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A Cognitive-Behavioral Approach to Case Formulations for Nonsuicidal Self-Injury

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Abstract

Nonsuicidal self-injury (NSSI) is a highly prevalent behavior among clinical and nonclinical samples. Despite the prevalence, maladaptive, and potentially dangerous nature of the behavior, no empirically supported interventions have been identified specifically for NSSI, and clinicians report a lack of knowledge regarding the treatment of NSSI. This article discusses the application of a common component of therapy, the case formulation, to conceptualizing and treating NSSI. This strategy for case formulation incorporates cognitive-behavioral and functional analytic approaches while focusing on factors pertinent to the development, maintenance, and treatment of NSSI. A case example is presented.

Keywords

self-harm; case conceptualization; function; treatment

Nonsuicidal self-injury (NSSI) is prevalent among clinical and nonclinical samples. Studies have found that 21% to 44% of individuals in clinical samples report a history of NSSI (Briere & Gil, 1998; Nijman et al., 1999; Zlotnick, Mattia, & Zimmerman, 1999). The behavior also occurs frequently in community samples (Briere & Gil, 1998; Klonsky, Oltmanns, & Turkheimer, 2003; Nijman et al., 1999) and is especially prevalent among young adults. Among nonclinical samples, lifetime prevalence rates of NSSI have ranged from 7% to 38% (Rodham & Hawton, 2009). The behavior is associated with numerous negative consequences. By definition, NSSI results in physical injury ranging in medical severity and may result in scarring and physical disfigurement. It is frequent and repetitive (Briere & Gil, 1998; Muehlenkamp, 2005; Walsh, 2006) and may increase in level of risk or lethality over time, resulting in more severe injuries or even death (Briere & Gil, 1998; Stellrecht et al., 2006). Individuals who engage in NSSI experience social stigma, guilt, shame, and social isolation associated with the behavior (Gratz, 2003). The negative consequences associated with NSSI mandate its treatment.

Although several authors have provided guidelines for treatment (i.e., Comtois & Linehan, 2006; Muehlenkamp, 2006; Nafisi & Stanley, 2007; Nock, Teper, & Hollander, 2007; Walsh, 2006), no empirically supported treatments or manualized interventions have been identified

specifically for the behavior. Lack of familiarity with and confidence in treating NSSI is often reported among clinicians. The majority of mental health providers for college students—a population in which NSSI is prevalent—reported that they lacked knowledge of effective treatments for the behavior, and more than half reported that individuals who engage in NSSI are more difficult to treat than other clients (Whitlock, Eells, Cummings, & Purington, 2009). Furthermore, professionals often experience negative responses to NSSI and clients who engage in the behavior, including frustration, discouragement, anxiety, and pejorative judgments (i.e., Walsh, 2006; Zila & Kiselica, 2001). These responses may in turn have negative effects on the client and the quality of treatment. Although treatment of NSSI is difficult (i.e., Muehlenkamp, 2006; Walsh & Rosen, 1988; Zila & Kiselica, 2001), the behavior does respond to intervention (i.e., Nock, Teper, et al., 2007). Specific education in NSSI may be helpful in improving therapist response, self-efficacy, and treatment (McHale & Felton, 2010; Whitlock et al., 2009). Therefore, established clinical techniques informed by existing research on NSSI can be used to treat individuals engaging in the behavior.

Individuals who engage in NSSI are heterogeneous in their clinical presentations, adding to the difficulty of developing a standard treatment for the behavior. NSSI occurs across gender, age, ethnicity, and diagnosis (i.e., Jacobson & Gould, 2007; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006; Rodham & Hawton, 2009), and a clinician treating NSSI may work with individuals who differ demographically, clinically, and in their NSSI presentations. Given the diverse clinical presentation of individuals who engage in NSSI and the heterogeneity of the behavior's characteristics, functions, and factors theorized to influence the behavior's development and maintenance, clinicians treating individuals with NSSI must be able to account for this diversity in their conceptualization and treatment plan. This can be accomplished using an individualized case formulation—an ideographic theory of a specific client's symptoms that provides a guide for assessment, treatment, and the therapy process (Persons, Davidson, & Tompkins, 2001).

Case formulation is not a novel technique; it is used extensively in cognitive behavioral therapy and other psychotherapies, including functional analytic therapy, problem-solving therapy, and dialectical behavior therapy (i.e., Eells, 1997). Use of case formulations in the treatment process may be especially effective when an empirically supported treatment is not available for a particular behavior or disorder, as well as in the treatment of multiproblem clients (Persons, 2005), both of which scenarios apply to the treatment of NSSI. Given the lack of information about the treatment of NSSI, specific focus on the conduct of case formulations for NSSI is necessary to individualize treatment and increase the potential for improved outcomes.

Case formulation is an ideal tool to create an ideographic conceptualization of a client presenting for treatment of NSSI because the flexibility inherent in the technique allows the clinician to account for the factors and functions pertinent to the maintenance of each individual's NSSI. There are several benefits to emphasizing the case formulation process in NSSI treatment. First, the case formulation provides both the client and clinician with insight into the factors that influenced the development and maintenance of NSSI for that particular client as well as the factors that influenced the development of NSSI as opposed to other regulation strategies. Second, the individualized case formulation should be used to

develop the most appropriate treatment plan for the client. Although some factors identified through the case formulation will not be modifiable (i.e., history of abuse, peer engagement in NSSI), the treatment plan can be developed to target vulnerabilities that are responsive to treatment, such as poor coping skills or the need for self-punishment. Third, because ongoing assessment is inherent in the case formulation process, the clinician—with input from the client—revises and modifies the case formulation and treatment plan as appropriate throughout therapy.

Although the field of NSSI lacks an established developmental theory, theoretical models of NSSI development and maintenance do exist to guide the clinician in the case formulation process. Yates (2004) theorized that traumatic experiences in childhood, such as childhood sexual abuse, negatively affect an individual's ability to develop adequate motivational, attitudinal, instrumental, emotional, and relational competencies. These deficits lead to NSSI, which in turn acts as a compensatory strategy for the decreased levels of competence. However, this model may not be applicable to all self-injurers; not all individuals who engage in NSSI have experienced traumatic events in childhood, and it is unlikely that childhood sexual abuse is the main factor driving development of NSSI (Klonsky & Moyer, 2008).

Although Yate's (2004) model may be helpful in understanding NSSI for some clients, Nock's (2009) theoretical model of the development and maintenance of NSSI may provide a more thorough framework for case formulation. This model conceptualizes the behavior in light of its risk factors and functions. Distal factors, such as childhood abuse, family hostility, or a predisposition to high emotional or cognitive reactivity, may precipitate the development of vulnerability factors that increase risk for NSSI. These vulnerability factors can be interpersonal (i.e., poor communication skills) or intrapersonal (i.e., poor distress tolerance, poor coping skills) in nature. Individuals with these interpersonal and/or intrapersonal vulnerabilities have difficulty responding effectively to stressful events. In the presence of vulnerability factors specific to NSSI, the inability to deal effectively with stressful events may lead to NSSI behaviors. Specifically, factors such as accessibility of NSSI behaviors, modeled NSSI, motivation for self-punishment, perceived need for an intense signal for social communication, identification with a valuation of NSSI, or pain analgesia may account for the use of NSSI to regulate intrapersonal and interpersonal responses rather than other behaviors such as substance use (Nock, 2009). This model provides a framework for assessing and understanding factors that may be associated with the development and maintenance of NSSI for an individual, and it is therefore an important tool in case formulation.

Consistent with this model and important for treatment, NSSI can be considered a maladaptive method of coping with distress. Research on deficits in coping skills among individuals with an NSSI history is mixed. Although some studies suggest that individuals with and without NSSI do not differ in coping skills (Haines & Williams, 1997), other studies report deficits in problem-solving skills and greater use of avoidance strategies among those with an NSSI history (Andover, Pepper, & Gibb, 2007; Dear, Slattery, & Hillan, 2001; Herpertz, Sass, & Favazza, 1997). Furthermore, the finding of coping strategy deficits among individuals with an NSSI history may be associated with gender. Specifically,

women with a history of NSSI, but not men, endorsed less use of problem-solving and social support seeking strategies (Andover et al., 2007). Consistent with Nock's (2009) model, individuals may engage in NSSI because they lack appropriate coping skills or because NSSI is more easily accessible and consistent than use of appropriate coping skills.

Elements of Case Formulation

Although there are several ways to approach case formulation with individuals who engage in NSSI, this article will focus on a cognitive-behavioral approach (i.e., Persons et al., 2001), incorporating aspects of the functional analytic approach (i.e., Haynes & O'Brien, 1999) to case formulation for NSSI. Case formulation uses a hypothesis-testing approach, and regular assessments are used to evaluate and revise the formulation. Response to treatment is also a method of evaluating the formulation, and a poor treatment response may necessitate a revision in the formulation (Persons et al., 2001). Persons et al. (2001) discuss three levels of case formulation. The highest level is that of the case. At this level, the client and therapist attempt to understand the case in its entirety and to understand the relations between the presenting problems and the client's schema that underlies the problems. The second level is that of the syndrome, which provides a conceptualization of the particular problem behavior. The third level is that of the situation. At this level of formulation, the client and therapist investigate a specific situation and the client's cognitive, behavioral, and emotional response to the situation. Although the goal is to create a formulation at the case level, formulations at the lower levels, such as at the situation level, are important to understand and treat NSSI behaviors. Lower level formulations are also used to generate hypotheses and inform treatment planning, and formulations at the situation and syndrome levels are incorporated into the case-level formulation.

Following the guidelines discussed by Persons et al. (2001), therapists can generate case formulations for clients with NSSI behaviors that integrate current NSSI research.

1. *Conducting the initial assessment.* Case formulation begins with the initial assessment. The therapist obtains identifying information from the client, including information such as age, occupation, family history, and living situation. This information is important in any case formulation, but recent research has yielded important developments regarding the association between specific demographic variables and NSSI. Although NSSI was thought to occur predominantly in women (i.e., Favazza & Conterio, 1989; Suyemoto, 1998), this is no longer true. Recent research has reported comparable rates of NSSI among men (Andover et al., 2007; Gratz, Conrad, & Roemer, 2002; Heath, Toste, Nedecheva, & Charlebois, 2008; Hilt, Nock, Lloyd-Richardson, & Prinstein, 2008; Klonsky et al., 2003; Muehlenkamp & Gutierrez, 2004). It is also important for clinicians to consider that gender may also influence clinical impressions of individuals who engage in NSSI. For example, when given case examples of a self-injurer that were identical except for gender, clinicians conceptualized the female client as self-injuring to relieve stress. The male client's NSSI, however, was conceptualized as self-punishment or a means to avoid difficult emotions (Healey, Trepal, & Emelianchik-Key, 2010).

Just as NSSI is not restricted to a specific gender, it is not restricted to a specific age range or ethnicity. The onset of NSSI generally occurs in early adolescence (i.e., Jacobson & Gould, 2007), and young adults are thought to be at the highest risk for engaging in NSSI (Rodham & Hawton, 2009). Although NSSI in older adults has not been studied systematically, self-injurious behaviors do occur in individuals older than age 60 years (Rodham & Hawton, 2009). Research suggests that NSSI is not limited to a specific ethnicity (i.e., Jacobson & Gould, 2007); only participants reporting Asian or Asian American race reported significantly fewer repeat NSSI incidents than participants reporting White race in a nonclinical college sample (Whitlock, Eckenrode, & Silverman, 2006). Clinicians should be aware of and correct biases or assumptions that may unjustifiably influence the veracity of the case formulation, such as incorrect assumptions regarding gender and NSSI.

Information regarding the individual's NSSI should also be obtained in the initial assessment, including age of onset, NSSI methods used, number of NSSI episodes, and injuries per episode. Reported frequency of NSSI varies widely, and although cutting, self-hitting, and skin picking are among the most common methods of NSSI reported (i.e., Jacobson & Gould, 2007), the majority of self-injurers report using multiple methods (Favazza, 1989; Nock et al., 2006). Although men and women are equally likely to engage in NSSI, preliminary research indicates that there may be differences in the presentation and characteristics of NSSI between the genders. Specifically, Andover, Primack, Gibb, and Pepper (2010) found that men report being significantly older than women at age of onset and significantly less medical injury than women. In addition, men were more likely to report burning than women, and women were more likely to report cutting and scratching. Whitlock, Muehlenkamp, and Eckenrode (2008) also found gender differences in NSSI severity; they found that male college students were more likely to be categorized as engaging in "moderate severity NSSI" than "superficial" or "high severity NSSI."

History of suicide attempts and suicidal ideation should also be assessed. Although NSSI and attempted suicide are distinct behaviors, they often overlap (Jacobson, Muehlenkamp, Miller, & Turner, 2008; Langbehn & Pfohl, 1993; Nock et al., 2006). History of NSSI has been found to statistically predict history of attempted suicide (Andover & Gibb, 2010; Whitlock & Knox, 2007), and individuals with a history of NSSI report significantly greater planning for their most severe suicide attempt (Andover & Gibb, 2010). Therefore, despite the distinction between behaviors with and without suicidal intent, suicidal ideation and behaviors should be assessed and monitored among individuals who engage in NSSI.

2. *Developing a comprehensive problem list.* Next in the case formulation process, the therapist and client work together to develop a comprehensive problem list. This list should include problems that the client wishes to address in therapy as well as problems observed by the therapist. When creating the problem list, it is important that the list is comprehensive and that each problem behavior is

operationalized so that it can be addressed as a target of therapy. Problems in all domains, both related to and not related to NSSI, should be incorporated into the case formulation. The orientation of the therapist and the therapy to be used may influence the priority of problems on the list. For example, a dialectical behavior therapy case formulation would organize the problem list with life-threatening behaviors such as suicidality and NSSI prioritized first, followed by therapy-interfering behaviors such as noncompliance and arriving late to session, dangerous behaviors or behaviors that interfere with quality of life, and finally other problems observed by the therapist or described by the client (Linehan, 1993).

3. *Assessing client strengths.* In addition to problem behaviors, a case formulation must incorporate the client's strengths and assets. This includes personal factors, such as the client's motivation for treatment, and environmental factors, such as supportive family or friends. Particular to case formulation of NSSI, it is important to assess the client's strengths when dealing with NSSI and associated urges to self-injure. For example, situations where an individual was exposed to NSSI triggers, such as an argument with a boyfriend or girlfriend, but did not engage in NSSI will be important to assess and include in the case formulation. Many individuals who engage in NSSI will have experienced times that they have felt the urge to self-injure but have not done so. Although clients may not recognize such episodes as important for treatment, therapists should carefully assess the client's own strategies for resisting the urge to engage in NSSI.

The role of diagnosis in case formulation. Although diagnosis is not an explicit part of a case formulation (Persons et al., 2001), diagnosis or symptoms experienced may provide a context for an individual's NSSI behaviors. However, NSSI occurs across psychiatric disorders and is not associated with any one disorder (Nock et al., 2006). NSSI is associated with increased levels of depressive and anxious symptoms (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Klonsky et al., 2003) as well as depressive and anxiety disorder diagnoses such as major depressive disorder, dysthymia, depressive disorder not otherwise specified, and posttraumatic stress disorder (i.e., Jacobson & Gould, 2007; Klonsky & Muehlenkamp, 2007). The behavior has also been associated with substance abuse (i.e., Jacobson & Gould, 2007; Klonsky & Muehlenkamp, 2007; Serras, Saules, Cranford, & Eisenberg, 2010) and eating disorders (i.e., Claes, Vandereycken, & Vertommen, 2001; Jacobson & Gould, 2007; Klonsky & Muehlenkamp, 2007). In the current edition of the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000), NSSI is included only as a criterion for borderline personality disorder (BPD). Although individuals who engage in NSSI often report more symptoms of BPD than those without an NSSI history (Andover et al., 2005; Klonsky & Olino, 2008; Klonsky et al., 2003), individuals with an NSSI history may not meet criteria for a BPD diagnosis (Andover et al., 2005). It is important that NSSI not be considered solely as a component of a psychiatric diagnosis. However, understanding associated symptomatology may

provide a context for understanding a client's NSSI behaviors and guiding treatment. For example, a client with NSSI behaviors may also have a diagnosis of BPD. Rather than conceptualizing NSSI and BPD as unrelated, or conceptualizing NSSI as a symptom of BPD, a therapist may conceptualize both as associated with an underlying difficulty in emotion regulation. A case formulation that incorporates the clients' problem behaviors and psychiatric symptoms will allow the therapist and client to better understand and address the client's mental health issues in general and NSSI specifically.

4. *Assessing risk factors for NSSI.* To better conceptualize the client's NSSI behaviors, empirically supported risk factors for NSSI, as well as a theoretical model of NSSI development and maintenance (Nock, 2009), can be used to guide assessment. Factors such as childhood abuse, family hostility, and poor parental relationships may increase risk for NSSI (Gratz, 2003; Klonsky & Glenn, 2009; Nock, 2009) and should therefore be assessed. Intrapersonal and interpersonal vulnerabilities, such as emotion dysregulation, poor distress tolerance, high aversive emotionality, poor communication skills, and poor coping skills (Gratz, 2003; Klonsky & Glenn, 2009; Nock, 2009), can be assessed through interview, self-report measures, therapist observation, and objective behavioral assessment measures. In addition, vulnerabilities specific to NSSI behaviors, such as social learning through modeling of NSSI, self-punishment, social signaling, accessibility of NSSI, identification and valuation of NSSI, and pain analgesia, may be integral in understanding how NSSI behaviors specifically are developed and maintained (Nock, 2009).
5. *Maintenance of NSSI: Assessing function.* Multiple functions have been proposed for NSSI, including antisuicide, self-punishment, call for help, and emotion regulation (Klonsky, 2007; Suyemoto, 1998). Recent research has supported a functional model of NSSI. NSSI may be performed for automatic negative reinforcement (i.e., removal of an aversive stimulus), automatic positive reinforcement (i.e., generation of a favorable stimulus), social negative reinforcement (i.e., escape from interpersonal demands), and social positive reinforcement (i.e., gaining attention from others or access to environmental or interpersonal resources; Nock & Prinstein, 2004, 2005). Preliminary data suggest that different methods of NSSI may perform different functions. For example, whereas cutting and biting appear to be performed primarily for automatic reinforcement, carving and hitting may be performed for both automatic and social reinforcement (Andover, Schatten, & Morris, 2010). Although individuals who engage in NSSI endorse both automatic and social reinforcement from the behavior, NSSI may be performed most often for the function of automatic reinforcement (Nock & Prinstein, 2004), such as emotion regulation. Franklin et al. (2010) provided psychophysiological support for an emotion regulation function of NSSI; in addition, they found NSSI to be associated with cognitive regulation.

The role of automatic negative reinforcement in NSSI, specifically in emotion regulation, has been supported by both subjective and objective research.

Individuals who engage in NSSI report decreases in anger, fear, emptiness, sadness, and tension following NSSI (Briere & Gil, 1998; Haines, Williams, Brain, & Wilson, 1995; Suyemoto, 1998), and individuals often report relief after engaging in NSSI (Briere & Gil, 1998; Suyemoto, 1998). Similarly, individuals may engage in NSSI to prevent distress from increasing (Darche, 1990). The experience of pain itself has been associated with subsequent decreases in positive and negative affect, and decreases in negative affect following a painful stimulus are greater for individuals with higher levels of emotional reactivity than lower levels of emotional reactivity (Bresin, Gordon, Bender, Gordon, & Joiner, 2010). Supporting subjective reports of reduced distress following NSSI, Brain, Haines, and colleagues have demonstrated that individuals with a history of NSSI experience reductions in psychophysiological arousal, specifically heart rate, respiration, galvanic skin response, and finger pulse amplitude, while imagining an NSSI episode and the immediate consequences of the behavior. This pattern of decreased physiological arousal has been found among prisoners (Haines et al., 1995), community members, undergraduate college students, past and current self-injurers (Brain, Haines, & Williams, 1998), and frequent and infrequent self-injurers (Brain, Haines, & Williams, 2002). This pattern of decreased activation is consistent with NSSI as automatic negative reinforcement (Nock & Prinstein, 2004, 2005); NSSI is maintained as it serves to decrease autonomic arousal. Given that automatic and social reinforcement is implicated in the maintenance of NSSI, it is imperative that clinicians carefully assess the functions of the behavior, because the benefits of NSSI, not the negative consequences, maintain the behavior.

Given the empirical support for a functional approach to understanding NSSI, case formulations must include an understanding of the functions of the behavior. Functional analysis, defined as “the identification of important, controllable, causal functional relationships applicable to a specified set of target behaviors for an individual client” (Haynes & O’Brien, 1990, p. 654), consists of an investigation of the variables that contribute to and maintain NSSI behaviors and their functional relationships (i.e., Haynes & O’Brien, 1999). Like cognitive-behavioral case formulations, functional analysis provides a model for clinical case formulation, guiding assessment and intervention (Haynes & O’Brien, 1999). In addition, functional analysis is an important tool for developing a situation-level cognitive-behavioral case formulation (Persons et al., 2001). Functional analyses must be conducted on multiple NSSI episodes to assess different situations and different methods of NSSI to ascertain all relevant functions of NSSI. Repeated functional analyses will expose patterns of antecedents and consequences. Patterns of NSSI antecedents will lead to an understanding of the cognitive, emotional, and behavioral triggers of NSSI and will provide an important guide for intervention. Patterns of consequences, both positive and negative, will contribute to an understanding of the functions of NSSI and the factors maintaining the behavior.

6. *Using the case formulation and developing a treatment plan.* This assessment process is likely to span several sessions, and the information obtained is used to construct a working hypothesis of the client's symptoms and behaviors. Persons et al. (2001) recommend that the case formulation be shared with the client. Sharing the case formulation allows the client to give his or her input, which may lead to a revision of the formulation or additional targets for assessment. This process can also build therapeutic alliance, provide an opportunity for the client to gain insight into his or her behaviors, and allow the client to understand the rationale for specific intervention techniques.

Once a case formulation has been created and shared with the client, it is used to develop and guide the treatment plan (Persons, 2006). For example, a case formulation may lead to the hypothesis that a client self-injures to communicate distress to important people in his or her environment. In this situation, NSSI would be used for social signaling and would be maintained through social positive reinforcement. The formulation may suggest that NSSI is being used instead of adaptive interpersonal communication skills. The client may lack the necessary interpersonal communication skills or experience with these skills; the client may not have experienced reinforcement from his or her social environment for use of appropriate skills. The case formulation will create a goal for treatment; in this case, the treatment goal may be to teach adaptive communication skills and increase use of such skills. However, development of a treatment plan does not mark the end of the case formulation because the results of the ongoing treatment are used to inform the case formulation. Assessment should be ongoing, for example, occurring at each session, to monitor the progress of treatment. This should include of an assessment of NSSI behaviors at every session, with a functional analysis of any behaviors that were either performed or resisted. Therapists may choose to use formal assessment measures commonly used in research, such as the Functional Assessment of Self-Mutilation (FASM; Lloyd, Kelley, & Hope, 1997); the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001); or the Self-Injurious Thoughts and Behaviors Inventory (SITBI; Nock, Holmberg, Photos, & Michel, 2007). Although these formal measures may be helpful at the start of treatment or for follow-up assessments, therapists may wish to verbally assess presence, characteristics, and functions of NSSI behaviors, especially for ongoing weekly assessments, and record this data (i.e., Walsh, 2007). This assessment data is incorporated into the case formulation and used to revise the case formulation and the intervention as appropriate (Persons, 2006). If a particular course of treatment is not having the desired response, this information can be integrated into the case formulation, potentially revising the previous formulation and resulting in an adjustment of the treatment plan.

Case Example

Julie is a 28-year-old female of mixed ethnicity who presented for treatment of NSSI. She is unemployed and recently began classes to complete her General Educational Development

(GED) test. She shares an apartment with a roommate whom she has been an acquaintance with for several years. Julie reported that she is not currently involved in a romantic relationship but has recently had several sexual partners. Julie described her family as close but disapproving and judgmental. She noted that both she and her mother seemed to “feel things more than other people.” Julie reported two past suicide attempts. The last attempt was 5 years ago, and Julie denied receiving medical or psychological treatment following either attempt. She denied current suicidal ideation. Diagnostic interview indicated that Julie met criteria for past major depressive disorder, past substance dependence, and current generalized anxiety disorder. She also reported that she had difficulty tolerating negative emotions and difficulty controlling her emotions.

Julie reported that she scratches and picks at her skin to the point of drawing blood and cuts herself, usually with a razor designated specifically for the purpose. Julie reported engaging in the behaviors frequently; in the past month, she reported two episodes of cutting and picking at her skin until it bled at least four times a week. She cuts and skin picks on her arms and legs; during the initial interview, scars were observable on Julie’s forearms. Julie reported that her first episode of NSSI occurred when she was approximately 13 years old and consisted of cutting. She said that she cut and picked at her skin consistently over the years, except for a period of 8 months when she was 22 years old. During this time, Julie stopped cutting but continued to skin pick. She also reported strong urges to cut during this time. Julie reported that she has never sought treatment for her self-injury before. She said that over the years, NSSI had become part of her identity, and “there was a part of [her] that enjoyed being different from everyone else.” However, Julie said that she recently decided to seek treatment because she wants to “give [her] future a chance.”

To further develop Julie’s case formulation, functional assessments of the behaviors were conducted. The first functional assessment addressed four specific NSSI episodes: the first time she engaged in NSSI, the most severe episode of NSSI, the most recent episode of cutting, and the most recent episode of skin picking. For each episode, details of the behavior (i.e., method used, tool used, number of injuries, medical severity of injuries, length of time engaged in NSSI) were recorded. Antecedents of the episode, including events, cognitions, and emotions, were recorded, as were positive and negative short-term and long-term consequences of the behavior. This first functional analysis suggested that Julie’s cutting behaviors were generally more medically severe. The three episodes of cutting occurred directly after conflicts with family members or friends, and the skin picking episode occurred while Julie was worrying about a homework assignment. Julie reported that although each episode discussed had the positive short-term consequence of relieving feelings of distress, each also had negative consequences that began later but persisted longer. These negative consequences generally involved feeling guilty and ashamed of her behaviors.

A functional analysis of any NSSI behaviors that occurred during the week was conducted at each session. After the second session, a pattern of antecedents and consequences appeared. Cutting behaviors generally occurred following interpersonal conflicts with friends and family members. Julie reported that she often felt that she did not respond to interpersonal problems appropriately, and even small disagreements would escalate into arguments.

Following the argument, Julie would cut herself. This would significantly reduce feelings of anger and anxiety related to the confrontation, but Julie would quickly feel guilty for cutting herself. Skin picking behaviors generally occurred while Julie was worrying. No specific worries were associated with NSSI; functional analyses revealed that NSSI the prior week was associated with worries regarding homework, doing well in class, a lost personal item, and thinking about cutting. Julie reported that she sometimes did not realize she was picking at her skin while the behavior was occurring, and the consequence of skin picking was that she thought “there was something wrong with [her].”

One of Julie’s main strengths was her motivation for treatment. She attended every session, completed assigned homework before each session, and actively participated in session. Julie also had several strengths that could be directly used in her treatment plan. Specifically, Julie reported that she did not engage in NSSI every time she had an urge, and there was a period of several months when Julie stopped cutting entirely. Functional analyses were performed for events similar to those that trigger NSSI episodes and when Julie experienced the urge to self-injure but did not. Alternative strategies used to reduce negative distressing cognitions and emotions included adaptive strategies, such as the use of distraction techniques, and maladaptive strategies, such as substance use.

Julie’s initial case formulation emphasized situation and syndrome level formulations. Distal factors such as a critical home environment and possible genetic predisposition to high emotional reactivity increased Julie’s risk for NSSI. These and other factors led to the development of intrapersonal and interpersonal vulnerability factors. Specifically, Julie noted poor distress tolerance and high emotional reactivity. Julie’s therapist noted that poor communication skills and lack of reinforcement for using appropriate communication skills may also influence her use of NSSI. In addition, Julie reported identification with NSSI behaviors in the past, which may have influenced the maintenance of the behavior. Based on the functional analyses performed in session, it was hypothesized that Julie’s NSSI generally filled the function of automatic negative reinforcement, with cutting and skin picking associated with different antecedents associated with different methods. Skin picking served to decrease feelings of tension and distress associated with worry. Cutting served to reduce feelings of distress and anxiety associated with inappropriate response to interpersonal conflict. The therapist hypothesized that Julie may not in fact lack appropriate distress tolerance skills because she had been able to maintain a period of several months without cutting but may use NSSI because of its accessibility and reliability in reducing her distress. The therapist also hypothesized that cutting might provide Julie with a method of communicating the intensity of her distress to others, supporting the social signaling hypothesis. This case formulation was shared with Julie. Although she was uncertain of the therapist’s hypotheses regarding her use of NSSI as a means of communication, Julie supported the conceptualization.

Julie’s therapist continued assessment of the hypotheses generated from the case formulation. In addition, the therapist used the case formulation to create a plan for Julie’s treatment. Julie and her therapist agreed on two treatment goals: first, to reduce her NSSI behaviors and increase her adaptive responses to triggering events, cognitions, and emotions; and second, to treat her generalized anxiety disorder, which will not be discussed here

because it is beyond the scope of this article. Julie wanted to discontinue cutting behaviors entirely and reduce skin picking behaviors to an approximate frequency of once every 2 weeks. Given the case conceptualization, the treatment plan consisted of addressing interpersonal communication skills and techniques, finding more adaptive methods of dealing with tension and distress, and increasing self-monitoring so that Julie could notice when she was engaging in skin picking behaviors and replace with a more adaptive behavior. Julie's strengths and assets were incorporated into the treatment plan. Adaptive behaviors that were used in place of NSSI in the past provided examples of techniques that had been successfully used before; maladaptive techniques used in the past provided a focus of continued assessment and treatment plan revision if necessary. Consistent with the process of case formulation, assessment continued. Functional analyses were conducted for each episode of NSSI that occurred since the last session. Later, functional analyses revealed that skin picking behaviors sometimes served to distract Julie from her thoughts; this finding was incorporated into the case formulation and treatment plan. Similarly, knowing that substances had been used as a substitute for NSSI behaviors in the past, the therapist assessed for substance use at each session. If substances were to again be used, the treatment plan would be revised to address this maladaptive coping technique.

Using the case formulation, Julie and her therapist were able to identify potential obstacles to her NSSI behaviors. For example, halfway through treatment, Julie experienced a death in her extended family and had to return home for the funeral. Julie felt that interactions with her parents would be tense and that there was a strong possibility of arguments within the family. Given the significant role of interpersonal conflicts in Julie's NSSI, Julie and her therapist planned for an increase in this trigger and developed strategies for Julie to use during this time. Because of this advanced planning, Julie did not engage in NSSI and was able to cope effectively with urges to self-injure.

Conclusion

NSSI is a complex behavior. Although treatment of the behavior is difficult (i.e., Muehlenkamp, 2006; Walsh & Rosen, 1988; Zila & Kiselica, 2001), individuals who engage in NSSI do respond to treatment (Nock et al., 2007). The diverse clinical presentations of individuals who engage in the behavior require that assessments and interventions be flexible enough to accommodate a range of presentations, contributing factors, and functions. Case formulation, an ideographic theory of a client's symptoms that provides a guide for assessment and treatment (Persons et al., 2001), allows the therapist to create a working hypothesis of the factors and functions associated with the behavior's development and maintenance. This formulation is then used to guide treatment planning and further assessment. Case formulation is an integral component of several types of psychotherapies (Eells, 1997). By integrating components of cognitive-behavioral and functional analytic approaches and focusing on factors pertinent to the development, maintenance, and treatment of NSSI, a therapist can develop a case formulation specific to each client that guides assessment and treatment.

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