

Risk Factors of Non-Suicidal Self-Injury in University Students

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Non-suicidal self-injury (NSSI) is increasing day by day in young adults and it is linked with mental health problems and suicidality. Personality traits and emotional regulation affect NSSI. Therefore, the study aimed to assess personality traits (neuroticism, extraversion, agreeableness, conscientiousness, and openness to experiences) and emotional regulation (cognitive reappraisal and expressive suppression) as risk factors for NSSI. The sample comprised 300 university students who fulfilled the DSM-5 criteria of NSSI and were not suffering from any other psychological disorder. Assessment measures used were DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure-Adult (APA, 2013), Alexian Brothers Assessment of Self-Injury (Washburn et al., 2015), The Big Five Inventory (John & Srivastava, 1999) and Emotional Regulation Questionnaire (Gross & John, 2003). The findings revealed that neuroticism, openness, to experiences, and expressive suppression positively predicted NSSI while agreeableness, conscientiousness, and emotional regulation (cognitive reappraisal) negatively predicted NSSI. Findings have implications for prevention and intervention studies.

Keywords. NSSI, risk factors, personality traits, emotional regulation, university students

The prevalence of NSSI is increasing day by day in young adults in clinical as well as non-clinical samples. The results of a recent study indicated that in a sample of adolescents and young adults' lifetime prevalence of NSSI was 19.3 percent (Voss et al., 2020). NSSI can be defined as an act in which individuals harm their bodies purposefully but without the intention of killing themselves (Lear, et al., 2019). NSSI affects the physical and mental health of students and significantly predicts suicidal ideation and suicide (Auerbach et al.,

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2021). Therefore, it is important to identify influencing factors of NSSI for the prevention of NSSI. Two important such factors are personality traits and emotional regulation. According to Agnew's General Strain theory stressful life events trigger negative emotions and in response to those emotions individuals injure themselves (Agnew, 1992). Various factors influence NSSI including adverse childhood experiences and susceptibility to experience negative emotions (Ghinea et al., 2021). Traumatic childhood experiences make individuals vulnerable and adversely affect their personality development.

Personality traits can be defined as stable dispositions. According to the Big Five model major personality traits are neuroticism, extraversion, agreeableness, conscientiousness, and openness to experiences. Individuals who are vulnerable score high on neuroticism and injure themselves in response to stressful life events. The literature shows that neuroticism significantly predicts suicide (Perlman et al., 2018). Individuals scoring high on neuroticism are more vulnerable to NSSI (Liao et al., 2022). While extraversion, openness to experiences, conscientiousness, and agreeableness are negatively related to NSSI (Hasking et al., 2010). These studies are limited in various areas including patient samples, lack of standardized measures, and adolescent samples.

Recent empirical evidence suggests that experiential avoidance is another important influencing factor of NSSI (Angelakis & Gooding, 2021). According to an experiential avoidance model, individuals injure themselves to avoid distressing cognitions and emotions. The research revealed that emotional dysregulation increases the lifetime frequency of NSSI (Guérin-Marion et al., 2018). Emotional regulation can be defined as the identification, understanding, and acceptance of emotions, and the use of adaptive emotional regulation strategies to regulate emotions. Two types of emotional regulation are cognitive reappraisal and expressive suppression (Gross & John, 2003). According to the experiential avoidance model individuals who use expressive suppression as an emotional regulation strategy engage in NSSI more than individuals using cognitive appraisal in response to stressful life events. Hence, emotional regulation is an important influencing factor of NSSI.

The literature indicated that neuroticism is linked positively with emotional dysregulation strategies such as expressive suppression and is linked negatively with cognitive reappraisal (Yang et al., 2020). While expressive suppression is related to NSSI adaptive emotional regulation strategies while cognitive reappraisal are associated negatively with NSSI (Liu et al., 2020).

Various studies identified risk factors of NSSI but these studies lack standardized measures and unified predictive factors (Wang et al., 2022). Moreover, it is essential to understand the risk factors of NSSI for risk assessment and management. Therefore, it is necessary to work on risk factors of NSSI for prevention, tailored intervention of NSSI, and for improving the mental health of university students. Therefore, the current study aimed to investigate personality traits and emotional regulation as risk factors for NSSI.

The broader objectives of the study are to assess personality traits (neuroticism, extraversion, agreeableness, conscientiousness, and openness to experiences) and emotional regulation (cognitive reappraisal and expressive suppression) as risk factors of NSSI in university students.

Hypotheses

1. There is likely to be a positive relationship among neuroticism, expressive suppression, and NSSI in university students.
2. There is likely to be a negative relationship among extraversion, openness to experiences, agreeableness, conscientiousness, cognitive reappraisal, and NSSI in university students.
3. Neuroticism and expressive suppression are likely to predict NSSI positively while extraversion, openness to experiences, agreeableness, conscientiousness, and cognitive reappraisal are likely to negatively predict NSSI in university students.
4. NSSI is likely to be more prevalent in women than men.

Method

Participants

Predictive research design was used to examine personality traits and emotional regulation as risk factors of NSSI in university students. The sample ($N = 300$) comprised of students of public and private sector universities who fulfilled the DSM-5 criteria of NSSI. Male ($n = 146$) and female ($n = 154$) students were recruited by using purposive sampling. The age range of participants was 18 to 24 years ($M = 19.8$; $SD = 1.75$). Moreover, Students registered in a regular program were recruited. Furthermore, students who fulfilled the DSM-5 criteria of NSSI were included in the study. Students suffering from

any major physical illness, mental disorder, or physical disability were excluded from the study.

Measures

The following measures were used to assess the study variables.

DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure-Adult

It was used for screening out psychological disorders. It screens out thirteen major disorders. It comprises twenty-three questions. It uses a 5-point Likert scale that ranges from 0 (not at all) to 4 (nearly every day). A score of two or more on any domain requires further inquiry. It has good test re-test reliability (APA, 2013).

Alexian Brothers Assessment of Self-Injury

It is based on the DSM-5 criteria of NSSI. It was used to identify individuals who fulfilled the DSM-5 criteria of NSSI. It uses a point Likert scale ranging from 0 to 4. The overall score for NSSI ranges from 0 to 24. High scores indicate the severity of NSSI. The alpha reliability of the scale was .76 (Washburn et al, 2015). An alpha reliability of .80 was acquired for the present study.

The Big Five Inventory

The Big Five Inventory (John & Srivastava, 1999) was used to assess the Big Five Factors of personality. The Big Five factors include Extraversion, Neuroticism, Agreeableness, Openness to experiences, and Conscientiousness. It consists of 44 items. It uses a five-point Likert scale that ranges from *disagree strongly* (1) to *agree strongly* (5). For the present study sample, the reliability of Extraversion was found to be .71, Agreeableness = .70, Conscientiousness = .71, Neuroticism = .71, and Openness to experiences = .76.

Emotional Regulation Questionnaire

Emotional Regulation Questionnaire (Gross & John, 2003) is used to assess emotional regulation. It comprises 10 items. It consists of two sub-scales: cognitive reappraisal and emotional suppression. Six items are of cognitive reappraisal while the expressive suppression score is based on the sum of four items. Responses are marked on a seven-point Likert scale that ranges from *strongly disagree* (1) to *strongly agree* (7). A high score indicates high emotional regulation.

Alpha reliability was found to be 0.79 (Gross & John, 2003). The reliability for the present study sample was .71 for expressive suppression and .72 for cognitive reappraisal subscales.

Demographic Sheet

It was used to get information about demographic characteristics of the participants. It included information gender, age, education, religion, father's age, education, income, mother's age, education, income, siblings, family environment, family income, relationship with father, relationship with mother, relationship with siblings, age of initiation of self-harm, whether self-harm is done in front of anyone or alone, the time between the urge to self-harm and episode of self-harm.

Procedure

Respective authorities approved the research proposal. Formal permission was taken from the respective authors of the tools. Students were approached after obtaining permission from respective university authorities. Those who fulfilled the criteria of NSSI were recruited for the study. They were screened out by using screening instruments. Those who were suffering from any other disorder were excluded from the study. Participants were briefed about the nature and purpose of the research. They were assured that information taken from them would be kept confidential. After taking consent participants were requested to fill research protocol. Feedback from participants was taken. The data was entered into the Statistical Package for Social Sciences (SPSS) and analyzed for results.

Results

The study aimed to assess the personality traits (neuroticism, extraversion, agreeableness, conscientiousness, and openness to experiences) and emotional regulation (cognitive reappraisal and expressive suppression) as risk factors of NSSI. Pearson Product Moment Correlation was used to determine the relationship among personality traits (extraversion, agreeableness, neuroticism, conscientiousness, and openness to experiences), emotional regulation (cognitive reappraisal, expressive suppression), and NSSI. Results are shown in Table 1.

Table 1 below shows that neuroticism and expressive suppression have a significant positive relationship with NSSI whereas,

extraversion, agreeableness, conscientiousness, and cognitive reappraisal have a significant negative relationship with NSSI. Among demographics, age, and family income are significantly negatively related to NSSI while gender is positively associated with NSSI.

Table 1. *Correlation Among Subscales of Personality Traits, Emotional Regulation and NSSI in University Students (N = 300)*

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Extraversion	-										
2. Agreeable.	.24**	-									
3. Conscient.	-.07	-.05	-								
4. Neuroticism	-.01	.03	.02	-							
5. Openness	.20**	.18**	-.16*	-.21**	-						
6. Cog.Reap.	.08	.04	.04	.02	-.08	-					
7. Exp. Supp.	-.02	-.15**	-.02	.15**	.03	-.09	-				
8. NSSI	-.12*	-.21**	-.13*	.17**	.08	-.12*	.25**	-			
9. Age	-.05	.17**	-.02	-.13*	.08	-.06	-.14*	-.17*	-		
10. Gender	-.04	-.14*	.06	.07	-.04	.03	.19**	.27**	-.21**	-	
11. FI	.03	.14*	-.09	-.01	-.06	-.09	-.12*	-.15*	.07	-.12*	-

Note. Agreeable = Agreeableness; Conscient = Conscientiousness; Cog. Reap. = Cognitive Reappraisal; Exp. Supp. = Expressive Suppression; NSSI: Non Suicidal Self Injury; FI = Family Income.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Moreover, it was postulated that neuroticism and expressive suppression are likely to predict NSSI positively while other personality traits (extraversion, agreeableness, conscientiousness, and openness to experiences) and emotional regulation (cognitive reappraisal) are likely to predict NSSI negatively in university students. Hierarchical regression was run to assess prediction. Results are shown in Table 2.

Table 2. *Hierarchical Regression Analysis Indicating Personality Traits and Emotional Regulation as Predictors of NSSI (N = 300)*

Variables	B	SE	β	t	p	R ²	ΔR^2
Block 1: Control Variables							
Constant	4.05	.31		13.21	.000	.10	.10
Age	-.03	.01	-.11	-1.90	.05		
Gender	.19	.05	.24	4.19	.000		
Family income	-.02	.01	-.12	-2.06	.04		
Block 2: Predictor variables + control variables							
Constant	4.20	.53		7.89	.000	.23	.13
Age	-.02	.01	-.08	-1.46	.14		
Gender	.16	.04	.20	3.75	.000		
Family Income	-.01	.01	-.09	-1.79	.074		
Extraversion	-.11	.06	-.10	-1.89	.060		
Agreeableness	-.15	.06	-.14	-2.59	.01		

Continued...

Variables	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	<i>R</i> ²	ΔR^2
Conscient.	-.13	.04	-.15	-2.77	.006		
Neuroticism	.17	.06	.17	3.09	.002		
Openness	.14	.05	.14	2.52	.01		
Cog. Reapp.	-.10	.05	-.11	-2.00	.04		
Exp. Supp.	.09	.04	.12	2.11	.036		

Note. Conscient = Conscientiousness; Cog. Reapp. = Cognitive Reappraisal; Exp. Supp. = Expressive Suppression.

Model 1 explains a 10% variance in NSSI, $F(3, 296) = 11.02$, $p = .000$, model 2 explains a 23% variance in NSSI, $F(10, 289) = 8.46$, $p = 000$. This model shows that openness to experiences and expressive suppression are significant positive predictors of NSSI in university students while agreeableness, conscientiousness, and cognitive reappraisal are significant negative predictors of NSSI. Among demographics, gender is a significant positive predictor of NSSI in university students.

Furthermore, it was assumed that there are likely to be significant gender differences on NSSI in university students. Findings showed significant gender differences ($t = -4.93$, $p = .001$) indicating that female university students ($M = 3.85$, $SD = 0.38$) revealed higher levels of NSSI as compared to male university students ($M = 2.63$, $SD = 0.41$).

Discussion

The research aimed to assess the Big Five Personality Traits and emotional regulation (cognitive reappraisal and expressive suppression) as risk factors for NSSI. It was hypothesized that there is likely to be a positive relationship between neuroticism, expressive suppression, and NSSI in university students. The results revealed a significant positive relationship between neuroticism, expressive suppression, and NSSI. These findings are in line with research by [Perlman and colleagues \(2018\)](#) in which it was found that neuroticism is significantly positively related to NSSI. Likewise, the latest research revealed that neuroticism has a significant positive relationship with NSSI ([Liao et al., 2022](#)). Similarly, [Wolff et al., \(2019\)](#) reported a significant positive relationship between emotional dysregulation (expressive suppression) and NSSI.

Moreover, it was postulated that there is likely to be a negative relationship of extraversion, openness to experiences, agreeableness, conscientiousness, and emotional regulation (cognitive reappraisal) with NSSI in university students. The results indicated that extraversion agreeableness, conscientiousness, and cognitive

reappraisal have a significant negative relationship with NSSI. These results are in line with the findings reported by [Liu and colleagues \(2023\)](#) asserting that cognitive reappraisal is significantly negatively associated with NSSI. Likewise, the researchers reported that agreeableness and extraversion are significantly negatively related to NSSI ([Jiang et al., 2022](#)). Similar findings were reported by [De Salve et al., \(2023\)](#).

Furthermore, it was hypothesized that neuroticism and expressive suppression are likely to predict NSSI significantly positively while extraversion, agreeableness, conscientiousness, openness to experiences, and cognitive reappraisal are likely to predict NSSI significantly negatively in university students. Hierarchical regression was applied to check this hypothesis. The results showed that neuroticism, openness to experiences, and expressive suppression predict NSSI significantly positively while agreeableness, conscientiousness, and cognitive reappraisal predict NSSI significantly negatively. These findings can be supported by the literature. It was reported that expressive neuroticism predicts NSSI significantly positively ([La Guardia et al., 2020](#)). [Liu et al. \(2023\)](#) reported that expressive suppression and NSSI are significantly related. Likewise, the researchers found a negative relationship between cognitive reappraisal and NSSI ([Midkiff et al., 2018](#)). [Takahashi et al. \(2024\)](#) reported that agreeableness predicts NSSI significantly negatively While [Jiang et al. \(2022\)](#) found that conscientiousness is significantly negatively associated with NSSI.

Likewise, it was hypothesized that there is likely to be significant gender differences on NSSI in university students. An independent sample *t*-test was computed to check gender differences. The results revealed significant gender differences on NSSI in university students. Similarly, the results of a recent meta-analysis revealed that NSSI is more prevalent in females than males ([Denton & Alvarez, 2024](#)).

Limitations and Suggestions

Data was collected by using self-report measures. Information should be validated by using some other source. Moreover, a cross-sectional research design was used; a longitudinal research design should be used to get in-depth knowledge about risk factors of NSSI. Only university students were included in the study other at-risk young adults should be included in further studies.

Implications

Prevention and intervention studies should focus on enhancing the use of adaptive emotional regulation strategies such as cognitive reappraisal and decreasing the use of maladaptive emotional regulation strategies such as expressive suppression to reduce the risk of NSSI.

Conclusion

Hence, it can be concluded that neuroticism, openness to experiences, and expressive suppression are significant positive predictors of NSSI while agreeableness, conscientiousness, and cognitive reappraisal are significant negative predictors of NSSI in University students.

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