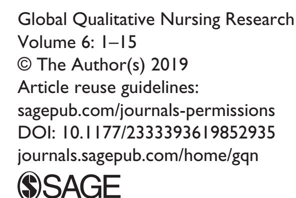
Single-Method Research Article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Processes of Change and Nonsuicidal Self-Injury: A Qualitative Interview Study With Individuals at Various Stages of Change

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Abstract

Nonsuicidal self-injury (NSSI) is a pervasive and potentially lethal behavior that affects many youth and adolescents. Effective treatment and prevention efforts are critical but often lack a nuanced understanding of the behavior change process. To address this gap, this research employs a stage of change model to identify and understand the most salient and widespread processes that facilitate NSSI behavior change. Thirty-one semi-structured interviews were conducted with individuals with current or past self-injury. Individuals were recruited to represent all stages of change including those who have not thought about changing behavior to those who have been NSSI-free for years. We employ a directed content analysis to code for dimensions derived from the model and an inductive approach to surface more nuanced change levers. Four organizing dimensions emerged: *relational, behavioral, self-knowledge*, and *barriers*. Common change levers of value in clinical practice or in intervention modalities are discussed.

Keywords

self-injury, mental health, stage of change models, behavior change, recovery

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Introduction

Nonsuicidal self-injury (NSSI), the deliberate, self-inflicted destruction of body tissue without suicidal intent and for purposes not socially sanctioned, is a widespread and concerning behavior (International Society for the Study of Self-Injury, 2007). A recent meta-analysis using international prevalence data estimated that between 13% and 17% of adolescents and young adults have self-injured at some point in their lives (Swannell, Martin, Page, Hasking, & St John, 2014) but estimates of NSSI in youth populations in the United States have been as high as 37% (Jacobson & Gould, 2007). Inclusive of acts such as cutting, burning, and embedding objects under the skin, engagement in NSSI can result in severe and unintended injuries (Whitlock, Eckenrode, & Silverman, 2006; Whitlock et al., 2011). For example, in a college-aged sample, 20% of individuals who engaged in NSSI reported damaging their body more than intended, whereas only 5% reported seeking medical assistance for this damage (Whitlock et al., 2011).

Many individuals who self-injure function well enough to attend school, college, and work—a fact that reduces motivation to stop NSSI and increases resistance to treatment (Whitlock, Prussein, & Pietrusza, 2015). Indeed, NSSI is often seen as an effective short-term means of achieving a variety of functional goals (Klonsky, 2007; Nock, 2009) including, but not limited to, regulating overwhelming emotions, handling interpersonal conflict or distress, and self-expression (Hasking, Whitlock, Voon, & Rose, 2017; Stänicke, Haavind, & Gullestad, 2018; Straker, 2006). A lack of readiness to change (Zila & Kiselica, 2001) and the belief that formal treatment is unnecessary or unhelpful due to the cyclical nature of NSSI (Klineberg, Kelly, Stansfeld, & Bhui, 2013) contribute to low disclosure rates. Thus, NSSI can go unnoticed and untreated.

Self-injury remains a major public health concern, however, because it signals underlying psychological distress and is a widely documented, and potent, risk factor for suicidal thoughts and behaviors (Klonsky, May, & Glenn, 2013). Indeed, recent work shows that NSSI history increases the risk of future suicide ideation, plans, and attempts (Kiekens et al., 2018).

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The ease with which some individuals conceal the behavior, coupled with the potential for lethal outcomes, leaves informal and allied mental health providers (e.g., nurses, school-based or other youth-serving professionals) who encounter NSSI strongly compelled to intervene in some way (Roberts-Dobie & Donatelle, 2007). Some evidence suggests the effectiveness of dialectical behavioral therapy (DBT) and cognitive therapy in adult populations and DBT and mentalization in child and adolescent populations (Hawton et al., 2015). To date, however, effective methods of treatment and prevention remain critical issues (Hawton, Saunders, & O'Conner, 2012; Muehlenkamp, 2006). Moreover, dissatisfaction with treatment is quite high among individuals who do seek professional support (Muehlenkamp, 2006). In sum, the complexity of the behavior (e.g., comorbidity, functions), and limited evidence for efficacious interventions, warrants consideration of custom treatments based on the imminent needs of individuals.

In this article, we suggest that efforts to treat, prevent, and generally support individuals who engage in NSSI could benefit from a more nuanced understanding of change processes. Prior work identifying key change elements often relies on reflections from individuals who have successfully ceased NSSI behavior (Buser, Pitchko, & Buser, 2014; Kool, van Meijel, & Bosman, 2009; Wills & Hons, 2012). These studies, despite comprising small samples, have been important in identifying the roles that agentic action, development of new coping strategies, and interpersonal influences play in the recovery process (Shaw, 2006; Tofthagen, Talseth, & Fagerstrøm, 2017). They do not, however, capture the more nuanced levers of change operational at various points in the behavior change process. Endeavoring to cease a behavior, such as NSSI, is often a slow process, occurring over time, and through a variety of internal and external shifts (Glanz, Rimer, & Lewis, 1997; Tofthagen et al., 2017). Not all of these shifts are likely to be consciously accessible after one has fully ceased the behavior. The current study was designed to expand upon prior work by assessing salient change processes within a generous sample size of individuals at various stages of the cessation process (from not even considering stopping to having not injured for several years). Having individuals provide both retrospective and current perspectives on what facilitates behavior change enables identification of key change levers and a more nuanced understanding of when certain factors are critical to cessation efforts.

To identify various stages in the change process and ensure vigorous assessment of different change mechanisms, it is helpful to draw on stage of change and recovery models that meld theoretical understanding with insights drawn from empirical application. Although cessation of unwanted behaviors, such as NSSI, rarely progresses through clearly delineated stages in a linear fashion, models which recognize that behavior change results from alchemical shifts in internal and external conditions that interact over time to enhance self-awareness, desire for change, and skill acquisition provide useful heuristics for conceptualizing and supporting change processes. The transtheoretical model (TTM) of behavior change (Prochaska & DiClemente, 1986) is a robust framework that not only provides algorithms for staging the change process but also identifies temporal, motivational, and contextual variables useful in assessing an individual's understanding of their behavior and their likelihood of change.

The TTM has been used to predict a number of common behavioral outcomes including, but not limited to, smoking cessation (DiClemente et al., 1991), disordered eating (Hasler, Delsignore, Milos, Buddeberg, & Schnyder, 2004; Jordan, Redding, Troop, Treasure, & Serpell, 2003), substance abuse (DiClemente, Nidecker, & Bellack, 2008; DiClemente, Schlundt, & Gemmell, 2004), and compulsive gambling (Kowatch & Hodgins, 2015). However, the TTM is not without criticism (Riemsma et al., 2003). Critics most often observe that TTM-informed interventions are often guided by the notion of stages, without much consideration of the more detailed processes that drive change (Littell & Girvin, 2002; Sutton, 2001), and rightly note that there is limited evidence for the discreteness of stages and for linear movement across stages (for a thorough review, see Littell & Girvin, 2002). Although such concerns are valid, we agree with scholars who argue that applying the full TTM framework, not simply the stages, to detail complex processes, to identify personal determinants of change, and to assess areas of client vulnerability can be of significant clinical value (see Brug et al., 2004). Moreover, calls for continuous measures of change (Velicer, Norman, Fava, & Prochaska, 1999), rather than segmented stages, are also addressed within the full TTM model through detailed assessment of the three key change process domains (e.g., decisional balance, processes of change, and self-efficacy).

It is also important to note that recovery process models, such as the TTM, are most often applied to addictive behaviors. Whether NSSI can be considered an addictive behavior has been a subject of debate (Victor, Glenn, & Klonsky, 2012, for review). Self-injury is often habitual, patterned, and difficult to stop, and individuals who self-injure will often describe it as something they crave when negatively emotionally aroused (Victor et al., 2012). In this way, self-injury conforms most closely to a behavioral (or "process") addiction model (see Alavi et al., 2012). We believe that the similarities between behavior/process and substance addictions make the cognitive, behavioral, and environmental patterns and interactions commonly assessed through the full TTM model useful in understanding NSSI cessation processes as well.

In addition, although cessation of unwanted behaviors is an assumed end point of all behavior change models, the potency of behavior change and recovery models comes less from delineation of specific stages of change and more from acknowledging and differentiating the multiple underlying psychological and social processes at play in supporting and choosing to stop unhealthy coping behaviors, such

as self-injury. In this way, it allows for measurement of movement within various dimensions of well-being, not simply NSSI cessation.

Like most stage-based models, the TTM includes six stages, which represent an individual's readiness to change: precontemplation (no intent to stop behavior), contemplation (intent to stop behavior in next 6 months), preparation (intent to take steps to stop behavior within next month), action (taken steps to stop behavior), maintenance (taken steps to stop behavior for more than 6 months), and termination (cessation of behavior for past 3 years). These stages are theorized to progress in a nonlinear pattern, wherein individuals fluctuate between earlier and later stages before full cessation of unwanted behaviors (Prochaska, DiClemente, & Norcross, 1992). As previously mentioned, these stages may or may not be mutually exclusive (Sutton, 2001).

In addition, the TTM articulates three broad dimensions important in behavior change: (a) perceived pros and cons of changing behavior (called "decisional balance"); (b) processes of change, which represent what an individual will do to modify behavior; and finally, (c) self-efficacy, or an individual's perceived ability to overcome barriers to change. Within each broad dimension are a number of specific subconstructs, which represent more granular change levers (see supplemental material for a description of these subconstructs as they relate to NSSI). The complexity of the TTM framework renders it a bit unwieldy to apply thoroughly, but its breadth well explicates the complex and dynamic interplay between readiness to change and the myriad factors that influence motivation and ability to alter maladaptive behaviors over time.

Multiple NSSI scholars have acknowledged the potential value of applying the TTM to NSSI intervention; however, thorough empirical study of such an application remains scarce. For example, Kress and Hoffman (2008) suggest that stage of change models can assist clinicians in understanding key change mechanisms in practice. Kamen (2009) echoes this sentiment and suggests use of the TTM to inform motivational interviewing and remediate risk factors for self-injury. Moreover, Grunberg and Lewis (2015) focus on the pros and cons of NSSI behavior change (called "decisional balance" in the TTM model) evident in posts in an online social network. Finally, van Divner and Teske (2017) recently applied readiness to change aspects to develop an NSSI interview guide.

Although these studies provide support for the utility of applying TTM to NSSI recovery, none probe all TTM-identified change processes with the goal of explicating the broadest possible array of NSSI-specific themes of value in clinical practice or in intervention modalities. The present study was intended to address this gap and to answer the following research questions:

Research Question 1 (RQ1): What are the salient pros and cons of changing NSSI behaviors?

Research Question 2 (RQ2): What are the types of experiences which facilitate the process of changing NSSI behaviors?

Research Question 3 (RQ3): What are the facilitators and barriers to self-efficacy?

Method

Design

Thirty-one in-depth interviews were conducted with individuals who have engaged in NSSI behaviors and who are in various stages of change. Three domains, corresponding to our research questions, were probed using a semi-structured interview: (a) pros and cons, (b) processes, and (c) facilitators and barriers to self-efficacy, related to changing NSSI behavior. By assuring participant representation across all stages of change, and by inviting participants to consider factors associated with all processes outlined in the TTM, our data provide a unique and rich first-person perspective of levers throughout the NSSI recovery process. All study activities were approved by the university institutional review board.

Recruitment and Eligibility

Interviews took place between spring and fall of 2015. The primary method for participant recruitment was through web-based contact, including the Cornell Research Program on Self-Injury and Recovery website (www.selfinjury.bctr.cornell.edu) and through solicitations within the authors' professional networks and listservs. Interested individuals were given a brief eligibility assessment that included basic demographic characteristics, NSSI frequency and recency, history of psychosis, and suicidality. Participants answered questions regarding inclusion criteria—must be 18 or older and have a significant history of self-injury (have six or more lifetime self-injury incidents)—and exclusion criteria—report no current suicidality or psychosis, and not have been hospitalized for a mental health disorder in the past 6 months. The goals of these eligibility requirements were to maximize eligibility and minimize the potential of triggering vulnerable individuals. If participants were eligible, they were given a staging algorithm to assess their readiness to change (see Figure 1). Because NSSI is highly cyclical and long periods between self-injury incidents are common (Walsh, 2012), we modified the final stages, maintenance and termination, to reflect NSSI cessation for 6 months (maintenance) and 3 years (termination). Similarly, although more recent versions of the TTM include relapse, we did not conceptualize relapse as a distinct stage of recovery because days, weeks, months, or even years can sometimes pass between self-injury episodes (that can also last days, weeks, or months), and because simply and totally stopping self-injury behavior, once it becomes

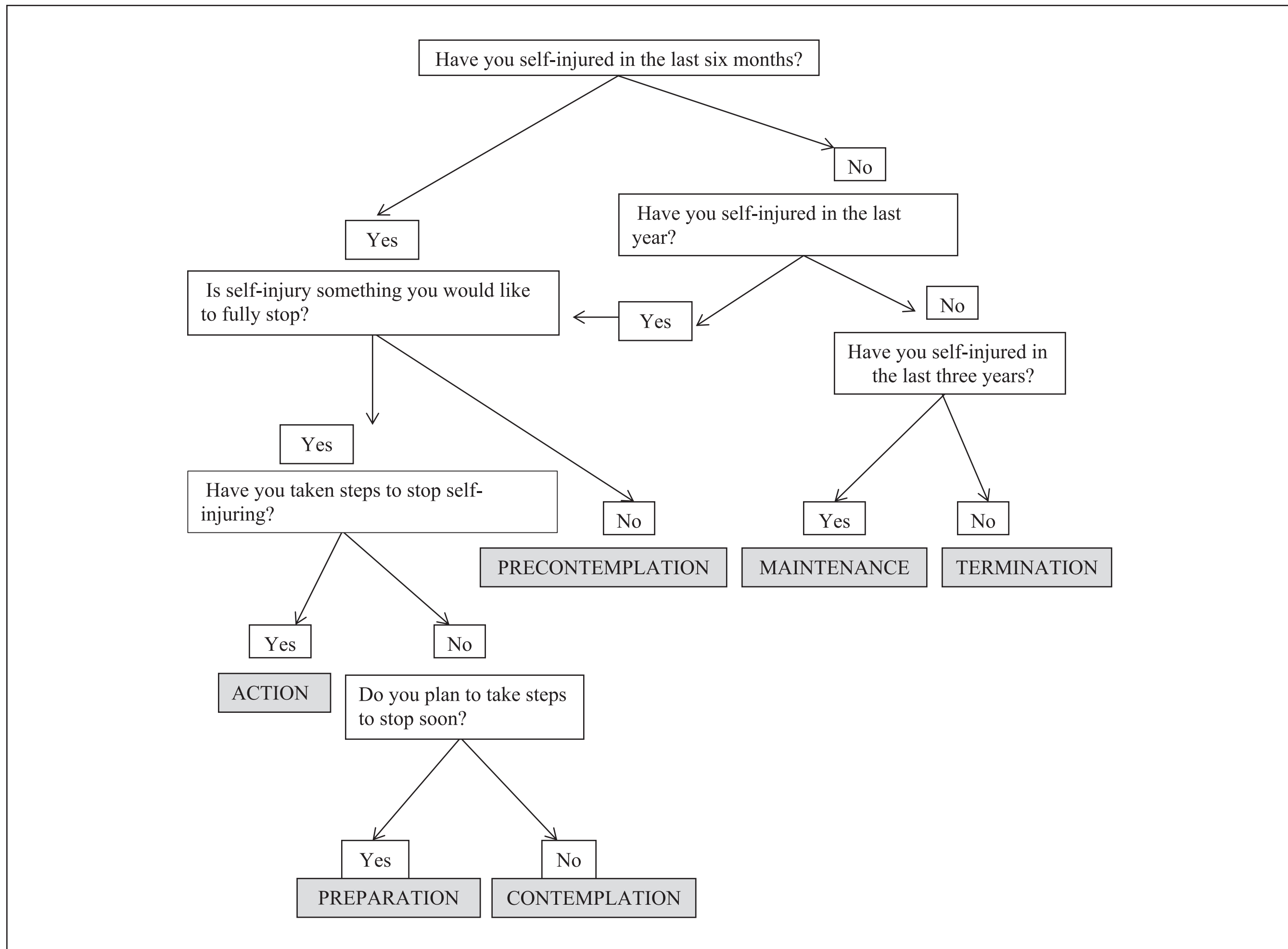

Figure 1. TTM stage algorithm for NSSI.
Note. TTM = transtheoretical model; NSSI = nonsuicidal self-injury.

habitual, is unusual (Whitlock & Selekman, 2014). In short, it is an assumed part of the cessation process.

Participant Characteristics

Participants ranged in age from 18 to 30 years (M_{age} = 26.59 years) and were predominantly female (F = 28, M = 3) and Caucasian (80%). The majority (80%, *n* = 25) reported having more than 50 lifetime NSSI incidents. Many participants reported engaging in one (*n* = 15, 48.4%) or two (*n* = 11, 35.5%) forms; however, some engaged in three (*n* = 3, 9.7%) or four forms (*n* = 2, 65%) (e.g., cutting, burning, punching, scratching). In addition, all participants reported struggling with at least one other mental health challenge (e.g., depression, anxiety).

Data Collection

Semi-structured open-ended individual interviews were conducted with all 31 participants, who, as a group, represented all six stages of change identified by the TTM: precontemplation (*n* = 4, 12.9%), contemplation (*n* = 3, 9.7%), preparation (*n* = 3, 9.7%), action (*n* = 4, 12.9%), maintenance (*n* = 8, 25.8%), and termination (*n* = 9, 29%). To take advantage of retrospective understanding, interviewees in the maintenance and termination stages were asked to reflect on change processes active in each of the previous stages (e.g., what moved them to contemplate change or take action). Consequently, the precontemplation, contemplation, preparation, action, maintenance, and termination phases have, respectively, 31, 27, 24, 21, 17, and nine individuals reflecting on that stage of change. In deciding the number of interviews to conduct, we considered the number of constructs being explored, the heterogeneity of our sample, and the depth of the analysis needed. Although they were important distinctions in all explored areas across stage, there was also striking similarity in the basic themes explored. We, thus, continued interviews until theme saturation occurred within the whole sample (Guest, Bunce, & Johnson, 2006; Patton, 2002). This occurred at roughly 25 interviews; however, we

choose to continue with interviews until we had a sufficient number of participants reflecting on the latter stages.

All interviews were conducted by the project coordinator or the principal investigator. Some interviews were conducted in person but many took place over Skype or by phone. Interviews were audio recorded and lasted between 1 and 1.5 hours. The interview guide began with broad questions to establish rapport and a basic knowledge of the participants' NSSI-related history, followed by questions intended to yield information related to TTM constructs. Although the interview guide was designed to probe for these constructs, participants were invited to share whatever associations, stories, and insights they had related to their perceived relationship with NSSI, particularly as it pertained to the desire and/or intention (or not) to stop engaging in the behavior. Interviews were semi-structured specifically to allow for novel themes. Upon completion, participants were thoroughly debriefed and given a list of resources to assist in the treatment of NSSI, including national resources, such as the suicide hotline. Interviews were then fully transcribed for analysis using the software, Dedoose.

Analytical Approach

The analytical approach chosen for this study combined directed content analysis with iterative, inductive coding at four distinct phases. Because the primary goal of the study was to surface NSSI change mechanisms, we used directed content analysis (Hsieh & Shannon, 2005) to create the first set of codes designed to probe the three overarching constructs of the TTM (decisional balance, processes of change, and self-efficacy) as well as specific subconstructs. Content analysis using a directed approach is more structured than conventional, using key concepts from the theory to derive initial coding categories (Hickey & Kipping, 1996). This initial coding process was followed by inductive coding to capture specific elements of change and maintain openness to participants' subjective descriptions without being wedded to the TTM framework (Braun & Clarke, 2006). This combined approach ensured that we capitalized on extant processes identified through theoretical and empirical work in other areas while also being open to change elements not previously identified or unique to NSSI.

In Phase 1, three independent coders read through all transcripts in Dedoose and applied codes representing the three broad TTM constructs. In Phase 2, the same coders went through the transcripts to identify the subconstructs outlined within the TTM model (e.g., consciousness raising, contingency management). Although the interview was designed to ensure that the interview touched on these constructs, coders were instructed to code for instances related to the constructs irrespective of where they occurred in the interview.

In the third phase, the independent coders read through the transcripts to distill key themes for each of the subconstructs. After several iterations, themes with substantial overlap or addressing the same underlying construct were combined (e.g., physical activity was merged with new coping skills) for simplicity. Given the large number of themes, the final phase consisted of looking for overarching dimensions emerging organically across all the codes. Four relevant dimensions surfaced: *relational, behavioral, self-knowledge*, and *barriers to change*. These four dimensions form our final organizing framework.

Rigor, Reflexivity, and Quality

With the aim of maximizing rigor, the study team regularly reviewed and collectively assessed assumptions through the duration of the study—from conceptualization to analysis. The interview guide was developed with input from multiple investigators to ensure that the structure and language of the interviews were not overly biased. Throughout the interview process, interviewers regularly met to engage in conversations about the themes and any preconceptions that had been confirmed/disconfirmed. Finally, throughout coding, coders met regularly to discuss the process of reading transcripts, exchanged notes taken during the coding process, and engaged in vigorous conversation about areas of disagreement, to enhance reflexivity. Coders additionally conferred with the researchers and systematically checked for code congruency. Interrater reliability was ascertained by comparing the same interviews, coded by all three coders, for consistency. Interrater reliability for primary code assignments using kappa reliability statistics was 0.71, indicating acceptable agreement. Where differences occurred, the principal investigator and project coordinator discussed discrepancies and settled on the best code for an excerpt based on the original constructs. This final categorization included sessions with both authors sitting with the lowest level construct (e.g., the themes) and sorting them into broader bins.

Results

Overarching Themes

As reported across all stages of change, four general categories of mechanisms emerged in the interviews: *relational, behavioral, self-knowledge*, and *barriers to change*. These categories were present in every stage represented in our data set, although the way participants talked about them differed as they moved toward later stages in some instances. What follows is a description of each category and themes. Where differences by stage were evident, it is noted in the text.

Relational

The importance of the interpersonal relationships in the behavior change process was evident in most of the interviews with some interesting trends across stages. As evident in Table 1, there are seven dimensions of relationships that

Table 1. Relational Themes and Excerpts.

Relational Theme	Excerpt
Informal support	"And just the self-acceptance of been able to talk about it and like now, having people who are so proud of me for not doing it anymore . . ." (Action) "I think the best thing that my friends have done and can continually do for me is just take me out of the situation, like out of my room, like let's go get coffee or um, let's watch a movie together, something like that." (Precontemplation)
Professional help/therapists	"They [therapists] try to help me find a way to cope, as opposed to hurting myself. She tries to help me find coping skills and, evolve." (Precontemplation) "[My therapist] invested so much time and like, she's the first therapist I've ever worked with. She really cares just a lot more, not because it's her job; she cares because she doesn't want to see someone doing that to themselves." (Action)
Connection to similar others	"One friend who had similar experience with self-injury was the one who recommended the counselor I was seeing. She was something of an accountability partner. Knowing someone who has been through the same thing was always helpful." (Maintenance) "People I found most effective were people who were struggling with their own issues. A lot of it was just having someone sitting there and listening and saying that they understood it, letting me know that it is going to be okay." (Termination)
Letting down others/worry	"Once I started doing two, three months without cutting, I was sharing these things with other people and getting extra support from other people. I didn't want to let them down and I didn't want to let myself down." (Termination) "My mom, my husband, and my little brother knew I was cutting—I kind of got to the point where I wanted to stop for them cause I didn't want them to worry about me as much." (Termination)
Increased consciousness of social stigma	"I didn't wanna have to hide! Every time I went out somewhere or something with short sleeves, I had to make sure, the fear of societal judgment." (Termination) "Life without social stigma . . . that's very important. I've gotten a lot better as I've gotten older when people notice scars, but it causes feelings of **embarrassment** and **shame** and incredible discomfort." (Precontemplation)
Opportunity to be role model	"Even just like small children that I've been around a lot, as being, as my nephews. If I ever had kids of my own, I probably would stop, or at least do it a lot less, and be far more careful about where it is." (Contemplation) "The basis of it is sharing your story with peers to let them know that they're not alone and that there's other people that have gone through what they're going through." (Termination)
Professional approval and accountability	"I work in mental health and it's always kind of been a thing in the back of my mind—you can't let people you work with see, client wise, especially since I worked with children." (Action) "But what really got me to stop long term was that change from college to being a teacher. All of the sudden there are 25–30 people in front of you who need your attention right now. Teaching or working at summer camp, those things really *took me out of my own head*, and made it so I fairly constantly I had to focus on other people and what they needed." (Maintenance)

emerged as salient across stage: *informal support, professional help, connection to similar others, concern about letting others down, increased consciousness of social stigma, opportunity to be a role model*, and *professional approval and accountability*.

References to the presence of support—informal, professional, or both—were apparent in all interviews and among most prolific codes applied in the data set as a whole. As is clear in Table 1, discussions of informal support usually involved feeling valued by others or having other people in one's life who helped intervene in negative thought, emotion, or behavioral patterns. As one participant noted, "Probably the other biggest one is just how much it makes people worry about me and how concerned they are" (Action). Similarly, professional help was identified as a critical factor when individuals perceived the therapist to be present, caring, and/or effective in coming up with other coping skills.

Informal connections with other individuals who self-injure were also raised among individuals in later stages as particularly useful in promoting accountability or in soliciting very specific kinds of support or resources. Social validation for cessation efforts and the affirmation of care that came from talking honestly about NSSI with others were other important dimensions consistently raised across stage. In general, affirmations and validation were associated with being socially rewarded for taking positive steps and in feeling heard, "because once I felt heard, once I got out what was inside of me, everything else became a little bit more about bearable. I didn't feel so alone or out of control" (Termination). Notably, although individuals in the contemplation stage, and all stages thereafter, identified

Table 2. Behavioral Themes and Excerpts.

Behavioral	
Theme	Excerpt
Reduce tool availability	"[Removing tools] was very important because if I weren't to remove these things from my life, I don't think I would have been able to stop. I actually threw them away, I threw everything away." (Maintenance) "When I have blades I have to tell someone so that I go and I throw them away. As long as I don't physically have them in my apartment I, that's actually, it's hard to describe as coping mechanism." (Action)
Learn to work with environmental triggers	"Most triggers weren't things I could remove from my life. It's more having strategies to make things less stressful." (Maintenance) "Most triggers weren't things I could remove from my life. I couldn't stop taking classes, couldn't stop being a person with a lot of anxieties. It's more having strategies to make things less stressful, alternate ways to deal with stress." (Maintenance)
Distraction	"I do something, watch an episode of something, distract myself, just give myself something to do while the anxiety was happening, and be like okay, if you still want to, maybe you'll do it, but like you're gunna wait this long at least." (Action) "I was just trying to be around people and stay distracted. I keep telling myself 'I'm not gonna do this right now, not yet, like, not right now and then it kind of went away. That crazy urge kind of went away." (Maintenance)
New skills	"I would try to use alternate methods—going for a run, cleaning, organizing, going and finding people to do things with sitting in public place getting out of dorm or apartment where the things I would self-injure with were.... get out of that environment." (Maintenance) "Doing something that distracts me or plays on one of the 5 senses. Like something like music, eating something or taking a shower, cigarettes." (Action)
Replacement rewards	"it's almost a replacement reward. If I say to myself I'm gonna cut myself and then I get to my room and I'm like no, you know what, you should instead have a bowl of ice cream. That bowl of ice cream is gonna make me happy and feel a little bit better, kind of like cutting would do, but it is also rewarding myself for not cutting." (Precontemplation) "I would watch movies to reward myself, I would be by myself for a little bit of time and would have time to myself." (Maintenance)

the impact of self-injury on others ("letting others down/worry") as a primary change motivator, these references were almost entirely absent in transcripts from individuals in the precontemplation stage.

The bottom three subthemes in the table were less universally identified as potent but were present enough to merit inclusion. Perceiving self-injury as socially stigmatizing was identified as a consistent advantage to stopping NSSI, regardless of stage. Questions about how to deal with scar visibility and how to best frame the "why I self-injure(d)" narrative to those who notice scars were associated with being in later stages. Being able to use experience with self-injury as a way to be of service to others or wanting to be a positive role model to someone important, like a younger family member, was mentioned by all individuals in the contemplation stage and by all individuals in the final two stages. This sense of accountability was also reflected in mentions of the intersection of NSSI and professional identity. Individuals, largely in the final stages, reflected on the impact of realizing that their self-injury behavior was out of alignment with their professional identity or would somehow jeopardize professional goals.

Behavioral

As with relational processes, changes in behavior played a significant role in NSSI recovery (Table 2). There were five unique subthemes: *reducing tool availability, learning to work with environmental triggers, distraction, developing new skills*, and *rewarding oneself for progress*.

The first two of these, *reducing tool availability* and *learning to work with environmental triggers*, were identified as critical change mechanisms by every individual interviewed, regardless of readiness to change. Triggers could come in the form of specific tools associated with self-injury, such as blades, or individual life situations that triggered the underlying feelings that lead to self-injuring in the first place. However, some participants noted that it was not always possible to remove triggers. As one participant described,

> It was important to remove certain situations and any object or thing that I would see and then want to use right away but there are also things, like relationships of people that I could not remove and I knew that. (Termination)

Being able to choose other behaviors, through either distraction when one was triggered or adoption of other kinds of coping skills, such as grounding techniques, running, and journaling, also came up in a majority of the interviews. Interestingly, all individuals in the first two stages talked about this as an important mechanism for change, as did individuals in the action stage who were actively engaged in stopping. Rewarding oneself for progress was mentioned by

Table 3. Self-Knowledge Themes and Excerpts.

Self-Knowledge	
Theme	Excerpt
Confidence with coping skills	"There are a lot of other ways I have learned to cope with that feeling." (Maintenance) "I was more confident in my ability to use those other skills and that those other skills would work." (Maintenance)
Psychological distance	"The further I have gotten away from self-harming, my confidence has grown in my ability to not use that as a coping skill ever again." (Termination) "The longer I go without doing it, the less strong my urges are going to be. So if I can go even five years without cutting or any other form of self-harm then I know that in six years even if it gets pushed and things get really hard I'm going to be six years removed from it." (Action)
Recognizing risks	"Towards the end I started getting concerned, especially with the last one how deep it was—I was getting worried about it." (Maintenance) As it started to get more intense, where I was getting stitches maybe once a month, it really was, I really need to do stuff about this." (Termination)
Recognizing key emotional patterns	"Once I started looking at self-care patterns and how they affected my anxiety, it made it a bit more possible to see life without self-harm at all because I could see that I could prevent the self-harm in the first place, it was about preventing the need for it at all." (Maintenance) "Being able to learn what happened—that kind of makes it less, less of a negative—it's a lapse, we made a mistake, we made an unhealthy decision. What can we learn from it, let's move forward." (Termination)
Researching/ learning	"I really started learning about why I had been cutting. Realizing that I didn't think I had another option. When I had all those feelings that would lead me to cut. I didn't realize there were other options." (Termination) "I took the diagnosis and really researched it and learned about it and learned what ya know, was really happening with me, and then that was, I would say really the turning point." (Maintenance)
Recognizing it as a choice	"Then they told me, 'well, but it's actually a choice because you have to make a choice the moment you lift up the knife, etc.' For me that really helped." (Precontemplation) "Knowing that I wasn't the only one in the world that was having panic attacks, that they were not this unheard of thing that was wrong with me and only me. Just knowing that and knowing that like I could do something about it that wasn't just hurting myself." (Action)
Hope and new identity	"I wanted to. I thought about it for . . . a little bit, but then I was like, 'No that's not who I am anymore.'" (Maintenance) "Well I might not have the greatest confidence in my ability to stop now. But just having that sense of hope for one day and instilling that in other people—I think that's most important and the best thing you could tell someone." (Precontemplation)

half of all individuals interviewed, with all individuals in the preparation and action stages identifying this is an important mechanism.

Self-Knowledge

The self-knowledge category included references to the enhanced self-awareness, understanding, and insight that supports motivation to change and actual capacity to change. There were seven subthemes associated with this area: *confidence, psychological distance, recognizing risks, recognizing key emotional patterns, researching/learning, recognizing as a choice*, and *hope/new identity*. References to psychological tools that facilitated confidence building, such as those captured in the top two rows of Table 3, were commonly mentioned across stage. Even in the early two stages, when individuals were not actively working toward cessation, there was a recognition that confidence was important. As one participant said, stopping required "Learning and identifying with the feelings, the really dark, depressed hole that I would get into—that they weren't permanent and that there were other ways to kind of get out of that" (Termination).

Recognizing risks in conjunction with understanding personal patterns was also highly referenced, particularly for individuals in precontemplation through action. Pattern recognition, including the ability to understand typical cascades in linkages between emotional states, relationships, availability of paraphernalia, and behavior, was critical. Particularly interesting is the fact that while largely absent in the first four stages, all but three individuals in the maintenance and termination stages retrospectively identified how crucial the final three subthemes were in being able to stop and stay self-injury free. These included becoming increasingly aware of the phenomenon as a whole, recognizing that self-injury could be a choice in some ways, and beginning to experience themselves as someone independent of their self-injury history. Regardless of the stage, though, the belief and hope for a life free of self-injury was instrumental. As one participant noted, "It wasn't really something that I imagined like long-term. I never really, I knew it was something I didn't wanna do

Table 4. Barriers Themes and Excerpts.

Barriers	
Theme	Excerpt
Abuse and negative relationship dynamics	"My stepfather would be verbally abusive—he would tell me I was fat or ugly. Days when my self-worth was very low—I was definitely gunna cut." (Termination) "When he broke up with me I went back into a lot of self-destructive behaviors including cutting regularly." (Termination)
Environmental triggers	"When something bad happens—like not do well on a quiz or test in school that will make me want to self-harm . . . when I have like a social blunder. I will think about it for a long time." (Action) "If I didn't sleep at all or, like, I've been drinking way too much caffeine to stay up, um, I'm way more likely to self-harm." (Action)
Judgment, shaming, and lack of validation	"People think that it's just, a cry for attention and, it definitely wasn't, I wasn't trying to get attention from it. I didn't really want people to know." (Maintenance) "I wish that there would have been more of an understanding or an attempt to understand as opposed to high voltage emotions." (Termination)
Relationship to the practice of SI	"The relationship I have with [self-injury] is something that I like to maintain. It's like an old friend that's been out of town for a while and then they come back into town and you're really excited to see them, does that make sense?" (Precontemplation) "I guess I've just developed a relationship with certain tools over my life." (Precontemplation)

Note. SI = self-injury.

forever but I don't think I ever really thought about when I would stop or how I would stop" (Termination).

Barriers to NSSI Cessation

Finally, while this study largely focused on perceived or recognized facilitators of change, individuals consistently brought up barriers as something in constant need of navigation through the change process (Table 4). Barriers were related to *abuse and negative relationship dynamics; the presence of environmental triggers; perceived judgment, shaming, and/or invalidation from others*; and *dependence on the perceived relationship one has with self-injury*. Across stages, the presence of reinforcing external stimuli and negative relationships or behavioral patterns (e.g., substance use) were commonly raised barriers. The underlying trigger, in many cases, had to do with perceptions of control, "Anytime I felt helpless, or like I couldn't control whatever the external situation was, and being alone would be more difficult to resist" (Maintenance).

Negative experiences or judgments from other people were similarly potent, but especially referenced in the first four stages. Comments such as these were common: "I've had other people in my life that ignored it or who stopped talking to me because of it . . . I felt rejected so I would cut more" (Precontemplation) or "Some of my friends knew what I was doing, and they were like 'oh you just need to get better.' That would make me more upset and more likely to self-harm because people don't understand it" (Termination). Underlying almost all these comments was the experience of feeling rejected or diminished in some way.

Finally, one of the more interesting stage patterns across the entire data set is the fact that although references to one's personal relationship with self-injury, often referred to as a friend or a practice in which one was dependent, came up in almost every stage, it was mentioned by everyone in the precontemplation stage. Focus on the personal relationship to self-injury seemed to become more diffuse as individuals emotionally and behaviorally prepared to take action.

Discussion

This study deeply explored perceived mechanisms of change leading to NSSI cessation from the vantage point of individuals at various points in the recovery process. To ensure that we robustly explored possible mechanisms of change, we intentionally asked questions related to (a) perceived pros and cons of changing NSSI behaviors, (b) experiences that facilitate the process of changing NSSI behaviors, and (c) facilitators and barriers to self-efficacy in changing NSSI behavior—all broad categories that have been identified and explored in theoretical and empirical work related to the TTM. In what follows, we discuss key findings and then highlight implications for nursing and clinical practice.

Three of the broad dimensions to emerge, *relational, behavioral*, and *self-knowledge*, reflect distinct, but already recognized, elements of recovery in the mental health literature (Gordon, Ellis, Siegert, & Walkey, 2014; Leamy, Bird, Le Boutillier, Williams, & Slade, 2011; Markowitz, 2001). In the context of self-injury, this includes learning and using cues that support healthy alternative behaviors, being able to envision a life without self-injury, and identifying and confiding in people who are supportive of the desire to cease self-injury. These themes emerge in slightly different patterns, however, when viewed throughout the recovery process.

When first deciding and progressing in recovery, for example, our participants reported being more attentive to *oneself*, relative to *others*. Indeed, consideration of the impact that self-injury had on other people was almost entirely absent in interviews of individuals in precontemplation and contemplation stages. Participants in later stages (preparation–termination) recognized the positive relationships they had in their own life and how they could have a positive impact on others by sharing their story. In this way, recovery seemed to involve a transcendence from worrying about the consequences of their action, toward agency, and using their experiences with NSSI to help others (e.g., becoming a role model). Grunberg and Lewis (2015) noted a similar trend in their research on an online message board for NSSI individuals, finding that the impact of NSSI on others was a more common consideration as individuals moved along the continuum of change.

One highly salient benefit to self that emerged from our interviews, even among individuals who saw few pros to behavior change, was no longer having to hide scars or otherwise conceal their behavior from others, for fear of disapproval. This benefit of stopping NSSI practice is consistent with prior work (Lewis & Baker, 2011; Lewis & Mehrabkhani, 2016; Lewis, Rosenrot, & Messner, 2012) and well explicates the relational and contextual nature of self-injury, even when the focus is on benefits to the self.

Interpersonal dynamics played a critical, and central, role for many in facilitating the change process. This ubiquity and salience of helping relationships echoes extant research on the importance of interpersonal relationships in NSSI recovery (Muehlenkamp, Brausch, Quigley, & Whitlock, 2013). Therapists and other allied health professionals are frequently cited as most helpful because they contribute objective perspectives. By contrast, helpfulness of friends and family was more varied with some participants expressing that their partners were "too emotionally close" to be helpful and others feeling judgment or a lack of understanding, which, on occasion, contributed to acts of self-injury. Thus, in addition to finding, and nurturing, positive relationships, addressing relational problems, and differentiating one's own inner experience from that of close relational partners, may be beneficial.

Behavioral processes associated with recovery were also commonly mentioned. Past work suggests that behavioral skills (e.g., alternative behaviors) outperform cognitive skills (e.g., cognitive distancing, rationalizing), in predicting successful recovery (Prochaska et al., 1992). Reducing tool availability, distracting oneself, and engaging in activities, including activities that induce physical sensations were the most frequently mentioned behavioral skills. These findings converge upon those from past work and are already a recognized part of many existing treatment plans.

Insight into one's own triggers, or reasons for injuring, forms the basis of self-knowledge and was strongly linked to promoting desired behavior change. As articulated in self-efficacy frameworks and in the TTM (Bandura, 1977; Prochaska & Velicer, 1997), having confidence in one's capacity for change was an instrumental factor in actual change. Positive shifts in confidence were linked to external factors, such as learning to work with triggers such as relationships or situations that cause distress, and with visibility and accessibility of self-injury–related tools. It was also associated with a variety of internal factors, such as gradual attainment of psychological distance, recognizing emotional patterns, and beginning to understand the full spectrum of impact on oneself and others.

Consistent with the literature, individuals in the early stages (precontemplation and contemplation) were more likely to reference perceived barriers to recovery (Grunberg & Lewis, 2015). Some of the most common barriers mentioned were negative, overwhelming emotions and judgment from others. Although judgment from others was primarily linked to earlier stages of recovery, negative affect seemed to be most salient for those who had already begun the recovery process and were in the middle stages of recovery. Both negative affect and distress in interpersonal relationships have been linked to risk of self-injury in the literature (Lewis, Heath, Michal, & Duggan, 2012), although rarely associated with particular stages of recovery. Furthermore, external triggers were mentioned more often than internal triggers, though references to internal triggers such as internal subjective states (e.g., perceived isolation) were more common in earlier stages of change.

Knowing that individuals in the last two stages of change identified here, maintenance and termination, would likely have retrospective understanding of their processes of change not available to individuals currently in the process, participants in these stages were asked several questions regarding the importance of certain elements in changing NSSI behavior. Not surprisingly helping relationships emerged as a key theme, with nearly 60% of participants reporting that having people to talk to was instrumental in NSSI cessation. Interestingly, individuals were rather split on the importance of removing triggers with about two thirds identifying it as extremely important and the remainder identifying it as not very important in retrospect.

Finally, when reflecting back on *reasons to continue injuring*, these participants identified an absence of alternative coping strategies when NSSI was seen as effective. Consistent with past literature, emotion regulation skills and the accessibility of alternative coping strategies were critical in overcoming triggers/barriers and NSSI cessation (Whitlock et al., 2015). Furthermore, themes of self-approval culminated around pride for not engaging in behavior and for using alternative coping strategies to do so. Above all, new coping strategies were seen as the most important element in behavior change across all stages—however, the most useful strategies for NSSI cessation are likely to vary by individual and stage.

Implications for Nursing and Clinical Practice

Our research has a number of implications for nurses encountering NSSI and for treatment objectives more broadly. Nurses are in a unique position to intervene as they are likely to notice wounds and be privy to information about patients with undisclosed NSSI. They may, so too, be an initial confidant for these individuals. Prior research highlights widespread apprehension and negativity toward self-injuring patients among health care professionals (see meta-analysis on emergency department nurses; Rayner, Blackburn, Edward, Stephenson, & Ousey, 2019). Nurses frequently report feeling unprepared to handle patients who present with self-injury; however, this can be improved with proper education and, in time, increased confidence in knowing how to respond (Karman, Kool, Poslawsky, & van Meijel, 2015; McHale & Felton, 2010; Patterson, Whittington, & Bogg, 2007; Rees, Rapport, Thomas, John, & Snooks, 2014). It may be a worthwhile endeavor to integrate the domains discussed here into a training curriculum for nurses who frequently encounter high-risk populations (e.g., adolescents). We make several recommendations for nurses first encountering NSSI and then offer broad implications for treatment.

First, understanding that self-injury is undertaken for a variety of reasons, many of which do not include suicidal intent, is important. Because responses to NSSI disclosure can have a powerful impact on patient's willingness to accept further professional support (Walsh, 2012), it is essential to address NSSI in a caring, compassionate, and nonpathologizing way (Doyle, Sheridan, & Treacy, 2017).

Second, it is important to recognize the nuances of the change process for individuals who self-injure, and to acknowledge individual differences and complexities. Knowledge about which domains are likely to be important in the readiness to change processes, as discussed throughout this article, can be a place to start when assessing patients. However, this should be supplemented by the personal experiences of the patient if they choose to disclose.

Third, as patients are likely to vary in their readiness to change, so too will the salience of internal and external conditions contributing to the behavior. When confronting patients with self-injury, it may be useful to assess their readiness to change as well as where they fall on these psychosocial dimensions. One such assessment emerging from this study is currently under review (Kruzan, Whitlock, & Hasking, manuscript under review) and there are others which may be useful (van Divner & Teske, 2017).

Study findings also contain implications for therapeutic treatment. For example, our work suggests that during the crucial period when individuals are deciding whether recovery is a worthwhile endeavor, believing that changing NSSI behaviors will have a positive impact on their lives outweighs any evaluation of its impact on others. Stated differently, when self-attentional focus is high, and perceived benefits to ceasing behavior are low, motivation to change will also be quite low. To assist individuals with low motivation, a nuanced understanding of the functions self-injury serves will be necessary to reframe benefits of ceasing behavior. In light of the emphasis on the self at early stage of readiness to change, it may be worthwhile for early interventions to focus on benefits (e.g., improved relationships and reduced need to hide wounds), rather than overly processing losses to oneself (e.g., no alternative coping strategies) as a result of behavior change.

The social dimension of change was readily apparent in a number of ways. As in past work, many participants felt that provision of peer support (Reismann, 1965; Roberts et al., 1999) was a key facilitator of recovery. Indeed, noting the positive impact they could have on others as a primary motivator to change NSSI behavior was common. For individuals ready to more deeply explore the ways in which relationships complicate and assist NSSI cessation, findings suggest that it may be therapeutically useful to assist clients in surfacing the dynamics at play in this arena. Because informal relationships are complex and sometimes "too close" to be easily accessed for support, therapeutic assistance in disentangling the strands of relationally hindering versus helpful dynamics is likely to be critical. These relational dynamics are central to psychodynamic therapies such as transference-focused therapy (TFT; Clarkin, Yeomans, & Kernberg, 2006) or mentalization-based therapy (MBT; Bateman & Fonagy, 2008), both of which have received some support in the treatment of self-injury.

Finding that behavioral skills (e.g., reducing tool availability, distracting oneself, engaging in activities that induce physical sensations) are important in the NSSI behavior change process suggests that focus on this area will also be therapeutically helpful, particularly as individuals become receptive to experimenting with alternative coping techniques. DBT (Linehan, 1993) is recognized as one of the most promising treatments for NSSI and includes a segment on developing behavioral skills in mindfulness, emotion regulation, interpersonal effectiveness, and distress tolerance. In addition, DBT emphasizes contingency management—a method that many of our participants reported assisting in their behavior change processes. Not all treatments for NSSI include an explicit focus on behavioral skills, however. Our findings suggest that any future intervention should consider and address behavioral skills head on.

Finally, individual needs, and challenges, are likely to evolve as they move through the recovery process. As individuals begin to make changes to support behavioral cessation, they may become aware of more deeply held beliefs and patterns. It is, thus, useful to identify and work with behavior life cycle patterns, personal epiphanies, and extant and emerging strengths and insights early in the therapeutic relationship and to reassess these as individuals move through recovery. Finding ways to assist clients in believing that change is possible and in their own efficacy to enact change will be important. Developing

self-knowledge and enhancing efficacy to act on this knowledge are frequently addressed in cognitive behavioral therapies, such as DBT, and psychodynamic approaches, such as TFT and MBT. Finally, using brief assessments of the relative pros and cons of behavior change, and self-attentional versus other focus, will likely be useful in deploying tailored interventions.

Limitations

The study presented here is one of the first to assess broad mechanisms contributing to change at multiple points throughout the NSSI behavior change process. Nevertheless, there are several important limitations. First, there are limits to the generalizability of our findings. Although the sample size improves upon past work on NSSI recovery, it is comprises individuals who opted into interviews and were perhaps more motivated than the general population. Because disclosure rates among individuals who self-injure are quite low (Whitlock et al., 2011), individuals who would anticipate feeling shame, or have other fears about disclosure, may have been unlikely to consent to participate, and we recognize this as a potential selection bias. The trouble we had identifying individuals in the precontemplation and contemplation stages of NSSI supports this assumed bias.

Furthermore, we recruited individuals not experiencing current suicidality; however, in clinical settings, many individuals report co-occurring self-injury and suicidality (Victor, Styer, & Washburn, 2015). We also note a gender imbalance in our study as most of our informants were adult women. Research has shown that gender-related differences occur in the presentation of NSSI (Victor et al., 2018); therefore, it would be beneficial for future work to explore whether the key facilitators of change identified here hold in a more diverse sample.

The current study was informed by in-depth interviews at all six stages of change and our data represent both retrospective and current self-reported feelings and behaviors. Reports of past behavior can be problematic due to retrospective recall bias (Lalande & Bonanno, 2011); however, we believe that the concomitance of current and past perspectives of self-injury may help to mitigate the influence of this bias on our data. Although the within-stage sample size makes it difficult to examine stage-related differences with a high degree of confidence, the patterns to emerge here are suggestive and have formed the basis of a larger quantitative study, which is currently underway.

Finally, we recognize that there are likely to be implicit and unarticulated mechanisms that are not reflected in our results. As noted in the introduction, models such as the TTM are dependent on what an individual can consciously access. Although we tried to account for a broader range of mechanisms, by using both retrospective and current reflections on change, the inferences we can draw about what was not conscious are limited.

Conclusion

In sum, when examined through the broadest lens, the pattern of results both validates prior empirical findings and offers new insights into potential behavior change mechanisms for NSSI. Conceptualizing NSSI recovery through the dynamic lens of both stage of change frameworks and the many mechanisms that have been identified as part of empirical study related to such frameworks, contributes to a growing understanding of NSSI cessation and has implications for clinical practice.

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Supplemental Material

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