Nonsuicidal self-injury (NSSI) involves self-inflicted damage to bodily tissues without suicidal intent, and is often used as a coping mechanism for distress (Nock, 2009). Lifetime prevalence rates range from 13% to 23.2% for nonclinical samples (Jacobson & Gould, 2007), and 17% to 35% for college samples (Whitlock, Eckenrode, & Silverman, 2006). Among clinical samples, prevalence rates are as high as 60% (DiClemente, Ponton, & Hartley, 1991), and repetition rates exceed 40% (Kripalani, Badanapuram, Gash, & Morris, 2007). Higher rates of self-harm incidents and the number of methods used (e.g., cutting, sticking with pins, burning, punching) are reflective of more severe levels of NSSI (MacLaren & Best, 2010; Whitlock, Muehlenkamp, & Eckenrode, 2008). Persons who self-harm repeatedly often require injuries of increasing severity in order to experience the desired effects, predisposing these individuals to...
Personality, EMS, and NSSI

The dominant model of personality involves five traits: neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience (McCrae & John, 1992). Research has shown that NSSI in students is related to high neuroticism and openness to experience, and to low agreeableness and conscientiousness (Allroggen et al., 2014; Brown, 2009; MacLaren & Best, 2010). Among patients with eating disorders, NSSI is linked to low extraversion (Claes, Vandereycken, & Vertommen, 2004). Furthermore, research using a college sample demonstrated that the number of NSSI methods is positively associated with openness to experience and negatively related to conscientiousness (Robertson, Miskey, Mitchell, & Nelson-Gray, 2013).

NSSI and EMS

Early maladaptive schemas are negative beliefs about the self and world that develop when a child with a predisposition for emotional lability is exposed to negative social environments. EMS represent patterns of rigid unconditional assumptions that are often formed in emotion, difficult to unlearn, and result in dysfunctional stress-coping (Young et al., 2003). According to the schema theory, there are five EMS domains and 15 associated core beliefs. Individuals with Disconnection and Rejection beliefs expect that security, nurturance/love, and acceptance will not be consistently provided by others; this domain includes emotional deprivation, abandonment/instability, mistrust/abuse, social alienation, and defectiveness/shame beliefs. The Impaired Autonomy domain describes an inability to separate oneself from significant others, as well as beliefs that one is incompetent and incapable of functioning independently; beliefs under this domain include failure to achieve, dependence/independence, vulnerability to harm, and enmeshment. The Other-Directedness domain describes an excessive focus on the needs and desires of others, often at the expense of one’s own health and well-being; these include subjugation and self-sacrifice beliefs. Individuals with Emotional Inhibition beliefs excessively inhibit spontaneous emotion and communication, or might exhibit unreasonably high standards for themselves; these include emotional inhibition and unrelenting standards beliefs. Finally, the Impaired Limits domain describes poor self-control and low frustration tolerance, as well as beliefs that one is superior and should not be required to follow the same social rules as others; beliefs under this domain include entitlement and insufficient self-control.

NSSI is widely viewed as a means of emotion regulation (Nock & Prinstein, 2004). Research has suggested that negative affect often precedes self-harm behaviors, self-injury is associated with a temporary reduction in aversive emotions, and NSSI acts are performed to reduce negative emotional states (see review by Klonsky, 2007). NSSI is also highly associated with psychological disorders that are marked by emotion dysregulation such as borderline personality disorder, post-traumatic stress disorder, and eating disorders (Claes, Klonsky, Muehlenkamp, Kuppens, & Vandereycken, 2010; Linehan, 1993), giving further credence to the view that self-harm acts can serve as a method of emotion regulation.

Nock (2009) proposed a model delineating the pathway through which self-harm develops and is maintained as a preferred method of stress coping. The author suggested that distal risk factors (e.g., childhood maltreatment, genetic predispositions) lead to individual (e.g., high aversive emotions) and interpersonal (e.g., poor communication skills) vulnerabilities, which then mediate stress responses (e.g., over-arousal) that are attenuated by self-injury. According to this model, individuals with genetic predispositions for heightened emotional and cognitive reactivity, and who experience highly aversive emotions (e.g., anger, dysphoria, shame) and cognitions (e.g., negative thoughts marked by rumination and self-criticism), are at increased risk for repetitive NSSI. The quality of one’s emotional and cognitive content underlie an individual’s expression of personality (Costa & Widiger, 2002) and early maladaptive schemas (EMS; Young, Klosko, & Weishaar, 2003), both of which take shape in early childhood and influence one’s intra- and interpersonal experiences across the lifespan. Scant research has been carried out to investigate these psychological constructs as predictors of NSSI severity.

NSSI and Personality

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NSSI and EMS

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Research has suggested a link between EMS and NSSI through aversive childhood experiences. For example, EMS have been found to be associated with negative parenting and childhood maltreatment, and to mediate the relation between perceived quality of parenting and psychiatric symptoms (Dale, Power, Kane, Stewart, & Murray, 2010; Wright, Crawford, & Del Castillo, 2009). In a similar vein, NSSI has been found to be associated with higher rates of childhood trauma (Barker, Arsenault, Brendgen, Fontaine, & Maughan, 2008; Fliege, Lee, Grimm, & Klapp, 2009; Gratz, 2003) and poorer family relationships (Di Pierro, Samo, Perego, Gallucci, & Madeddu, 2012; Kaess et al., 2013), with NSSI severity specifically related to negative interactions with childhood caretakers (Di Pierro et al., 2012). This research has suggested that early negative messages about children’s autonomy, worth, and role in the world affect their ability to regulate intrapsychic experiences in adulthood; the more pervasive the beliefs that are developed in response to these interactions, the more likely/often an individual will encounter stimuli that trigger the need for emotion-coping strategies (e.g., self-harm).

Research on Young et al.’s (2003) EMS model has suggested that the maladaptive beliefs subsumed under the Disconnection and Rejection domain are most detrimental to one’s well-being. Individuals with such beliefs are likely to experience a persistent inability to escape the source of their distress (e.g., themselves) and/or to expect social exchanges to result in further psychological pain. Disconnection and rejection beliefs are endorsed to a greater degree in clinical populations such as borderline personality disorder and post-traumatic stress disorder (Ball & Cecero, 2001; Cockram, Drummond, & Lee, 2010; Ford & Gómez, 2015) that report dissociative experiences and self-injurious behaviours.

Present Study
Overall, limited extant research has suggested that certain personality traits and maladaptive schemas are associated with NSSI behaviour. Most research has been carried out with clinical samples, and less is known about personality and EMS in nonclinical individuals who engage in NSSI. Moreover, there is even less information when it comes to NSSI severity. Examining NSSI correlates among nonclinical samples can help isolate predispositional risk factors (e.g., negative emotionality) from general expressions of psychopathology (e.g., depression), aiding the identification of those generally at higher risk for self-directed violence and informing the urgency/nature of preventative strategies.

The present study compared the personality traits and EMS beliefs in three age- and sex-matched nonclinical groups of varying NSSI severity: high NSSI, low NSSI, and no NSSI control. It was predicted that, compared to the control, both the high and low NSSI groups would show greater neuroticism and openness to experience, and lower agreeableness, conscientiousness, and extraversion (Hypothesis 1), as well as endorse EMS beliefs more strongly (Hypothesis 2). It was also predicted that the high NSSI group would have stronger EMS beliefs that are associated with the Disconnection and Rejection domain than the low NSSI group (Hypothesis 3).

Method

Participants
The initial sample consisted of 344 individuals recruited from postsecondary educational institutions and the general community in a northern Canadian city. Of these, 142 met the classification criteria for high NSSI, 56 for low NSSI, and 146 for control. After matching on age and sex across groups, the sample was reduced to 156 participants (age $M = 25.23$ years, $SD = 8.14$ years) for the present study. Most participants were unmarried (90.38%) and White (87.82%). A small number were Aboriginal (6.41%) or a combination of other ethnicities (3.85%). Most had completed high school (56.41%); 24.35% had completed trade school/junior college; and 16.02% had completed university. Table 1 displays the descriptive characteristics by group.

Group Classification Guidelines
Using the same classification criteria that was employed by MacLaren and Best (2010), the 156 participants were divided into the high NSSI, low NSSI, or control group of equal size ($n = 52$; 43 women and 9 men per group) and matched on sex and age. The high NSSI group endorsed 10 or more NSSI incidents and/or three or more methods, whereas the low NSSI endorsed one to nine incidents and/or one to two methods. It is noted that five participants did not provide frequency estimates, and stated that the number of previous NSSI incidents was too high to count; they were placed in the high NSSI group. Information on self-harm history was obtained from the participants’ responses on the Deliberate Self-Harm Inventory (Gratz, 2001).
The group classification criteria guidelines are informed by research and are clinically meaningful: between 52.6% and 96.5% of borderline personality disorder patients reported 10 or more NSSI episodes, and between 38.1% and 76.7% of borderline personality disorder patients reported using three or more methods (Zanarini et al., 2006). Also, MacLaren and Best (2010) found more severe psychopathology in the high NSSI group than in the low NSSI group.

Procedure
The appropriate research ethics approval was received from the Lakehead University Research Ethics Board prior to commencement of the study. Participants were recruited through community fliers and online bulletins, which invited individuals to complete a confidential and anonymous survey.

Table 1

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>High NSSI</th>
<th>Low NSSI</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age M (SD) years</td>
<td>24.67 (5.52)</td>
<td>24.79 (8.00)</td>
<td>24.53 (6.42)</td>
</tr>
<tr>
<td>Sex (%)</td>
<td>17.31 (1.92)</td>
<td>17.31 (1.92)</td>
<td>17.31 (1.92)</td>
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<tr>
<td>Woman</td>
<td>82.69 (82.69)</td>
<td>82.69 (82.69)</td>
<td>82.69 (82.69)</td>
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<tr>
<td>Ethnicity (%)</td>
<td>7.77 (7.77)</td>
<td>7.77 (7.77)</td>
<td>7.77 (7.77)</td>
</tr>
<tr>
<td>Aboriginal</td>
<td>8.01 (8.01)</td>
<td>8.01 (8.01)</td>
<td>8.01 (8.01)</td>
</tr>
<tr>
<td>White, not of Hispanic origin</td>
<td>90.38 (90.38)</td>
<td>90.38 (90.38)</td>
<td>90.38 (90.38)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
<tr>
<td>Black, not of Hispanic origin</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
<tr>
<td>Other*</td>
<td>6.29 (6.29)</td>
<td>6.29 (6.29)</td>
<td>6.29 (6.29)</td>
</tr>
<tr>
<td>Marital status (%)</td>
<td>71.15 (71.15)</td>
<td>71.15 (71.15)</td>
<td>71.15 (71.15)</td>
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<tr>
<td>Single</td>
<td>15.38 (15.38)</td>
<td>15.38 (15.38)</td>
<td>15.38 (15.38)</td>
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<tr>
<td>Common-law</td>
<td>15.38 (15.38)</td>
<td>15.38 (15.38)</td>
<td>15.38 (15.38)</td>
</tr>
<tr>
<td>Married</td>
<td>7.69 (7.69)</td>
<td>7.69 (7.69)</td>
<td>7.69 (7.69)</td>
</tr>
<tr>
<td>Divorced</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
<tr>
<td>Separated</td>
<td>5.77 (5.77)</td>
<td>5.77 (5.77)</td>
<td>5.77 (5.77)</td>
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<tr>
<td>Widowed</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
<tr>
<td>Unspecified</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
<tr>
<td>Highest education received (%)</td>
<td>73.07 (73.07)</td>
<td>73.07 (73.07)</td>
<td>73.07 (73.07)</td>
</tr>
<tr>
<td>Grade 8 or earlier</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
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<tr>
<td>High school</td>
<td>57.69 (57.69)</td>
<td>57.69 (57.69)</td>
<td>57.69 (57.69)</td>
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<tr>
<td>Undergraduate degree</td>
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<td>3.85 (3.85)</td>
<td>3.85 (3.85)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
<tr>
<td>PhD/Post-doctoral</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
<td>1.92 (1.92)</td>
</tr>
</tbody>
</table>

Note. Within-group n = 52. Total sample N = 156. *Self-identified as more than one ethnicity.

on different types of self-harm behaviours, ranging from mild (e.g. scratching one’s self) to severe (e.g. cutting one’s self). The recruitment information also noted that the investigators were seeking both individuals who hurt themselves and those who do not. The survey was an online research questionnaire consisting of the Deliberate Self-Harm Inventory, the Early Maladaptive Schema Questionnaire-Short Form (EMSQ-SF). At the end of the study, participants were provided with a list of mental health resources in the community and, in the event of mental health concerns, had access to the second author who is a registered clinical psychologist.

Measures
Deliberate Self-Harm Inventory (DSHI; Gratz, 2001). The DSHI measures the practice and severity of NSSI. It lists 16 acts of self-harm plus an open-ended option for acts not included in the list. For each act, participants indicate whether they have ever engaged in that method, the age at which the act was first undertaken, the number of times participants have used that method of self-harm, the most recent time it was employed, the number of years participants have engaged in that act, and whether hospitalization or medical attention was ever required as a result of the act. For the purpose of the present study, the DSHI was used to identify the total number of methods used and the total frequency of self-harm incidents in the participants’ lifetime. This measure has high internal consistency (α = .82) and adequate test-retest reliability over a 2 to 4-week period (r = .68, p < .001), as well as good convergent validity with other measures of self-harm and positively predicts such psychopathological symptoms as stress, depression, anxiety, and hostility (Fliege et al., 2006).

Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). The 44-item BFI measures personality traits of neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience. Each item is rated on a 5-point Likert scale from 1 (disagree strongly) to 5 (agree strongly). Ratings on items that load on each of the five personality factors are added and averaged to obtain a mean score on each factor. Higher scores on each factor indicate greater endorsement of a particular trait. The BFI has high internal consistency, with coefficient alphas ranging between .79 and .87 for the five factors (John, Naumann, & Soto, 2008), an average test-retest stability of .90 (Hampson & Goldberg, 2006), and good convergent validity with
other measures of personality (John et al., 2008). Early Maladaptive Schema Questionnaire-Short Form (EMSQ-SF; Young & Brown, 2005). The EMSQ-SF consists of 75 items that load on five EMS domains and 15 associated core beliefs. Each item loads on a 6-point Likert-type scale from 1 (completely untrue) to 6 (describes me perfectly). Scores for items that load on a particular belief are added and averaged to yield a mean score, with higher scores indicating stronger endorsement of that belief. The EMSQ-SF has excellent internal consistency (Cronbach’s α have been reported to range between .76 and .93 for the 15 subscales of the EMSQ-SF) and good external validity (Welburn, Coristine, Dagg, Pontefract, & Jordan, 2002), and has been established as a good predictor of different psychopathological symptoms and disorders (Ball & Cecero, 2001; Cockram et al., 2010; Ford & Gómez, 2015; Welburn et al., 2002).

Results
Initial Data Analysis
Prior to analysis, the data was screened for withingroup univariate and multivariate outliers to determine whether a participant’s response on one or more dependent variables would exert undue influence on subsequent analyses. Univariate outliers were defined as cases with z scores greater than ±3, and multivariate outliers as cases with significant Mahalanobis distance. No univariate or multivariate outliers were found.

Normality was examined by transforming the skewness and kurtosis values associated with the distribution of each of the dependent variables into z scores, using a conservative alpha level of .001 to determine significance. The assumption of linearity was also investigated by examining the bivariate plots associated with the BFI factors and EMSQ-SF core beliefs. Violations of normality and linearity were found only for the EMSQ-SF subscales. Problems with kurtosis, positive skewness, and linearity were found primarily within the control group, becoming less evident within the low NSSI and least within the high NSSI group. Transformation of the EMSQ-SF data was not carried out for the following reasons. It was not unreasonable to expect that the groups would tend toward lower scores of the EMSQ-SF (a scale which reflects underlying psychopathology) given the nonclinical nature of the sample. Further, transforming data can limit or obfuscate the interpretation of findings, and given that cell sizes in the present study were equal and >20, and no multivariate outliers were identified, the analyses were considered robust to violations of the assumptions of normality (Tabachnick & Fidell, 2015).

Description of NSSI Behaviour
The high NSSI group (M = 155.44, SD = 416.81, median = 47) reported significantly more self-harm incidents than the low NSSI group (M = 2.81, SD = 2.24, median = 2), t(46) = 2.51, p = .016; d = .52. (It should be noted that five participants in the high NSSI group did not provide frequency estimates.) The high NSSI group also used more self-harm methods (M = 4.21, SD = 1.85) than the low NSSI group (M = 1.35, SD = 0.48), t(57) = 10.81, p < .001; d = 2.12. Compared to the low NSSI group, the high NSSI group started self-harming at a younger age (M = 11.54, SD = 3.76 versus M = 14.41, SD = 3.41), t(97) = 4.02, p < .001; d = .80, engaged in self-harm over a longer period of time (M = 8.93 years, SD = 6.85 versus M = 0.90 years, SD = 1.55), t(54) = 8.08, p < .001; d = 1.62, and were more likely to have harmed themselves within the previous year, χ²(1, N = 104) = 20.07, p < .001 (57.69% versus 15.38%). Compared to the low NSSI group, the high NSSI group was also significantly more likely to endorse most of the NSSI methods, with the largest differences demonstrated for cutting, χ²(1, N = 104) = 20.54, p < .001 (76.92% versus 32.69%), sticking the body with pins or sharp objects, χ²(1, N = 104) = 22.78, p < .001 (55.76% versus 11.54%), scratching, χ²(1, N = 104) = 18.09, p < .001 (57.69% versus 17.31%), and preventing wounds from healing, χ²(1, N = 104) = 15.82, p < .001 (30.77 % versus 1.92%).

Main Analyses
Table 2 shows the Cronbach’s α for the BFI and EMSQ-SF belief subscales, all of which exceeded .70 internal consistency indices and ranged from adequate to excellent. The exception was the EMSQ-SF entitlement belief subscale (α = .59) that showed low internal consistency. Table 2 also provides within-group means and standard deviations, and pairwise group means comparisons with effect size (Cohen’s d). The results are explicated below.

Personality Traits. A one-way Multivariate Analysis of Variance (MANOVA) with group as the independent variable and the five BFI personality traits as dependent variables showed a significant omnibus effect, Wilk’s λ = .67, F(10, 298) = 6.27,
Personality, EMS, and NSSI

Conscientiousness. The high NSSI group was also significantly less Agreeable than the low NSSI group (see Table 2).

EMS. A one-way MANOVA with group as the independent variable and the five EMSQ-SF domains as the dependent variables showed a significant omnibus effect, Wilk’s $\lambda = .66$, $F(10, 298) = 7.02, p < .001, \eta^2_p = 0.19$. Separate follow-up ANOVAs were performed on each of the 15 EMSQ-SF subscales and interpreted at $\alpha = .003$ so that the overall error rate was kept at .045. Significant group differences were obtained for 14 of the 15 EMSQ-SF factors including Emotional Deprivation, $F(2, 153) = 10.58, p < .001, \eta^2_p = 0.12$, Abandonment,
F(2, 153) = 19.90, p < .001, \eta^2 = 0.21, 
Mistrust/Abuse, 
F(2, 153) = 22.88, p < .001, \eta^2 = 0.23, 
Social Alienation, 
F(2, 153) = 22.05, p < .001, \eta^2 = 0.22, 
Defectiveness/Shame, 
F(2, 153) = 24.95, p < .001, \eta^2 = 0.25, 
Failure to Achieve, 
F(2, 153) = 16.90, 
\eta^2 = 0.18,
Dependence/Incompetence, 
F(2, 153) = 14.92, p < .001, \eta^2 = 0.16, 
Vulnerability to Harm, 
F(2, 153) = 18.57, p < .001, \eta^2 = 0.20, 
Emmeshment, 
F(2, 153) = 11.29, p < .001, \eta^2 = 0.13, 
Subjugation, 
F(2, 153) = 13.96, p < .001, \eta^2 = 0.15,
Emotional Inhibition, 
F(2, 153) = 23.36, p < .001, \eta^2 = 0.23, 
Unrelenting Standards, 
F(2, 153) = 8.03, p < .001, \eta^2 = 0.10, 
Entitlement, 
F(2, 153) = 8.22, 
p < 0.001, \eta^2 = 0.10, 
Self-Control, 
F(2, 153) = 23.89, p < .001, \eta^2 = 0.24. 
There were no significant group effects for self-sacrifice beliefs.

Post-hoc LSD tests were carried out on the 14 significant EMSQ-SF subscales. The high and low NSSI groups scored higher than the control on each EMSQ-SF subscale, except for Unrelenting Standards beliefs. Compared to the low NSSI and control groups, the high NSSI group scored higher on Unrelenting Standards. The high NSSI group also scored significantly higher than the low NSSI group on Social Alienation, Defectiveness/Shame, Vulnerability to Harm, and Enmeshment (see Table 2).

Discussion

Personality

Significant differences in personality traits were found between individuals who reported a history of NSSI and those who did not. As predicted in Hypothesis 1, both high and low NSSI groups reported greater neuroticism and less agreeableness, conscientiousness, and extraversion than the control group. However, no group differences were observed for openness to experience. Previous works have identified similar personality profiles in NSSI samples (Brown, 2009; MacLaren & Best, 2010), which have been linked to an increased likelihood of experiencing more negative life events and a reduced ability to cope with stressors. As examples, high neuroticism is associated with greater stress reactivity (Komulainen et al., 2014) and negative affect (Costa & Widiger, 2002); low extraversion predicts fewer positive social experiences and networks (Bowling, Beehr, & Swader, 2005; Jensen-Campbell et al., 2002); and low agreeableness is related to lower self-esteem, increased interpersonal aggression, and the tendency to attribute negative qualities to others (Buckley, Winkel, & Leary, 2004). These personality traits likely increase one’s risk for stress exposure while simultaneously decreasing the ability to cope with stressors, which is congruent with the view that NSSI represents a maladaptive form of emotion regulation in response to stress (Nock & Prinstein, 2004).

The one prediction that was not supported in Hypothesis 1 was that an NSSI history would be linked to increased openness to experience. Several studies that employed a similar sample (e.g., students from a North American university) have reported a relation between NSSI and Openness to Experience (Brown, 2009; MacLaren & Best, 2010; Robertson et al., 2013); however, there were several methodological and sample differences that might have contributed to the lack of significant findings observed in the present study. Previous works used a group format to administer questionnaires, whereas the present study collected responses anonymously online. The increased ease and accessibility of participation could have attracted a broader demographic of students who were generally more receptive to and interested in new experiences, but who otherwise would not have been able to attend an in-person survey. Indeed, the present study obtained mean scores on Openness that were moderately high across the three groups; perhaps the study format encouraged a self-selection bias for individuals who are higher in openness to experience.

As well, sex and age have been found to modulate expressions of openness to experience (Costa, Terracciano, & McCrae, 2001; McCrae et al., 1999) and endorsement of self-injurious behaviour (Hawton & Harris, 2008). The mean age of participants in the present study was approximately 5 years older than those reported in previous works, and other studies did not match groups on age or sex. It is possible that, in using a sample with a higher mean age and controlling for the effects of sex and age on personality expression, any variance that was explained by the Openness trait was eliminated.

The findings in the present study also showed that individuals in the high NSSI group were significantly less agreeable than those in the low NSSI group. Previous investigations have shown that more severe NSSI behaviours are associated with a greater number of adverse life events (Liu et al., 2014), and that the experience of more uncontrollable life stressors is related to decreased expressions of agreeableness over an 8-year period (Löckenhoff, Terracciano, Patriciu, Eaton, & Costa, 2009). It is possible that the lower agreeableness scores within the high NSSI group reflect a history
of more negative life events. However, this cannot be confirmed because negative life events were not assessed in the present sample.

EMS
In line with Hypothesis 2, both the high and low NSSI groups indicated greater endorsement of all EMS beliefs, except for self-sacrifice and unrelenting standards, when compared to the control. The robust presence of EMS in the NSSI groups is not surprising given that EMS has been linked to psychological difficulties (Dale et al., 2010; Wright et al., 2009). The factors that contribute to the development of EMS include childhood trauma or dysfunctional family environments (Dale et al., 2010; Wright et al., 2009), and these in turn have been linked to NSSI (Barker et al., 2008; Fliege et al., 2009; Kaess et al., 2013). It is not clear whether there is a link between NSSI and adverse childhood experiences in the present study because the latter was not assessed.

In support of Hypothesis 3, it was found that the high NSSI group scored higher than the low NSSI group on EMS beliefs related to the Disconnection and Rejection domain (social alienation, defecitiveness/shame). The high NSSI group also scored higher on beliefs related to Impaired Autonomy (vulnerability to harm, enmeshment) and Emotional Inhibition (unrelenting standards). These beliefs are significantly related to psychiatric symptoms such as depression and anxiety that are highly associated with self-injury (Klonsky, Olmennans, & Turkheimer, 2003; Nock & Kessler, 2006; Welburn et al., 2002). Furthermore, beliefs relating to social alienation, defecitiveness/shame, and vulnerability to harm all positively predict risk of suicidal behaviour (Dale et al., 2010), which is highly related to repetitive NSSI (Anestis, Khazem, & Law, 2015).

Interestingly, it was also found that the high NSSI group could be differentiated from both the low NSSI and control groups on the basis of its stronger endorsement of unrelenting standards beliefs. Considerable research has linked perfectionism to suicide (see Flett, Hewitt, & Heisel, 2014) and to NSSI (Hoff & Meuhlenkamp, 2009; O’Connor, Rasmussen, & Hawton, 2010). More importantly, the combination of repetitive NSSI and high socially prescribed perfectionism has been found to predict increased suicidal ideation (O’Connor et al., 2007). It is possible that EMS unrelenting standards beliefs might be an important predictor of NSSI severity and suicidal behaviour. The theme of failing to meet expectations is central to Baumeister’s (1990) “escape from the self” theory of suicide, and research has shown that failure-related priming increases access to suicidal thoughts (Chatard & Selimbegović, 2011; Tang, Wu, & Miao, 2013).

Summary
The present study showed that individuals who engaged in NSSI exhibited a personality profile that is often associated with psychological difficulties (i.e., higher levels of neuroticism and lower levels of extraversion, agreeableness, and conscientiousness), and generally endorsed more severe levels of EMS beliefs compared to those who do not engage in self-harm behaviours. As well, individuals with more severe NSSI were less agreeable than those with less severe NSSI, and they also more strongly endorsed a number of EMS beliefs within the domains of Disconnection and Rejection, Impaired Autonomy, and Emotional Inhibition. These findings support Nock’s (2009) model of the development and maintenance of NSSI, whereby highly aversive cognitions and emotions, poor social skills and perceived support, and increased exposure to perceived stressors, are suggested to increase one’s risk for repetitive self-harm. Indeed, the personality and EMS profiles linked to NSSI severity in the present study predispose individuals to increased interpersonal conflict, social isolation, and psychological distress, also increasing the frequency with which these persons would need to engage stress-coping—an association that was corroborated by the finding that those in the high NSSI group reported self-harming over a longer span of time and were more likely to have self-injured in the previous year. Finally, the high NSSI group endorsed a greater degree of unrelenting standards compared to the low and no NSSI groups.

Limitations and Future Directions
The present findings have to be viewed with several caveats in mind. There were more women than men in the study. Sex differences in both NSSI methods and motivations have been reported. Men are more likely to self-harm under the influence of drugs or alcohol (Madge et al., 2008), utilize more public and violent NSSI methods (e.g., breaking bones, self-harming while in the presence of peers), endorse more motivations related to influencing others and testing one’s will/strength, and are at a greater risk for eventually committing suicide. Compared to men, women report more incidents...
of cutting and ingesting pills, endorse more despair and self-punitive motivations, and are more likely to self-harm while alone (Hawton & Harriss, 2008; Laye-Gindhu & Schonert-Reichl, 2005; Taylor, 2003; Zahl & Hawton, 2004). It has been proposed that sex differences in self-injurious behaviour are related to differences in sex-role socialization, whereby men are encouraged to seek autonomy, explore new experiences, and display their social dominance, while women are often socialized to suppress negative emotions and depend on others for security (Brody, 2000; Gilbert, 1987; Laye-Gindhu & Schonert-Reichl, 2005). These socialization factors are also thought to be related to the externalizing (e.g., anger and antisocial behaviour) versus internalizing (e.g., anxiety and depression) symptoms that are associated with sex differences in the expressions of psychopathology (Rosenfield, 2000). Given the significantly higher number of women in the present study, it is possible that the personality and EMS profiles that were linked to NSSI severity more aptly describe traits predictive of self-harm history and severity in women, particularly in relation to EMS—a construct whose theoretical foundation is based on the nature of childhood interactions with caregivers (Young et al., 2003).

An algorithm relying on the number of incidents and the number of methods was used to establish severity of NSSI. Whether or not employing another system to assess NSSI severity might produce different results remains to be seen. It could be valuable to compare individuals who have self-injured once or twice with chronic self-harmers; perhaps those who briefly experimented with NSSI and then abandoned its use are dispositionally different from those who use it over several years or on a daily basis. It is also noted in the present study that those in the high NSSI group were more likely to have engaged in self-harm within the previous year. This raises the question of whether recency of self-harm acts might act as a confound; such that recency instead of severity of self-injury might explain the group differences in personality and EMS. Future research could examine how NSSI recency relates to personality and cognitive schemas. Investigating resilience factors (e.g., protective and emotional regulation strategies, personality traits, cognitive schemas and beliefs, availability of support resources) that differentiate occasional from chronic self-harmers, or that predict cessation of self-harming behaviours, might also be helpful to guide clinical services.

The observation that unrelenting standards were linked to more severe NSSI warrants replication, with particular attention to whether these beliefs are related to increased risk for suicidal behaviour among persons who exhibit severe NSSI. Despite increasing research interest in the link between NSSI and suicidal behaviour (see Hamza, Stewart, Willoughby, 2012), more needs to be done to identify the pathways and associated risk factors. More work could also be carried out to learn about the role of openness to experience in self-harm behaviours and ideation.

Finally, the internal consistency for the EMSQ-SF entitlement subscale was low (Cronbach’s α = .59), which limits the validity of the findings associated with that subscale. The items on the entitlement factor are broadly characterized by one of two concepts: (a) the unwillingness to be constrained by or accept “no” as an answer from other people (e.g., “I hate to be constrained or kept from doing what I want”), and (b) the belief that one is special and not subject to the same rules as others (e.g., “I feel that what I have to offer is of greater value than the contributions of others”). It is not known how well either or both of the constructs characterize the different groups or the overall sample in the present study.

Implications
The results point to the importance of examining EMS beliefs in treatments for NSSI. Evidence supports the use of behavioural and cognitive interventions such as dialectical behaviour therapy (DBT) and cognitive therapy to reduce self-injurious behaviours (Stanley, Fineran, & Brodsky, 2014) and improve emotion regulation (Koerner, 2012). These approaches address thought content, among other intrapersonal experiences, to identify maladaptive internal processes such as negative thoughts and judgmental/rigid beliefs that otherwise heighten and prolong exposure to aversive emotions. DBT utilizes mindfulness skills to help individuals observe and articulate their experiences, aversive or otherwise, in a nonjudgmental manner. DBT also teaches persons to engage in dialectics so that they might synthesize seeming contradictions to adopt a more fluid and holistic understanding of personal experiences (e.g., accepting oneself as one is while simultaneously recognizing the need for positive change; Linehan, 1993). DBT has been found to effectively reduce NSSI frequency and suicidal behaviours (Turner, Austin, & Chapman, 2014), which might (in part) be related to a reduction in unrelenting standards (linked in the present study...
Personality, EMS, and NSSI


Findings from the present study suggest that maladaptive beliefs related to a sense of being disconnected from others, defectiveness and shame, vulnerability to harm, and/or enmeshment could also be the focus of cognitive interventions in individuals who struggle with self-harm. Generally assessing an individual’s EMS could help both the clinician and the client identify situations in which a particular maladaptive belief might be triggered (e.g., defectiveness and shame beliefs might be activated when in a performance). The relation between such core beliefs and emotional responses, as well as how to better regulate negative emotions when core schemas are triggered by schema-relevant stimuli. The benefits of Young’s (2003) schema-focused therapy in reducing self-injurious behaviours have yet to be studied, though the results of the present study suggest that such investigations would have merit.

Understanding how schema and personality profiles might predispose an individual to self-directed harm would also inform preventative strategies in nonclinical settings. Informed individuals, whether counsellors, teachers, or parents, might better recognize persons at higher risk for NSSI—persons who not only express negative emotionality and low social support, but who hold specific negative beliefs that might be triggered during schema-relevant stressors. Recognizing periods of increased vulnerability for self-harm could motivate and direct efforts to intervene, preventing at risk individuals from trying NSSI to cope with stress. Continuing to explore the nuances of NSSI behaviour can elucidate underlying processes that trigger and reinforce this dysfunctional coping strategies, as well as contribute to the development of effective interventions with persons who struggle with the urge to hurt themselves.

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