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Should Non-Suicidal Self-Injury Be A Putative Obsessive-Compulsive Related Condition? A Critical Appraisal

Dean McKay and Margaret Andover

Fordham University

Abstract

Non-suicidal self-injury (NSSI) has many behavioral and cognitive features that would make it appear to be closely tied to obsessive-compulsive disorder (OCD). Obsessive-compulsive related disorders (OCRDs) have been described in the literature as conditions that share a common phenomenology, neurobiology, and treatment response. We reviewed the literature describing the degree that NSSI is similar to, and distinct from, OCRDs based on these hypothesized common areas. We conclude with recommendations for conceptualization that draws partly on that from the OCD literature and from cognitive-behavioral models of rumination.

Keywords

Obsessive compulsive disorder; non-suicidal self-injury; obsessive compulsive related disorders

There has been considerable interest in a proposed set of conditions referred to as Obsessive-Compulsive Related Disorders (OCRDs; Hollander, Braun, & Simeon, 2008). These disorders are all hypothesized to share a wide range of characteristics, including phenomenology, neurobiology, family and genetic features, and response to topographically similar treatment methods. In the most recent description of the defining features of this proposed category of disorders, non-suicidal self-injury (NSSI) is included under several different conditions (i.e., excoriation, trichotillomania) that are classed as having a mild to moderate placement in the OCD. Specifically, one particular method of NSSI, skin picking, is thought by some to be representative of OCRDs. The interest in this putative set of disorders has been central to the proposed development of this category for the forthcoming next edition of the Diagnostic and Statistical Manual, whereby OCD would no longer be a member of the anxiety disorders and instead be part of this new class of conditions, and skin picking disorder would be included as an OCD. This review and critique is intended to examine existing research related to this conceptualization of NSSI and inclusion of NSSI, and specific methods of NSSI such as skin picking, as an OCD.

Obsessive-Compulsive Related Disorders

Obsessive-compulsive disorder is a severe, chronic, and generally disabling psychiatric disorder marked significant functional impairment (Markarian et al., 2010). It is also a

heterogeneous disorder, with several identified subtypes (McKay et al., 2004). The subtypes identified through factor and cluster analyses are: obsessions (such as aggressive, sexual, religious or somatic) and checking; symmetry and ordering; contamination obsessions and associated cleaning compulsions; and hoarding (Abramowitz, McKay, & Taylor, 2005). Hoarding has recently been identified as a condition sufficiently unlike other subtypes that it is proposed to become a distinct diagnosis in the next edition of the diagnostic manual (Pertusa et al., 2008, 2010). Each subtype likewise shows differential response to treatment, and has substantially different clinical presentation and emotional concomitants (Abramowitz, McKay, & Taylor, 2007). For example, one prominent subtype, contamination obsessions and associated cleaning compulsions, has been shown to be significantly associated with disgust reactions, often in larger measure than anxiety (summarized in McKay & Moretz, 2009). On the other hand, symmetry and ordering symptoms have been associated with perfectionism and perceptual disturbance referred to as 'not-just right experiences' (Ghisi et al., 2010; Moretz & McKay, 2009). These examples illustrate not only the topographical, but also functional, heterogeneity of symptom manifestation of OCD.

Over the past twenty years, it has been proposed that many disorders are part of a larger spectrum of conditions unified by obsessiveness, compulsivity, or a combination of the two (Hollander & Rosen, 2000). This original formulation was dubbed the obsessive-compulsive spectrum, and was based on an assumption that disorders varied in the degree of behavioral regulation, placed along an impulsive-compulsive continuum. Accordingly, disorders based on impulsivity (such as NSSI) could be considered part of the same spectrum as individuals with obsessive compulsive disorder (OCD) per se given the difficulty both share in regulating rates of behavior. From this spectrum emerges the postulate that members of this class of disorders would share phenomenology, heritability, and treatment response to topographical similar interventions. The result was an expansive list of putative member conditions. Indeed, to illustrate the diversity of conditions in the original conceptualization of the spectrum, the list of hypothesized member disorders included gambling, paraphilias, and borderline personality disorder (Hollander & Rosen, 2000; see also Abramowitz et al., 2010; McKay, Abramowitz, & Taylor, 2007).

Problems in the conceptualization of the obsessive-compulsive spectrum are numerous. First, if putative members of the spectrum share common difficulties in behavior regulation, then both impulsivity and compulsivity should be evident. However, there is limited evidence of similar inhibitory deficits; instead, disorders primarily characterized by impulsivity tend to exhibit primary impulsive behaviors and those characterized by compulsivity tend to be primarily compulsive. Second, there does not appear to be many phenomenological similarities. Individuals with conditions characterized by impulsivity are associated with high hedonic value, whereas those associated with compulsivity tend to view the associated behaviors as aversive. Third, there is little evidence of common neurobiology between more impulsive based disorders compared to compulsive based disorders. Each of these areas is described in greater detail in McKay, Abramowitz, and Taylor (2007).

More recently the spectrum has been narrowed to reflect a range of related conditions (obsessive-compulsive related disorders, OCRDs), and some disorders are described as

related in varying strengths. These are again based to varying degrees as related according to phenomenology, common neurobiology, and treatment response (Hollander, Braun, & Simeon, 2008). However, the same empirical difficulties exist in defining OCRDs for each of the hypothesized dimensions (Abramowitz et al., 2009). Of additional importance has been the manner of comparisons between putative member OCRDs. If the assumption is that member disorders are similar, then analyses by necessity require testing for presence of the null hypothesis. Other approaches to analysis that would conclusively illustrate membership in the OCRD have been described (McKay & Neziroglu, 2009). These include specifically testing for statistical equivalence (Tryon, 2001) and reporting effect sizes for salient psychopathology and neurobiological variables. Finally, despite availability of the OCRD (or its predecessor, the obsessive-compulsive spectrum) conceptualization of a wide range of disorders, most psychosocial treatment providers have not framed treatment in this model. For example, using telephone and other teleconference methods of treatment delivery, effect sizes in treatment outcome studies for OCRDs was similar to that obtained in the office, but were based on conceptualizations of the conditions that were highly specific to each, rather than based on an assumed impulsive-compulsive continuum (McKay & Brand, 2010).

Overlapping and Distinctive Features of Obsessive-Compulsive Related Disorders and Non-Suicidal Self-Injury

Non-suicidal self-injury involves deliberate harm to the body without suicidal intent and includes behaviors such as cutting, scratching, skin picking, interfering with wound healing, burning, and carving words, designs, or symbols into the skin. The behavior is common among clinical samples; research indicates that 21 to 45% of clinical samples report a history of NSSI (Andover & Gibb, 2010; Briere & Gil, 1998; Nijman et al., 1999; Zlotnick et al., 1999). The behavior also occurs frequently in the community (Briere & Gil, 1998; Klonsky, Oltmanns, & Turkehimer, 2003; Nijman et al., 1999) and is especially prevalent among young adults and adolescents (Jacobson & Gould, 2007). Between 12 and 38% of young adults report a history of NSSI, and up to 40% of adolescent inpatients report engaging in the behavior (Rodham & Hawton, 2009). The behavior is repetitive and chronic (Briere & Gil, 1998; Muehlenkamp, 2005; Suyemoto, 1998) and is associated with negative consequences, such as physical injury, scarring, social stigma, guilt, shame, social isolation (Gratz, 2003). Behaviors are also likely to increase in risk or lethality over time, including more severe injuries and possible death (Briere & Gil, 1998; Stellrecht et al., 2006). Researchers have suggested that NSSI may be considered as an impulsive or compulsive behavior. Compulsive NSSI is habitual, repetitive, performed in response to an unwanted urge, and often thought to be related to obsessive compulsive symptoms. Impulsive NSSI is often more episodic, performed in response to a specific event, and thought to be associated with impulsivity (Simeon, Stein, & Hollander, 1995). While these distinctions have not been applied in NSSI research in general, research on impulsive, and compulsive NSSI has focused on skin picking behaviors, also known as psychogenic excoriation, which includes excessive scratching, picking, or gouging and is associated with significant distress or impairment (i.e., Arnold, Auchenbaum, & Elroy, 2001; Deckersbach, Wilhelm, & Keuthen, 2003; Hayes, Storch, & Berlanga, 2009; Keuthen et al., 2000). Tissue damage from self-injurious skin picking can be severe; Wilhelm et al. (1999) found that among their sample of

self-injurious skin pickers, number of visible lesions ranged from few to over 100, 81% of the sample reported scars, 61% reported infections, and 45% reported “deep craters” as a result of their skin picking. Nearly 60% avoided social situations because of their skin picking and appearance, and over 80% reported using clothing or cosmetics to cover scars and lesions. Although self-injurious skin picking may be performed automatically, it is often used to lessen feelings of tension, anxiety, and frustration, with the individual reporting relief upon completion of the act (Arnold et al., 1998; Deckersbach et al., 2003; Stein, Hutt, Spitz, & Hollander, 1993).

Arnold and colleagues (2001) proposed diagnostic criteria for psychogenic excoriation, noting three suggested subtypes, impulsive, compulsive, and mixed. Impulsive skin picking is performed in response to feelings of tension or may be associated with arousal or pleasure. It is performed with minimal awareness with little resistance and little insight into its irrationality or consequences. In contrast, compulsive skin picking is performed in order to avoid anxiety or in response to an obsession. Although it is performed deliberately, the individual has insight into the irrationality of the behavior and often resists, with varying degrees of success. Like compulsions, skin picking is often repetitive and ritualistic (Stein et al., 1993), and some report obsessions about skin irregularities or preoccupations with smooth skin, and skin pick in response to these thoughts (Arnold, Auchenbach, & McElroy, 2001). As such, skin picking and other body focused repetitive behaviors, including hair pulling, and severe nail biting, are considered by some to be under the obsessive compulsive spectrum (i.e., Hayes, Storch, & Berlanga, 2009).

Several researchers have theorized about application of the impulsive and compulsive spectrum to NSSI behaviors in general. While the compulsive nature of NSSI is evident in its habitual and repetitive nature (Simeon, Stein, & Hollander, 1995), pleasurable feelings and lack of control associated with the behavior are suggestive of impulsivity (Wilhelm et al., 1999). Favazza and Simeon (1995) suggest that impulsive NSSI would be episodic, triggered by external events, and often consists of behaviors such as cutting or burning. Compulsive NSSI, however, would be repetitive, habitual, often resisted, and often consists of body focused repetitive behaviors such as skin picking and hair pulling.

These categories of impulsive and compulsive NSSI are theoretical, and distinctions have not been directly supported through empirical research. However, researchers have investigated the associations among impulsivity, obsessive compulsive characteristics, and NSSI. Increased impulsivity is associated with history of NSSI (Bennum & Phil, 1983; Herpertz, Sass, & Favazza, 1997), as well as severity of skin picking behaviors (Hayes et al., 2009). Further, individuals with a history of NSSI can be distinguished from non-injurers by the tendency to make rash decisions when faced with negative emotions and by difficulty delaying action in order to plan (Glenn & Klonsky, 2010). Although less frequently investigated, obsessive compulsive symptoms are also reported among individuals who engage in NSSI. Among individuals with borderline personality disorder, those endorsing a history of NSSI reported more obsessive and compulsive symptoms than those without an NSSI history (McKay, Kulchycky, & Danyko, 2000). In addition to increased impulsivity, severity of skin picking has been shown to be associated with increased obsessive compulsive symptoms (Hayes et al., 2009). Croyle and Waltz (2007) directly compared

mildly injurious NSSI (i.e., skin picking, severe nail biting) and moderately injurious NSSI (i.e., cutting, carving, hitting, burning) on a number of clinical variables. They reported that both mildly and moderately injurious NSSI were associated with some obsessive compulsive characteristics (i.e., impulsivity, rumination, and precision), but moderately injurious NSSI was more strongly associated with impulsivity than mildly injurious NSSI. These studies examine the comorbidity hypothesis that forms part of the premise of the obsessive-compulsive related disorders. However, aside from diagnosis, conceptualization of skin picking or other repetitive self-injury in response to obsessions implies that the obsessions are sufficiently defined as intrusive and unwanted thoughts. As we detail later, these self-defined obsessions may instead be ruminative in nature, not necessarily unwanted but instead part of a negative valenced system of coping (Nolen-Hoeksema, Wisco, & Lyobomirsky, 2008).

Researchers suggest that obsessive-compulsive traits may underlie the transition from an episodic, impulsive behavior to a repetitive, compulsive one (Simeon, Stein, & Hollander, 1995). Other researchers posit that individuals with greater obsessive compulsive symptoms may be at increased risk for skin picking because of common neurobiological and behavioral mechanisms (Hayes et al., 2009), supporting the inclusion of NSSI as an OCRD. However, there are a number of limitations to conceptualizing NSSI as an OCRD that have not been resolved.

Limitations in Conceptualizing Non-Suicidal Self-Injury as an Obsessive-Compulsive Related Disorder

The compulsive nature of some NSSI behaviors, as well as the behavior's association with impulsivity, has prompted some to consider NSSI or specific methods of NSSI, such as skin picking, for inclusion as an OCRD. NSSI is unique, however, in the OCRD discussion because those who engage in the behavior often spend a great deal of time planning for engaging in the activity, and the execution of self-injury is frequently a ritualized activity, with preferred bodily sites of harm, specific and unique methods, and typically cued by environmental events. This resembles the basic topology ascribed to OCD, per se, whereby compulsions are carefully organized, based on a specific cognitive event and carried out under specific circumstances. In their conceptualization of OCRDs, Hollander, Braun, and Simeon (2008) consider excoriation and other grooming disorders as mildly associated.

As noted earlier, a central premise in the set of disorders considered obsessive-compulsive related is the dysregulation in behavioral inhibition (Hollander, Stein, & Simeon, 2008). In this way, OCD has been defined as the central disorder in the full set of obsessive compulsive related disorders. Indeed, it has been noted that OCD is essentially the reference disorder for all other putative members of the class of obsessive compulsive related conditions (McKay & Neziroglu, 2009). In addition, there are several differences between NSSI and OCD. Although NSSI can appear compulsive in nature, compulsions neutralize obsessions in OCD, whereas the primary function of NSSI is to regulate emotions (Nock & Prinstein, 2004; Wilhem et al., 1999). The majority of research investigating the association between OCD and NSSI has specifically investigated self-injurious skin picking. Although OCD is commonly found among individuals who engage in skin picking methods of NSSI

(Wilhelm et al., 1999), NSSI rarely occurs only in the context of OCD (Arnold et al., 1998). Whereas early onset OCD is more common among males and gender ratios become equal in adulthood, self-injurious skin picking may be more common among females (Grant, Odlaug, & Won Kim, 2010; Stein et al., 1993). In addition, although both OCD and self-injurious skin picking respond to pharmacotherapy with a selective serotonin reuptake inhibitor (SSRI), response in self-injurious skin picking occurred at a lower dose and more quickly than response in OCD (Stein et al., 1993), suggesting that while the neurological mechanisms involved may be similar, they are not identical. Researchers have also found that the behaviors differ on several important clinical features. For example, individuals with OCD reported spending significantly more time on OCD-related thoughts and behaviors than those with self-injurious skin picking (Grant, Odlaug, & Won Kim, 2010). Those with OCD were more likely to have comorbid diagnosis of body dysmorphic disorder (BDD) than those with self-injurious skin picking (Grant, Odlaug, & Won Kim, 2010), and individuals with OCD and comorbid self-injurious skin picking were more likely to be diagnosed with recurrent major depression and BDD than those with OCD without comorbid skin picking. Research on heritability of self-injurious skin picking and OCD also demonstrates a distinction, Grant et al. (2010) found that individuals with self-injurious skin picking were more likely to have a first-degree relative with self-injurious skin picking, compulsive nail biting, or another grooming disorder than individuals with OCD, and self-injurious skin picking was not found among the relatives of probands with OCD (Cullen et al., 2001). Despite similar features, researchers state that self-injurious skin picking should be conceptualized as distinct from OCD (Cullen et al., 2001; Grant, Odlaug, & Won Kim, 2010).

If Not Obsessive-Compulsive Related Disorders, Then What?

At this point, it appears that the evidence strongly suggests against classifying NSSI as a member of the OCRDs. This is based on hedonic value of deliberate self-injury, rates of comorbidity with OCD, degree of self-injury as a consequence of OCD, and response to treatment that is conceptualized in a manner similar to that used for OCD. Although research suggests that NSSI may be performed either impulsively or compulsively, and impulsivity and compulsivity may be associated with different methods of NSSI (i.e., skin picking, cutting) to varying degrees, researchers have noted that habitual and episodic NSSI may be a more precise differentiation than compulsive and impulsive NSSI (Croyle & Waltz, 2007). Additional research is necessary to investigate the validity and clinical usefulness of impulsive versus compulsive distinction.

An alternative is to consider in the association between NSSI and OCRDs is the role of rumination, which is more closely associated with depressed mood and other disorders of behavior regulation. Recent analyses suggest that rumination contributes to avoidance of aversive emotional experiences (Giorgio et al., 2010) and that NSSI could be an extreme variant of avoidance following unsuccessful efforts at avoidance using rumination (Hilt, Cha, & Nolen-Hoeksema, 2008). The problem of rumination is significant and associated with difficulties in regulating mood due to reduced capacity for considering alternatives to the ruminated position (referred to as a reduction in resource allocation; see Gotlib & Joorman, 2010 for a discussion). Instead of considering a wide range of alternatives,

rumination leads to elaborations on the same negative emotional experience and associated cognitive biases. While NSSI is often performed impulsively or with little forethought (Favazza & Conterio, 1999; Lloyd-Richardson, Perrine, Dierker, & Kelly, 2007), some report ruminating about NSSI hours or days prior to the behavior or engaging in NSSI rituals (Favazza, 1992). Individuals with an NSSI history report significantly greater levels of rumination, particularly reflection, than those without an NSSI history (Hoff & Muehlenkamp, 2009). In addition, Selby, Connell, and Joiner (2010) found that high levels of rumination and painful life events statistically predicted greater frequencies of NSSI. Recently, several investigations have compared ruminations and obsessions. Overall, the cognitive and behavioral manifestations of ruminations are generally distinct from obsessions. For example, Meiran et al. (2011) found that rumination was associated with poorer working memory than individuals with OCD, although both groups showed similar levels of rigidity on other measures of cognitive functioning. Working memory in OCD has been found to be limited in other investigations (i.e., Nakao et al., 2009). Exner, Martin, and Rief (2009) found that rumination in particular contributed to working memory problems in OCD. While limited in scope, the early findings suggest that rumination and proneness to rumination is a larger contributor to the apparent presenting cognitive commonalities among individuals with obsessive-compulsive related problems, such as that observed between NSSI and OCD. With rumination conceptualized as a means of avoiding other aversive emotional experiences, and with the findings that NSSI is strongly associated with rumination (i.e., Hilt et al., 2008; Hoff & Muehlenkamp, 2009; Selby et al., 2010), In this way, NSSI may be the natural endpoint following a period of extensive rumination. NSSI may be an extreme measure taken to avoid aversive emotional experiences.

Recommendations for Classification of Non-Suicidal Self-Injury

DSM-5 is planned to include a new diagnosis of Non-Suicidal Self-Injury Disorder (APA, 2010b). Criteria for this disorder, as of this writing, will include intentional self-inflicted damage to the body without suicidal intent on 5 or more days in the past year. These behaviors must be associated with negative thoughts or feelings that occur immediately prior to the act, preoccupation with the behavior prior to the act that is difficult to resist, frequent urge to self-injure, and/or purposeful self injury, and the behavior must be associated with significant distress or functional impairment. The Anxiety, Obsessive-Compulsive Spectrum, Posttraumatic, and Dissociative Disorders Work Group has independently proposed the inclusion of a skin picking disorder diagnosis under Obsessive Compulsive Related Disorders in DSM-5 (APA, 2010a; Stein et al., 2010). Criteria for this diagnosis will include recurrent skin picking resulting in lesions that causes clinically significant distress or impairment. An additional criterion addressing urges to skin pick or attempts to resist the behavior is under consideration. Utility of distinguishing between the NSSI and skin picking diagnoses in DSM-5 is unclear, as our understanding of distinctions between methods of self-injury is preliminary. The most common function of NSSI is automatic reinforcement (Nock & Prinstein, 2004), indicating that the behavior often serves to decrease distressing cognitions or emotions. Research has shown that self-injurious skin picking is used to reduce feelings of tension, anxiety, and frustration, and individuals often report relief after skin picking (Arnold et al., 1998; Deckersbach et al., 2003; Stein, Hutt, Spitz, & Hollander,

1993). This suggests that skin picking would not often occur outside of NSSI as both diagnoses are currently conceptualized, as it would often fit the NSSI Disorder criterion of negative thoughts or feelings that occur immediately prior to the act. Interestingly, the operational definition of pathological skin picking used by Cullen et al. (2001) included “tension immediately before picking skin or resisting the behavior” and “pleasure, gratification, or relief when skin picking,” suggesting overlap with the proposed criteria for Non-Suicidal Self-Injury Disorder.

Although inclusion of NSSI as an OCD has been considered, evidence does not support this classification. However, there is conceptual overlap between NSSI and OCDs. For example, research does suggest that NSSI may be performed impulsively or compulsively, and both NSSI and OCDs are associated with difficulties in behavior regulation. However, the association between NSSI and OCDs has not been thoroughly investigated. Although a separate diagnosis for NSSI behaviors that are more OCD in nature may be appropriate in the future (i.e., the proposed skin picking disorder), such a distinction is premature at this time. Researchers investigating the association between skin picking and OCD have determined that although the behaviors have similar features, skin picking is not a variant of OCD (Cullen et al., 2001; Grant, Odlag, & Won Kim, 2010). Neurobiological, physiological, and behavioral mechanisms involved in the behaviors must be directly compared. In addition, researchers may consider directly comparing specific methods of NSSI to OCDs, as researchers suggest that methods such as scratching and skin picking may be more consistent with compulsive behaviors than methods such as cutting, which may be more consistent with impulsive behaviors. Further, additional research is necessary to investigate validity and clinical usefulness of classifying NSSI behaviors as impulsive or compulsive.

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