1994). Garrison and colleagues (1993) also found that major depression and suicidal ideation were significantly associated with self-harm in a sample of 444 adolescents.

Researchers have also discussed self-harm in the dermatological literature, and in the psychological literature focused on obsessive-compulsive spectrum disorders. These researchers typically have focused on only one type of self-harm. For example, trichotillomania is a compulsion to pull out one's own hair that is described in both psychological and dermatological literature. Reported average age of onset of trichotillomania in both patient and community samples is 10.6 to 10.7 years (Stein, Simeon, Cohen, & Hollander, 1995; Cohen, Stein, Simeon, Spadaccini, Rosen, Aronowitz, & Hollander, 1995). These researchers also both found trichotillomania to be markedly more common in women than in men. Jenike (1990) added that there was no characteristic profile of either trichotillomania patients or their family members. Prevalence of trichotillomania in a college population was estimated by Christenson, Pyle, and Mitchell (1991). They found a 0.6% prevalence of trichotillomania meeting DSM-III-R criteria in both males and females in a sample of 2579 college freshman, with an additional 1.5% of males and 3.4% of females reporting hair pulling resulting in visible hair loss, but not meeting diagnostic criteria.

Dermatitis artefacta and neurotic excoriations are also described in the dermatological literature. Dermatitis artefacta refers to a condition in which skin lesions are wholly self-inflicted but the patient typically denies causing them.

Neurotic excoriations refer to self-inflicted skin lesions that are often initiated by an itch, "a disturbing sensation" in the skin, or because of an urge to remove some type of irregularity, such as a pimple (Gupta, Gupta, & Haberman, 1986). Often this behavior shows compulsive qualities and the patient generally acknowledges creating the lesions. In regard to neurotic excoriation, Stein, Hutt, Spitz, and Hoilander (1993) report that picking behavior has a wide range in age of onset and is more common among females. Other studies have found age of onset to be in adolescence. For example, in a sample of 33 patients with skin picking and related body dysmorphic disorder, Phillips and Taub (1995) found an average age of onset of 17.4 years. Also, Van Moffaert (1992) states that "as a rule" picking originates in adolescence following mild acne. Both Axis I and Axis II features also occur with compulsive picking. Perfectionistic and compulsive personality traits are common features, as well as depression, anxiety, shame, humiliation, and even suicidal behavior, although most research in this area is not empirically based (Gupta, Gupta, & Haberman, 1987; Koblenzer, 1992). Koblenzer (1993) writes that the typical personality pattern is, "obsessive-compulsive; rigid, perfectionistic, judgmental, controlling, and indecisive for fear of erring, these patients are seldom in touch with feelings and have difficulty handling unconscious aggression (p. 21)." However, it is not clear whether she is basing these statements on clinical experience, systematic research, or both. Zaidens (1964; as cited in Gupta, Gupta, & Haberman, 1986) asserts that the extent of self-excoriation is proportional to the distortion of the personality.

In general, these data indicate that individuals who self-harm at both low and high levels often begin self-harming in their teens or even sooner. Additionally, individuals at all levels of self-harm experience a variety of symptoms of both Axis I

and Axis II disorders. The next question that arises is why do people engage in self-harm? What could be responsible for directing these individuals to view their bodies as possible targets for harm?

Theories of Self-Harm and Related Research

Many explanations of self-harm have been offered. Armando Favazza (1987) proposes an overarching explanation that both culturally appropriate and culturally deviant self-mutilation share the same basic purpose, namely, "to correct or prevent a pathological, destabilizing condition that threatens the community, the individual or both" (p. 191). Favazza attributes all self-mutilation to this basic cause. He provides many examples of both culturally appropriate and culturally deviant self-mutilation to support his assertion. For example, he states that the historical practice of foot binding in some cultures helped to prevent social disorder by clearly defining people's status. In some mentally ill individuals, self-mutilation may quickly address a destabilizing condition, ranging from intense anxiety, to dissatisfaction with gender identity, to beliefs of sinfulness or demon possession. This is an interesting idea in sociological terms and is also helpful in depathologizing self-harm behavior. However, it is not very informative at the level of individual self-harm. More specific theories (which Favazza also addresses) involve emotion regulation, impulsiveness versus compulsiveness, body image distortions, and other factors.

Emotion regulation. Most researchers agree that high level self-harm appears to have an emotion regulation function through terminating episodes of intolerable mounting tension. Herpertz (1995) provides an excellent description of the typical course of a self-injurious act. Most of the sample of 54 inpatients reported a specific frustrating external event (rejection, separation, failure, etc.) which led to feelings of anger, desperation, and anxiety. A general dysphoria increased and grew into an

intolerable feeling of mounting tension which, for some, included feelings of emptiness, numbness, depersonalization, and derealization. The self-harm was then generally impulsively carried out to terminate these feelings. During the self-harm, few patients (only 30%) had normal pain sensations, with the majority experiencing decreased to no pain. After self-harming, 69% of the patients reported that they felt better for some time. This description is consistent with other reports in the literature (Favazza, 1987; Feldman, 1988; Carroll, Schaffer, Spensley, & Abramowitz, 1981; van Moffaert, 1990; Simpson, 1975). Some individuals report that their depersonalization is specifically terminated by the pain of the self-harm, but more often it is terminated by the sight of the blood. Some have even reported that a certain amount of blood is necessary to terminate their negative emotional experiences, and that the amount required may increase over time, spurring more serious self-mutilative acts (Favazza, 1988).

Some researchers argue that individuals who self-harm to cope with intense negative feelings do so because they are not capable of regulating their emotions in more adaptive ways. Several pieces of evidence support this view. First, individuals who self-harm are more likely to be unable to verbalize their intolerable affect and show higher levels of alexithymia than those who do not self-harm (Zlotnick et al., 1996). Without the ability to organize and verbalize their affective experience, these people may have difficulties modulating and coping with their extreme affect, as well as difficulties communicating pain and need for help to others.

Second, individuals who self-harm are more likely to have a history of childhood family disruption, such as loss of a parent through divorce or death (Favazza, 1987). Also those who self-harm are more likely to have a history of childhood sexual and physical abuse than those who do not self-harm (Zlotnick et

al., 1996; Favazza & Conterio, 1989; Carroll, Schaffer, Spensley, & Abramowitz, 1981; Walsh & Rosen, 1988). Perhaps both people with histories of family disruption and those with abuse histories may have experienced high levels of negative affect as children, which their developing coping responses were unable to adaptively modulate. As adults, these individuals may have poor self-soothing strategies and may be predisposed to using self-harm as a maladaptive coping response to painful affect (Zlotnick et al., 1996).

It is also likely that children who were abused did not receive adequate nurturance and loving physical contact. In some cases, the only physical contact received may have occurred during the abuse thus reinforcing painful behaviors, such as self-harm, which could continue into adulthood (Favazza, 1987). Additionally, some clinical reports indicate that individuals with a history of abuse may self-harm to terminate flashbacks and ground themselves in the present (McCann, 1990) or to experience a pain that they can control and terminate in contrast to the uncontrollable pain of the past (Cross, 1993).

A third piece of evidence supporting the notion that individuals who self-harm do not have adequate coping mechanisms for negative affect is that individuals who self-harm are more likely to experience dissociation than those who do not (Zlotnick et al., 1996). Interestingly, dissociative experiences have also been noted with low levels of self-harm. For example, Koblenzer (1987) reports that incidents of skin picking may involve a trance-like state and are often accompanied by loss of pain sensations. Although there have been a number of explanations offered to account for the higher rate of dissociation during self-harm, it seems most likely that dissociation is another attempt to cope with painful affect, by escaping it rather than coping with it directly. However, for some individuals, the dissociation itself is so

negative that they choose to terminate it with self-harm. Of course, another possibility is that since dissociation and a history of sexual abuse are linked, it may be that self-harm and dissociation are relatively independent coping mechanisms used by women with histories of sexual abuse in response to overwhelming affect (Zlotnick et al., 1996). Another view of the co-occurrence of dissociation and self-harm is that self-harm is not adopted to terminate dissociation, but rather is enabled by dissociation. In other words, the separation of the self from the body and the self-harming experience may allow the individual to follow through on the self-harm (Tantam & Whittaker, 1993). These explanations are of course not mutually exclusive.

Individuals with self-harm histories are also more likely to experience a variety of somatic symptoms (Herpertz, 1995). This may be a further indicator that these individuals have difficulties with adaptive emotion regulation. It is possible that when people with a predisposition to self-harm experience intense emotions, they can not verbalize their experience and thus express their emotions through physical means, including physical illness and self-harm. Additionally, it is possible that many of the somatic symptoms experienced may actually be natural concomitants of emotional experience. However, the emotional experience is so overwhelming or incomprehensible, that the individual does not attribute them to emotions but rather to strictly physical causes. For example, where one person may notice an emotional experience of anger in response to a threat, another may notice a racing heart and diffuse soreness due to muscle tension. Even though both people may be experiencing the same thing, the second is more likely to report and focus on somatic symptoms and may be more likely to attribute them to illness rather than to emotion.

In general, self-harm can be conceptualized as a physically destructive yet temporarily effective solution to the problem of intolerable negative affect in individuals who have limited skills coping in a more adaptive manner. Each of the issues addressed above – alexithymia, childhood disruption and abuse, dissociation, and high levels of physical symptoms – can be interpreted as pointing to pervasive difficulties with adaptive emotion regulation. Although the above discussion is primarily based on literature focused on high level self-harm, it may also be applicable to lower levels of self-harm, as this study will investigate. Although the extreme amounts of intolerable affect seen in high level self-harm are not as obviously present in low level self-harm, each of the other issues (alexithymia, childhood abuse, etc.) may be just as influential in low level self-harm as they are in high levels, pointing again to difficulties with emotion regulation.

Anger and aggression. Several authors hypothesize that anger and aggression play a role in self-mutilation, and that self-harm may even provide a type of cathartic release of anger (Favazza, 1987). Individuals who self-harm may feel anger at themselves for not living up to their expectations, causing misery for others, or being “no good” (Favazza, 1987). Others may be angry with important people in their lives or with institutions, such as hospitals, that they believe have failed them. Some may be angry with God, the universe, or their fate. In some cases self-harm is a relatively safe expression of anger in comparison to how anger may be received by parents or other important people who may retaliate (Favazza, 1987).

Anger also plays an important role in many psychodynamic explanations of self-harm. Menninger’s 1939 book, *Man Against Himself*, provides one of the earliest and most influential psychodynamic formulations of self-mutilation and includes anger and aggression as important pieces. Menninger proposes that even though

self-mutilation appears to be an attenuated form of suicide, it is actually a compromise formation intended to avert suicide. He further proposes that there are three elements in self-mutilation: an aggressive element, a stimulation element, and a self-punitive element. The aggressive element is directed inward in self-mutilation, toward an introjected object, such as a parent. The individual maintains a feeling of control by directing the aggression inward rather than outward. The stimulation element may have either a sexual or purely physical basis. For example, the genitals can be repeatedly symbolically removed through self-mutilation. The self-punitive element allows the individual to atone for unacceptable acts or wishes. As Feldman states (1988), "The more normal individual is able in effect to say, 'I regret my sins, but to injure myself would not make matters any better.' The neurotic patient compromises by self-mutilating in symbolic ways. The psychotic patient, on the other hand, does not attempt any such bargaining, and so one sees extreme and bizarre self-mutilations" (p. 259).

Difficulties with anger do appear to be a relatively common experience for those who engage in self-harm. Favazza and Simeon (1995) note that several studies have found that 18–45% of self-harming individuals report anger towards themselves and 10-32% report anger towards others precipitating their self-harm. Simeon et al. (1992) also reported that, in comparison to personality-disordered controls who did not self-harm, self-harming individuals had histories of greater aggression. Additionally the frequency of self-harm correlated with chronic anger. However, these data are mixed, as Herpertz (1995) did not find high levels of aggression or social deviance among inpatients who self-harmed at higher levels. Additionally, individuals who self-harm are more likely to report strong prohibitions in their childhood homes against expressing anger (Carroll, Schaffer, Spensley, &

Abramowitz, 1981). Perhaps these individuals did not learn to modulate and express anger appropriately as children, resulting in high levels of anger and aggression as adults that they are unable to adaptively cope with.

As there is little research on anger and aggression with lower levels of self-harm, it is unclear whether anger and aggression would play a major role in this area. Favazza and Simeon (1995) note that individuals who harm themselves in a repetitive, habitual, low-lethality manner may not show angry affect and do not generally have histories of aggressive traits. Rather they propose that anger and aggression play an important role in only higher level self-harm.

Impulsiveness and compulsiveness. A current trend within the literature is to try to tease apart impulsive and compulsive factors in self-harm. If certain types of self-harm could be categorized as compulsive and others as impulsive, co-occurring pathology, course, and treatment response could be more easily identified. Simeon, Stein, and Hollander (1995) list factors that may indicate compulsive or impulsive motivations. They propose that compulsive self-harm tends to be more habitual and repetitive, with greater resistance to a more ego-dystonic urge. In contrast, impulsive self-harm tends to be more episodic, related to precipitating events, with little resistance to an ego-syntonic impulse to act. Additionally the behavior itself may be gratifying and not simply anxiety relieving for impulsive self-harm. As discussed above, anger and aggression may also play a role in distinguishing impulsive and compulsive self-harm. Favazza and Simeon (1995) hypothesize that people who compulsively self-harm, in contrast to those who self-harm in a more impulsive fashion, do not show angry affect and do not have histories of aggressive acts.

The proposed diagnostic category of deliberate self-harm (Pattison & Kahan, 1983) is one of the earliest and most influential formulations of self-harm that speaks

to the impulsive side of the continuum. According to Pattison and Kahan (1983), deliberate self-harm syndrome is a pathological impulse disorder characterized by multiple episodes and types of low-lethality self-harm that continues over many years. It is primarily characterized by "sudden and recurrent intrusive impulses to harm oneself without the perceived ability to resist" (p. 867). Pattison and Kahan's seminal article (1983) and their description of self-harm as an impulse control disorder helped spur a renewal in interest in self-harm research.

Favazza, DeRosear, and Conterio (1989) propose that self-harm and eating disorders share strong impulsive characteristics and are both features of deliberate self-harm syndrome. They note that many studies have found that over 50% of self-harming participants have also experienced some type of eating disorder. Additionally, studies of individuals with an eating disorder have shown that they are at a higher risk of self-harm. For example, one study found that 40.5% of a group of laxative-abusing bulimics also reported self-injurious behavior (Mitchell, Boutacoff, Hatsukami, Pyle, & Eckert, 1986). Following a similar line, Lacey & Evans (1986) propose a "multi-impulsive personality disorder" to describe individuals with a poor prognosis due to multiple impulsivity, including some with self-harm behaviors and eating disorders.

Falling more on the compulsive side of the continuum is the category of *compulsive self-mutilation* proposed by Favazza and Simeon (1995). *Compulsive self-mutilation* (which contrasts with Favazza and Simeon's categories of *episodic* and *repetitive* self-mutilation) includes repetitive, ritualistic behaviors that generally occur many times daily such as trichotillomania, onychophagia (nail biting), skin picking, and skin scratching. However, although the category name implies only compulsive features, both compulsive and impulsive features may be present. For

example, for trichotillomania Favazza and Simeon (1995) identify both impulsive features, such as mounting tension and gratification associated with the behavior, and compulsive features, such as a lack of elaborate thought or affect associated with hair pulling.

The impulsive/compulsive question is a compelling but difficult one. On the one hand, it offers the hope of providing a clinically meaningful distinction between types of self-harm which could yield more appropriate and effective treatments. On the other hand, this distinction may be difficult or impossible to make on an individual level. Simeon, Stein, and Hollander (1995) indicate that in actual clinical practice, distinctions between impulsive and compulsive self-harm are usually blurred, and in a particular person impulsive self-harm may gradually begin to show more compulsive features. It appears that looking for both impulsive and compulsive elements within each individual, rather than attempting to categorize people or acts into either strictly impulsive or compulsive categories, may be a more helpful approach.

Distorted body image. Feelings that the body is ugly, distorted, or disgusting in some way may increase the likelihood of self-harm for reasons such as attempting to take control over the body or to punish the body. Walsh and Rosen (1988) found that variables related to body alienation, including eating disorders, adolescent illness, distress over sexual identity, and inattention to physical appearance, to be strong predictors of self-harm behaviors in adolescents. Many of these factors are prevalent among self-harming individuals. As noted above, individuals who self-harm have a higher incidence of eating disorders (Favazza, DeRosear, & Conterio, 1989), a significant feature of which is distorted body image and a sense of needing to take control (or losing control) over the body. Additionally, as noted above, these

self-harming individuals are more likely to have histories of physical or sexual abuse (Zlotnick et al., 1996; Favazza & Conterio, 1989; Carroll, Schaffer, Spensley, & Abramowitz, 1981; Walsh & Rosen, 1988). Children who have been sexually abused are more likely to see their bodies as contaminated or dirty. They may come to see their bodies as somehow separate from their real selves, possibly as alien or even traitorous, setting the stage for later dissociation and the identification of the body as a target for harm (Walsh & Rosen, 1988).

Koblentz (1987) hypothesizes that the quality of a mother's touch during infancy helps to develop solid internal representations of the body. When abuse is present, body image may be distorted or fragmented and self-harm may be used to help define the boundaries of the body. Walsh and Rosen (1988) also found that mutilators were significantly more likely than nonmutilators to have had serious or chronic illness during childhood, and to have had major surgery (beyond a common tonsillectomy or appendectomy). These experiences may also contribute to a negative view of the body, distorted body image, and body alienation.

Body image distortion or feelings of disgust about the body can also spur self-harming acts that are intended to improve appearance. Some types of low level self-harm, such as skin picking to remove minor acne or impurities from the skin, may be initiated to try to improve appearance. However, this behavior often spirals out of control, worsening appearance through such things as accumulated scarring, and thus worsening anxiety about physical appearance.

Low level self-harm, and particularly skin picking, is often associated with a potentially disabling disorder, body dysmorphic disorder. Body dysmorphic disorder (BDD), or dysmorphophobia, involves a preoccupation with an imagined or slight defect in appearance (Phillips, 1996) and may be relatively common in the general

population (Phillips, McElroy, Hudson, & Pope, 1995). Biby (1998) found that in a sample of 102 undergraduate students (excluding those with an eating disorder), 60% reported dissatisfaction with a body part and 13% met criteria for BDD. Beliefs about appearance that underlie BDD preoccupations often involve poor insight, and some patients are frankly delusional regarding their supposed defect (Phillips, McElroy, Hudson, & Pope, 1995). Over 90% of individuals with BDD engage in repetitive and time-consuming behaviors including excessive checking of the defect, grooming behaviors, camouflaging behaviors (e.g. wearing clothing or makeup to disguise the defect), frequent questioning of others about the defect, and skin picking. Although level of functioning in BDD spans a broad spectrum, some individuals are severely debilitated. In a study of 33 patients with BDD who picked their skin, 39% reported being housebound for at least one week, 81% reported suicidal ideation tied to their BDD, and 33% reported suicide attempts (Phillips & Taub, 1995).

BDD is hypothesized to be an obsessive-compulsive spectrum disorder, due to its high comorbidity with OCD, its many symptomatic similarities to OCD, and its similar response to selective serotonin reuptake inhibitors (Phillips, McElroy, Hudson, & Pope, 1995; Hollander & Wong, 1995a). BDD is also hypothesized to be an affective spectrum disorder (Phillips, McElroy, Hudson, & Pope, 1995) due to its response to some antidepressants (some SRIs and MAOIs) and its high comorbidity with major depressive disorder (80% or higher; Phillips & Taub, 1995; Phillips & Diaz, 1997). Interestingly, even though DSM criteria specify that the preoccupation involved in BDD cannot be accounted for by preoccupation with body shape and size in anorexia, about 10% of patients with BDD still meet criteria for a comorbid eating disorder (Phillips, McElroy, Hudson, & Pope, 1995). Self-harm in body dysmorphic

disorder appears to again represent alienation and devaluation of the body, increasing the potential for self-harm.

Other explanations. Higher level self-harm is also sometimes used as a communication tool. Individuals sometimes injure themselves to obtain compassionate and caring help, to fit in to a deviant peer group (such as is seen in self-harm contagion in prison and juvenile facilities; see Ross & McKay, 1979), or to change others' behavior. For these reasons, self-harm is sometimes labeled as "manipulative." For example, if a patient engages in self-harm and receives extra attention from nursing or psychiatric staff that the staff has been previously reluctant or unable to provide, staff can view the patient as successfully attempting to manipulate them and may have feelings of resentment about the patient.

Self-harm has also been reported to be soothing and comforting for some. Patients sometimes will save their blood or blood-soaked bandages because viewing them or touching them is soothing in some way. Also patients sometimes attend to their injuries with great care and compassion, again because it provides them with tangible comforting feelings (Favazza, 1988).

Less commonly, self-harm is used to purposefully alter appearance in a more permanent and dramatic way than simply producing scars. For example, some authors have reported that seriously disturbed men who have concerns about their sexual identity sometimes attempt to castrate themselves in an effort to become more like women (Favazza, 1988).

Finally, a hypothesis regarding low level self-harm has been offered by ethologists who have described behaviors, such as excessive grooming, in animals experiencing frustration or conflict (Stein, Hutt, Spitz, & Hollander, 1993).

Researchers have also noted pathological grooming behaviors in pets, such as acral

lick dermatitis in dogs (characterized by excessive paw licking with resulting skin loss) and psychogenic alopecia in cats (characterized by excessive licking with hair loss). Interestingly, acral lick dermatitis has shown some response to clomipramine (a tricyclic antidepressant) and fluoxetine (a selective serotonin reuptake inhibitor), and psychogenic alopecia has responded to dopamine blockers. Given these data, researchers have proposed that scratching, hair pulling, and fingernail biting in humans may be usefully conceptualized as disorders of grooming (Stein, Simeon, Cohen, & Hollander, 1995). This conceptualization may also be helpful for patients with less serious self-harm behaviors who are hesitant to try psychopharmacological treatments for fear of being labeled depressed or anxious.

Attempts to understand self-harm have taken one of two general forms; hypotheses to understand the reasons behind self-harm and attempts to more clearly define and categorize self-harm. Although each of the hypotheses reviewed certainly have pros and cons, it is likely that all have something to offer in understanding self-harm. Indeed, they may operate simultaneously within an individual who self-harms.

Classification of Self-Harm

Many attempts have been made to classify self-harm behaviors into different categories, often using motivation, type of injury, or course in order to make distinctions. Each method provides some insight into how self-harm can be conceptualized, yet each have drawbacks as well. The following section reviews the most influential categorization methods, beginning with Menninger's groundbreaking formulation. Menninger (1935) was the first to attempt to classify self-mutilation behaviors. His schema divides self-mutilation into six categories: 1) "neurotic self-mutilations" including nail biting, skin picking, disfiguring hair removal, and

unnecessary surgeries; 2) "religious self-mutilations" including self-flagellation and genital mutilation; 3) "puberty rites" including hymen removal, and male and female circumcision; 4) "self-mutilation in psychotic patients" including self-enucleation, ear removal, and amputations; 5) "self-mutilations in organic diseases" including intentional finger fracturing and self-enucleation (putting out one's eye) in encephalitis patients; and, 6) "self-mutilation in normal people: customary and conventional forms" including nail clipping, hair trimming, and beard shaving. Menninger's attempt at categorization was clearly original and continues to have an influence today. However, there are several questionable aspects of his categorization system. Components that have been subject to disagreement include the overlap between categories (such as with puberty rites and religious self-mutilations) and the inclusion of hair trimming and shaving as self-mutilation.

Ross and McKay (1979) offer a different classification scheme based entirely on the type of self-harming act, ignoring the cultural context and the proposed underlying psychological mechanisms. They offer this type of classification system to combat what they identified in the literature as a trend toward authors not placing enough emphasis on data and instead rigidly adhering to their own particular theoretical school of thought. Ross and McKay's nine categories including cutting, biting, abrading, severing, inserting, burning, ingesting or inhaling, hitting, and constricting. As can be seen, their categories focus on higher levels of self-harm, leaving lower level behaviors such as painful fingernail biting, skin picking, and trichotillomania out of their categorization system.

Walsh and Rosen (1988) offer a different view that simultaneously considers degree of physical damage, psychological state, and social acceptability. They propose that in order for a behavior to be termed self-mutilative, all three dimensions

must be deviant in some sense. For example, ear piercing would not be considered self-mutilative because it involves mild physical damage, a benign psychological state, and is acceptable in most or all social groups (i.e. it is deviant along only one dimension, at most). However wrist cutting would be considered self-mutilative because it involves mild to moderate physical damage, a psychological state of crisis, and is generally unacceptable in all social groups (i.e. it is deviant along all three dimensions).

Walsh and Rosen's system (1988) again excludes lower level behaviors that would be on the borderline of their view of self-mutilation. It also exhibits some categorization problems when specific examples are examined. For example, skin picking can cause superficial to moderate physical damage (or even severe if there is a secondary infection). The psychological state of the individual may be benign, dissociated, or agitated by unsuccessful efforts to stop the behavior. The behavior itself is certainly not viewed within this society with the same type of horror that other types of self-mutilation receive. However, it is only generally socially acceptable in very slight amounts, and even then it is viewed with disgust, and is typically not accepted at all in higher amounts. In this way, skin picking could be deviant along all three of Walsh and Rosen's dimensions or not be deviant across any of them. However, this drawback may also be a strength in some respects. It may be more appropriate to only categorize certain acts as self-mutilative if they have negative psychological or social characteristics. Identical acts between two people may indeed be mutilative for one person and not for another.

Favazza and Simeon (1994) categorize self-injurious behaviors into three major groups. According to their system, *major self-mutilation* occurs in response to psychotic symptoms and includes highly dangerous and dramatic acts such as

autocastration and self-enucleation. *Stereotypical self-mutilation* includes repetitive, fixed, and rhythmic behaviors often unrelated to affect or thought content such as finger-chewing in children with Lesch-Nyhan syndrome or head-banging of some developmentally disabled individuals. *Superficial self-mutilation* behaviors are generally milder and result in less tissue damage. Favazza and Simeon further divide this third category into *compulsive* self-injury (skin picking, hair pulling, and nail biting) and *impulsive* self-injury (skin cutting or burning). This system of categorization is useful as it is more inclusive of different levels of injury and combines data regarding extent of injury, motivation, and course. However, as was discussed above, the specific issue of compulsive versus impulsive self-harm is a complicated one with many individuals showing both compulsive and impulsive characteristics. It is unclear how they would be categorized in this system.

Another hypothesis is that self-harm occurs more as a continuum, not in discrete categories or types. As Stanley, Winchel, Molcho, Simeon, & Stanley note (1992), all forms of self-harm share the feature of the person's inability to resist a self-injurious impulse. They present self-harm as a continuum with regard to seriousness and aggressiveness of injury, the more serious end of the spectrum being occupied by suicide attempters and the less serious end by trichotillomania. Stanley et al. (1992) also note that there are biochemical similarities between all levels of self-harm, supporting the continuum view. Namely, there is increasing evidence that some form of serotonergic dysfunction may occur with all types of self-harm. This conclusion is based on findings of reduced levels of CSF 5-IAA (the primary metabolite of serotonin in cerebrospinal fluid) among depressed patients with a history of self-injury, blunted prolactin response to fenfluramine (a 5-HT agonist) among personality disordered patients who self-harmed, negative

correlations between platelet imipramine binding and frequency of self-mutilation among personality disordered patients, and successful treatments of self-mutilation in personality disordered patients with serotonergic medications. Thus, looking at self-harm behaviors at any point in the continuum may provide insights into other levels of self-harm.

Each of these category approaches provides an organizing influence in self-harm research and clinical work. However, those that overlook lower levels of self-harm may be unwittingly encouraging focus on only higher level self-harm. This is regrettable as lower level self-harm is an area in need of more research and clinical theory.

Research on Subclinical Self-Harm

Existing research does not adequately address individuals in the general population who self-harm or individuals who engage in low-level self-harm. Much of the existing literature focuses only on higher level self-harm, or uses exclusively clinical samples, or both. Additionally, literature in this area is somewhat fragmented between researchers with a primary interest in inpatient self-harm, particularly in those with Borderline Personality Disorder, researchers with a general interest in high level self-harm, researchers with a dermatological interest, and researchers with an interest in obsessive-compulsive spectrum disorders. The following section will review the contributions and deficiencies of the existing studies on self-harm in the general population or low level self-harm.

First, Favazza and Conterio (1988) examined self-harm in the general population by administering a self-report questionnaire by mail to 268 participants who contacted them after seeing a national television show (Phil Donahue) on self-mutilation. The data from this study is extremely interesting, but is difficult to

generalize from because of the unique nature of the self-selected sample. Also Favazza and Conterio were primarily interested in higher level self-harm, such as cutting and burning, and did not include questions on lower levels of self-harm, such as repetitive skin picking. Favazza, DeRosear, and Conterio (1989) also administered this questionnaire to 245 undergraduate students. Of those, they found 34 (7.2%) with a history of deliberate self-harm. However, in this case their interest was primarily in comorbidity of eating disorders and higher level self-harm and they did not provide detailed results of their findings in regard to the self-harm.

Another study that addresses self-harm in the general population is an epidemiological survey from Garrison, Addy, McKeown, Cuffe, Jackson, and Waller (1993). They found that between 2.5 and 2.8 percent of 12-14 year olds engage in self-damaging acts. But again, this study included only higher levels of self-harm (skin cutting, burning, self-hitting, interfering with wound healing, severe skin scratching, hair pulling, and bone breaking). Also it was focused primarily on identifying the rate and comorbidity patterns of self-harm in an adolescent sample and did not address the phenomenological experience of self-harm within these adolescents. It should be noted that the lower rate (2.5%) found by Garrison and colleagues (1993) in comparison to Favazza and Conterio (7.2%; 1988) is perhaps partially explained by Favazza and Conterio's data that average age of first self-harm experience is 13.5, which is in the upper range of Garrison and colleagues sample.

Descriptions of several low level self-harm behaviors including dermatitis artefacta, neurotic excoriations, and trichotillomania, are also found within the dermatological literature. The dermatological literature on self-inflicted dermatoses includes many case studies, often from a psychodynamic point of view, and very few systematic controlled studies. Participants are generally patients who have

presented for dermatological treatment. Findings generally indicate that these disorders can create significant distress for patients, have been reported to be associated with suicide, and are commonly regarded as a "cutaneous sign" of psychopathology (Gupta, Gupta, & Haberman, 1986; Gupta, Gupta, & Haberman, 1987). The addition of a study with a control group and a group of individuals who have not presented themselves for dermatological treatment would certainly broaden knowledge in this area.

Many self-harm behaviors, such as skin-picking, trichotillomania, and even high level self-harm if it occurs in a "compulsive" manner, are also discussed in the literature focused on obsessive-compulsive disorder. Several researchers have been working to clarify the relationships between what they term "obsessive-compulsive spectrum disorders" (Hollander & Wong, 1995b; Stein, Hutt, Spitz, & Hollander, 1993; Simeon, Stein, & Hollander, 1995; Jenike, 1990; McElroy, Keck, & Phillips, 1995; Phillips, McElroy, Hudson, & Pope, 1995). They include many disorders in this group, including anorexia nervosa, body dysmorphic disorder, borderline personality disorder, delusional obsessive compulsive disorder, depersonalization disorder, hypochondriasis, kleptomania, pathological gambling, self-injurious behavior, trichotillomania, and eleven other diagnoses (Hollander & Wong, 1995b). Although this group has made a huge contribution to the conceptualization and treatment of obsessive-compulsive spectrum disorders, most of their research uses patients who have presented for treatment, and often inpatients.

Rationale and Hypotheses for the Current Study

Self-harm is clearly a perplexing and difficult phenomena for both those who experience it and those who treat it. The growing literature in this area continues to improve understanding of self-harm, particularly higher level self-harm and self-harm

within inpatients. However, an area that still needs to be addressed is subclinical self-harm, namely less injurious self-harm found within the general population. Basic research regarding the extent and pattern of subclinical self-harm is yet to be done in many areas.

The fundamental question that needs to be addressed is what are the physical and psychological consequences of subclinical self-harm? Do they parallel the established consequences of clinical levels of self-harm, but simply at a lower level? Although it is difficult to posit an answer to this question, it can be hypothesized that subclinical self-harm is in many ways on a continuum with clinical self-harm. This is particularly possible given that they may both represent some type of disturbed body image which may be associated with common historical antecedents and personality features. Of course it is also possible that they may differ on certain important features, which may help prevent those who engage in subclinical self-harm from escalating to clinical self-harm. Based on the existing literature of both subclinical and clinical self-harm, the following hypotheses can be made regarding subclinical self-harm. For organizational purposes, these hypotheses will be grouped into, (a) characteristics of individuals who engage in self-harm, (b) characteristics that may also be consequences of self-harm, and (c) functions of self-harm.

Characteristics of individuals who engage in subclinical self-harm. The following characteristics are hypothesized to be related to subclinical self-harm.

Hypothesis 1: Individuals who engage in subclinical self-harm will report a higher incidence of difficult historical factors including family disruption and childhood sexual abuse in comparison to individuals who do not engage in subclinical self-harm. Data indicate that family disruption and childhood physical and

sexual abuse are common among individuals with high levels of self-harm. Some researchers are now hypothesizing a relationship between trauma history and low level self-harm as well (Simeon, Stein, & Hollander, 1995). Given these findings, it can be hypothesized that individuals with subclinical self-harm will more often have histories of some type of childhood disruption, such as abuse, or death or unavailability of a parent.

Hypothesis 2: Individuals who engage in subclinical self-harm will more often demonstrate difficulties attending to, understanding, and adaptively coping with emotions in comparison to individuals who do not engage in subclinical self-harm.

High levels of self-harm have been found to be related to alexithymia and dissociation. It is hypothesized that self-harm is a maladaptive way of coping with intense emotional experiences because the individual is not able to understand the emotions or effectively use more adaptive coping skills. Lower levels of self-harm are also hypothesized to indicate difficulty processing emotions through their association with obsessive-compulsive personality traits including difficulty attending to, experiencing, and understanding emotions. It is likely that subclinical self-harm shares these difficulties in emotional processing and coping.

Hypothesis 3: Individuals who engage in subclinical self-harm will show higher levels of somatic symptoms in comparison to individuals who do not engage in subclinical self-harm. High level self-harm has been associated with higher levels of physical symptom reporting. This may be a consequence of difficulties coping with emotional experience. It is likely that individuals in the general population who self-harm will also report more physical symptoms for this reason.

Hypothesis 4: (a) Individuals who engage in subclinical self-harm will report more impulsive behaviors than individuals who do not engage in subclinical self-

harm. (b) Individuals who engage in subclinical self-harm will report more compulsive behaviors than individuals who do not engage in subclinical self-harm. (c) Individuals who engage in subclinical self-harm will report both compulsive and impulsive features of their self-harm incidents. High level self-harm is associated with other impulsive behaviors, such as impulsively overdosing, and shows impulsive qualities, such as little premeditation. Some low level self-harm also shows impulsive qualities. For example, trichotillomania, a low level self-harm, is actually categorized in the DSM-IV (American Psychiatric Association, 1994) as an impulse-control disorder. High level self-harm can also develop more compulsive qualities, as it is utilized more and more often and with less forethought for affect regulation. Low self-harm, particularly fingernail biting and skin picking, has often been described as compulsive. It also tends to co-occur with other compulsive behaviors, such as frequent checking behaviors in body dysmorphic disorder. Although it is possible that subclinical self-harm will show primarily impulsive or compulsive qualities, it is more likely that both will be present to some degree in each person.

Hypothesis 5: Individuals who engage in subclinical self-harm will show more features of personality disorders than individuals who do not engage in subclinical self-harm. High levels of self-harm have been shown to be associated with all Axis II diagnoses, and particularly with Borderline Personality Disorder and Histrionic Personality Disorder. Low levels of self-harm have been hypothesized to be related to be related to Obsessive Compulsive Personality Disorder, particularly through perfectionism. It can be hypothesized that individuals who experience subclinical self-harm may exhibit features of these personality disorders, but at a level that does not significantly interfere with functioning.

Characteristics that may also be causal factors or consequences of subclinical self-harm. The following characteristics are also hypothesized to be related to sub-clinical self-harm. They may both precede self-harm, possibly playing a causal role, and may follow self-harm as a consequence.

Hypothesis 6: (a) Individuals who engage in subclinical self-harm will report more negative affect and less positive affect, as well as a lower quality of life in general, in comparison to individuals who do not engage in self-harm. (b) Individuals who engage in subclinical self-harm will report more anger than those who do not engage in subclinical self-harm. (c) Individuals who engage in subclinical self-harm will report negative affective experiences, such as depression, anxiety, shame, and anger, as well as experiences that interfere with their general quality of life, related to their self-harming behaviors. Research consistently indicates that both high and low level self-harm are associated with negative feelings, particularly depression and anxiety. These feelings may both precede self-harm and follow it, as individuals struggle and fail to control their self-harming behavior. Additionally, shame is most probably a common experience due to the social unacceptability of self-harm. Related to feelings of shame, individuals who self-harm at both clinical and subclinical levels may hide their self-harming behavior or resulting scars in a number of ways, including keeping it a secret from friends and family and avoiding situations where their scars can be seen. It is uncertain whether anger will also be related to subclinical self-harm. Although several researchers have linked it to higher level self-harm, Favazza and Simeon (1995) argue that anger may not be an important quality in compulsive self-harm, which may or may not describe a large portion of subclinical self-harm. Due to the combined effect of these negative emotions, as well as possible interference with interpersonal relationships and work and school, it is

likely that individuals with subclinical self-harm will report a lower quality of life than individuals without self-harm.

Hypothesis 7: (a) Individuals who engage in subclinical self-harm will report more eating disordered behaviors and body image devaluation in comparison to individuals who do not engage in subclinical self-harm. (b) Individuals who engage in subclinical self-harm will report feelings of body image devaluation associated with their self-harming behaviors. Self-harm may be associated with a devalued body image both prior to the self-harm and following it. High levels of self-harm often occur in individuals with histories of serious medical treatment and child sexual abuse, both of which can contribute to alienation and devaluing of the body. Low levels of self-harm are associated with body dysmorphic disorder, which may either precede the self-harm (i.e. feeling that acne is so terrible it has to be aggressively removed resulting in skin picking) or follow it (i.e. feeling that scars from self-harm are so terrible that they can not be publicly exposed). High levels of self-harm also have a high co-morbidity with eating disorders, which are independently related to distorted body image. All types of self-harm, including subclinical self-harm, may share some type of body devaluation enabling individuals to target their bodies for harm.

Functions of subclinical self-harm. The following hypothesis addresses a possible function of subclinical self-harm, namely that self-harm may aid in emotion regulation.

Hypothesis 8: Individuals who engage in subclinical self-harm will report that it serves some type of emotion regulation function for them. High levels of self-harm often occur in an attempt to terminate an intense, intolerable emotional experience, such as tension, anxiety, or dissociation. The self-harm is successful for many

people in providing some relief from these emotions for at least a short time. It is likely that subclinical self-harm also serves some emotion regulation function, such as decreasing tension, which reinforces the behavior. As some people report that low levels of self-harm occur when they are relaxed (Cohen, Stein, Simeon, Spadaccini, Rosen, Aronowitz, & Hollander, 1995) it is also possible that subclinical self-harm may help certain people with another emotion regulation task, that of energizing their behavior.

Self-harm in any population at any level is a possible cause for concern. It is often associated with intense, negative emotions and even at low levels can be associated with major depression and suicide. However, existing literature has only addressed higher levels of self-harm and self-harm within specific populations or diagnoses. The experience of individuals in the general population who self-harm has not been examined in detail. This study begins to address this need.

Method

Participants

Participants were 290 Introductory Psychology students from The University of Montana who participated in the study for course credit. Ten subjects were eliminated for not completing self-harm rating forms correctly or not providing critical data regarding their self-harm. The remaining 280 subjects were assigned to groups based on their histories of self-harm, as measured by their responses to the Self-Harm Information Form (SHIF) described below. For the purposes of this study, self-harm was defined as socially unacceptable, intentional alteration or destruction of body tissue (including hair and nails) without conscious suicidal intent. This definition includes minimal or transitory alterations, such as pulling out hair that grows back. Additionally, it includes acts that are deliberate even if the resulting alteration or destruction of tissue is not deliberate (i.e., purposefully scratching at skin, which unintentionally results in scarring was included).

Seventy-four participants reported no history of self-harm at any time and were assigned to the *no self-harm* group. Eighty-seven participants reported that they had engaged only in low-level self harm behaviors within at least the last three years and were assigned to the *recent low self-harm* group. Behaviors identified as low-level self harm included sticking pins in the skin and not drawing blood, interfering with wound healing (picking at scabs), skin picking or scratching, fingernail biting, and pulling out large amounts of hair. Twenty-one participants reported that they had engaged only in low-level self harm behaviors, but not within the last three years, and were assigned to the *past low self-harm* group. It was assumed that participants who had not engaged in self-harm within the last three years could be different in some way from those who had recently engaged in self-harm, and would not be able to remember their self-harm incidents well enough to

complete ratings of their self-harm accurately. These participants were thus placed in another group and not included in statistical analysis. However, descriptive information on both individuals with recent self-harm and self-harm from the more distant past is presented in the results section.

The original intention of this study was to examine only subclinical self-harm. Individuals who reported clinical levels of self-harm were to be screened out. Although separating subclinical and clinical levels of self-harm is somewhat arbitrary, questions were included to identify self-harm that has resulted in hospitalization, has required surgery or medical attention, or has been motivated by psychotic thoughts (e.g. harm directed by command hallucinations). Additionally, participants reporting self-harm that typically results in more serious injuries (such as punching, cutting, and burning) were to be screened out. However, participants often misinterpreted questions regarding hospitalization or medical care as a result of self-harm behaviors, instead reporting treatment of injuries that were not intentional. As these questions did not reliably identify self-harm incidents, they were not used to screen out participants. Although no participants endorsed self-harm motivated by psychotic thoughts such as command hallucinations, several endorsed engaging in self-harm to help atone for sins. This question was intended to screen out participants who engaged in self-harm in response to overvalued religious beliefs or delusions. In written descriptions of their behaviors, it is clear that the participants who endorsed this item were referring to feeling regretful over a perceived injury that they had inflicted on another person (such as cheating on a girlfriend) and felt that self-harm was a way to punish themselves for the incident. As this is not an uncommon reason cited for some types of self-harm, and is not associated with psychotic processes, individuals who responded affirmatively to this item were also not screened out. Additionally, any type of self-harm that resulted in serious functional impairment,

such as being housebound or currently hospitalized, was also considered a clinical level of self-harm. It was assumed that any participants who were attending a university and were able to participate in the study in person did not demonstrate this level of functional impairment.

Participants who reported self-harm behaviors that typically result in more injuries were to be screened out as it was anticipated that few participants would be found in an undergraduate sample that would report this type of self-harm, even though data generated from these participants could provide an interesting comparison group. Examples of more injurious self-harm behaviors included punching oneself to the point of bruising, burning or cutting oneself, and taking drugs or other harmful objects for the purpose of harming oneself (not to get high or die). Fifty-five participants reported that they had engaged in more injurious self-harm behaviors within the last three years. Rather than screen all of them out, they were assigned to the *recent high self-harm* group and included in exploratory statistical analysis reported below. Forty-three participants reported that they had engaged in more injurious self-harm behaviors, but not within the last three years, and were assigned to the *past high self-harm* group and were not included in statistical analyses. Although this group had all engaged in some relatively serious self-harm, most engaged in these behaviors rarely, did not typically require medical attention and few had sought psychological or psychiatric treatment for self-harm. There was also a fair amount of overlap between the *low self-harm* and *high self-harm* groups. By group definition, no *low self-harm* participants reported any more injurious self-harm behaviors. However 50 (91%) participants from the *recent high self-harm* group and 32 (74%) participants from the *past high self-harm* group also endorsed low-level self harm behaviors.

Demographic information for all participants and for participants by group is

presented in Table 1. The total sample was 52% female and had a mean age of 20.15. Seventy-four percent of the total sample were single and not in a committed relationship, and 86% were Caucasian. There were no statistically significant differences in the proportion of men and women for any self-harm group. This is notable, as most studies identify a greater proportion of women engaging in self-harm. The *no self-harm group* had a significantly greater number of women than men [$t(73)=2.929, p=.005$], with women composing 66% of the group.

Measures

Measure for demographic information. A brief questionnaire was administered to gather basic demographic information including sex, age, education, occupation, race, income, and marital status (see Appendix A). Demographic information for all groups is presented in Table 1.

Measures of self-harm. A screening form (see Appendix B) was initially used to identify students with and without a history of subclinical self-harm. It was anticipated that this would be necessary to aid in recruiting individuals for the no self-harm group or the low self-harm groups if a dramatically unequal number of participants per group emerged. Sensitive questions regarding high levels of self-harm were not included on the screening form as it was administered in a group setting. However, given the high numbers of participants reporting high levels of self-harm on the complete self-harm measure, the screening form was not helpful in classifying participants into groups and was not used after the initial months of the study. No participants were actually recruited as a result of their responses to the screening measure.

The Self-Harm Information Form (SHIF) was used to gather more extensive information about self-harm. The SHIF is a thorough questionnaire created for this study to gather information about self-harm behaviors, specific self-harm episodes,

Table 1

Demographic Characteristics of Participants

Demographic Characteristic	Total Sample (N=280)	No Self-Harm Group (n=74)	Recent Low Self-Harm Group (n=87)	Recent High Self-Harm Group (n=55)	Past Low Self-Harm Group (n=21)	Past High Self-Harm Group (n=43)
Sex						
Female	146 (52%)	49 (66%)	48 (55%)	21 (38%)	9 (43%)	19 (44%)
Male	134 (48%)	25 (34%)	39 (45%)	34 (62%)	12 (57%)	24 (56%)
Age (in years)						
Mean (Standard Deviation)	20.15 (3.26)	20.95 (4.73)	19.75 (3.03)	19.58 (1.65)	19.90 (1.84)	20.44 (2.46)
Median	19.00	19.00	19.00	19.00	19.00	20.00
Marital Status						
Single, Unattached	207 (74%)	56 (76%)	61 (70%)	38 (69%)	16 (76%)	36 (84%)
Single, Committed	59 (21%)	11 (15%)	24 (26%)	13 (24%)	5 (24%)	6 (14%)
Married	13 (5%)	7 (10%)	2 (2.3%)	4 (7%)	0 (0%)	0 (0%)
Education						
High school	83 (30%)	26 (35%)	21 (24%)	19 (35%)	3 (14%)	14 (33%)
Some college	184 (66%)	45 (61%)	63 (72%)	35 (64%)	16 (76%)	25 (58%)
2- or 4-year degree	11 (4%)	3 (4%)	2 (2%)	1 (2%)	2 (10%)	3 (7%)
Racial/Ethnic Background						
Caucasian	241 (86%)	57 (77%)	78 (90%)	48 (87%)	21 (100%)	37 (86%)
Native American	8 (3%)	2 (3%)	4 (5%)	1 (2%)	0 (0%)	1 (2%)
Asian	5 (2%)	5 (7%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Hispanic	4 (1%)	0 (0%)	2 (2%)	2 (4%)	0 (0%)	0 (0%)
Other/Multiracial/Refused	22 (8%)	10 (14%)	3 (3%)	4 (7%)	0 (0%)	5 (12%)

and psychological and historical factors related to self-harm (see Appendix C). Other questionnaires that were instrumental in creating this form include the Self-Harm Behavior Survey (Favazza & Conterio, 1989) and the Self-injury Survey (Zlotnick et al., 1996). The SHIF includes questions directly related to self-harm behavior including questions regarding: type and extent of self-harm, the first and most recent self-harm episodes, efforts to obtain help, reactions of others to the self-harm, emotions before and after episodes, pain during self-harm, reasons to self-harm, intent to harm, impulsive and compulsive qualities to self-harm, scarring and efforts to camouflage scars, shame, and screening questions for psychotically motivated self-harm. The SHIF also contains questions about other behaviors and historical factors that are related to self-harm including questions regarding drug and alcohol use during self-harm, eating disorders, other impulsive behaviors, and psychiatric diagnoses and treatment.

All participants completed the first section of the SHIF in an individual setting including items about low-level self harm behaviors on page one, more injurious self-harm behaviors on page two, and other impulsive behaviors, such as eating disorder behaviors and suicide attempts, on the remaining pages. The second section of the SHIF focuses directly on self-harm experiences. Participants who did not report any self-harm behaviors on the first section were not administered the second section. Those who did report self-harm on the first section then met with the experimenter briefly to select an endorsed self-harm behavior from the first section to use as the "target behavior" on the second section.

The second section of the SHIF focuses on only one type of self-harm for each participant, referred to as the "target behavior," because it is likely that people who engage in more than one type of self-harm have dramatically different experiences in reference to each type of self-harm. For example, a woman who bites

her fingernails daily and cuts or burns herself occasionally when upset would be likely to describe each behavior very differently, and her self-harm ratings would be difficult to interpret if it was not clear which behavior she was referring to. For this reason, the second part of the SHIF focuses the participant on rating only one type of self-harm which is hopefully the most salient and memorable type of self-harm for that person. It was assumed that behaviors that were more injurious and more recent were more likely to be salient and memorable. The criteria for choosing the target behavior was: 1) if only SHIF page one behaviors were endorsed (low level self-harm), the target behavior was the most recent behavior engaged in, 2) if any SHIF page two behaviors were endorsed (high level self-harm), whether or not a SHIF page one behavior was endorsed, the most recent behavior engaged in from page two was the target behavior, and 3) if there was a tie between two or more items using criteria 1 and 2, the behavior farthest down the page was the target behavior, as the behaviors were roughly ordered according to severity from least to most injurious. To preserve participant confidentiality, experimenters covered the items endorsed when choosing the target behavior, only viewing the data describing when it was last engaged in.

Measures of negative affect, shame, and anger. Two measures were used to identify negative affect, shame, and anger. The first measure, the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), consists of two 10-item mood scales, one composed of positive mood adjectives (PA scale) and one composed of negative mood adjectives (NA scale). The adjectives are rated according to a five-point scale depending on how often the respondent has felt that way during a specified time period. Higher levels of negative affect have been found to be correlated with both anxiety and depression and appear to be a broad index of psychological distress. Low levels of positive affect have been found to relate

primarily to symptoms and diagnoses of depression (Watson, Clark, & Carey, 1988).

This measure was included to help identify general trait-like affective tone, as well as to provide a reasonably sensitive measure of sub-clinical depressive affect. For these reasons, respondents were asked to rate how they generally feel, rather than how they have felt during a more restricted time frame, such as at the moment or over the past few days. These instructions were anticipated to have little actual effect on ratings, as Watson (1988) found that there are no systematic effects due to the time frame specified in the instructions.

The PANAS has excellent psychometric properties. It is highly internally consistent, with a Cronbach's α of .88 for the PA scale and .87 for the NA scale when using the "in general" instructions. The two scales appear to be fairly independent with a -.17 correlation using the "in general" instructions. The scales also appear to be fairly stable, with test-retest correlations over an eight week delay of .68 to .71 for the PA and NA scales using the "in general" instructions (Watson, Clark, & Tellegen, 1988).

To assess feelings of shame more specifically, six negative adjectives taken from the Personal Feelings Questionnaire (self-conscious, stupid, deserving of criticism, helpless/paralyzed, embarrassed, and regretful; Harder & Lewis, 1987) were added to the PANAS. These items are easily integrated into the PANAS format and have been successfully used to predict self-harm in a population of patients with Borderline Personality Disorder (Brown, Levensky, & Linehan, 1997). These items were supplemented by questions on the SHIF targeting feelings of shame surrounding self-harm and efforts to hide scars resulting from self-harm.

Sections of the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1988) were used as a measure of anger. The STAXI is a 44-item questionnaire with

subscales of State-Anger, Trait-Anger (split into Anger Temperament and Anger Reaction), Anger Out, Anger In, and Anger Control. As State-Anger has not been identified as an important factor in the self-harm literature, the 10-items on this subscale were excluded. The remaining questionnaire included 34 items.

Measure of personality pathology. The Personality Diagnostic Questionnaire-4 (PDQ-4; Hyler, 1994) is an 85-item self-report questionnaire designed to assess the ten personality disorders of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). The PDQ-4 includes two validity scales to help identify individuals who are underreporting, lying, responding randomly, or not taking the questionnaire seriously. Only questions assessing Borderline, Obsessive-Compulsive, Antisocial, and Histrionic personality disorders were included in this study as they are the Axis II diagnoses most commonly associated with self-harm. The validity scales were also included. As administered in this study, the PDQ-4 included 38 items.

The PDQ-4 also includes a Clinical Significance Scale in which a clinician verbally questions a patient about any personality disorders that the patient has met criteria for to ensure that the diagnosis meets the clinical threshold. This is to address the recurrent problem of excessive false positives in personality questionnaires, and particularly in versions of the PDQ (Trull & Larson, 1994; Hyler, Skodol, Kellman, Oldham, & Rosnick, 1990). The PDQ-4 was included in this study to tap tendencies toward personality disorders rather than to achieve sound personality disorder diagnoses. Thus it was unnecessary to take the extra step of completing the Clinical Significance Scale to avoid false positives.

Previous versions of the PDQ-4, particularly the PDQ-R (with items keyed to the diagnostic criteria of the DSM-III-R; American Psychiatric Association, 1987),

have demonstrated adequate reliability and validity (Trull & Larson, 1994; Dubro, Wetzler, & Kahn, 1988). The PDQ-R has demonstrated high sensitivity and moderate specificity with respect to personality disorder diagnoses (Hyler, Skodol, Kellman, Oldham, & Rosnick, 1990). Additionally, the PDQ-R has been shown to be relatively stable over a 3-month period (Trull, 1993).

Measures of compulsiveness and impulsiveness. General obsessive-compulsive symptoms were measured using the Padua Inventory-Revised (van Oppen, Hoekstra, & Emmelkamp, 1995). The Padua Inventory (Sanavio, 1988) is a 60-item measure of common obsessional and compulsive behavior. The Padua Inventory -Revised (PI-R) includes the 41 items from the Padua inventory that both distinguished between obsessive-compulsive patients, patients with other anxiety disorders, and non-clinical individuals, and maintained high loadings on their corresponding factor (either impulses, washing, checking, rumination, or precision). The internal consistency of the PI-R in normal Dutch participants is excellent (Cronbach's $\alpha = .92$; van Oppen, Hoekstra, & Emmelkamp, 1995). Test-retest correlations (30 day interval) for the original 60-item measure in a sample of 190 Italian students, aged 16 to 18 years, were .78 for males and .83 for females (Sanavio, 1988). More specific questions regarding compulsiveness and self-harm behavior were incorporated into the SHIF. These include probes regarding obsessive thoughts motivating the self-harm and engagement in self-harm without thinking or noticing.

Impulsiveness was measured by several questions in the SHIF regarding both impulsive qualities of self-harm behavior and performance of other impulsive behaviors. Although many measures have been developed to specifically assess impulsivity, these scales tend to measure different aspects of impulsivity and do not intercorrelate very highly (Parker & Bagby, 1997). Since this study is primarily

interested in impulsiveness surrounding self-harm behavior, and since there is no "gold standard" for measuring impulsivity, a scale specifically designed to measure general impulsivity was not included. Instead questions directed at impulsive self-harm were incorporated into the SHIF. Bech and Mak (1995) noted that there are generally two components of impulsivity: not resisting urges and responding to stimuli immediately. However, failure to resist urges is also present with some compulsive behavior. As this study is interested in distinguishing impulsive and compulsive characteristics of self-harm behaviors, questions regarding resisting impulses to self-harm were not included. Questions on the SHIF instead included prompts regarding how long the interval is between the occurrence of a thought or urge to harm oneself, and the actual self-harm. The SHIF also included prompts regarding the occurrence of other behaviors associated with impulsivity. Disorders related to impulse control difficulties may include kleptomania, pyromania, addiction, compulsive buying, compulsive sexual behavior, compulsive skin picking, severe nail biting, some forms of self-injurious behavior, and binge eating (McElroy, Pope, Keck, & Hudson, 1995). All of these behaviors were assessed in the SHIF.

Measure of general quality of life. The Extended Satisfaction With Life Scale (ESWLS; Alfonso, 1995) is a multidimensional general life satisfaction scale that taps nine domains of life. Only two sections of the ESWLS were included in this study: the general life section and the physical appearance section, discussed below. The general life section is a five-item self-report measure of general life satisfaction designed around the idea that "one must ask subjects for an overall judgment of their life in order to measure the concept of life satisfaction" (Diener, Emmons, Larsen & Griffen, 1985, pp. 71-72). When used in two samples of a total of 484 undergraduates, the ESWLS yielded a mean and standard deviation for the general life section of 23.9 and 6.1, respectively. Although reliability data is not

available for the general life section alone, data on the ESWLS as a whole indicates that it is both internally consistent (alphas ranging from .81 to .96 for the nine subscales) and stable at a two-week retest (correlations ranging from .74 to .87 for the nine subscales; Alfonso, 1995).

Measures of eating disorders and anxiety about physical appearance. Three measures were used to tap concerns about physical appearance and symptoms of eating disorders. First, the SHIF includes questions regarding symptoms of eating disorders including bingeing, food restricting, purging, use of laxatives or diuretics to control weight, and exercising to exhaustion. The SHIF also includes questions regarding feelings about and efforts to hide scars (such as using make-up or avoiding social situations) associated with self-harm. These questions were intended to give some indication of the impact of self-harm scars on body image and quality of life.

Two more general measures of body image were also included. The physical appearance section of the Extended Satisfaction With Life Scale (ESWLS; Alfonso, 1995) was included as a measure of general satisfaction with physical appearance. The physical appearance section of the ESWLS is a five-item self-report measure of satisfaction with general physical appearance which parallels the format of the general life section of the ESWLS discussed above. The physical appearance section of the ESWLS has yielded a mean of 19.6 and a standard deviation of 6.4 when used in two undergraduate samples (Alfonso, 1995). For details regarding psychometric properties of the ESWLS as a whole, see the previous section on measurement of quality of life.

The Physical Appearance State and Trait Anxiety Scale: Trait Version (PASTAS; Reed, Thompson, Brannick, & Sacco, 1991) was included as a measure of distress regarding appearance. The PASTAS is a 16-item self-report scale

assessing anxiety about specific parts of the body. The PASTAS has two subscales of eight items each: a weight factor (items 1-8) and a nonweight factor (items 9-16). For the purposes of this study, three additional items were added to assess anxiety regarding three common targets of low level self-harm: the skin, hair, and nose. The PASTAS can be used as a measure of either state or trait anxiety about appearance, depending on the time frame used in the instructions. For the purposes of this study, the trait instructions (how anxious the person feels *in general*) were used. In undergraduate samples, the PASTAS has been shown to be internally consistent (coefficient alpha ranging from .88 to .82 for the trait version) and stable (two-week test-retest correlation of .87; Reed, Thompson, Brannick, & Sacco, 1991; Thompson, 1995).

Measure of emotional processing. The Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) was included as a measure of emotional processing. The TMMS was originally a 48-item scale that has now been revised to a 30-item scale of emotional intelligence. It has a strong three factor structure including the degree of attention individuals devote to their feelings (Attention), the clarity of their experience of their feelings (Clarity), and their beliefs about terminating negative mood states or prolonging positive ones (Repair). The 30-item version demonstrates high internal consistency (Cronbach's $\alpha = .82$ to $.88$ for the three scales) and is composed of three uncorrelated subscales corresponding to the three factors identified above. Low Clarity scores have been associated with depression, neuroticism and difficulty recovering from a stressful event. Depression has also been associated with high Attention to emotions, and beliefs that one cannot Repair negative moods.

Measure of physical symptoms. The Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982) was included as a measure of somatic

symptoms. The PILL is a 54-item self-report scale of common physical symptoms and sensations. Items are endorsed according to a 5-point Likert scale. The measure is scored by summing the number of items that are endorsed as occurring every month or so or more frequently (i.e. the item is rated by the participant as a C, D, or E according to the PILL rating scale). This yields a possible score of 0 to 54. The mean score on the PILL according to this scoring technique from five samples totaling 939 people is 17.9 with a standard deviation of 6.9. Internal consistency of the PILL using this scoring technique is high with a Cronbach's α of .88. Test-retest stability of the PILL over a 2-month period was .79 (for a sample of 177).

Measure of history of trauma. A modified version of the Traumatic Events Survey (TES; Elliott, 1992) was used as a measure of traumatic history. The TES is composed of a series of items inquiring about the participant's experience of a range of traumas as a child and as an adult. In this study, only experiences that have been identified as or hypothesized to be related to self-harm will be included. This includes experiences such as childhood physical, sexual, or emotional abuse and complete or partial loss of a caregiver as a child through death, divorce, or illness. Two items on illness experience as a child were added to the TES, as childhood illness has been hypothesized to be related to adult self-harm. The primary strength of the TES is that it defines each trauma in behavioral terms. This avoids participants understanding more general terms such as "sexual abuse" in different ways.

The TES score was divided into five subscales for this study: family disruption, illness experience, emotional abuse, physical abuse, and sexual abuse. All traumatic experiences endorsed were assigned one point. The subscale totals are the sums of the relevant traumatic experiences endorsed. Two items describing ten emotionally abusive behaviors each from parental figures (items 11 and 12) were coded positive for emotional abuse if the participant reported that the behavior

occurred twice or more in the average year. For example, for the item “how often did your mother make you feel like a bad person in the average year,” a response of two or more times per year was coded as emotionally abusive. Additionally four items which asked about feeling loved or cared about as a child (items 16-19) were coded positive for emotional abuse if the participant reported that they were less than fairly certain (circling 4 or less on a 6 item Likert scale) that they were loved or cared about.

Procedures

During the first few months of the study, the self-harm screening form was administered to participants in a group testing situation. Participants were informed that they may be contacted to participate in a related study. The confidentiality of all information provided was emphasized. Participants were then recontacted to complete the remaining questionnaires. As described above, the screening form had limited usefulness and was not used for the remainder of the study. When the screening form was not used, participants signed up to participate in the full study according to established procedures for the Introductory Psychology subject pool.

The full study procedure was administered to groups of no more than 12 participants at a time with each participant in an individual testing room. Procedures included informed consent (see Appendix D), during which confidentiality was emphasized, completion of the study questionnaires, and debriefing. The first set of questionnaires was composed of measures that participants could respond to on scan-tron answer sheets including, in order, the demographic information form, the STAXI, the PILL, the TMMS, the PANAS/PFQ, the ESWLS (both sections), the PI-R, the PASTAS, and the PDQ-4. The TES and the SHIF part one were then administered. Following completion of the SHIF part one, the participant met briefly with the experimenter to identify the target behavior to be used for the SHIF part two,

or to be excused if no self-harm was identified. Following completion of the SHIF part two, participants placed their questionnaires in a sealed envelope, were debriefed by reading about the purpose of the study (see Appendix E), and were released. Immediate referral to a graduate student in clinical psychology to answer questions or process any negative feelings elicited by the questionnaires was available, but never used beyond answering simple questions about study design or goals. No participants reported any negative responses to the experimenter during or following the study, though a few noted some annoyance on the questionnaires at answering so many questions about behaviors that they did not view as important and one person wrote that he or she thought the TES questions on history of sexual abuse were too personal. As questionnaires were anonymous, and these responses were not reported to the experimenter in person, there was no opportunity to discuss them with participants. Participants took an average of one hour and ten minutes to complete the study.

Results

Statistical analyses are presented below, beginning with descriptive self-harm data, then followed by statistical tests grouped by their respective hypotheses. Alpha is set at .05 for all analyses and all tests were two-tailed. All analyses include only the *no self-harm*, *recent low self-harm*, and *recent high self-harm* groups when applicable. Data from the *past self-harm* groups were not included in statistical analyses. However, descriptive data on these groups are presented in tabular format when appropriate.

Self-Harm Descriptive Data

Self-harm behaviors. A variety of low and high self-harm behaviors included in the SHIF were endorsed by participants from all groups. The number of participants in each group endorsing each self-harm behavior is summarized in Tables 2 and 3. One hundred and ninety participants (68%) endorsed some history of low self-harm behaviors, though only 87 (31%) met criteria for inclusion in the *recent low self-harm* group (i.e. no history of more injurious self-harm, and last self-harm incident within the last three years). The most frequently endorsed low self-harm behaviors were interfering with wound healing, fingernail biting, and picking at skin. Ninety-eight participants (35%) endorsed some history of high self-harm behaviors, with 55 (20%) reporting high self-harm within the last three years. The most frequently endorsed high self-harm behaviors for recent self-harm were sticking with pins or needles on purpose, cutting areas of the body besides the wrists, and burning. For participants reporting past high level self-harm, the most frequent self-harm behavior endorsed was carving words or symbols in the skin. This group of people includes several participants who reported one incident of carving the initials or names of boyfriends or girlfriends on their bodies in a group setting, such as at a slumber party.

Table 2

Low Level Self-Harm Behaviors: Frequencies by Group and Frequency that each was Selected as a Target Behavior *

SHIF Low Self-Harm Items	Recent Low Self-Harm Group (n = 87)	Recent High Self-Harm Group (n = 55)	Past Low Self-Harm Group (n = 21)	Past High Self-Harm Group (n = 43)
1. Stuck yourself with pins, needles, etc. on purpose and NOT drawn blood.	12 (14%) Target: 0	32 (58%)	8 (38%) Target: 5	17 (40%)
2. Interfered with the healing of a wound, such as by repeatedly pulling off scabs.	73 (84%) Target: 45	42 (76%)	15 (71%) Target: 14	24 (56%)
3. Bitten your fingernails enough to cause bleeding or pain.	34 (39%) Target: 21	15 (27%)	1 (5%) Target: 1	6 (14%)
4. Scratched your skin severely enough to cause bleeding or scarring.	11 (13%) Target: 6	16 (29%)	0 (0%) Target: 0	5 (12%)
5. Picked at your skin severely enough to cause bleeding or scarring.	16 (18%) Target: 13	11 (20%)	1 (5%) Target: 1	5 (12%)
6. Pulled out large amounts of hair.	2 (3%) Target: 2	3 (6%)	0 (0%) Target: 0	1 (2%)

* Each participant was assigned one target behavior to rate. The target behavior chosen for each participant was generally the most recent, most severe behavior endorsed. According to group definitions, only low self-harm groups had low self-harm target behaviors. "Target: n" indicates that n participants in that group were assigned that item as a target behavior.

Table 3

High Level Self-Harm Behaviors: Frequencies by Group and Frequency that each was Selected as a Target Behavior *

SHIF High Self-Harm Items	Recent High Self-Harm Group (n = 55)	Past High Self-Harm Group (n = 43)
7. Punched or hit yourself to the point of bruising or more.	16 (29%) Target: 8	4 (9%) Target: 2
8. Banged your head, arms, or legs on purpose to the point of bruising.	12 (22%) Target: 8	3 (7%) Target: 1
9. Stuck yourself with pins, needles, etc., on purpose and drawn blood.	23 (42%) Target: 3	4 (9%) Target: 0
10. Burned yourself on purpose.	21 (38%) Target: 12	10 (23%) Target: 8
11. Carved words or symbols on your skin.	17 (31%) Target: 4	21 (49%) Target: 18
12. Cut your wrists (not trying to die).	8 (15%) Target: 1	2 (5%) Target: 1
13. Cut other areas of your body (not trying to die).	21 (38%) Target: 13	7 (16%) Target: 6
14. Swallowed harmful objects (not drugs).	0 (0%) Target: 0	4 (9%) Target: 3
15. Taken drugs for the purpose of harming yourself (not to get high or die).	6 (11%) Target: 5	1 (2%) Target: 1
16. Broken your bones on purpose.	0 (0%) Target: 0	0 (0%) Target: 0
17. Strangled yourself (not trying to die).	4 (7%) Target: 1	4 (9%) Target: 3

* Each participant was assigned one target behavior to rate. The target behavior chosen for each participant was generally the most recent, most severe behavior endorsed. According to group definitions, only high self-harm groups endorsed any high-self harm behaviors and were assigned high self-harm target behaviors. "Target: n" indicates that n participants in that group were assigned that item as a target behavior.

Target behaviors. As described in the Methods section above, each participant was assigned a “target behavior” to complete detailed ratings on. The target behavior was chosen from the self-harm behaviors endorsed and was typically the most recent, most injurious behavior endorsed. Tables 2 and 3 include summaries of the number of participants that were assigned each given self-harm behavior as a target behavior. Participants in the *recent low self-harm* group reported that they had performed their target behaviors over their lifetimes from 1 to 100,000 times (*Mode* = 10, *Median* = 20, missing data for 13 participants). Fifty-seven participants from this group (66%) reported that they had performed their target behaviors during the last three months from 1 to 1,000 times (missing data for 8 participants). Participants in the *recent high self-harm* group reported that they had performed their target behaviors over their lifetimes from 1 to 60 times (*Mode* = 1, *Median* = 3, missing data for 2 participants). Ten participants from this group (19%) reported that they had performed their target behaviors during the last three months once, with the remaining 44 (80%) participants reporting no self-harm over the last three months (missing data for 1 participant). There was a substantial amount of missing data for these questions because even though participants were encouraged to provide numerical estimates for these questions, many still responded “a few” or “lots.” As these responses were impossible to quantify, they were coded as missing.

Participants also provided information on when they began their target behavior and whether they were ashamed of their target behavior. In response to the question “Age I first did this” (i.e. the target behavior), participants from the *recent low self-harm* group indicated that they typically began their target behavior in childhood while participants from the *recent high self-harm* group indicated that they typically began their target behavior in adolescence. Twenty-four percent of the

recent low self-harm group reported they started their target behavior at age 5, and 16% reported that they began at age 10 (with a range from age 1 to age 26). From the *recent high self-harm* group, 13% reported that they began their target behavior at age 15, 24% reported age 16, 15% reported age 17, and 15% reported age 18 (with a range from age 5 to age 24). Participants were also asked to provide shame ratings for the target behavior from -5 (very ashamed) to +5 (very proud). From the *recent low self-harm* group, 15% reported feeling ashamed of the target behavior (rating ranging from -5 to -1), 82% reported feeling neutral, and 2% reported feeling proud of the behavior (rating ranging from +3 to +5). From the *recent high self-harm* group, 39% reported feeling ashamed of the target behavior (rating ranging from -5 to -1), 53% reported feeling neutral, and 7% reported feeling proud of the behavior (rating ranging from +2 to +5). These data indicate that participants most often felt neutral about their target behavior, although a substantial subgroup, particularly from the *recent high self-harm* group, reported feeling ashamed by their target behavior.

Suicide attempts and ideation. Self-harm is frequently considered to be a risk factor for suicide. Three questions were included in the SHIF related to suicide attempts or ideation: history of suicide attempts through drug overdose, history of suicide attempts through another method, and consideration of suicide due to difficulty controlling self-harm. Nine participants reported past suicide attempts by drug overdose (1 from the *no self-harm* group, 1 from the *recent low self-harm* group, 4 from the *recent high self-harm* group, and 3 from the *past high self-harm* group) and nine participants reported past suicide attempts by another means than drug overdose (3 from the *no self-harm* group, 4 from the *recent high self-harm* group, and 2 from the *past high self-harm* group). Only one participant, from the *recent high self-harm* group, reported consideration of suicide in the past due to difficulty controlling self-harm.

Tests of Hypothesis 1: Individuals who engage in self-harm will report a higher incidence of difficult historical factors including family disruption and childhood sexual abuse in comparison to individuals who do not engage in self-harm.

A summary of TES subscale scores for all groups including means and standard deviations is provided in Table 4. Thirty-two (43%) participants from the *no self-harm* group, 39 (45%) participants from the *recent low self-harm* group, and 31 (56%) participants from the *recent high self-harm* group reported some history of sexual abuse, including events from inappropriate sexual comments from friends and family to being forced to have sex for money. Twenty-six (35%) participants from the *no self-harm* group, 23 (26%) participants from the *recent low self-harm* group, and 18 (33%) participants from the *recent high self-harm* group reported a history of experiencing or witnessing physical abuse. The criteria for emotional abuse in this study were very liberal to include any possibly significant events. Using this criteria, 68 (92%) participants from the *no self-harm* group, 83 (95%) participants from the *recent low self-harm* group, and 54 (98%) participant from the *recent high self-harm* group reported no history of emotional abuse. As emotional abuse scores were used only in group comparisons with the full range of scores considered, the liberal definition was considered appropriate.

Hypothesis 1 was tested by performing a multivariate analysis of variance (MANOVA) on the five Traumatic Events Survey (TES) subscales with group membership as the independent variable. The TES subscales were entered into the analysis in the following order according to their hypothesized importance in precipitating self-harm: sexual abuse, emotional abuse, physical abuse, family disruption, and illness experience. The initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups. A second exploratory MANOVA was performed that also incorporated the *recent high self-harm* group. *Past self-harm*

Table 4

Traumatic Events Survey Subscale Scores (Means and Standard Deviations)*

Group	Sexual Abuse Score	Emotional Abuse Score	Physical Abuse Score	Family Disruption Score	Illness Experience Score
No Self-Harm Group	6.63 (0.84)	31.12** (4.85)	2.51 (0.75)	9.12 (1.40)	3.27 (0.56)
Recent Low Self-Harm Group	6.64 (0.85)	31.90 (5.21)	2.32 (0.58)	8.72 (1.40)	3.36 (0.59)
Recent High Self-Harm Group	6.93 (1.07)	33.67** (5.38)	2.47 (0.74)	8.84 (1.33)	3.35 (0.55)
Past Low Self-Harm Group	6.67 (0.97)	29.57 (4.67)	2.19 (0.51)	8.33 (0.86)	3.33 (0.58)
Past High Self-Harm Group	7.00 (1.07)	32.63 (6.03)	2.46 (0.70)	9.02 (1.41)	3.33 (0.61)
Total Sample	6.75 (0.94)	31.98 (5.33)	2.41 (0.68)	8.87 (1.37)	3.33 (0.57)

* Higher scores on all subscales indicate more trauma.

** The no self-harm group and the recent high self-harm group significantly differ on the Emotional Abuse subscale (Scheffe's test $p = .022$).

groups were not included for reasons described above. All MANOVAs performed in this study, both for this hypothesis and for all other hypotheses, were satisfactory in terms of results of evaluation of assumptions of normality, homogeneity of variance-covariance matrices, linearity, and multicollinearity.

The two group MANOVA had a total N of 160. One participant from the *no self-harm* group was excluded from analysis due to excessive missing responses to the TES. With the use of Wilks' criterion, the analysis was nonsignificant for the two group MANOVA with $F(5, 154) = 1.91, p = .096$. Though interpretation of univariate F tests is not recommended in a set of variables that are correlated, univariate F tests for the two group analysis were also nonsignificant. However, univariate F 's for physical abuse [$F(1, 158) = 3.10, p = .080$] and for family disruption [$F(1, 158) = 3.21, p = .075$] approached significance.

The three group MANOVA, including the *recent high-self harm* group, had a total N of 215 with again one participant from the *no self-harm* group excluded due to missing data. With the use of Wilks' criterion, the analysis was significant for the three group MANOVA with $F(10, 416) = 1.95, p = .038$. To evaluate the importance of each variable, a Roy-Bargman stepdown analysis was then performed which is recommended for use with correlated dependent variables, as in this case (Tabachnick & Fidell, 1996). The Roy-Bargman stepdown analysis computes a univariate F for the highest priority dependent variable. The remaining variables are then tested in turn by computing an ANCOVA for each with the higher-priority dependent variables entered as covariates. This procedure aids in determining what, if anything, each successive dependent variable adds when taking into account the contribution of higher priority variables. For the three group MANOVA, the step-down analysis identified only a significant unique contribution from the emotional abuse subscale, with stepdown $F(2, 211) = 3.12, p = .046$. In univariate F tests, emotional

abuse was again the only significant variable [$F(2, 212) = 3.97, p = .020$]. To identify which groups differed from each other on the emotional abuse subscale, a post hoc comparison of group mean differences using Scheffe's test was performed which indicated that the only significant group difference was between the *no self-harm* group and the *recent high self-harm* group ($M\ Diff = -2.55, SE = .92, p = .022$).

In summary, in comparing the *no self-harm* and the *recent low self-harm* groups, no variables of childhood trauma or disruption were significantly related to later self-harm. However, when the *recent high self-harm* group was included, a history of greater emotional abuse was significantly related to later more severe self-harm.

Tests of Hypothesis 2: Individuals who engage in self-harm will more often demonstrate difficulties attending to, understanding, and adaptively coping with emotions in comparison to individuals who do not engage in self-harm.

Hypothesis 2 was tested by performing a MANOVA on the three Trait Meta-Mood Scale subscales with group membership as the independent variable. A summary of TMMS subscale scores for all groups including means and standard deviations is provided in Table 5. The subscales were entered into the analysis in the following order according to their univariate F value: Clarity, Repair, and Attention. As above, the initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups. A second exploratory MANOVA was performed that also incorporated the *recent high self-harm* group.

The two group MANOVA had a total N of 160. One participant from the *no self-harm* group was excluded from analysis due to excessive missing responses to the TMMS (a different participant than the one excluded in the TES analysis). With the use of Wilks' criterion, the analysis was significant for the two group MANOVA with $F(3, 156) = 2.95, p = .035$. A Roy-Bargman stepdown analysis identified only a

Table 5

Trait Meta-Mood Scale Subscale Scores (Means and Standard Deviations)

Group	Clarity Score	Repair Score	Attention Score
No Self-Harm	39.67 (6.74)*	23.44 (3.84)	50.64 (7.30)
Recent Low Self-Harm	36.67 (7.37)*	22.25 (4.54)	50.72 (7.59)
Recent High Self-Harm	37.01 (8.30)	22.03 (5.48)	51.56 (9.10)
Past Low Self-Harm	40.65 (6.75)	23.33 (4.04)	53.19 (6.89)
Past High Self-Harm	38.90 (7.66)	22.51 (4.35)	50.89 (7.01)
Total Sample	38.17 (7.50)	22.64 (4.52)	51.08 (7.68)

* The no self-harm group and the recent low self-harm group significantly differ (Roy-Bargmann analysis $p = .008$).

significant unique contribution from the Clarity subscale, with stepdown $F(1, 158) = 7.10, p = .008$. In univariate F tests, Clarity was again the only significant variable, though Repair approached significance [$F(1, 158) = 3.12, p = 0.079$].

The three group MANOVA, including the *recent high-self harm* group, had a total N of 215 with again one participant from the *no self-harm* group excluded due to missing data. With the use of Wilks' criterion, the analysis was nonsignificant for the three group MANOVA with $F(6, 420) = 1.73, p = .113$. If univariate F tests had been appropriate, rather than the multivariate F , the Clarity subscale would have been significant with $F(2, 212) = 3.64, p = .028$.

In summary, in comparing the *no self-harm* and the *recent low self-harm* groups, feelings of clarity about emotional experience significantly distinguished the two groups, with greater experience of clarity associated with no history of self-harm. However, when the *recent high self-harm* group was included, clarity about emotional experience, beliefs about repair of difficult emotions, and attention to emotions were not significantly related to self-harm experiences.

Tests of Hypothesis 3: Individuals who engage in self-harm will show higher levels of somatic symptoms in comparison to individuals who do not engage in self-harm.

Hypothesis 3 was tested by calculating an independent samples t-test on the Pennebaker Inventory of Limbic Languidness (PILL) total score for the *no self-harm* and the *recent low self-harm* groups. PILL total score means and standard deviations for each group can be found in Table 6. Results indicated that the *recent low self-harm* group exhibited significantly more somatic symptoms in comparison to the *no self-harm group* [$t(159) = -3.83, p = .000, N = 161$].

A second exploratory analysis was conducted to compare the *recent high self-harm* group to the previous two groups. Oneway ANOVA indicated that there was a significant difference between these three groups [$F(2, 213) = 8.56, p = .000$,

Table 6

Pennebaker Inventory of Limbic Languidness Scores (Means and Standard Deviations)

Group	PILL Total Score
No Self-Harm	13.99 (8.50) ^{1,2}
Recent Low Self-Harm	19.32 (9.08) ¹
Recent High Self-Harm	19.18 (9.15) ²
Past Low Self-Harm	14.05 (7.21)
Past High Self-Harm	18.65 (8.62)
Total Sample	17.39 (9.02)

¹ The no self-harm group and the recent low self-harm group significantly differ (Scheffe's test $p = .001$).

² The no self-harm group and the recent high self-harm group significantly differ (Scheffe's test $p = .005$).

N = 216]. Scheffe's test was utilized to conduct posthoc multiple comparisons. Results demonstrated a significant difference between the *no self-harm* group and both the *low self-harm* group ($M\ Diff = 5.34, SE = 1.41, p = .001$) and the *high self-harm* group ($M\ Diff = 5.20, SE = 1.59, p = .005$). There was no significant difference between the self-harm groups ($M\ Diff = .14, SE = 1.53, p = .996$). Report of more somatic symptoms, as measured by the PILL, is thus significantly related to self-harm incidence for both low self-harm and high self-harm.

Tests of Hypothesis 4a: Individuals who engage in self-harm will report more impulsive behaviors than individuals who do not engage in self-harm.

Hypothesis 4a was tested with an independent samples t-test on the sum of the impulsive behaviors endorsed on the SHIF (items 18 to 34) for the *no self-harm* and the *recent low self-harm* groups. Impulsive behaviors score means and standard deviations for each group can be found in Table 7. Results indicated that the *recent low self-harm* group exhibited significantly more impulsive behaviors in comparison to the *no self-harm* group [$t(159) = -2.87, p = .005, N = 161$].

A second exploratory analysis was conducted to compare the *recent high self-harm* group to the previous two groups. Oneway ANOVA indicated that there was a significant difference between the three groups [$F(2, 213) = 34.982, p = .000, N = 216$]. Scheffe's test was utilized to conduct posthoc multiple comparisons. Results demonstrated a significant difference between all three groups [*no self-harm* group versus *recent low self-harm* group $M\ Diff = -1.05, SE = .37, p = .020$; *no self-harm* group versus *recent high self-harm* group $M\ Diff = -3.46, SE = .42, p = .000$; *recent low self-harm* group versus *recent high self-harm* group $M\ Diff = -2.41, SE = .41, p = .000$]. Endorsement of impulsive behaviors, other than self-harm, is thus related to self-harm status with individuals who report low self-harm behaviors engaging in an average of one more impulsive behavior than those with no self-harm

Table 7

Total Impulsive Behaviors Endorsed on the SHIF (Means and Standard Deviations)

Group	Impulsive Behaviors Total Score*
No Self-Harm	19.35 (2.22) ^{1,2}
Recent Low Self-Harm	20.40 (2.39) ^{1,3}
Recent High Self-Harm	22.81 (2.47) ^{2,3}
Past Low Self-Harm	20.29 (2.61)
Past High Self-Harm	22.12 (2.54)
Total Sample	20.85 (2.72)

* Seventeen is the lowest possible score, with no impulsive behaviors endorsed. Each behavior endorsed adds one to the score, so a score of twenty would be equivalent to three impulsive behaviors endorsed.

¹ The no self-harm group and the recent low self-harm group significantly differ (Scheffe's test $p = .020$).

² The no self-harm group and the recent high self-harm group significantly differ (Scheffe's test $p = .000$).

³ The recent low self-harm group and the recent high self-harm group significantly differ (Scheffe's test $p = .000$).

and individuals who report high self-harm behaviors engaging in an average of three more impulsive behaviors than those with no self-harm.

Tests of Hypothesis 4b: Individuals who engage in self-harm will report more compulsive behaviors than individuals who do not engage in self-harm.

Hypothesis 4b was tested by performing a MANOVA on the five Padua Inventory – Revised subscales with group membership as the independent variable. A summary of PI-R subscale scores for all groups including means and standard deviations is provided in Table 8. The initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups, for a total *N* of 161. For the two group MANOVA, the subscales were entered in the following order according to their univariate *F* value: Precision, Rumination, Checking, Impulses and Washing. With the use of Wilks' criterion, the analysis was not significant for the two group MANOVA with $F(5, 155) = 2.22, p = .055$. In univariate *F* tests, Precision [$F(1, 159) = 8.83, p = 0.003$], Rumination [$F(1, 159) = 7.14, p = 0.008$], and Checking [$F(1, 159) = 6.84, p = 0.010$] would have all reached significance.

The three group MANOVA, including the *recent high-self harm* group, had a total *N* of 216. Subtests were again entered in order of univariate *F* analysis, with a resulting order different than the two group MANOVA, namely: Impulses, Rumination, Precision, Checking, and Washing. With the use of Wilks' criterion, the analysis was significant for the three group MANOVA with $F(10, 418) = 3.67, p = .000$. A Roy-Bargman stepdown analysis indicated that there were significant unique contributions from Impulses [$F(2, 213) = 9.76, p = 0.000$], Rumination [$F(2, 212) = 3.31, p = 0.038$], and Precision [$F(2, 211) = 4.56, p = 0.012$]. Univariate *F* tests would have been significant for all variables except Washing, with Impulses $F(2, 213) = 9.76 (p = .000)$, Rumination $F(2, 213) = 9.61 (p = .000)$, Precision $F(2,213) = 4.92 (p = .008)$, and Checking $F(2,213) = 4.48 (p = .012)$.

Table 8

Padua Inventory–Revised Subscale Scores (Means and Standard Deviations)

Group	Impulses Score	Rumination Score	Precision Score	Checking Score	Washing Score
No Self-Harm	2.24 ¹ (3.58)	7.65 ^{3,4} (5.92)	1.95 ⁵ (2.79)	2.70 (3.46)	3.85 (5.57)
Recent Low Self-Harm	3.06 ² (3.13)	10.42 ³ (7.06)	3.64 ⁵ (4.13)	4.32 (4.26)	4.79 (5.67)
Recent High Self-Harm	5.07 ^{1,2} (4.45)	12.82 ⁴ (7.06)	3.25 (3.18)	4.48 (3.95)	5.37 (6.42)
Past Low Self-Harm	1.95 (1.72)	7.95 (5.70)	2.19 (2.86)	2.55 (3.07)	3.71 (4.12)
Past High Self-Harm	3.42 (3.49)	9.98 (6.31)	2.56 (3.13)	4.21 (4.34)	6.02 (7.27)
Total Sample	3.21 (3.65)	9.91 (6.77)	2.85 (3.43)	3.77 (3.99)	4.76 (5.98)

¹ The no self-harm group and the recent high self-harm group significantly differ on the Impulses subscale (Scheffe's test $p = .000$).

² The recent low self-harm group and the recent high self-harm group significantly differ on the Impulses subscale (Scheffe's test $p = .007$).

³ The no self-harm group and the recent low self-harm group significantly differ on the Rumination subscale (Scheffe's test $p = .034$).

⁴ The no self-harm group and the recent high self-harm group significantly differ on the Rumination subscale (Scheffe's test $p = .000$).

⁵ The no self-harm group and the recent low self-harm group significantly differ on the Precision subscale (Scheffe's test $p = .010$).

Scheffe's tests were then carried out for the Impulses, Rumination, and Precision subscales that were significant in the three group Roy-Bargman stepdown analysis. In regard to the Impulses subscale, Scheffe's test indicated that the *recent high self-harm* group differed significantly from the *no self-harm* group ($M\ Diff = 2.83$, $SE = .65$, $p = .000$) and from the *recent low self-harm* group ($M\ Diff = 2.01$, $SE = .63$, $p = .007$). On the Rumination subscale, the *no self-harm* group differed significantly from both the *recent low self-harm* group ($M\ Diff = -2.77$, $SE = 1.06$, $p = .034$) and from the *recent high self-harm* group ($M\ Diff = -5.17$, $SE = 1.19$, $p = .000$). On the Precision subscale, only the *no self-harm* group and the *recent low self-harm* group differed significantly ($M\ Diff = -1.68$, $SE = .55$, $p = .010$).

In summary, obsessive-compulsive phenomena do not significantly distinguish between no self-harm participants and low self-harm participants (though they approach significance). However when high self-harm participants are included, obsessive-compulsive phenomena including impulses, rumination, and precision, do significantly distinguish between groups.

Tests of Hypothesis 4c: Individuals who engage in self-harm will report both compulsive and impulsive features of their self-harm incidents.

Initially, a comparison was planned of items on the SHIF that tapped characteristics of obsessive behaviors (performing the behavior without consciously realizing it and obsessional beliefs regarding the behavior) versus one item that tapped a common characteristic of impulsive behaviors (little time premeditating the behavior). However, after further consideration, it appears that the time premeditating the behavior before acting on the impulse is not a good measure of impulsivity versus compulsivity, as many compulsive and habitual behaviors share this feature. For this reason, the comparison was not done and only descriptive data are presented here.

Two items intended to tap compulsivity were presented. In response to the first item (#42) "How often do you find yourself doing the target behavior without realizing it?" 96.4% of the *recent high self-harm* group responded "Never" or "Occasionally." In contrast, 43.7% of the *recent low self-harm* group responded "Never" or "Occasionally" and 34.4% responded "Usually" or "Always." The second compulsivity item (#44) was "Once you start thinking about doing the target behavior, to what extent do you believe that something bad will happen if you don't follow through and actually do the target behavior?" Eighty-two percent of the *recent high self-harm* group and 94.3% of the *recent low self-harm* group responded that they do not at all believe that something bad will happen. Only one person total (from the *recent high self-harm* group) responded that they were "fairly sure that something bad will happen." No one endorsed strongly believing that something bad would happen. The data generated from these items suggests that clinically relevant obsessive-compulsive beliefs are simply not prevalent in this population in terms of their self-harm behaviors. However it appears common for individuals who are engaging in low self-harm behaviors to carry out their behaviors without conscious awareness, whereas this is not a common experience for people reporting high self-harm behaviors.

The question intended to tap impulsivity (#43) was "How much time is there between when you first think of doing the target behavior and when you actually do it?" Thirty-two percent of the *recent low self-harm* group responded that they usually do the target behavior without thinking about it, and 54% reported that they only premeditate for a few seconds. In contrast, only 1.8% of the *recent high self-harm* group responded that they usually do the target behavior without thinking about it, and 49.1% responded that they only premeditate for a few seconds. Time spent premeditating a behavior seems to be a helpful variable when distinguishing

between, for example, impulsive suicide attempts versus non-impulsive suicide attempts. However, the data presented here suggested that time spent premeditating self-harm is not a helpful question in distinguishing impulsive from compulsive self-harm. In general, the items on the SHIF intended to test this hypothesis did not provide an adequate test.

Tests of Hypothesis 5: Individuals who engage in self-harm will show more features of personality disorders than individuals who do not engage in self-harm.

Hypothesis 5 was tested by performing a MANOVA on the four personality disorders subscales included from the Personality Diagnostic Questionnaire-4 (PDQ-4) with group membership as the independent variable. A summary of PDQ-4 subscale scores for all groups including means and standard deviations is provided in Table 9. Endorsement of more items on each subscale was interpreted to signify more characteristics overlapping with the personality disorder. However, the questionnaire was not intended to be used in this study to diagnose personality disorders, so endorsement of associated items will be referred to as showing traits of the disorder, rather than having the personality disorder. The subscales were entered into the analysis in the following order according to their hypothesized strength of association with self-harm: Obsessive-Compulsive traits, Borderline traits, Histrionic traits, and Antisocial traits. Two participants from the *recent low self-harm* group and one participant from the *recent high self-harm* group were excluded for responding True to item 29 of the PDQ-4 ("I have lied a lot on this questionnaire"). The initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups, for a total N of 159. With the use of Wilks' criterion, the analysis was not significant for the two group MANOVA with $F(4, 154) = 1.57, p = .184$. In univariate F tests, only the obsessive-compulsive subscale would have reached significance, with $F(1, 157) = 6.14, p = .014$.

Table 9

Personality Diagnostic Questionnaire-4 Subscale Scores (Means and Standard Deviations)

Group	Obsessive-Compulsive Score	Borderline Score	Histrionic Score	Antisocial Score
No Self-Harm	13.00 ^{1,2} (1.60)	16.04 ³ (1.57)	13.72 (1.77)	14.31 ⁵ (1.60)
Recent Low Self-Harm	12.40 ¹ (1.45)	15.71 ⁴ (1.69)	13.59 (1.61)	14.20 ⁶ (1.46)
Recent High Self-Harm	12.33 ² (1.60)	14.67 ^{3,4} (1.69)	13.15 (1.73)	13.17 ^{5,6} (1.79)
Past Low Self-Harm	13.05 (1.72)	16.62 (0.97)	13.81 (1.60)	14.48 (1.29)
Past High Self-Harm	12.10 (1.62)	15.12 (1.66)	13.39 (1.93)	13.67 (1.89)
Total Sample	12.55 (1.60)	15.57 (1.77)	13.54 (1.73)	13.97 (1.68)

¹ The no self-harm group and the recent low self-harm group significantly differ on the Obsessive-Compulsive subscale (Scheffe's test $p = .053$).

² The no self-harm group and the recent high self-harm group significantly differ on the Obsessive-Compulsive subscale (Scheffe's test $p = .057$).

³ The no self-harm group and the recent high self-harm group significantly differ on the Borderline subscale (Scheffe's test $p = .000$).

⁴ The recent low self-harm group and the recent high self-harm group significantly differ on the Borderline subscale (Scheffe's test $p = .003$).

⁵ The no self-harm group and the recent high self-harm group significantly differ on the Antisocial subscale (Scheffe's test $p = .000$).

⁶ The recent low self-harm group and the recent high self-harm group significantly differ on the Antisocial subscale (Scheffe's test $p = .001$).

The three group MANOVA, including the *recent high-self harm* group, had a total N of 213. With the use of Wilks' criterion, the analysis was significant for the three group MANOVA with $F(8, 414) = 4.30, p = .000$. A Roy-Bargman stepdown analysis indicated that three subscales provided a significant unique contribution: the obsessive-compulsive subscale [$F(2, 210) = 4.00, p = 0.02$], the borderline subscale [$F(2, 209) = 8.43, p = 0.000$], and the antisocial subscale [$F(2, 207) = 4.61, p = 0.011$]. Univariate F tests would have been significant for all variables except the histrionic subscale, with the obsessive-compulsive subscale $F(2, 210) = 4.00 (p = .020)$, the borderline subscale $F(2, 210) = 10.23 (p = .000)$, and the antisocial subscale $F(2,210) = 9.37 (p = .000)$.

Scheffe's tests were then carried out for the obsessive-compulsive, borderline, and antisocial subscales that were significant in the three group Roy-Bargman step-down analysis. In regard to the obsessive-compulsive subscale, the relatively conservative Scheffe's test indicated that though group comparisons approached significance, no groups were actually significantly different [*no self-harm* group versus *recent low self-harm* group: $M Diff = .60, SE = .25, p = .053$; *no self-harm* group versus *recent high self-harm* group: $M Diff = .67, SE = .28, p = .057$]. On the borderline subscale, the *recent high self-harm* group differed significantly from both the *no self-harm* group ($M Diff = -1.37, SE = .33, p = .000$) and from the *recent low self-harm* group ($M Diff = -1.14, SE = .32, p = .003$). On the antisocial subscale, the *recent high self-harm* group again differed significantly from both the *no self-harm* group ($M Diff = -1.14, SE = .29, p = .000$) and from the *recent low self-harm* group ($M Diff = -1.03, SE = .28, p = .001$).

In summary, personality disorder traits do not appear to significantly distinguish between the *no self-harm* group and the *recent low self-harm* group. However, when the *recent high self-harm* group is added, obsessive-compulsive,

borderline, and antisocial traits all appear to differ significantly between groups *in the opposite direction than predicted*. Namely, the *no self-harm* group scored higher on all personality disorder trait scales than all *self-harm* groups. However, it should be noted that the difference between groups in most cases is less than one item per subscale. It is unclear what practical significance this level of difference implies.

Tests of Hypothesis 6a: Individuals who engage in self-harm will report more negative affect and less positive affect, as well as a lower quality of life in general, in comparison to individuals who do not engage in self-harm.

Hypothesis 6a was tested by performing a MANOVA on the Extended Satisfaction with Life Scale-General Life Section (ESWLS-GL) and the Positive and Negative Affect Schedule (PANAS), with additional items included for this study to specifically measure shame. A summary of the PANAS and ESWLS-GL scale scores for all groups including means and standard deviations is provided in Table 10. The scales were entered into the analysis in the following order according to their hypothesized strength of association with self-harm: Shame, Negative Affect, Positive Affect, and ESWLS-GL. The initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups, for a total N of 161. With the use of Wilks' criterion, the analysis was not significant for the two group MANOVA with $F(4, 156) = 1.99, p = .099$. In univariate F tests, only the shame scale would have reached significance, with $F(1, 159) = 6.66, p = .011$.

The three group MANOVA, including the *recent high-self harm* group, had a total N of 216. With the use of Wilks' criterion, the analysis was significant for the three group MANOVA with $F(8, 420) = 2.19, p = .027$. A Roy-Bargman stepdown analysis indicated that only the shame scale provided a significant unique contribution with $F(2, 213) = 5.10, p = 0.007$. A post hoc Scheffe's test performed on the shame scale indicated that the *no self-harm* group differed significantly from both

Table 10

Subscale Scores (Means and Standard Deviations) for the PANAS (including added shame items) and the ESWLS-GL

Group	Positive Affect Score	Negative Affect Score	Shame Score	ESWLS-GL Score
No Self-Harm	35.89 (5.21)	20.68 (6.20)	12.45 (3.55)*	26.11 (5.81)
Recent Low Self-Harm	35.14 (5.57)	22.13 (6.62)	14.01 (4.07)	24.84 (5.73)
Recent High Self-Harm	35.49 (6.43)	23.69 (6.08)	14.40 (3.74)*	22.91 (7.08)
Past Low Self-Harm	37.71 (5.83)	17.90 (4.32)	12.19 (2.79)	27.38 (4.36)
Past High Self-Harm	36.44 (5.36)	21.37 (5.79)	13.60 (3.30)	24.88 (6.48)
Total Sample	35.80 (5.65)	21.62 (6.27)	13.48 (3.74)	24.99 (6.16)

* The no self-harm group and the recent high self-harm group significantly differ on the Shame subscale (Scheffe's test $p = .017$).

the *recent low self-harm* group ($M Diff = -1.57, SE = .60, p = .036$) and the *recent high self-harm* group ($M Diff = -1.95, SE = .68, p = .017$). However, as the two group MANOVA did not show a significant difference between the *no self-harm* and the *recent low self-harm* groups, then the difference found in the Scheffe's test should be conservatively interpreted. Three group univariate F tests would have been significant for all variables except the positive affect scale, with the shame scale $F(2, 213) = 5.10 (p = .007)$, the negative affect scale $F(2, 213) = 3.58 (p = .030)$, and the ESWLS-GL $F(2,213) = 4.31 (p = .015)$.

Tests of Hypothesis 6b: Individuals who engage in self-harm will report more anger than those who do not engage in self-harm.

Hypothesis 6b was tested by performing a MANOVA on the State-Trait Anger Expression Inventory (STAXI) subscales and the items from the SHIF tapping behaviors commonly associated with anger (items 23 to 25: rage attacks/temper tantrums, hitting others, and physically threatening others). A summary of the SHIF anger behaviors score and the STAXI subscale scores for all groups including means and standard deviations is provided in Table 11. The scales were entered into the analysis in the following order according to hypothesized strength of relationship with self-harm: SHIF anger behaviors, Anger Reaction, Anger Temperament, Anger In, Anger Out, and Anger Control. The initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups, for a total N of 161. With the use of Wilks' criterion, the analysis was not significant for the two group MANOVA with $F(6, 154) = 1.18, p = .321$. In univariate F tests, no anger scales would have reached significance. The three group MANOVA, including the *recent high self-harm* group, had a total N of 216. This analysis was again not significant with $F(12, 416) = 1.48, p = .128$. Univariate F tests would have been significant for only the SHIF anger behaviors, with $F(2, 213) = 6.40, p = .002$.

Table 11

Subscale Scores (Means and Standard Deviations) for the State-Trait Anger Expression Inventory and the SHIF Anger Behaviors

Group	STAXI Anger Out	STAXI Anger In	STAXI Anger Control	STAXI Anger Temper.*	STAXI Anger Reaction	SHIF Anger Behaviors
No Self-Harm	14.77 (2.90)	15.50 (4.05)	25.42 (4.32)	5.95 (2.03)	11.12 (3.06)	3.64 (0.92)
Recent Low Self-Harm	14.98 (2.99)	16.41 (4.12)	25.59 (4.17)	5.87 (2.11)	11.92 (2.87)	3.88 (0.99)
Recent High Self-Harm	15.45 (3.24)	16.69 (4.25)	25.02 (3.84)	6.24 (1.83)	12.05 (2.98)	4.27 (1.13)
Past Low Self-Harm	14.24 (3.03)	13.71 (3.91)	26.29 (4.10)	5.19 (1.25)	10.14 (3.00)	4.33 (1.20)
Past High Self-Harm	15.00 (2.26)	15.60 (3.47)	26.09 (3.78)	5.77 (1.80)	11.42 (2.48)	4.28 (1.14)
Total Sample	14.96 (2.92)	15.90 (4.07)	25.56 (4.07)	5.90 (1.94)	11.53 (2.93)	3.99 (1.07)

* STAXI Anger Temper. refers to the STAXI Anger Temperament subscale.

Tests of Hypothesis 6c: Individuals who engage in self-harm will report negative affective experiences, such as shame, depression, anxiety, and anger, as well as experiences that interfere with their general quality of life, related to their self-harming behaviors.

Shame. Hypothesis 6c was tested by examining affective ratings on the SHIF within groups for items tapping shame about self-harm (items 50, 53, and 59c), negative affect surrounding self-harm (items 59a, 59b, 59f, and 59g), and interference with life from self-harm scars (item 57). First a one-sample t-test for the *recent low self-harm* group ($n = 87$) was performed on the SHIF shame items. The SHIF shame items included shame about scars from self-harm, shame regarding hair loss from self-harm, and shame about the self-harm in general. Of note, no participants in any group endorsed shame from hair loss. Mean score for this group on the shame items together was .63 with a standard deviation of 1.06. This reflects less than a rating of mildly ashamed on one shame item alone. The t-test results indicated that the shame ratings for this group were significantly different than 0, with $t(86) = 5.57, p = .000$. This analysis was repeated for the *recent high self-harm* group ($n = 53$), who generated a mean shame score of 1.45 (standard deviation of 1.84). The t-test results for this group were also significant with $t(52) = 5.76, p = .000$. A further two-sample t-test comparing these two groups yielded a significant result, with $t(138) = 3.36, p = .001$, indicating that shame ratings were significantly different between the two groups.

Although all shame analyses were significant, mean scores of .6 or 1.5 do not appear to equate to a clinically relevant level of shame. Rather the data suggests that there is a subgroup of individuals who experience significant shame related to their self-harm that is responsible for the significant t-test results. For example, a score of 3 or more on the SHIF items combined would equate to a response of

“moderately ashamed” on one shame item and “mildly ashamed” on a second item, or between moderately and extremely ashamed on one item alone. This would appear to be a more clinically relevant level of shame. Five participants (6%) from the *recent low self-harm* group and 12 participants (23%) from the *recent high self-harm* group scored in a clinical range of 3 or above on the shame items.

Negative affect. The second set of analyses used to test this hypothesis examined negative affect associated with self-harm in general. Participants were asked “In general, when you think about the fact that you have done the target behavior (i.e. self-harm) how do you feel?” They then provided ratings ranging from 0 (not at all) to 4 (extremely) for a number of emotions. Ratings for anger, sadness, anxiety, and numb feelings were summed yielding one negative affect score. For the *recent low self-harm* group ($n = 87$), mean negative affect score was .72 ($SD = 1.87$). For the *recent high self-harm* group ($n = 55$), mean negative affect score was 2.16 ($SD = 3.38$). A one-sample t-test was performed for the *recent low self-harm* group. Results indicated that negative affect for this group was significantly different than zero [$t(86) = 3.61, p = .001$]. A one-sample t-test was then performed for the *recent high self-harm* group, which also differed significantly from zero [$t(54) = 4.75, p = .000$]. A two-sample t-test comparing these two groups was also significant, with $t(140) = -3.26, p = .001$.

Although all negative affect analyses were significant, it is again doubtful that the level of negative affect reported by these participants represents a clinically relevant level of distress. This is particularly true for the *recent low self-harm* group, where a mean score of .72 represents less than approximately a “mild” rating on only one negative affect adjective. A score of 2 or above for at least one adjective, equivalent to a rating of “moderate” for a negative affect adjective, would appear more clinically relevant. A notable subgroup of participants reported this level of

distress, with 13 (15%) of the *recent low self-harm* group and 21 (38%) of the *recent high self-harm* group endorsing a rating of two or more on at least one negative affect adjective. A summary of the negative affect adjectives endorsed at a clinical level is presented in Table 12. Shame is also included in this table, although it was not included in the negative affect analyses as it was instead used in the shame t-tests presented above.

Interference with life. One item was included on the SHIF to measure the extent to which scars or other changes in appearance from self-harm have interfered with various areas of participants' lives (i.e. school, social life, work, and relationships with family or friends). One sample t-tests were planned to analyze results from this item. However, only 5 (6%) participants from the *recent low self-harm* group and 9 (16%) participants from the *recent high self-harm* group endorsed changes from appearance resulting from self-harm that were concerning to them. Due to the low number of participants that would have been included in this analysis, the t-tests were not completed and only descriptive data on these participants is presented. Of the 14 total participants reporting changes in appearance, 5 reported that those changes have interfered in some way in their lives. From the *recent low self-harm* group, one participant reported mild interference with work and relationships and two participants reported mild to moderate interference with social life. From the *recent high self-harm* group, one participant reported mild interference with relationships and one participant reported moderate to extreme interference with all areas of life.

In general, it appears that self-harm among undergraduates is associated with more negative affective experiences including shame, particularly for a subgroup of these individuals. However, except for a very small minority, self-harm

Table 12

Participants Endorsing Negative Emotions About Self-Harm at a Clinically Relevant Level*

Emotion Adjective	Recent Low Self-Harm (<i>n</i> = 87)	Recent High Self-Harm (<i>n</i> = 55)
Angry	7 (8%)	12 (22%)
Anxious/Afraid	5 (6%)	5 (9%)
Numb	2 (2%)	9 (16%)
Sad	5 (6%)	13 (24%)
Ashamed**	11 (13%)	12 (22%)
Participants endorsing at least one negative emotion at a clinically relevant level (not including shame)	13 (15%)	14 (25%)
Participants endorsing at least one negative emotion at a clinically relevant level (including shame)	18 (21%)	23 (42%)

* Endorsement at a clinically relevant level is defined in this context as rating the emotion word at a 2 (moderate) or above on a scale of 0 (not at all) to 4 (extremely).

** Shame was not included in the negative affect analyses. It was instead incorporated into a focused analysis of shame alone. It is reported here only for comparison to other negative emotions.

in this population is not generally associated with changes in appearance that interfere with important aspects of life.

Tests of Hypothesis 7a: Individuals who engage in self-harm will report more eating disordered behaviors and body image devaluation in comparison to individuals who do not engage in self-harm.

Hypothesis 7a was tested by performing a MANOVA on the Physical Appearance State and Trait Anxiety Scale – Trait Version (PASTAS) total score and the disordered eating behaviors included on the SHIF (items 18 to 22: bingeing, restricting, purging, using laxatives and/or diuretics, and exercising to exhaustion). A summary of the SHIF disordered eating scale and the PASTAS scores for all groups including means and standard deviations is provided in Table 13. The SHIF disordered eating behaviors were entered first into the MANOVA and the PASTAS was entered second according to their hypothesized strength of relationship with self-harm. The initial MANOVA compared only the *no self-harm* and the *recent low self-harm* groups, for a total N of 161. With the use of Wilks' criterion, the analysis was significant for the two group MANOVA with $F(2, 158) = 3.11, p = .047$. A Roy-Bargman step-down analysis was then performed, which identified only the SHIF disordered eating scale as providing a significant unique contribution with $F(1, 159) = 5.92, p = .016$. Univariate F tests would also have only found the SHIF disordered eating scale to be significant.

The three group MANOVA, including the *recent high-self harm* group, had a total N of 216. The analysis was again significant with $F(4, 424) = 8.50, p = .000$. The Roy-Bargman step-down analysis found only the SHIF disordered eating scale to be significant with $F(2, 213) = 17.42, p = .000$. Univariate F tests would have again only been significant for the SHIF disordered eating scale. A post hoc comparison of group mean differences for the disordered eating scale using

Table 13

SHIF Disordered Eating Behaviors Scores and the PASTAS Total Score

Group	SHIF Disordered Eating Behaviors		PASTAS Total Score (M & SD)**
	Total Score (M and SD)*	Participants reporting no disordered eating (n and %)	
No Self-Harm	5.78 (1.09) ^{1,2}	42 (57%)	17.53 (12.89)
Recent Low Self-Harm	6.22 (1.15) ^{1,3}	25 (29%)	19.75 (12.01)
Recent High Self-Harm	6.99 (1.24) ^{2,3}	7 (13%)	20.27 (13.33)
Past Low Self-Harm	5.90 (1.22)	10 (48%)	13.59 (10.27)
Past High Self-Harm	6.79 (1.23)	7 (16%)	19.56 (12.60)
Total Sample	6.32 (1.25)	91 (33%)	18.77 (12.53)

* Scores range from 5 to 10, with 5 signifying no disordered eating items endorsed and 10 signifying all five disordered eating items endorsed.

** Higher scores indicate more anxiety about physical appearance.

¹ The no self-harm group and the recent low self-harm group significantly differ (Roy-Bargman step-down analysis $p = .016$).

² The no self-harm group and the recent high self-harm group significantly differ (Scheffe's test $p = .000$).

³ The recent low self-harm group and the recent high self-harm group significantly differ (Scheffe's test $p = .001$).

Scheffe's test indicated that the *recent high self-harm* group was significantly different than both the *no self-harm* group ($M\ Diff = 1.21, SE = .21, p = .000$) and the *recent low self-harm* group ($M\ Diff = .78, SE = .20, p = .001$), but that there were no other significant group differences.

Tests of Hypothesis 7b: Individuals who engage in self-harm will report feelings of body image devaluation associated with their self-harming behaviors.

Six items were included in the SHIF to tap body image devaluation: shame about self-harm scars (item 50), efforts to hide scars (item 51), shame about hair loss from self-harm (item 53), efforts to hide hair loss (item 54), behaviors associated with body dysmorphic disorder from changes in appearance due to self-harm (item 56), and interference with important areas of life from changes in appearance due to self-harm (item 57). Fifty-six (64%) of the *recent low self-harm* group and 33 (60%) of the *recent high self-harm* group reported no scars, hair loss, or other changes in appearance due to self-harm and were instructed to skip the items included in the body image devaluation total as they all directly related to changes in appearance. Also, no participants endorsed significant hair loss from self-harm, so items 53 and 54 were scored 0 for all participants. As this analysis was only relevant for a subset of participants, two of the six items to be included (53 and 54) were scored 0 for all participants, and two more of the six items included (50 and 57) were already fully described in a previous analysis (see Hypothesis 6b), it was determined that it would be more helpful to simply provide descriptive data regarding the two remaining items (51 and 56) rather than complete the planned analysis.

Seventeen participants (20%) from the *recent low self-harm* group reported that they had scars from self-harm, and three (3%) of those participants reported that they have tried to hide their scars. These three participants reported that they occasionally use measures including heavy make-up, staying at home, or wearing

disguising clothes and that they often use dermatological treatments to hide their scars. Sixteen participants (29%) from the *recent high self-harm* group reported that they had scars from self-harm, and nine (16%) of those participants reported that they have tried to hide their scars. "Wearing certain clothes to hide scars" was the most frequent behavior endorsed, though many other techniques to hide scars were also endorsed including using heavy makeup, avoiding activities where the scars are exposed (such as swimming), positioning the body to hide scars (such as keeping one hand over the other), avoiding areas with bright lights or crowds, avoiding work or school, staying at home, and getting a tattoo to cover scars.

Five participants (6%) from the *recent low self-harm* group and nine participants (16%) from the *recent high self-harm* group indicated that they had a change in their appearance due to their self-harm that was concerning to them. Of these, eleven total (8% of combined groups) endorsed some behavior associated with body dysmorphic disorder at, at the least, an occasional frequency of occurrence (SHIF items 56a to 56e). A diagnosis of body dysmorphic disorder requires preoccupation with an imagined or slight defect in appearance that causes clinically significant distress or impairment in an important area of functioning. Preoccupation and distress were measured in this study by items asking how often participants think about and worry about their changes in appearance from their self-harm (SHIF items 56f and 56g). Only two participants, from the *recent high self-harm* group, reported that they often think about their changes in appearance from self-harm, and only one reported significant worry about the change in appearance. This same person was the only participant to report moderate to significant interference with life from a change in appearance due to self-harm (SHIF item 57). Thus one participant from the *recent high self-harm* group appears to be a strong candidate for a diagnosis of body dysmorphic disorder stemming from self-harm scars, though

several other participants from both self-harm groups display some behaviors associated with body dysmorphic disorder.

These data indicate that a subset of participants from both low and high self-harm groups have scars resulting from their self-harm and use some methods to hide their scars on at least an occasional basis. A smaller group of these participants appears to have some features of body dysmorphic disorder stemming from their self-harm scars, though only one would likely meet diagnostic criteria.

Tests of Hypothesis 8: Individuals who engage in self-harm will report that it serves some type of emotion regulation function for them.

Two sets of items were included in the SHIF to assess changes in emotional state associated with self-harm. The first set of items (#37 and #38) asked participants to rate emotions immediately before and after self-harm. Negative emotions on these items were reverse scored and ratings were then summed for each item, yielding two total scores with higher numbers indicating a more positive emotional state. The second set of items (#39, #40, and #41) asked participants to rate changes in emotional state following self-harm from immediately after self-harm to a few days after self-harm. The items in this set were all scored from -2 to +2, with -2 equivalent to feeling "much worse" and +2 equivalent to feeling "much better." Separate analyses were conducted for each set of items.

Two paired sample *t*-tests were carried out for the first set of items (emotional state before and after self-harm). For the *recent low self-harm* group ($n = 87$), mean score of feelings before self-harm was 20.33 ($SD = 3.23$) and mean score of feelings after self-harm was 20.08 ($SD = 3.66$). For the *recent high self-harm* group ($n = 55$), mean score of feelings before self-harm was 15.53 ($SD = 6.81$) and mean score of feelings after self-harm was 17.33 ($SD = 5.60$). For the *recent low self-harm* group the *t*-test was not significant with $t(86) = 1.04, p = .303$, indicating that participants in

this group do not report a significant change in emotional state from before to after self-harm. For the *recent high self-harm* group ($n = 55$), the t-test was significant with $t(54) = -2.89$, $p = .005$, indicating that participants in this group felt better after self-harm than before.

The second set of items examined (#39, #40, and #41) asked participants to rate changes in emotional state immediately following self-harm, a few hours following self-harm, and a few days after self-harm, to attempt to identify any patterns in sustained emotional response to self-harm. Participants ratings were summed across all three items. A score of 0 indicated no change in feelings at any point. A positive score indicated a positive change in feelings at any point. Data regarding response to self-harm across time for each group is presented in Table 14. Two one-sample t-tests were performed on this total score. For the *recent low self-harm* group ($n = 87$), mean score on this total score was .046 ($SD = .746$) and the related t-test was nonsignificant with $t(86) = .575$, $p = .567$. For the *recent high self-harm* group ($n = 55$), mean score on this total score was .364 ($SD = .746$) and the related t-test was again nonsignificant with $t(54) = 1.45$, $p = .153$. In general, these results indicate that participants in this population do not report systematic sustained improvements in emotional state following self-harm. However, it was then hypothesized that these participants may experience conflicting reactions following self-harm, for example they may report an improvement in emotional state immediately following self-harm but then a worsening in emotional state a few hours after self-harm. Summing across time periods would obscure these changes.

Nine participants, 4 (5%) from the *recent low self-harm* group and 5 (9%) from the *recent high self-harm* group, reported changes in valence of emotion across time, i.e. they reported that they initially felt worse (negative valence) and ended up feeling better (positive valence) or vice versa. There did not appear to be any pattern

Table 14

Response to Self-Harm Over Time

Time Frame and Response to a Self-Harm Incident	Recent Low Self-Harm Group (n & %)	Recent High Self-Harm Group (n & %)
Immediately after self-harm Feeling worse Feeling the same Feeling better	9 (10%) 68 (78%) 10 (12%)	8 (15%) 29 (53%) 17 (31%)
A few hours after self-harm Feeling worse Feeling the same Feeling better	3 (3%) 81 (93%) 3 (3%)	12 (22%) 26 (47%) 17 (31%)
A few days after self-harm Feeling worse Feeling the same Feeling better	2 (2%) 81 (93%) 4 (4%)	9 (16%) 35 (64%) 11 (20%)

to these changes, with four participants reporting improved mood from initially negative to finally positive, three participants reporting worsened mood from initially positive to finally negative, and two participants reporting fluctuating mood across time, such as with initially negative mood, then positive mood, then finally neutral mood. There was no consistent pattern present by group. These data then support the above analyses that there is no systematic sustained improvements in emotional state following self-harm, though certainly a subset of each group reported sustained improved mood or worsened mood following self-harm.

In general it appears that participants from the *recent low self-harm* group do not report significant change in emotional state following self-harm. However participants from the *recent high self-harm* group report improved emotional state following self-harm, but no consistent pattern of how the improvement in emotional state is sustained over time.

Discussion

Results of this study indicate that a history of subclinical or more injurious self-harm is fairly common among college students. Though they are both not typically associated with serious subjective distress about the self-harm behavior, they are both associated with other problematic behaviors. Similarities between results from this study and characteristics that have been associated with clinical levels of self-harm suggest that, in some respects, self-harm may occur along a continuum from subclinical to clinical levels of severity. These issues are examined in more detail below.

Subclinical Self-Harm

The major focus of this study was to identify the extent to which subclinical self-harm exists and the consequences of subclinical self-harm for those who engage in it. In this sample of undergraduates, 68% of the total sample reported that they had engaged in some type of mildly injurious self-harm behavior over their lifetimes, and 31% met criteria for inclusion in the *recent low self-harm* group including subclinical self-harm within the last three years and no history of more injurious self-harm. In a statistical sense, a history of self-harm appears to be normative in an undergraduate population. Comments from study participants support this assertion. Many participants expressed surprise that they were asked so many questions about their self-harm behaviors, saying "I only bite my fingernails" or "I just pick at my scabs...doesn't everyone?" indicating that they saw their self-harm behaviors as common and relatively meaningless.

Given that subclinical self-harm is fairly common in an undergraduate population, the issue then becomes whether or not subclinical self-harm is associated with clinically meaningful consequences. Is there a reason to note or be concerned about people who engage in subclinical self-harm? There are a number of areas that are possible direct consequences of subclinical self-harm including

shame about self-harm, interference with important areas of functioning from self-harm, and negative affect associated with self-harm behavior. The study results indicate that a subgroup of participants (21% of participants with subclinical self-harm) experience at least moderate levels of negative affect in regard to their self-harm behaviors. It is notable that even very mildly injurious types of self-harm, such as skin-picking and scratching and fingernail biting, were associated with at least moderate levels of shame for 13% of participants and anger for 8% of participants. However no participants with recent subclinical self-harm behaviors reported significant interference with their lives due to changes in appearance from self-harm. It appears that these behaviors have little direct impact on the majority of people who engage in them, at least according to direct questioning, though they result in feelings of shame and anger for a minority.

Though subclinical self-harm behaviors do not typically cause subjective distress for those who engage in them, recent or ongoing subclinical self-harm appears to be associated with other problematic behaviors. For example, in this study, recent or ongoing subclinical self-harm was associated with a history of more disordered eating behaviors and other impulsive behaviors, more physical symptoms, and less clarity about emotional experience. However it was not associated other problematic behaviors or features such as Axis II features (specifically features of borderline, obsessive-compulsive, histrionic, and antisocial personality disorders), features of obsessive-compulsive disorder, history of abuse or significant childhood illness, greater overall negative affect or lower general quality of life, or higher levels of anger or aggressive behaviors.

Given these results, the picture that emerges of the typical undergraduate who engages in subclinical self-harm is one of a person who appears generally well adjusted, whose central problem is not self-harm, and who probably does not experience any direct negative effects of self-harm. This person does not experience

much explicit emotional distress, have a particularly traumatic history, or show signs of psychiatric disturbance. However, he or she is mildly impulsive and either experiences more physical symptoms than typical or focuses on physical sensations and symptoms more than do undergraduates who do not engage in subclinical self-harm. Additionally he or she feels more often that understanding one's own emotional experience is difficult, including feeling less clear about what emotions one is experiencing, and possibly what triggered them and how to modulate them.

As subclinical self-harm does not appear to be a central problem in those who engage in it, in that it is not generally associated with direct negative effects, its association with impulsivity, disordered eating behaviors, somatic symptoms, and less emotional clarity seems to indicate that subclinical self-harm is one component of a larger pattern of potentially problematic behaviors. This conjunction of behaviors may be indicative of a more general coping strategy. Given that people who consistently engage in subclinical self-harm seem to feel less clear about their emotional experience, they may rely on expressing distress more behaviorally, such as by acting impulsively, or physically, such as through increased somatic symptoms, rather than through more explicitly emotion focused techniques, such as through verbalizing emotions. They may also respond to distress more behaviorally or physically, such as through overexercise, overeating, and subclinical self-harm rather than, for example, talking through their emotions with a friend. In other words, the presence of subclinical self-harm may be one sign of a tendency toward more behavioral or physical manifestations of distress and efforts to modulate distress rather than a tendency for more explicitly emotion focused expressions and coping techniques. One hypothesis regarding the cause of subclinical self-harm is that it is a natural grooming process gone somewhat awry (Stein, Simeon, Cohen, & Hollander, 1995). This could easily be consistent with a description of subclinical self-harm as a

behavioral strategy to cope with distress, as grooming behaviors are clearly behavioral and may be calming in some way.

It is also possible that, in addition to being somewhat unaware of their emotional experiences, people who engage in subclinical self-harm may be somewhat unaware of the coping strategies that they use to manage their emotions. For example, 34% of participants who engaged in subclinical self-harm in this study reported that they were often not consciously aware that they were engaging in the behavior while it was occurring. They may simply be less consciously aware of their emotional processes in general, both their emotional experience and their coping strategies.

This interpretation is partially consistent with explanations from dermatological literature that address subclinical self-harm, and in particular neurotic excoriations (skin picking and scratching). For example, Koblenzer (1993) wrote that the typical personality pattern found among patients with neurotic excoriations is, "obsessive-compulsive; rigid, perfectionistic, judgmental, controlling, and indecisive for fear of erring, these patients are seldom in touch with feelings and have difficulty handling unconscious aggression (p. 21)." Though data from this study are consistent with an interpretation that patients with subclinical self-harm may not be in touch with feelings, it is not consistent with Koblenzer's fundamental point that they are obsessive-compulsive. Participants from this study also did not report difficulties with anger or aggression, though that does not rule out problems with unconscious aggression. Of course, it is possible that patients who present to a doctor and have evidence of neurotic excoriations are indeed more obsessive-compulsive whereas undergraduate students who have similar behaviors may not be notably obsessive-compulsive. However if an obsessive-compulsive personality style was indeed a significant feature of subclinical self-harm, it would be expected to be present to some degree even among an undergraduate population.

One piece of evidence that does not support the distress management explanation is that subclinical self-harm participants in this study did not generally report that they had a change in emotional state following self-harm. In other words they did not usually feel better or worse from before a self-harm incident to after an incident. On the face of it, this argues against a hypothesis of subclinical self-harm as a strategy for coping with distress. However, if these participants are typically not focused on their emotional experience and tend to express and cope with distress more physically or behaviorally, they may not be fully aware of any change in emotional state following self-harm and thus may be unable to accurately report it. It is also possible that the improvement in emotional state following subclinical self-harm is generally subtle and of a small magnitude, which may make it more likely that it will be overlooked and not reported.

In general then it appears that subclinical self-harm is not associated with significant direct distress, except for a small subgroup of people who experience moderate to significant shame and anger regarding their self-harm behaviors. However, subclinical self-harm does appear to be associated with indicators of tendency for expressing and modulating distress through primarily physical or behavioral means rather than more emotion focused coping strategies. It should be noted that the participants who reported subclinical self-harm generally appeared well adjusted according to their responses, and did not typically report clinical levels of distress or symptomatology. For example, though they reported more disordered eating behaviors, they generally did not report them at a level that would be considered diagnostically relevant. Given these data, it appears that subclinical self-harm is not of concern in itself, except in a few cases where it directly causes emotional distress, but rather may be an indicator of a particular approach to coping with distress.

More Injurious Self-Harm

This study was originally targeted exclusively at undergraduates who exhibit subclinical self-harm. It was anticipated that very few students would have a history of more injurious self-harm, thus it was determined that they should be excluded. They did not seem to fit well with a group of students with subclinical self-harm, nor with a group who did not engage in self-harm at all, and, as there were expected to be a small number of these students, they would not compose a large enough group for analysis in and of themselves. However, when data collection commenced, it became clear that there were many more students with a history of more injurious self-harm behaviors than had been anticipated. In all, 35% of the sample reported at least one incident of mildly to moderately injurious self-harm, from punching themselves to cutting or burning themselves to strangling themselves, though many of these incidents were in the fairly distant past. Only 20% of the sample reported that they had engaged in mildly to moderately injurious self-harm within the last three years and only 5% reported that they had done so within the last three months. As there were sufficient numbers of participants endorsing these behaviors to compose a group for analysis, exploratory analyses were carried out for this group following data collection using only those with self-harm incidents within the past three years.

Given that a history of mildly to moderately injurious self-harm is apparently not uncommon within an undergraduate population, how is this group best characterized? Most students who reported more injurious self-harm within the last three years indicated that they only harmed themselves a small number of times. For example, 42% reported only one or two incidents in their lifetimes. For the majority of participants, their self-harm incidents were not associated with high levels of negative affect. Forty-two percent of this group reported at least moderate levels of negative affect in regard to their self-harm behaviors (i.e. negative affect directly in response to self-harm history, not more global negative affect), though this is a

higher percentage than that found in the subclinical self-harm group. For this subgroup, they most frequently endorsed sadness, shame, and anger in response to their self-harm behaviors. Interference with major areas of life was much less common, with only one participant reporting significant interference with important areas of life due to changes in appearance from self-harm. Most participants in this group generally indicated that they did not view their self-harm histories as problematic. Thus it appears that, at least within a student population, more injurious self-harm is not uncommon but is generally fairly limited in terms of number of self-harm incidents. Additionally, in most cases it does not trigger a significant negative emotional reaction, though some do report moderate to high levels of negative affect in response to the self-harm.

As noted above, subclinical self-harm generally does not appear to be problematic in itself from the perspective of students who have engaged in it, but it is associated with some other problematic behaviors. Additionally, literature on clinical levels of self-harm notes that it is also associated with other problematic behaviors, such as eating disorders, psychiatric disturbance, and high negative affect (Favazza, DeRosear, & Conterio, 1989; Herpertz, 19995; Garrison et al., 1993). Is mildly to moderately injurious self-harm also associated with other problematic behaviors? According to these results, as is the case for subclinical self-harm, more injurious self-harm appears to be associated with more somatic symptoms, more disordered eating behaviors (a surprising 87% reported history of at least one disordered eating behavior), and more impulsivity, while it is not associated with Axis II characteristics commonly associated with clinical levels of self-harm. However, in distinction from subclinical self-harm, more injurious self-harm is not associated with difficulties with emotional clarity. It is, on the other hand, associated with higher levels of general shame (though not more negative affect in general) and a history of emotional abuse. How can these findings be explained?

More injurious self-harm may be partially explained through the same mechanism posited for subclinical self-harm. Namely that people who engage in more injurious self-harm tend to express their distress more behaviorally or physically (through impulsive actions and somatic symptoms) as well as manage their distress more behaviorally or physically (through disordered eating behaviors or self-harm). People with more injurious self-harm also commonly engage in subclinical self-harm, which may again serve as a distress management technique. In this study, ninety-one percent of the group with more injurious self-harm also endorsed subclinical self-harm behaviors. Participants with more injurious self-harm reported significantly more impulsive and disordered eating behaviors than did those with subclinical self-harm suggesting that they act out behaviorally more than those with subclinical self-harm, or that they rely more heavily on behavioral expressions of and coping strategies for distress. One historical factor that distinguishes these groups is a history of emotional abuse in childhood. Perhaps emotional abuse is one factor that may increase propensity to act out impulsively or cope with difficult emotions through behavioral means.

One result that argues against this explanation is that participants with histories of more injurious self-harm did not demonstrate problems with clarity about emotional experience in comparison to participants with no histories of self-harm, whereas participants with histories of subclinical self-harm did report less emotional clarity. This is not a significant criticism of this hypothesized explanation, as a tendency for expressing and coping with distress behaviorally may still be present within people who feel that they have a good understanding of their emotional experience. For example, a relatively intelligent person with a large emotion vocabulary may feel subjectively that he or she easily understands which emotions are being experienced in response to which situations, but may still evidence a tendency to express emotions physically, such as through somatization. Additionally,

although this group did not differ significantly on emotional clarity from participants with no histories of self-harm, it also did not differ significantly from participants with histories of subclinical self-harm. Thus it can not be definitively stated that participants from this study with histories of more injurious self-harm reported more emotional clarity than did those with histories of subclinical self-harm.

Whereas participants who engaged in subclinical self-harm were often unaware that they were engaging in the behavior, and may have also been unaware of its effect on their emotional state, participants who engaged in more injurious self-harm reported a statistically significant, though often small, improvement in emotional state following self-harm. However, there was no consistent pattern regarding how long this improvement in emotional state was sustained over time. This improvement in emotional state following more injurious self-harm again supports the hypothesis that more injurious self-harm has some distress modulation function. Additionally, it suggests that more injurious self-harm incidents either are more likely to result in an improved emotional state than are subclinical self-harm incidents or are more often used by people who respond to more injurious self-harm with an improvement in emotional state. Improvement in emotional state may be an important factor in influencing whether self-harm occurs at all, whether it is mildly, moderately, or severely injurious, and whether it becomes a frequently used method of regulating emotions.

In summary, a history of more injurious self-harm appears to be fairly common among an undergraduate population, though those who engage in it generally report that it is an infrequent behavior that does not typically create notable emotional distress. Those who engage in it generally appear fairly well adjusted, with more overall shame than those who do not self-harm, but not with higher other overall negative affect, lower quality of life, or more Axis II features. As is the case in subclinical self-harm, they tend to express and cope with distress more physically

and behaviorally, even to a greater extent than is the case with subclinical self-harm. They also more frequently report a history of emotional abuse during childhood, which may be one factor that increases their propensity to act out impulsively or against their bodies. Additionally, they often report a small improvement in emotional state following self-harm that is not present among people who only engage in subclinical self-harm. This may be an important factor in the occurrence and perpetuation of more injurious types of self-harm.

The largest difficulty in interpreting these data is that the more injurious self-harm group was originally intended to include only participants reporting what would be considered more clinical types of self-harm. However, further examination of the data suggests that there are a number of people in this group that may be more accurately characterized as reporting subclinical self-harm incidents rather than clinical self-harm incidents. Subclinical self-harm was originally conceptualized in this study as less injurious self-harm that occurs in the general population. That conceptualization was then operationalized to include only mildly injurious behaviors, such as skin picking and fingernail biting, due primarily to a faulty assumption that there would be little other self-harm occurring in the general population. However, many of the participants in the more injurious self-harm group reported self-harm incidents which were primarily low in frequency and relatively low in injuriousness, in comparison to the possible range of more injurious behaviors. In other words, they reported incidents that did not represent sustained or continued problematic self-harm behaviors and were not injurious enough to warrant a designation of problematic clinical self-harm based on injury level alone (i.e. they were not injurious enough to require medical treatment). Categorizing these self-harm behaviors as subclinical appears more appropriate than categorizing them as clinical. For example, one participant reported that he punched himself in the eye several times on one occasion to darken a black eye that he had received in a practice for a

sporting event. He felt that it would look “cooler” if it was darker. Although punching oneself in the eye is certainly still a concerning event, it may represent more of a subclinical self-harm behavior because it was an isolated incident (not a pattern of self-harm), was not distressing to the participant at the time or in retrospect, and was not injurious enough to require medical treatment. If this behavior had been only one in a pattern of self-harm, or if it had been serious enough to require medical treatment or result in lasting injury, or if the participant had reported significant emotional distress surrounding this incident, then it would have been clearly a clinical self-harm incident.

However, there were also a few participants who reported self-harm incidents that were more frequent, and possibly more injurious than was the norm for the group. These behaviors appear to represent more of the clinical side of the continuum, indicating that there was probably a mix of subclinical and clinical behaviors included in this group that may have somewhat muddied the analyses and subsequent interpretations. Perhaps attempting to more clearly separate clinical and subclinical self-harm behaviors among people reporting more injurious self-harm incidents would have yielded a more accurate reflection of the characteristics of these groups than is possible with the current group definitions.

The question that then arises is what criteria could be used to more accurately divide subclinical and clinical self-harm in future research? This study used only injuriousness of self-harm behavior to distinguish between groups, with less injurious behaviors assumed to be subclinical and more injurious behaviors assumed to be clinical self-harm. This appears to be one important criteria to consider. Highly lethal behavior, such as cutting major arteries, is clearly a clinical behavior whereas fingernail biting with no serious resulting injuries is clearly a subclinical behavior. However, for mildly to moderately injurious behaviors, this criteria becomes much less helpful in making the subclinical-clinical distinction. It

was notable that many participants in the more injurious self-harm group in this study did not feel that their self-harm histories were problematic, did not report much distress at the time of the self-harm incident or presently, when reflecting back on their self-harm, and did not report that their self-harm occurred within a context of serious distress, such as intense distress preceding the self-harm. Perhaps this feature indicates that these participants were engaging in what would best be considered subclinical self-harm. Perhaps level of distress surrounding the self-harm incident, and/or level of distress regarding history of self-harm in general could be one indicator of whether a self-harm incident could be classified as clinical or subclinical.

If a person is in a great deal of emotional distress preceding, during, or following a self-harm incident then that self-harm is probably most accurately characterized as clinical. For example, there were a few people within the more injurious group who reported that they engaged in self-harm following an argument or other fracture in a relationship with a boyfriend or girlfriend. They reported clear distress at the time and indicated that they saw their self-harm at that time basically as an expression of their distress or as a way to punish themselves for mistakes. These incidents appear to most likely represent a type of clinical self-harm, even though self-harm was not a pattern for most of these people.

There were also a number of people from the more injurious self-harm group who reported incidents that were not distressing to them at the time of the incident or in retrospect. For example, there were several people who reported that they only engaged in self-harm once when they carved or burned the initials or name of a boyfriend or girlfriend on their bodies with friends, such as at a slumber party. They generally reported that this was not an important incident to them and was never repeated. These incidents seem to be more representative of subclinical self-harm than clinical self-harm because they were did not involve emotional distress, were

mildly injurious, were not part of a pattern of self-harm, and may have been socially appropriate within that peer group in the sense that exotic body piercing is socially appropriate in some peer groups.

However, using distress to identify clinical self-harm incidents is problematic in that in many cases it is difficult to measure, even among populations that engage in clinical levels of self-harm. First, people who engage in self-harm that is highly injurious often describe extreme distress before self-harm, but may dissociate or become emotionally and physically numb during and after self-harm (Zlotnick et al., 1996). It is conceivable that this dissociation could occur for some individuals a fair amount of time before the self-harm incident, muddying measures of emotional distress. Additionally, it is commonly hypothesized that people who engage in clinical self-harm have higher levels of alexithymia (Zlotnick et al., 1996) and may have difficulty understanding or expressing emotional distress. For this reason, asking for rating of emotional distress may prove difficult for these people to provide or their ratings may be inaccurate or unreliable.

Measurement of distress becomes even more difficult in populations exhibiting mildly to moderately injurious self-harm, where the question of whether the behavior is truly subclinical or clinical is more difficult to answer. First, it is possible that this type of self-harm may peak in adolescence, a period in which emotional awareness may more fully develop. Most participants in this study reported on self-harm incidents that occurred during adolescence and thus may have had difficulty making fine distinctions in their level of distress simply due to immaturity at the time of the self-harm incident. Second, distress ratings are almost always retrospective. In this study, ratings extended back as far as three years for the participants who were not excluded from the self-harm groups. It is likely that their memories of their distress at the time are not infallible.

Retrospective distress ratings also suggest a third possible difficulty. It is

possible that if the individual has not recently engaged in self-harm, that person would not currently be in a state that is relevant to clinical self-harm ratings, whether or not he or she was in the past. In other words, not only would their memories be fallible simply due to providing retrospective ratings, but their ratings may actually change based on whether they are in a clinically relevant state or not, such as in distress or having recently engaged in self-harm. For example, several measures in this study, including the measures of anger and obsessive-compulsive qualities, are supposed to reflect fairly stable personality characteristics in individuals. However it is conceivable that participants' ratings on measures such as these could change based on how recently they have been in significant distress or have engaged in clinical self-harm. In future research it may be helpful to limit analyses to participants who have engaged in self-harm within the last three months, for example, to help ensure that the people who are reporting what appear to be clinical self-harm incidents are still in a state that is relevant to clinical self-harm, so that the ratings they provide more accurately reflect the features of clinical self-harm. This would likely result in more clean distinctions between groups by increasing the proportion of people in the more injurious self-harm group that are engaging in self-harm at a clinical level.

These difficulties in obtaining accurate measurements of distress to use to classify self-harm behaviors are highlighted by the aforementioned subgroup of participants who reported cutting or carving with a group of friends. As discussed above, this behavior is probably best categorized as subclinical self-harm for the majority of people involved in it. However, it is also possible that, for example, in one group of girls who all cut their boyfriends' initials onto their arms, that there are one or two people within that group that are actually exhibiting a clinical level of self-harm rather than a subclinical level. They may be in significant distress at the time, or rather than simply following along with a peer group's deviancy, may be actually

active in shaping that deviancy. Of course, in many cases it would be difficult or impossible to get accurate ratings of distress from incidents such as these due to faulty memories, unwillingness to disclose distress, or simple lack of awareness of level of distress. These difficulties suggest that retrospective distress ratings, such as those provided in this study, may not be accurate enough to determine group assignment into subclinical or clinical self-harm groups. However, it should be noted that distress ratings in this study still provide important data about how participants' viewed their self-harm incidents.

Whether the self-harm is repetitive or whether it only occurs once or twice is another aspect that could be used to distinguish subclinical from clinical self-harm among people reporting more injurious behaviors. Self-harm that occurs frequently or appears to be habitual has been identified by several authors as problematic self-harm (Pattison & Kahan, 1983; Lacey & Evans, 1986; Herpertz, 1995), and may be one indicator of a clinical level of self-harm. A participant who reported only one incident of self-harm, such as carving a boyfriend's initials on her body at a slumber party with little surrounding emotional distress, would probably be best categorized as engaging in subclinical self-harm. However a participant who reported this behavior and also reported other self-harm behaviors, such as cutting or burning on other occasions, would more likely be exhibiting clinical self-harm. If the participant also reported emotional distress surrounding the self-harm events, then the behaviors would be even more clearly clinical events. Using the criteria of injuriousness of the behavior, distress surrounding the behavior, and repetitiveness of self-harm together could be most useful in distinguishing subclinical from clinical self-harm. In some cases only one criteria may be necessary to identify clinical self-harm, such as with one highly injurious or distressing self-harm event. In other cases the combination of two or three of the criteria may be most useful, such as with self-harm that is mildly injurious but repetitive, or mildly injurious but associated with

moderate emotional distress.

In this study only participants who had engaged in self-harm within the last three years were included in statistical analyses. Descriptive data from the participants who had engaged in self-harm in the more distant past (i.e. the *past self-harm* groups) were reported, but were not included in statistical comparisons. These descriptive data indicate that people who have engaged in self-harm only in the more distant past do not consistently score similarly to either people who have more recently engaged in self-harm or people who have not engaged in self-harm at all. This suggests that these *past self-harm* groups are fairly heterogeneous and may include people who are best categorized as not engaging in self-harm, some who are best categorized as engaging in subclinical self-harm, and some who would still be best categorized as engaging in clinical self-harm even though they have not engaged in self-harm recently. This again suggests that investigations of subclinical versus clinical self-harm should include only participants who have recently engaged in the behavior to keep the groups as clean as possible. Of course, it is likely that there are interesting research questions that can be addressed by studying people who have engaged in self-harm only in the more distant past, however they should probably not be mixed with those who are currently engaging in self-harm.

A Self-Harm Continuum?

Shared characteristics. An interesting question is whether self-harm exists on a continuum from mildly injurious, subclinical behaviors to moderately to severely injurious, clinical behaviors or whether these distinctions represent truly separate phenomena. This study provides some data regarding this issue. First, in support of a hypothesized self-harm continuum, there are a number of similarities between data from the subclinical and more injurious self-harm groups in this study, as well as what is noted in the literature on clinical self-harm. Namely, in all three cases a higher incidence of disordered eating behaviors are noted, with more somatic

symptoms, hypothesized difficulties with emotional awareness or clarity, and impulsivity (Favazza, DeRosear, and Conterio, 1989; Herpertz, 1995; Zlotnick et al., 1996). In the above sections, this is hypothesized to represent difficulties with emotional processing with a tendency towards expressing and coping with distress behaviorally or physically. It may also reflect a type of disruption in the relationship to the body or body devaluation.

In some cases, these common factors appear to be presenting along a continuum of severity themselves. For example, the disordered eating behaviors in this study were present only to a mild degree in the subclinical self-harm group and were more prevalent in the clinical self-harm group. In literature on clinical self-harm, disordered eating behaviors are typically noted to an extent that they are diagnosable eating disorders (Favazza, DeRosear, and Conterio, 1989), which is not the case in this study with subclinical and more injurious self-harm. Additionally, though participants in this study did not report pronounced difficulties with emotional processing on an explicit measure of such (the Trait Meta-Mood Scale), they did report significantly more somatic symptoms than did those with no self-harm histories, which may represent a more subtle type of difficulty with emotional processing in contrast to more extreme difficulties which are clearly present in some individuals with clinical self-harm.

Differing characteristics. There are also a number of areas that suggest that self-harm is not, at least completely, on a continuum from less to more severe. Areas that appear to differ between what is noted in this study and what has been reported in the clinical self-harm literature are history of abuse, an explicit emotion regulation function to the self-harm incident, pronounced negative affect, and features of personality disorders. History of sexual and physical abuse is hypothesized by some to be an important historical variable in the incidence of clinical self-harm (Zlotnick et al., 1996; Favazza & Conterio, 1989; Carroll, Schaffer, Spensley, & Abramowitz,

1981; Walsh & Rosen, 1988), with history of emotional abuse and significant childhood illness as less emphasized variables (Walsh and Rosen, 1988). In this study, childhood sexual and physical abuse were not significantly related to subclinical self-harm, though emotional abuse was related to more injurious self-harm. Due to their effects on the relationship to the body, conceptualization of the self and relationships to others, and experiences with pain, it is possible that history of sexual and physical abuse are important historical variables that make people more likely to engage in clinical levels of self-harm. More research is needed in this area.

People who engage in clinical self-harm also often report that self-harm provides them with significant relief from intolerable emotional distress or tension (Herpertz, 1995). This factor may be important in sustaining or escalating self-harm behavior. In this study, participants with subclinical self-harm did not report a high level of distress prior to self-harm or any improvement in emotional state following self-harm, and those with more injurious self-harm reported only a small improvement in emotional state. This suggests that there may be a qualitatively different function for clinical self-harm, in providing significant emotional relief, than for subclinical self-harm. Perhaps the more injurious self-harm group in this study exhibited only a small improvement in emotional state following self-harm because the proportion of participants in this group who engaged in clinical levels of self-harm noted a larger improvement while those who engaged in subclinical levels of self-harm reported no improvement, which resulted in an overall finding of a small improvement. This emotion regulation function of clinical self-harm argues against self-harm as a continuum. This area also requires further research.

Pronounced negative affect as well as particular personality disorders have also been noted as common among people who engage in clinical self-harm (Garrison et al., 1993; Herpertz, 1995), but were not found to be present among

those with subclinical or more injurious self-harm in this study. This may either argue against a continuum of self-harm, or may reflect the fact that the population used in this study typically has lower incidence of these factors in general, because they interfere with a college career. It is possible that an investigation of subclinical self-harm in a different setting, such as fingernail biting and scratching in a psychiatric inpatient setting, would not show the same results.

Anger and aggression have been hypothesized to be important variables in clinical levels of self-harm (Favazza and Simeon, 1995; Simeon et al., 1992; Feldman, 1988; Menninger, 1938), and it has been suggested that anger does not play an important role in other types of self-harm, such as skin picking (Favazza and Simeon, 1995). Data from this research is consistent with this hypothesis, as subclinical and mildly to moderately injurious self-harm groups in this study do not show more anger or aggressive behaviors than do those who have no history of self-harm. Anger and aggression is another area in which self-harm does not appear to present along a continuum.

Impulsive and compulsive characteristics. Several researchers have proposed that distinguishing impulsive from compulsive self-harm may be helpful in both conceptualizing and treating self-harm behavior (Simeon, Stein, & Hollander, 1995; Favazza & Simeon, 1995). This hypothesis both argues against a continuum explanation of self-harm and provides a specific way in which a boundary can be made between types of self-harm. On the face of it, distinguishing between impulsive and compulsive types of self-harm appears to be relatively straightforward. According to Simeon, Stein, and Hollander (1995), compulsive self-harm tends to be more habitual and repetitive, with greater resistance to a more ego-dystonic urge. Impulsive self-harm tends to be more episodic and related to precipitating events, with little resistance to an ego-syntonic urge to act.

Several factors in this study suggest that less injurious self-harm, such as

fingernail biting and skin picking, tends to show more compulsive features while more injurious self-harm, such as self-hitting or cutting, tends to show more impulsive features. For example, the *recent low self-harm* group in this study reported engaging in self-harm much more frequently (*Median* = 20 times over lifetime), and often without even conscious awareness. In other words, the behavior was more habitual and repetitive. As reasons that they engaged in self-harm, they more frequently endorsed reasons that are not typically related to precipitating events, such as "because it is a habit," "no reason," "I don't know," and "it gives me something to do." In contrast, the *recent high self-harm* group reported that they engaged in self-harm much less often (i.e. it was less habitual; *Median* = 3 times over lifetime) and more frequently endorsed reasons for self-harm that are more closely related to precipitating internal or external events, such as "to feel something even if it was pain," "to stop bad feelings," and "to punish myself." Also, this group frequently endorsed "other" as a reason for self-harm, describing motivations for more injurious self-harm that are much more heterogeneous than motivations for subclinical self-harm.

However, there are also several discrepancies between the data from this study and the hypothesized impulsive and compulsive features of self-harm. For example, although compulsive self-harm is supposed to show a greater resistance to an urge to act, 51% of the *recent low self-harm* group reported that they never or almost never resisted an urge to self-harm while only 36% of the *recent high self-harm* group reported little to no resistance. Additionally, a short time premeditating an act is generally considered to be a characteristic of impulsive behavior. However in this study both groups reported that they typically spent only a few seconds or less (i.e. acting without conscious awareness) premeditating the action. In this way, it appears that self-harm, whether it falls more on the compulsive or impulsive side of the spectrum, tends to be impulsive in the moment that it is carried out. Obsessive

fears are another hallmark of compulsive acts, with fears that bad things will happen if an action is not carried out. This was also not a helpful distinction in this study, with very few participants from either group reporting any fears about consequences of not doing self-harm and no participants reporting strongly valued beliefs in this area.

Impulsive and compulsive behaviors also tend to cluster with other impulsive and compulsive behaviors. As a second strategy to tease apart impulsive and compulsive characteristics of self-harm and individuals who engage in self-harm, associated impulsive and compulsive characteristics were also measured. In this study, both subclinical and more injurious self-harm behaviors were associated with some general obsessive-compulsive thoughts and beliefs. However, participants with a history of subclinical self-harm, who reported more compulsive features of their self-harm incidents, did not report more general obsessive-compulsive features than did participants with histories of more injurious self-harm. In fact, the only obsessive-compulsive feature that differed between the self-harm groups was "impulses," with the participants with more injurious self-harm reporting more impulsive thoughts than the participants with subclinical self-harm. The inclusion of these items on a measure of obsessive-compulsive characteristics again highlights the overlap between impulsiveness and compulsiveness.

A measure of history of impulsive behaviors other than self-harm, such as disordered eating behaviors, aggressive acts, and risk-taking behaviors, was included in this study as a more general measure of impulsivity. Results indicated that the participants with histories of self-harm reported significantly more impulsive behaviors than did those with no history of self-harm, with the subclinical self-harm group reporting an average of 1 more impulsive behavior than the group with no self-harm and the more injurious self-harm group reporting an average of 3.5 more impulsive behaviors than the group with no self-harm (out of a possible 17 impulsive behaviors). These data suggest that people with a history of subclinical and more

injurious self-harm are likely to be more generally impulsive, but only mildly so. Because of this association it seems likely that self-harm of any type has some impulsive characteristics, with more injurious self-harm being more strongly associated with impulsivity.

So the question remains, is distinguishing between impulsive and compulsive self-harm possible and, if so, is it useful? In reference to subclinical self-harm, the data from this study indicate that it does tend to be more habitual according to number of self-harm incidents reported and reasons given for performing the self-harm. In contrast, more injurious self-harm tends to be more episodic, with fewer incidents reported and reasons focusing more on precipitating internal or external events. However both are associated with obsessive-compulsive characteristics and other impulsive behaviors, though more injurious self-harm is associated with more impulsive behaviors than subclinical self-harm. Additionally, both groups in this study report little premeditation before self-harm and little resistance to self-harm, though it is unclear whether this is more an indication of compulsivity or impulsivity. Given these findings, it appears more accurate to say that subclinical self-harm is more typically habitual (rather than compulsive) while more injurious self-harm is more typically episodic (rather than impulsive), and that both show impulsive and compulsive features. These data tend to support more of a continuum explanation of self-harm phenomena, as both self-harm groups in this study exhibited both compulsive and impulsive features, though to different degrees.

Thus it appears that there are a number of areas which overlap between different types and severities of self-harm, including obsessive and compulsive features and a number of characteristics that may represent difficulties with emotional processing with a tendency towards expressing and coping with distress behaviorally or physically. These lend support to a view of self-harm behaviors as a continuum. However, there are also a number of factors that may be important in

distinguishing subclinical and less injurious self-harm from clinical levels of self-harm, namely history of child sexual and physical abuse, an intense positive emotional response to self-harm, and presence of pronounced anger and aggression. If self-harm is truly best described as a continuum, then these factors should be followed-up with further research as they may be critical in predicting who is most likely to exhibit clinical self-harm versus other types of self-harm.

Gender Differences in Self-Harm

One surprising finding from this study is that there was no significant difference between the number of men and women participants who reported self-harm at either subclinical or more injurious levels. This is in contrast to literature focused on clinical levels of self-harm which typically reports a high proportion of women. For example, Herpertz (1995) used a sample of consecutively admitted patients in a psychiatric hospital in Germany with at least three incidents of self-harm, which resulted in a sample that was 87% women. Favazza and Conterio (1988) also found a high proportion of outpatient women (94% of the sample) who engaged in self-harm, who were recruited through watching a daytime talk show on television.

The absence of a sex difference in this study may indicate one of two things. First, it may indicate that whereas clinical self-harm is much more common among women, subclinical self-harm is equally common among men and women. However, it may more likely reflect an actual lack of sex difference across types of self-harm, suggesting that there is a large amount of sampling error in the clinical self-harm literature that preferentially includes women as participants. For example, Favazza and Conterio's 1988 study clearly preferentially tapped women as they compose a large proportion of the daytime talk show audience. Also, perhaps researchers that are using psychiatric inpatient samples are inadvertently looking at samples that include more women for reasons other than self-harm incidence. For example, self-

harm is also a relatively frequent phenomena in prisons, which would include a more predominantly male population, yet there is relatively little research on this population. Perhaps men who engage in clinical self-harm are more frequently found in settings that are not often the subject of clinical study.

Studies that have focused more on obtaining large cross-sectional community samples have found more parity between self-harm in men and women. For example, Garrison and colleagues (1993) found that of 3283 12 to 14 year olds in an epidemiological survey, 2.46% of males and 2.79% of females reported engaging in nonsuicidal physically self-damaging acts. A multicenter study on parasuicide in Europe (Platt et al., 1991) also found a "general trend towards parity between women and men in respect to overall parasuicide rates," though it should be noted that they included suicide attempts in their definition of parasuicide. The results of these cross-sectional community studies on clinical self-harm combined with the results of this study on subclinical self-harm suggest that self-harm at both subclinical and clinical levels occurs in similar proportions between men and women, though within specific populations, such as prison inmates or psychiatric inpatients, the proportion between men and women may differ. Of course, this still does not explain why clinical self-harm is apparently more frequent among female psychiatric inpatients than in male psychiatric inpatients. Further research is needed in this area.

Limitations

There are several possible limitations and criticisms about the structure, sample, and interpretation of this study. Two significant limitations in the design of this study are that all measures used were self-report and all questions about self-harm were retrospective. Though there are always disadvantages to self-report measures, namely that participants will misunderstand questions, not answer carefully, intentionally lie, or unintentionally misrepresent their experience, it was

difficult in this study to find a way to incorporate non-self-report measures. For example, objective ratings of self-harm scars would be interesting to compare to participants' ratings of their own scars as a gauge of body image distortion from self-harm scars. However it seemed an invasion of participants' privacy to ask them to reveal scars to an experimenter. Additionally, all self-harm data in this study was retrospective. Prospective ratings of mood before and after self-harm could provide more accurate data regarding the possible emotion regulation function of subclinical and clinical self-harm.

The sample used in this study also had limitations, in that it was composed of primarily Caucasian college students from the University of Montana. It will be important to follow up these results in a more urban and ethnically and racially diverse area to determine if the results will replicate. Additionally replication with a sample that is more economically and educationally diverse than a university undergraduate population will also be important. The present sample was also fairly limited in age, with most participants between 18 and 20 years old. This appears to be a strength in this type of research, as incidence of moderately injurious self-harm probably peaks in adolescence. However, a study targeting an older population designed to test that assumption may also yield interesting results.

Inclusion of a measure of social desirability would have been helpful in this study, as would have minor revisions of the Self-Harm Information Form. As self-harm behaviors, particularly at more injurious levels, are associated with shame and social disapproval, report of self-harm behaviors could conceivably be affected by a desire to endorse socially approved behaviors. If this is indeed the case, a measure of social desirability should be included in future research on subclinical self-harm to determine if people with a high need to report socially desirable behaviors would report self-harm behaviors. Additionally, several items on the Self-Harm Information Form were apparently easily misunderstood by participants and should be reworded

or eliminated in future research. For example, the items intended to identify level of injury from self-harm (such as requiring or not requiring medical treatment) were commonly misunderstood by participants who then reported all past injuries rather than simply intentionally self-inflicted injuries.

A major limitation in interpreting results from the more injurious self-harm group in this study is that this group likely included both participants who engaged in subclinical self-harm and those who engaged in clinical self-harm. As distress surrounding self-harm, repetitiveness of self-harm, and level of injury all seem to be important criteria in distinguishing subclinical from clinical self-harm, in future research it may be more helpful to attempt to measure these variables in more detail to aid in group formation. Additionally, in this study participants were included in groups for analysis if they had engaged in self-harm within the last three years. This was likely too long a time frame to use. If a participant had last engaged in moderately injurious self-harm two and a half years ago, and was currently still engaging in subclinical self-harm (such as skin picking and scratching), that person was still included for analysis in the more injurious self-harm group whereas it may have been more accurate to characterize this person's ongoing self-harm as subclinical. Perhaps a time frame of three months or so would be more useful in future research.

However, though the more injurious group in this study should probably be split into subclinical and clinical groups, it is still not recommended that people who engage in subclinical levels of self-harm that are more injurious (such as punching and kicking oneself) be grouped with people who engage in subclinical levels of self-harm that are less injurious (such as fingernail biting). Though they probably both represent subclinical types of self-harm, they most likely differ on important characteristics, such as how habitual the behavior is, how socially accepted the behavior is, and the level of pain involved. Grouping them together would likely

obscure important differences.

A final limitation to consider is that direct comparisons between the subclinical self-harm group in this study and the more injurious self-harm group are complicated by the fact that the subclinical self-harm group includes primarily people who have more recently engaged in self-harm. Seventy-two percent of the participants in the subclinical self-harm group reported that they had engaged in self-harm within the last three months whereas only five percent of the participants in the more injurious self-harm group reported that they had engaged in self-harm within the last three months. It is possible that the self-harm groups showed differences on some variables simply due to the difference between them in recency of self-harm.

Implications for Future Research and Treatment of Self-Harm

This study has several implications for future research on subclinical and clinical self-harm and for treatment of self-harm. First, this study indicates that subclinical self-harm is fairly common among an undergraduate population and is not generally directly associated with distress. Rather it seems to be more of an indicator of a tendency to express and cope with distress in a more behavioral or physical manner. Though it is associated with other problems, such as disordered eating behaviors, even the associated problems are typically endorsed only at subclinical levels. It is not clear from these findings that future research on subclinical self-harm in itself is warranted.

However, this study suggests that self-harm may occur along a continuum, at least in some respects. In other words, subclinical self-harm may be related to clinical self-harm in some ways because factors identified in previous research to be related to clinical self-harm are also related to subclinical self-harm. This is particularly true for factors related to expressing and modulating distress in a physical or behavioral way including disordered eating behaviors, somatic symptoms, and impulsive behaviors. It is also true for factors suggesting poor

impulse control including compulsive and impulsive behaviors. As subclinical self-harm is apparently a fairly commonplace occurrence among undergraduate populations, it is possible that it could be used as an analogue to clinical self-harm if the research questions are confined to areas in which they are similar. Subclinical populations are being used in many areas of research such as psychotic disorders and obsessive-compulsive disorder (Persons, 1987; Rosenfarb, Goldstein, Mintz, & Nuechterlein, 1995; Mataix-Cols, Barrios, Sánchez-Turet, Vallejo, Junqué, 1999; Roth & Baribeau, 1996) and have yielded interesting findings that may be important in understanding the clinical variants of these disorders. It is possible that research in subclinical self-harm phenomena may provide similar opportunities.

This study also identifies several variables that may differentiate subclinical and clinical self-harm, namely history of child sexual abuse, change in emotional state following self-harm, and anger and aggressive behaviors. This indicates that factors such as disordered eating and greater impulsivity, though important in self-harm in general, are not uniquely important to clinical self-harm. However, history of child sexual abuse and intense positive emotional response to self-harm are uniquely important in clinical self-harm. Identification of factors that are uniquely related to only clinical levels of self-harm may be important in further clarifying reasons that clinical self-harm occurs and in improving treatment approaches for clinical self-harm.

An interesting question that arises if self-harm is in some ways best described as a continuum is whether self-harm is actually progressive. For example, does a person in mild distress begin with subclinical self-harm in childhood and then progress to clinical levels of self-harm when subjected to certain stressors in adolescence? If self-harm is indeed progressive, then differences between subclinical and clinical levels of self-harm may have implications for therapeutic

interventions that could help prevent an escalation of self-harm. For example, as history of child sexual abuse is related to the occurrence of clinical self-harm but not to the occurrence of subclinical self-harm, trauma-focused therapy may be helpful in some cases in preventing an escalation of self-harm behaviors.

This study also has several other implications for treatment of self-harm. First, for most undergraduates, subclinical self-harm appears to be more of a sign of a tendency for expressing and coping with distress behaviorally or physically rather than a significant source of distress in itself. Given this formulation, if a patient is wanting to decrease subclinical self-harm behaviors, some clinicians may prefer to target this coping style as a whole as the problematic behavior, rather than to directly target the self-harm behavior which may be seen as only a symptom of the problem. However this study also highlights that there is a small subgroup of people with subclinical self-harm behaviors who are significantly distressed by their self-harm. In these cases it may be more appropriate to directly target the self-harm behavior due to the distress that it is directly causing, rather than only viewing it only as a sign of a larger problem, though in many cases this may still be the case. Focusing on a subclinical self-harm behavior that is distressing for the patient and helping the patient to change his or her behavior may provide a mastery experience for the patient that could then be generalized to other associated problematic behaviors, such as disordered eating behaviors.

This study also has implications for therapy with patients who are generally functioning well, but display mildly to moderately injurious self-harm behaviors that could be most accurately characterized as subclinical. In this case, it is important to be aware that a history of mildly to moderately injurious self-harm behaviors is fairly common in an undergraduate population and is not found only in people with severe functional impairments. In some cases it is both associated with other distressing phenomena (such as shame, impulsivity, and disordered eating behaviors) and at

the same time is not associated with more severe pathology (such as Axis II traits). This is an important dialectic in treatment of mildly to moderately injurious self-harm incidents: that they can both be distressing for patients, yet not necessarily portend a lifetime of distress and impairment. In some cases, naïve clinicians may approach moderately injurious self-harm behaviors as clear indications of emerging severe pathology, such as a serious eating disorder or Borderline Personality Disorder. In some cases and in some populations this may indeed be so, but from this study it appears that in a good number of cases, it is probably not so. Overpathologizing self-harm behaviors that may be more accurately characterized as subclinical may result in iatrogenic treatment approaches which may increase rather than decrease symptomatology. For example, overfocusing on a single mild self-harm incident may not be productive for patients with isolated incidents of subclinical self-harm.

Subclinical self-harm at both mildly and moderately injurious levels appears to be a fairly common occurrence among college undergraduates that is typically not directly associated with significant distress or serious pathology (such as Axis II features or significant negative affect). Instead, it appears to be more of a sign of a larger tendency to express and cope with distress more physically or behaviorally. This is indicated by an association with more disordered eating behaviors, a higher incidence or greater focus on physical symptoms, and increased impulsive and compulsive behaviors. Subclinical self-harm behaviors may in some ways fall on the far end of a self-harm continuum. If this is indeed the case, subclinical self-harm may represent an area of research that could further understanding and treatment of all levels of self-harm.

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Appendix A: Demographic Information Form

Following are questions intended to get some basic information about you. Please fill in your responses on the answer sheet. **DO NOT WRITE ON THIS SHEET.**

1. Are you male (M) or female (F)?
2. How old are you?
3. What is your marital status?
 - A. Single
 - B. Unmarried, in a committed relationship
 - C. Married
 - D. Separated
 - E. Divorced
 - F. Widowed
4. What is the highest grade in school that you have finished?
 - A. Didn't finish high school
 - B. High school
 - C. Some college
 - D. 2-year degree
 - E. Bachelor's degree
 - F. Advanced Degree
5. What is your racial/ethnic background? (Please check all that apply)
 - A. African American
 - B. Asian
 - C. American Indian
 - D. Hispanic
 - E. White/Caucasian
 - F. Other
6. What is your yearly family income after taxes? (or your individual income if you live alone)
 - A. 1-10,000
 - B. 10-20,000
 - C. 20-30,000
 - D. 30-40,000
 - E. 40-60,000
 - F. 60-80,000
 - G. 80,000+
7. What best describes the type of area you grew up in?
 - A. Rural/ranch
 - B. Small town (less than 2,000)
 - C. Town (2,000 – 40,000)
 - D. Small city (40,000 – 100,000)
 - E. Metropolitan area (larger than 100,000)

Appendix B: Self-Harm Screening Measure

We are trying to determine how often college students engage in some of the following behaviors. Please answer yes or no for whether you have ever done each of these things. Remember that all of your responses are completely confidential.

	Yes	No
Bitten your fingernails enough to cause bleeding or pain	_____	_____
Picked at your skin severely enough to cause bleeding or scarring	_____	_____
Scratched your skin severely enough to cause bleeding or scarring	_____	_____
Pulled out large amounts of hair	_____	_____
Interfered with the healing of a wound, such as by repeatedly pulling off scabs	_____	_____

Appendix C: Self-Harm Information Form

This questionnaire is designed to help us better understand people who engage in certain behaviors. There are two parts to this questionnaire. When you reach the end of section one, tell the experimenter that you are ready to begin section two.

Your responses are an important part of this research! Please answer as honestly as you can. Some of the questions may seem strange, may be difficult to answer, or may make you feel uncomfortable. If you have any questions or need to take a short break, please let the experimenter know. All of your responses will be completely confidential and only the experimenter will have access to the questionnaires. Your name will never appear on this form. Thank you very much for your participation!

I am currently _____ years old.

Section 1: Indicate whether you have ever done any of the following behaviors. If yes, answer the questions that follow. Sometimes people have difficulty remembering the number of times they have done something. If it is hard for you to remember, please write in a number that is your best guess.

	If Yes:		When I think about having done this, I feel: (please rate)			
	No	Yes	Approximately how many times in... my lifetime the last 3 months	Age I first did this	Age I last did this	-5.....0.....+5 Very Ashamed Neutral Very Proud
1. Interfered with the healing of a wound, such as by repeatedly pulling off scabs	_____	_____	_____	_____	_____	_____
2. Bitten your fingernails enough to cause bleeding or pain	_____	_____	_____	_____	_____	_____
3. Scratched your skin severely enough to cause bleeding or scarring	_____	_____	_____	_____	_____	_____
4. Picked at your skin severely enough to cause bleeding or scarring	_____	_____	_____	_____	_____	_____
5. Pulled out large amounts of hair	_____	_____	_____	_____	_____	_____

	If Yes:		When I think about having done this, I feel: (please rate)	
	No	Yes	-5.....0.....+5 Very Ashamed Neutral Very Proud	
	Approximately how many times in... my lifetime the last 3 months		Age I first did this	Age I last did this
6. Punched or hit yourself to the point of bruising or more	_____	_____	_____	_____
7. Banged your head, arms, or legs on purpose to the point of bruising	_____	_____	_____	_____
8. Stuck yourself with pins, needles, etc., on purpose and drawn blood	_____	_____	_____	_____
9. Burned yourself on purpose	_____	_____	_____	_____
10. Carved words or symbols on your skin	_____	_____	_____	_____
11. Cut your wrists (not trying to die)	_____	_____	_____	_____
12. Cut other areas of your body (not trying to die)	_____	_____	_____	_____
13. Swallowed harmful objects (not drugs)	_____	_____	_____	_____
14. Taken drugs for the purpose of harming yourself (not to get high or die)	_____	_____	_____	_____
15. Broken your bones on purpose	_____	_____	_____	_____
16. Strangled yourself (not trying to die)	_____	_____	_____	_____

Indicate whether you have ever done any of the following behaviors. If yes, answer the questions that follow. Again, if it is hard for you to remember how many times you have done something, please write in a number that is your best guess.

	If Yes:		When I think about having done this, I feel: (please rate)						
	No	Yes	Approximately how many times in... my lifetime	Age I first did this	Age I last did this	-5.....0.....+5	Very Ashamed	Neutral	Very Proud
17. Consumed large amounts of food in one sitting	_____	_____	_____	_____	_____	_____	_____	_____	_____
18. Severely restricted your food intake	_____	_____	_____	_____	_____	_____	_____	_____	_____
19. Made yourself vomit	_____	_____	_____	_____	_____	_____	_____	_____	_____
20. Used laxative and/or diuretics to control weight	_____	_____	_____	_____	_____	_____	_____	_____	_____
21. Exercised to exhaustion	_____	_____	_____	_____	_____	_____	_____	_____	_____
22. Had rage attacks or temper tantrums	_____	_____	_____	_____	_____	_____	_____	_____	_____
23. Hit someone	_____	_____	_____	_____	_____	_____	_____	_____	_____
24. Physically threatened someone	_____	_____	_____	_____	_____	_____	_____	_____	_____
25. Driven recklessly or dangerously fast	_____	_____	_____	_____	_____	_____	_____	_____	_____
26. Had sexual intercourse without regard to pregnancy or sexually transmitted diseases	_____	_____	_____	_____	_____	_____	_____	_____	_____

(continued on the next page)

	If Yes:		When I think about having done this, I feel: (please rate)	
	No	Yes	-5 Very Ashamed	+5 Very Proud
	Approximately how many times in... my lifetime the last 3 months		Age I first did this	Age I last did this
27. Traveled alone in dangerous areas without regard to personal risk	_____	_____	_____	_____
28. Shoplifted or stolen from an employer	_____	_____	_____	_____
29. Gone on a shopping spree where you spent much more than you could afford	_____	_____	_____	_____
30. Set a fire, other than for profit	_____	_____	_____	_____
31. Gotten into trouble or lost big while gambling	_____	_____	_____	_____
32. Attempted suicide by overdosing on drugs	_____	_____	_____	_____
33. Attempted suicide in another way (specify how) _____	_____	_____	_____	_____

This is the end of section one of this questionnaire. Please tell the experimenter that you are ready to begin section two.

Section 2: This questionnaire will refer to the item that the experimenter circled on section one as your target behavior.

34. Check any of the following statements that are true about you.

- I have harmed myself enough to cause *moderate* physical harm (such as a cut or gash, but not requiring stitches).
If yes, how many times have you harmed yourself this seriously in the past 12 months? _____ In your lifetime? _____
- I have harmed myself enough to require medical attention, such as stitches (whether or not you actually sought medical attention)
If yes, how many times have you harmed yourself this seriously in the past 12 months? _____ In your lifetime? _____
- I have harmed myself enough to require immediate or emergency medical attention.
If yes, how many times have you harmed yourself this seriously in the past 12 months? _____ In your lifetime? _____
- I have been hospitalized because I have harmed myself or threatened to harm myself.

Remember, your target behavior is the behavior that the experimenter circled on section one.

35. Check True or False for the following statements.

- True False Voices have sometimes told me to do the target behavior.
- True False Evil spirits or demons have sometimes pushed me to do the target behavior.
- True False Doing the target behavior has helped me to atone for my sins.
- True False Sometimes doing the target behavior has put me in closer contact with God.
- True False My tendency to do the target behavior has been influenced by passages in the Bible.

36. How do you usually feel BEFORE your target behavior? Circle a number for each feeling.

	Not at all	Moderately	Extremely
Angry	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Anxious/Afraid	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Ashamed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Calm/Relaxed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Energized	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Numb	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Sad/Depressed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		

37. How do you usually feel AFTER your target behavior? Circle a number for each feeling.

	Not at all	Moderately	Extremely
Angry	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Anxious/Afraid	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Ashamed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Calm/Relaxed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Energized	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Numb	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Sad/Depressed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		

38. After your target behavior, how do you usually feel IMMEDIATELY afterwards?
 Much worse ____ Worse ____ No change ____ Better ____ Much better ____

39. After your target behavior, how do you usually feel A FEW HOURS afterwards?
 Much worse ____ Worse ____ No change ____ Better ____ Much better ____

40. After your target behavior, how do you usually feel A FEW DAYS afterwards?
 Much worse ____ Worse ____ No change ____ Better ____ Much better ____

41. How often do you find yourself doing the target behavior without realizing it?
 Never ____ Occasionally ____ Sometimes ____ Usually ____ Always ____

42. How much time is there between when you first think of doing the target behavior and when you actually do it?
 ____ only a few seconds
 ____ a few minutes
 ____ between one hour and 24 hours
 ____ 24 hours or more
 ____ None of the above. I usually do it without thinking about it or realizing it.

43. Once you start thinking about doing the target behavior, to what extent do you believe that something bad will happen if you don't follow through and actually do the target behavior?
 ____ I do not at all believe that something bad will happen.
 ____ I do not believe that something bad will happen, but sometimes I have doubts.
 ____ I am not sure whether or not something bad will happen.
 ____ I am fairly sure that something bad will happen.
 ____ I strongly believe that something bad will happen.

44. How likely is it that you would be able to stop yourself from the doing the target behavior if you had an urge to do it?
 ____ I would *definitely* be able to stop myself.
 ____ ...*would probably*...
 ____ ...*might*...
 ____ ...*would probably not*...
 ____ ...*would definitely not*...

45. How often do you try to resist when you feel like doing the target behavior?
 Never ____ Occasionally ____ Sometimes ____ Usually ____ Always ____
46. Do you have scars on your body which are a result of the target behavior?
 ____ Yes ____ No
 If yes, please answer the following questions. If no, skip to question 51.
47. Approximately how many scars do you have on your body? _____
48. Where are your scars located?
 ____ Arms ____ Chest ____ Head/Face/Neck ____ Hands/Fingers
 ____ Legs ____ Genital area ____ Abdomen (front or back)
49. To what extent do you feel ashamed about your scars? Circle a number.
- | | | |
|--------------|--------------|--------------|
| Not at all | Moderately | Extremely |
| 0 - - - - - | -1 - - - - - | -2 - - - - - |
| -3 - - - - - | -4 | |
50. Have you ever tried to hide your scars? Yes ____ No ____ (If no, skip to question 51)
 To what extent have you used the following methods to try to prevent people from seeing your scars? Rate each of the listed methods according to the following scale.
- | | | |
|--------------------|------------------------|--------------------------------------|
| I never
do this | I sometimes
do this | I always or almost
always do this |
| 0 - - - - - | -1 - - - - - | -2 - - - - - |
| | -3 - - - - - | -4 |
- ____ Using heavy makeup
 - ____ Avoiding activities where my body is exposed, such as swimming or changing clothes in a locker room
 - ____ Styling my hair in a way to hide my scars
 - ____ Positioning my body to disguise or hide my scars, such as by keeping my head down, or turning my body in a way to make the scarred area less obvious
 - ____ Wearing certain clothes to hide my scars, such as long sleeves or turtlenecks
 - ____ Avoiding areas with bright lights or crowds
 - ____ Avoiding work or school
 - ____ Staying at home
 - ____ Getting (or trying to get) a tattoo to cover scars
 - ____ Getting (or trying to get) special dermatological treatments
 - ____ Getting (or trying to get) surgery to remove scars
 - ____ Other (specify) _____
51. Do you have noticeable areas of hair loss due to the target behavior? Yes ____ No ____
 If yes, please answer the following questions. If no, skip to question 54.
52. To what extent do you feel ashamed about your hair loss? Circle a number.
- | | | |
|-------------|--------------|--------------|
| Not at all | Moderately | Extremely |
| 0 - - - - - | -1 - - - - - | -2 - - - - - |
| | -3 - - - - - | -4 |

53. Have you ever tried to hide your hair loss? Yes ___ No ___ (If no, skip to question 54)
 To what extent have you used the following methods to try to prevent people from seeing your hair loss? Rate each of the listed methods according to the following scale.

I never do this I sometimes do this I always or almost always do this
 0 - - - - -1 - - - - -2 - - - - -3 - - - - -4

- Using heavy makeup
- Avoiding activities where my body is exposed, such as swimming or changing clothes in a locker room
- Styling my hair in a way to hide my hair loss
- Positioning my body to disguise or hide my hair loss, such as by keeping my head down, or turning my body in a way to make the area less obvious
- Wearing certain clothes to hide my hair loss, such as hats
- Avoiding areas with bright lights or crowds
- Avoiding work or school
- Staying at home
- Other (specify) _____

54. Do you have changes in your appearance, such as scars or hair loss, that are due to the target behavior that concern you? Yes ___ No ___
 If yes, please answer the following questions. If no, skip to question 57.

55. How often do you do the following things in regard to the change in your appearance (such as your scars or hair loss or other change)? Rate each based on the scale below.

I never do this I sometimes do this I do this very often
 0 - - - - -1 - - - - -2 - - - - -3 - - - - -4

- Check your scars/hair loss in mirrors
- Avoid looking at your scars/hair loss, for example by avoiding mirrors
- Ask others for reassurance about your appearance
- Touch your scars or areas of hair loss
- Compare your appearance to others' appearances
- Think about your scars/hair loss.
- Worry about your scars/hair loss.

56. To what extent has your change in appearance (including scars, hair loss, or other change) interfered with areas of your life? Rate each area based on the scale below.

Not at all interfered Somewhat interfered Extremely interfered
 0 - - - - -1 - - - - -2 - - - - -3 - - - - -4

- Your school work
- Your social life
- Your job
- Your relationships with family or friends
- Other activities (specify) _____

57. Think about the reasons you usually do the target behavior. Rate each of the listed reasons according to the following scale.

Never a reason for me Sometimes a reason for me Almost always a reason for me
 0 - - - - -1 - - - - -2 - - - - -3 - - - - -4

- To stop bad feelings
- To make your thoughts slow down
- To communicate or let others know how desperate you are
- To get help
- To die
- To feel something, even if it was pain
- Because it felt good
- To punish yourself
- To get out of doing something
- To make others feel needed
- To give you a feeling of accomplishment, that you were doing something well
- To prove to yourself that things really were bad and it was OK to feel as bad as you did
- To give you something to do
- To wake up or get yourself going
- To get other people to act differently or change
- To get back at or hurt someone
- To get away or escape
- To try to improve your appearance
- To get rid of something about your body that you didn't like
- Because it is a habit
- No reason
- I don't know
- Other: _____

58. In general, when you think about the fact that you have done the target behavior, how do you feel? Circle a number for each line.

	Not at all	Moderately	Extremely
Angry	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Anxious/Afraid	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Ashamed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Calm/Relaxed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Energized	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Numb	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		
Sad/Depressed	0 - - - - -1 - - - - -2 - - - - -3 - - - - -4		

59. How much pain do you usually feel when you do the target behavior?
 None _____ A little _____ A moderate amount _____ A great deal _____

60. How much pain do you think the average person would feel if they did your target behavior to themselves?
None ____ A little ____ A moderate amount ____ A great deal ____
61. Usually when you do the target behavior, how often do you actually intend to cause physical harm to your body (versus harm being an accidental consequence of something else you were doing)?
 ____ I *always* intend to cause myself physical harm
 ____ ...*usually*...
 ____ ...*sometimes*...
 ____ ...*occasionally*...
 ____ ...*never or almost never*...
62. Have you ever considered suicide because you were discouraged about your ability to control the target behavior? Yes ____ No ____
63. Have you told anyone else about the target behavior? Yes ____ No ____
 If yes, who have you told (check all that apply)?
 ____ Doctor ____ Psychotherapist ____ Hospital Staff
 ____ Crisis Service ____ Supervisor/teacher ____ Co-worker/other student
 ____ Friend ____ Relative ____ Romantic partner/spouse
 ____ Neighbor Other (specify) _____
64. Are you currently in treatment (or have been within the past 6 months) at a mental health, psychiatric, or counseling office or facility? Yes ____ No ____
 If yes, is your therapist aware of the target behavior? (choose one of the following options)
 ____ The therapist is working specifically with me to control the target behavior.
 ____ The therapist is working on other issues, but is aware of the target behavior.
 ____ The therapist is not aware of the target issue.
65. Have you had outpatient psychiatric or psychological help or counseling for the target behavior? Yes ____ No ____
 If yes, answer the following questions. If no, skip to question 66.
 Estimate number of treatment sessions attended. _____
 How helpful was the treatment for you?
 Not at all ____ A little ____ Somewhat ____ Very ____ Extremely ____
66. Have you received medication for the target behavior? Yes ____ No ____
 If yes, answer the following questions. If no, skip to question 67
 What type or types of medications have you received? Also rate how helpful each medication was for you.

<u>Medication Name</u>	<u>Helpfulness</u>
_____	Not at all ____ A little ____ Somewhat ____ Very ____ Extremely ____
_____	Not at all ____ A little ____ Somewhat ____ Very ____ Extremely ____
_____	Not at all ____ A little ____ Somewhat ____ Very ____ Extremely ____
_____	Not at all ____ A little ____ Somewhat ____ Very ____ Extremely ____

67. Have you had other treatment for the target behavior? Yes ____ No ____
 If yes, answer the following questions. If no, skip to question 68

What type of person or people have you gone to for help (such as dermatologist, general physician, chiropractor, homeopath, faith healer or exorcist, lay healer, etc.)? Also rate how helpful each person was for you.

<u>Person</u>	<u>Helpfulness</u>				
_____	Not at all ____	A little ____	Somewhat ____	Very ____	Extremely ____
_____	Not at all ____	A little ____	Somewhat ____	Very ____	Extremely ____
_____	Not at all ____	A little ____	Somewhat ____	Very ____	Extremely ____
_____	Not at all ____	A little ____	Somewhat ____	Very ____	Extremely ____

68. Have you been diagnosed as having a mental disorder? Yes ____ No ____
 If yes, what diagnoses have you had? _____
 _____ Don't know _____

69. Think about the FIRST TIME that you did the target behavior and answer the following questions. If you can't remember the exact first time, think back to the earliest memories you have of doing the target behavior.

Why do you think you did the target behavior the first time? What was happening in your life?

What was your reaction after you did the target behavior the first time?

Please describe in some detail what happened when you first did the target behavior. If you can't remember the exact first time, just describe what happened in your earliest memories of doing your target behavior.

70. If you have done the target behavior more than one time, please answer the following questions. If you have only done the target behavior once, skip to question 71.

Once you began to do the target behavior, approximately what is the longest period of time in which you did not do the target behavior? _____

Have you noticed any pattern to when the target behavior happens, such as always after a certain event, or when you feel a certain way? Yes ____ No ____
If yes, what pattern have you noticed?

Why do you think you did the target behavior the MOST RECENT time? What was happening in your life? If you can't remember the exact most recent time, think about how the target behavior has been for you most recently.

What was your reaction after your most recent time?

Please describe in some detail the most recent time you did the target behavior.

71. When was the last time you did the target behavior? _____
How have you been able to not do the target behavior since then?

Thank you for filling out this questionnaire! On the back of this sheet, please feel free to add anything that you think would be helpful for us in understanding you or any of the experiences mentioned in this questionnaire. Use as much space as you would like. When you are finished, put your questionnaires in the envelope and return them to the experimenter.

Appendix D: Consent Form

This experiment involves completing questionnaires on a variety of topics, including your mood, your beliefs about yourself, and your behaviors. We are interested in finding out how common some of these things are among college students and how they fit together for each individual college student. Some of the questions deal with sensitive personal information that could cause emotional distress. You may skip any topic or question that makes you feel uncomfortable. We anticipate that it will take you between one and two hours to complete all the questionnaires. We will also encourage you to take a brief break part way through the study. You will receive four experimental credits for your participation.

The questionnaires that you complete today will be completely anonymous and will never have your name connected to them. Additionally, at the end of the study we would ask that you seal your completed questionnaires in the envelope provided. All questionnaires will be kept in a locked and secure area.

If you have any questions at any time, please ask the experimenter. If questions occur to you at a later time, you may contact the experimenter, Andrea Neal, by calling the Psychology Department at 243-4521. You may also contact the faculty supervisor for this project, Dr. Jennifer Waltz, by calling 243-5750 or writing to her at the Psychology Department.

Some of the questions asked during this study may touch on topics that are upsetting to some people. If you find that you are becoming upset by any questions, we would encourage you to take a break and/or to discuss your feelings with the experimenter. You are also completely free to skip any questions or withdraw from the experiment at any time without loss of experimental credits. Names of students who withdraw will not be linked with their withdrawal. Those students may just put their unfinished questionnaires in their envelopes, seal them, and turn them in to the experimenter.

Although we believe that the risk of taking part in this study is minimal, the following liability statement is required in all University of Montana consent forms. In the event that you are injured as a result of this research you should individually seek appropriate medical treatment. If the injury is caused by the negligence of the University or any of its employees, you may be entitled to reimbursement or compensation pursuant to the Comprehensive State Insurance Plan established by the Department of Administration under the authority of M.C.A., Title 2, Chapter 9. In the event of a claim for such injury, further information may be obtained from the University's Claims Representative or University Legal Counsel.

Thank you in advance for your time and participation in this study. You are a vital part of this research project. The information that you provide will be important in developing a better understanding of the types of behaviors and beliefs identified in the questionnaires.

I have read this consent form. I understand the information provided in it. I am 18 years of age or older.

Signature

Date

Appendix E: Purpose of the Study

This study is looking at the characteristics of people who do things that harm their bodies, including things that are very mildly harmful like biting their fingernails. The researchers are interested in comparing people who do things like this to people who do not, so both types of people are participating in the study. We are interested in finding out more about people who harm their bodies, such as how upsetting it is to them or what other kinds of things they also do. We are hoping that through research like this, we can better understand people who hurt themselves in many ways and we can find more effective help for them.