

The Role of Basic Need Satisfaction in the Onset, Maintenance, and Cessation of Non-Suicidal

Self-Injury: An Application of Self-Determination Theory

The present study applied self-determination theory to examine the onset, maintenance, and cessation of non-suicidal self-injury (NSSI) in adolescents. Specifically, the study examined the relationship between the basic psychological needs of autonomy, competence, and relatedness, and NSSI status. Participants were classified into the NSSI Maintain ($n = 30$), NSSI Start ($n = 44$), NSSI Stop ($n = 21$), or Control ($n = 98$) groups based on NSSI status over 2 time points within a 12-month period. Repeated measures multiple analysis of variance was employed. Satisfaction of the need for competence decreased over time in all adolescents. Adolescents who maintained NSSI behavior reported significantly lower levels of need satisfaction compared to adolescents reporting no history of NSSI engagement, and adolescents who began NSSI over the course of the study reported significantly lower levels of need satisfaction compared to those reporting no history of NSSI engagement. The findings suggest that need satisfaction varies as a function of NSSI status.

Keywords basic need satisfaction, cessation, maintenance, non-suicidal self-injury, onset, self-determination theory

Non-suicidal self-injury (NSSI), defined as the deliberate destruction of body tissue without the intent to die and for purposes not socially sanctioned (American Psychiatric Association, 2013), is a growing public health concern. Adolescence is a time of particular risk for NSSI and corresponds to the developmental period in which age of onset peaks (Lewis & Heath, 2015; Rodham & Hawton, 2009; Ross & Heath, 2002; Whitlock, Eckenrode, &

Silverman, 2006). Results from a recent meta-analysis found that after controlling for methodological differences across studies, 17.2% of adolescents report ever having engaged in NSSI (Swannell, Martin, Page, Hasking, & St John, 2014). Investigating the factors that influence the onset, maintenance, and cessation of NSSI would be imperative in informing prevention and intervention strategies.

While cross-sectional designs have compared past versus current self-injurers to examine differences that may account for cessation (e.g., Brown, Williams, & Collins, 2007; Rotolone & Martin, 2012; Taliaferro & Muehlenkamp, 2015; Whitlock, Prussien, & Pietrusza, 2015), longitudinal designs are essential if one truly wants to understand the incidence and changes of NSSI over time. Little is known about the longitudinal course of NSSI among adolescents (Jacobson & Gould, 2007), however some recent research has provided insight into which factors may be particularly salient to NSSI onset, maintenance, and cessation in this population.

Longitudinal Research Investigating NSSI Onset, Maintenance, and Cessation

A recent review of longitudinal investigations of NSSI and deliberate self-harm showed that the methodology, predictors measured, and length between follow-ups vary widely across studies as do the findings (Plener, Schumacher, Munz, & Groschwitz, 2015). Some variables are measured more consistently in this initial body of longitudinal research and findings suggest that as adolescents' support, self-esteem, self-efficacy, and emotion regulation increase, and as their depressive symptoms decrease, their engagement in NSSI decreases as well (e.g., Duggan, Heath, & Hu, 2015; Garisch & Wilson, 2015; Hankin & Abela, 2011; Tatnell, Kelada, Hasking, & Martin, 2014).

Longitudinal investigation into NSSI onset, maintenance, and cessation has for the most part been guided by emotion regulation models such as Linehan's (1993) biosocial model and by Nock's (2009) model of proximal and distal factors. The present study presents self-determination theory (SDT; Deci & Ryan, 1985; 2000; Ryan & Deci, 2000b) as a complementary perspective to the Linehan and Nock models.

Self-Determination Theory

Self-determination theory (SDT; Deci & Ryan, 1985; 2008; Ryan & Deci, 2000b) is an organismic approach built on the assumption that people are actively involved in their own development with evolved tendencies towards growth and mastery. Basic psychological needs theory (BPNT), a mini theory within the formal self-determination theory, outlines three universal, innate needs that serve as the avenue through which the social context influences development throughout the lifespan: autonomy, competence, and relatedness. The satisfaction of these three needs is referred to throughout this article as "need satisfaction." The need for autonomy is understood as our need for feeling that we are acting out of our own volition and in accordance with our personal values as opposed to feeling as though our behavior stems from coercion or pressure (Grolnick & Raferty-Helmer, 2013). The need for competence reflects our inherent desire to feel effective when interacting with our environment (Deci & Ryan, 2000). It follows that when our need for competence is fulfilled, feelings of self-efficacy and self-esteem may be at the center of more general feelings of well-being. The need for relatedness is our need for deep and meaningful connections with close others, as well as a need for broader connections to society in general. This need is satisfied when we experience social support and feel close to others (Deci & Ryan, 1985; 2008; Ryan & Deci, 2000a). BPNT posits that all three needs are essential; when they are fulfilled via the social context, an individual is in the position to

maintain optimal functioning and achieve positive personal growth. However, when any one need is thwarted, an individual's overall well-being and psychological health are at risk (Ryan & Deci, 2000a).

Under an SDT perspective, non-suicidal self-injury would be considered a releasing self-control compensatory behavior resulting from unfulfilled basic psychological needs. As their name suggests, releasing self-control compensatory behaviors involve a release or revolt against self-control and are, in part, explained by diminished energetic resources caused by need frustration (Moller, Deci, & Ryan, 2006; Vansteenkiste & Ryan, 2013). Research has supported the link between need satisfaction and self-control compensatory behaviors such as binge eating (Boone, Vansteenkiste, Soenens, Van der Kaap-Deeder, & Verstuyf, 2014; Schuler & Kuster, 2011) and smoking (Williams, Niemiec, Patrick, Ryan, & Deci, 2009), however, the association of need satisfaction and NSSI has never been empirically examined.

The three basic needs, as well as parental autonomy support have been shown to be associated with depressive symptoms (which are closely related to NSSI, e.g., Claes, Luyckx, Baetens, Van De Ven, & Witteman, 2015; Duggan et al., 2015; Hankin & Abela, 2011; You & Leung, 2012) in children and adolescents (Emery, Toste, & Heath, 2015; Van der Giessen, Branje, & Meeus, 2014; Véronneau, Koestner, & Abela, 2005). Similarly, self-determination was recently supported as a protective factor against suicidal ideation (Bureau, Mageau, Vallerand, Rousseau, & Otis, 2012), another phenomenon closely related to NSSI (Brown, Comtois, & Linehan, 2002; Hawton et al., 2012; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006; Paul, Tsypes, Eidlitz, Ernhout, & Whitlock, 2015; Sher & Stanley, 2009). Finally, many of the factors identified in the NSSI literature as associated with the onset, maintenance, and cessation of NSSI are conceptually related to SDT's basic needs of autonomy (e.g., family invalidation;),

competence (e.g., self-efficacy, self-esteem), and relatedness (e.g., support) (e.g., Garisch & Williams, 2015; Tatnell et al., 2014; You & Leung, 2012). Considering these overlaps between the SDT and NSSI literatures, it seems likely that SDT's tenet would hold up to empirical scrutiny and that SDT may be a useful paradigm in which to conceptualize NSSI. Furthermore, SDT's emphasis on the distal social context may hold explanatory power for the cyclical starts and stops that typify NSSI behavior (Walsh, 2006).

The Present Study

Thus, the overall objective of the present study was to apply an SDT perspective to further our understanding of factors associated with NSSI onset, maintenance, and cessation in adolescents. Based on SDT and empirical research within the SDT and NSSI literatures, it was hypothesized that: (a) adolescents who engage in NSSI would report lower need satisfaction compared to adolescents with no NSSI history; and, (b) reports of satisfaction of the needs for autonomy, competence, and relatedness would vary as a function of NSSI status over time such that adolescents who begin NSSI will report a decrease in need satisfaction and adolescents who stop NSSI will report an increase in need satisfaction.

METHOD

Participants

The current study represents a subset of data collected over 2 years as part of a larger 3-year longitudinal investigation on stress and coping strategies in young adolescents. Participants were recruited from 15 high schools in and around Montreal, Quebec. The overall sample at Time 1 of the present study when participants were in grade 8 consisted of 730 participants (55.9% female) with a mean age of 13.43 years ($SD = 0.50$). Of the overall sample at Time 1,

139 participants (19.0%) indicated having engaged in NSSI at least once in their lifetime and 65 participants (8.9%) indicated currently engaging in the behavior. Of the 65 participants who reported currently engaging in NSSI, 27% reported having engaged in NSSI 1 time, 25% reported 2–4 times, 21% reported 5–10 times, 19% reported 11–50 times, 8% reported 51–100 times, and 0% reported engaging in NSSI more than 100 times.

Of the 730 participants who participated at T1, 686 (94.0%) participated at T2 when students were in 9th grade. Participants at T2 (56.9% female) had a mean age of 14.50 years, ($SD = 0.51$). Attrition was due to invalid questionnaires ($n = 2$), withdrawal ($n = 14$), absenteeism ($n = 3$), and moving to a different school ($n = 25$). Of the overall sample at Time 2, 130 participants (19.0%) indicated having engaged in NSSI at least once in their lifetime and 82 participants (12.0%) indicated currently engaging in the behavior. Of the 82 participants who reported currently engaging in NSSI, 14% reported having engaged in NSSI one time, 24% reported 2–4 times, 24% reported 5–10 times, 17% reported 11–50 times, 15% reported 51–100 times, and 6% reported engaging in NSSI more than 100 times.

Measures

NSSI Screening Questionnaire

The How I Deal with Stress Questionnaire (HIDS; Heath & Ross, 2007) is a 29-item self-report questionnaire developed to screen for self-injury. Each statement on the HIDS taps the frequency of use of both adaptive and maladaptive coping strategies on a four-point Likert scale ranging from 0 (Never) to 3 (Frequently). NSSI is embedded within these statements as a coping strategy (“physically hurt myself on purpose”). The HIDS also has a follow-up section in which participants are asked to provide additional information on NSSI and to indicate whether they

had harmed themselves without suicidal intent to ensure reports of self-harm meet NSSI definition criteria. NSSI status was further confirmed through individual interviews conducted by a trained doctoral student. Specifically, the Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007) was administered. This semi-structured interview assesses the presence, frequency, and methods of NSSI. Methods queried in the SITBI include: 1) cut or carved skin; 2) hit yourself on purpose resulting in bruising; 3) picked areas of your body to the point of drawing blood; 4) burned your skin (with a cigarette, match, or other hot object); 5) inserted sharp objects into your nails or skin; 6) scraped your skin to the point of drawing blood; and 7) other. The HIDS has been used successfully in community settings to accurately screen for and identify youth who engage in NSSI (Ross & Heath, 2002). The HIDS questionnaire section examining the use of adaptive and maladaptive coping strategies for stress was found to have good internal consistency at both time points (31 items, T1 $\alpha = .77$ and T2 $\alpha = .75$).

Need Fulfillment

Children's Intrinsic Need Satisfaction Scale (CINSS; Koestner & Véronneau, 2001) This 18-item questionnaire was adapted for use with child and adolescent populations from the Intrinsic Need Satisfaction Scale (Deci et al., 2001) and assesses children and adolescents' autonomy, competence, and relatedness across three contexts (i.e., at home, at school, and with peers). Participants respond to each question on a five-point Likert-scale, selecting whether each statement is "not at all true" (1), "slightly true" (2), "moderately true" (3), "mostly true" (4), or "completely true" (5). The scale consists of three 6-item subscales that represent the intrinsic needs proposed by SDT: autonomy, competence, and relatedness. The autonomy subscale measures the extent to which the participant feels as if they act with volition (e.g., "I feel free to

express myself at home”), while the competence subscale considers the extent to which the participant feels that they can master tasks and activities (e.g., “I feel I do things well at school”), finally, the relatedness scale taps into the extent that the participant feels they are socially connected with important others (e.g., “my teachers like me and care about me”). For the present study, reliability for each need subscale at T1 was as follows: autonomy $\alpha = .75$, competence $\alpha = .83$, and relatedness $\alpha = .70$. Reliability for each need subscale at T2 was as follows: autonomy $\alpha = .76$, competence $\alpha = .84$, and relatedness $\alpha = .73$.

Procedure

Following ethics board approval for the longitudinal project, presentations were made in grade 7 classes in 15 schools in and around Montreal, Quebec. Students were invited to participate in the 3-year project examining stress and coping upon the transition to high school. Risks and benefits of participation were described as well as the potential time commitment, confidentiality, goals and objectives, and methodology. Students learned that those who completed questionnaires would be entered to win one of four \$50 gift cards and that those selected for individual follow up interviews would receive a ten-dollar gift certificate. Students were informed that they have the option to withdraw from the study at any time and that their participation would have no bearing on any class grades or evaluation. Students were provided with an informed consent form detailing the project for their parents and they received a small chocolate bar for returning signed forms and were entered in a draw for one of two gift cards to a local shopping mall valued at \$100 and \$200, regardless of whether or not their parents had agreed to their participation.

At each time point, the data collection procedure was identical. Students whose parents had given consent were invited to the cafeteria of their school for the completion of

questionnaires including the HIDS and the CINSS. Participants were seated spaced out throughout the cafeteria with black cardboard dividers for privacy. Prior to completing questionnaires, participants were asked to provide assent. Questionnaires were administered during school hours, and took approximately 60 minutes to complete.

RESULTS

Prior to conducting analyses, all variables were examined through SPSS 22 for accuracy of data entry, detect missing values, and fit between their distributions and assumptions of multivariate analyses. Questionnaires were considered to be invalid and participants were not included in group classification if more than 5% of their data on the CINSS at either T1 or T2 were missing. If 5% or less of the data were missing, missing values were estimated using the regression method in SPSS 22.

NSSI Group Classification

To address our study objectives, four groups were created based on NSSI status at two time points over a 12-month period. Of the 730 participants who participated at Time 1, 686 (94.0%) completed the assessments at Time 2 (12 months later) when students were in grade 9. At Time 1, 65 students reported currently engaging in NSSI. Of these 65 participants, 30 reported engaging in NSSI (93% female) at T2 and were classified in the NSSI Maintain group. An additional 21 participants (62% female) reported stopping the behavior at T2 and were classified in the NSSI Stop group. Fourteen participants were removed from analysis due to invalid data or ambiguous responses that did not allow for clear group classification. Furthermore, 44 participants (80% female) reported engaging in NSSI at T2 but not at T1 and were classified in the NSSI Start group. A comparison group of adolescents ($n = 98$, 80%

female) who reported no NSSI history was created from the same pool of participants and matched on gender through random number generation. Table 1 presents the means and standard deviations of the variables by classification group for T1. Table 2 presents the means and standard deviations of the variables by classification group for T2.

The Relationship Between Need Satisfaction and NSSI

To investigate group differences in need satisfaction over time, a 4 (NSSI Maintain, NSSI Start, NSSI Stop, Control) x2 (Time 1 and Time 2) repeated measures multiple analysis of variance (MANOVA) was conducted. The dependent variables were the three subscales of the CINSS representing the satisfaction of the three basic needs (i.e., autonomy, competence, and relatedness) with group as the independent variable. Results from the repeated measures MANOVA showed that the main effect for time was significant, Wilks' $\lambda = .95$, $F(3, 187) = 3.31$, $p = .02$, $\eta_p^2 = .05$, observed power = .75. A closer examination of univariate effects indicated that competence significantly decreased over time, regardless of group membership. No difference was observed in the satisfaction of autonomy or relatedness over time. See Table 3 for summary of univariate effects.

Supporting our hypothesis, the main effect for group was also significant, Wilks' $\lambda = .78$, $F(9, 455) = 5.50$, $p = .000$, $\eta_p^2 = .08$, observed power = .99. A closer examination of the between subjects effects indicated that significant group differences existed on all three need subscales (i.e., autonomy, competence, and relatedness). See Table 3 for summary of between group effects. A Sidak post hoc analysis revealed that participants in the NSSI Maintain group reported significantly lower levels of the needs for autonomy, competence, and relatedness compared to participants in the Control group. Participants in the NSSI Start group reported significantly

lower levels of the satisfaction of the needs for autonomy and competence compared to the Control group. Participants in the NSSI Stop group did not significantly differ on their levels of need satisfaction compared to the other groups. Participants in the NSSI Maintain group did not significantly differ from participants in the NSSI Start group on their levels of reported need satisfaction.

Contrary to our hypothesis, no interaction effect was found between group and time, indicating that the differences in need satisfaction observed over time did not differ significantly as a function of group, Wilks' $\lambda = .97$, $F(9, 455) = .59$, $p = .ns$, $\eta_p^2 = .01$, observed power = .24. This finding needs to be interpreted with caution in light of the very low observed power (see Table 3).

DISCUSSION

The present study applied SDT (Deci & Ryan, 1985, 2008; Ryan & Deci, 2000b) as a theoretical framework to examine NSSI onset, maintenance, and cessation in adolescents. In support of our hypothesis, there was a significant main effect of NSSI group membership such that reported satisfaction of basic needs differed as a result of NSSI status. Adolescents who reported NSSI engagement at both time points (NSSI Maintain) reported significantly lower levels of satisfaction of the needs for autonomy, competence, and relatedness compared to adolescents who reported no history of NSSI engagement. Similarly, adolescents who reported NSSI onset during the course of the study (NSSI Start) reported significantly lower levels of the satisfaction of the needs for autonomy and competence compared to adolescents who reported no history of NSSI engagement (see Table 3). This finding is in line with the SDT tenet that when basic needs are not fulfilled via the social context, ill-being and maladaptive functioning result (Ryan & Deci, 2000a; Vansteenkiste & Ryan, 2013). Furthermore, although the present study

represents the first investigation of the association between the satisfaction of SDT's basic needs and NSSI in adolescents, the findings support previous research finding associations between lower satisfaction of needs with increases in depressive symptoms (Emery et al., 2015; Véronneau et al., 2005), which are related to NSSI engagement (Claes et al., 2015; Duggan et al., 2015; Hankin & Abela, 2011; You & Leung, 2012).

Contrary to our hypothesis, adolescents who reported stopping NSSI behavior over the course of the study (NSSI Stop) did not significantly differ on need satisfaction compared to adolescents with no history of NSSI (see Table 3). Although contrary to our initial hypothesis, it would make sense according to SDT that adolescents who stop NSSI behavior may experience higher levels of need satisfaction compared to those who currently engage in the behavior, making their levels more akin to controls. Indeed, cross-sectional research points to numerous well-being indices that differentiate those who have ceased self-injury from those who currently injure (Rotolone & Martin, 2012; Taliaferro & Muehlenkamp, 2015; Whitlock et al., 2015). However, our findings also showed that the NSSI Stop group did not significantly differ in their reports of need satisfaction compared to the other NSSI groups (Start and Maintain). Examination of the group means (see Table 1 & Table 2) show that the Control group consistently reported the greatest satisfaction of each need, followed by the NSSI Stop group, the NSSI Start group, and the NSSI Maintain group who reported the lowest amount of need satisfaction. Thus, the NSSI Stop group did consistently report lower need satisfaction in relation to the Control group, and higher need satisfaction in relation to the NSSI Start and Maintain groups, however, not significantly so. Participants in the NSSI Stop may be in a transitioning period wherein perceived positive changes in the social context are being translated into

increases in need satisfaction. Adding a third time point to the research design would be essential to capture this transition.

Results revealed a significant overall effect of time on need satisfaction such that satisfaction of the need for competence decreased over time for all adolescents regardless of NSSI status. Time 1 and Time 2 of the present study mapped onto grades 8 and 9 for adolescent participants. It is likely that in these early high school years, adolescents continue to feel the reverberations from school transitioning. Going from elementary to high school, workload and difficulty often increase while teacher support decreases. Highlighting this, Alsbaugh (1998) found that there was significant achievement loss in the transition from elementary to high school. It logically follows that Seidman, Allen, Aber, Mitchell, and Feinman (1994) found that transitioning to high school corresponded to decreases in self-esteem. It would make sense that as the present sample of young adolescents experience increased academic challenges, levels of competence decrease.

Finally, contrary to our hypothesis, the group x time interaction was not significant, indicating that levels of need satisfaction did not change significantly over time as a function of NSSI status. SDT does put forth causality orientations theory in order to explain more stable individual differences in how individuals orient to particular environments and thus continue to experience need satisfaction versus thwarting (Deci & Ryan, 1985). However, according to SDT, fulfillment of needs should also fluctuate depending upon environmental factors (Deci & Ryan, 1985; 2008; Ryan & Deci, 2000b). Furthermore, these fluctuations in satisfaction should have direct results on well-being and ill-being as well as on adaptive and maladaptive behaviors. While an individual may engage in NSSI over many years, engagement is often cyclical in nature with episodes being separated by weeks, months, or sometimes years (Walsh, 2006). Working

from an SDT perspective, it is likely that changes in need satisfaction may underlie these cyclical NSSI patterns. An examination of the group means (see Table 1 & Table 2) does indicate a general trend in this direction. Although a priori power analyses G*power version 3.1.9.2 computer program (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that our total sample size was adequate to give excellent power for detecting a large sized effect when employing .05 criterion for statistical significance, observed power for the interaction was very low (see Table 3), thus this non-significant result needs to be interpreted with caution. The addition of a third time point in the study design would be essential in increasing power in order to observe the interaction effect. As noted above, it is likely that NSSI Start and NSSI Stop participants are in transitional periods where their social contexts are beginning to deteriorate or to improve. Therefore, while a general trend may be apparent after one 12-month period, an additional time point would capture participants 12-months after this transition when environmental changes and corresponding changes in need satisfaction are fully felt.

Limitations and Future Directions

The low observed power constitutes a limitation of the current study. Future longitudinal research should look to increase sample size and to add time points in order to increase power and examine the full transitions likely taking place. Increased time points would be of value both over a broader time span to capture NSSI onset and cessation and within a smaller time frame to investigate a range of NSSI characteristics. For example, daily diary methods recording need satisfaction and NSSI thoughts and behaviors on a day-to-day basis could explain how need satisfaction may affect fluctuations in NSSI frequency, severity, and number of methods. Next, although low levels of need satisfaction have been measured and associated with maladaptive outcomes and psychological distress (e.g., Costa, Soenens, Gugliandolo, Cuzzocrea, & Larcen,

2015; Przybylski, Deci, Rigby, & Ryan, 2014; Véronneau et al., 2005) the SDT literature has begun moving beyond this approach to include measures of need frustration to predict maladaptive outcomes (Vansteenkiste & Ryan, 2013). Future research in this area would benefit from the addition of a need thwarting measure suitable for an adolescent population.

Future research could also look to include measures of depressive symptoms. In the present study, participants in the control group were matched on gender, however, considering the documented relationships between lowered need satisfaction and depressive symptoms and NSSI and depressive symptoms, not controlling for levels of depression is a limitation.

Conclusion

This study extends current thinking on NSSI engagement to include an SDT approach. Despite limitations, the current research suggests that SDT may be a relevant framework under which to conceptualize and understand the onset, maintenance, and cessation of NSSI. Initial findings suggest that levels of satisfaction of autonomy, competence, and relatedness differ as a function of NSSI status. Furthermore, although the group x time interaction was not significant, an examination of the general trends in reported need satisfaction over time by group suggest that changes in need satisfaction over time may be associated with NSSI onset and cessation.

Although there exists some significant overlaps between the SDT and NSSI literatures, this is the first study to explicitly investigate SDT's tenet linking basic needs to the proposed self-control compensatory behavior of NSSI in adolescents. SDT is a well-established theoretical framework that has been applied across a variety of disciplines, cultures, and developmental periods. Its broad framework and various mini theories may provide new insights and directions informing future NSSI research paradigms. Conceptualizing NSSI onset, maintenance, and

cessation within an SDT framework may also inform prevention and treatment strategies.

Specifically, the present research points to the importance of promoting social environments in which adolescents experience need satisfaction. Further, it may be useful for clinicians to assess their client's level of need satisfaction and target perceptions of the social context to advance therapeutic change. The client and clinician could work together to reframe aspects of the environment that the client may view as thwarting their needs and to increase opportunities for need fulfillment.

In sum, although further replication and future investigation is needed, it appears that perceived satisfaction of autonomy, competence, and relatedness is associated with NSSI onset, maintenance, and cessation in adolescents, and that SDT may be useful in furthering our understanding of NSSI in this population.

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Tables and Figures

TABLE 1. Means and Standard Deviations for CINSS Subscales by Classification Group during Time 1

Time 1				
	NSSI maintain (n = 30) M (SD)	NSSI stop (n = 21) M (SD)	NSSI start (n = 44) M (SD)	Control (n = 98) M (SD)
CINSS subscales				
Autonomy	20.43 (4.91)	22.29 (4.41)	21.86 (4.44)	23.43 (3.70)
Competence	21.20 (5.14)	22.76 (3.48)	21.73 (4.33)	24.53 (3.69)
Relatedness	22.26 (4.36)	23.83 (2.63)	23.70 (3.85)	24.65 (3.46)

TABLE 2. Means and Standard Deviations for CINSS Subscales by Classification Group during Time 2

Time 2				
	NSSI maintain (n = 30) M (SD)	NSSI stop (n = 21) M (SD)	NSSI start (n = 44) M (SD)	Control (n = 98) M (SD)
CINSS subscales				
Autonomy	20.17 (4.17)	22.45 (3.41)	20.65 (4.37)	23.61 (4.24)
Competence	19.83 (4.84)	21.67 (3.10)	20.55 (4.79)	23.94 (3.91)
Relatedness	21.93 (3.49)	23.33 (3.14)	22.74 (3.79)	24.26 (3.79)

TABLE 3. Between Subjects and Univariate Effects of Group and Time on Need Satisfaction Subscales across Time

Dependent Variables	df	F	η^2	Observed power	p
Group Membership					
Autonomy	3	8.57	.12	.99	.000***
Competence	3	13.08	.17	1.00	.000***
Relatedness	3	4.74	.07	.90	.003**
Time					
Autonomy	1	.53	.00	.11	.47
Competence	1	8.34	.04	.82	.004**
Relatedness	1	3.18	.02	.43	.08
Group x Time					
Autonomy	3	.99	.02	.27	.40
Competence	3	.36	.01	.12	.79
Relatedness	3	.28	.00	.10	.84

Note. * $p < .01$, ** $p < .001$.