

Applied Psychology Review (APR)

Volume 2 Issue 2, Fall 2023

ISSN_(P): 2959-1597 ISSN_(E): 2959-1600

Homepage: <https://journals.umt.edu.pk/index.php/apr>



Article QR



Title: Temperament and Self-Harm Behavior in University Students

Author (s): Nimra Noor, Sadia Irfan


Affiliation (s): University of Management and Technology, Lahore, Pakistan

DOI: <https://doi.org/10.32350/apr.22.02>

History: Received: September 11, 2022, Revised: September 26, 2023, Accepted: October 27, 2023, Published: December 29, 2023

Citation: Noor, N., & Irfan, S. (2023). Temperament and self-harm behavior in university students. *Applied Psychology Review*, 2 (2), 22–38. <https://doi.org/10.32350/apr.22.02>

Copyright: © The Authors

Licensing:  This article is open access and is distributed under the terms of [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

Conflict of Interest: Author(s) declared no conflict of interest



A publication of
Department of Knowledge & Research Support Services
University of Management and Technology, Lahore, Pakistan

Temperament and Self-Harm Behavior in University Students

Nimra Noor* and Sadia Irfan

Department of Clinical Psychology, School of Professional Psychology,
University of Management and Technology, Lahore, Pakistan

Abstract

The current study aimed to investigate the relationship between temperament and self-harm behavior in university students. This was a correlational study in which a total of 300 university students were involved ranging from 19 to 23 years ($M = 21.04$, $SD = 1.26$). Two self-report measures were used including the Temperament Scale for University Students (TSUS) and Self-Harm Tendencies Scale (SHTS). The results concluded that impulsivity, submissiveness, and introversion temperament traits were positively linked with self-harm behavior and only apprehensiveness temperament predicted self-harm behavior. Overall, women were found to be more prone to self-injurious behaviors.

Keywords: self-harm behavior, temperament, university students

Introduction

Countless people living in Pakistan confront extensive economic and social stress as compared to developed countries and these factors can contribute to the engagement of self-harm behavior (Husain et al., 2019). Temperaments stimulate our habits, attitudes, and emotional reactions to an event that makes every individual different from others. Temperaments have a biological basis that plays an important role in the emergence of different emotions and mental health issues as well (Cloninger, 1994). Although, self-harm behavior is always considered as an element of some mental disorder, such as anxiety or personality disorganization. Countless reasons may trigger a person and make them indulge in self-destructive behaviors. A study proved that people with neuroticism and openness traits existence have more self-injurious behavior than people with agreeability and scrupulous traits (Plener et al., 2015).

Temperaments play an important role in human development and psychological functioning. Moreover, they may potentially affect an individual's mental health and are viewed as a risk element concerning

*Corresponding Author: nimranoor885@gmail.com

distinct psychological problems and functioning. The reaction of grief, sleep disruption, interaction of adolescents with their parents, depressive features, A-type, and oppositional defiant behavior patterns are related with temperaments. Durrani et al. (2017) revealed that people with psychiatric problems are more fearful, excessively worried, reserved, and are less likely to pursue novelty.

Temperament is a broader term which determines the behavioral aspect and cognitive characteristics. The temperaments affect mood and traits as people with neuroticism normally experience bad states, such as depression, anxiety, and guilt (Watson, 2000). The cultural norms, values, and social-economic structure of the society also contribute to maintain the temperaments. In Pakistani culture, children tend to be more outgoing and are curious to explore things on their own. A study has shown that Pakistani children are extroverts, realistic, more organized, and have steady thinking patterns (Oakland et al., 2012).

Temperaments begin to develop from childhood until adulthood which describes how a person grows and how he functions in an environment (Strelau, 2020). There exist individual differences in temperaments, based on the reaction to events, for instance suicidal and self-harm tendency rate is higher in people with anxiety and depressive temperament (Tanabe et al., 2016).

A conscious act of hurting one's own self without having an intention of suicide is called 'self-injurious behavior'. This is the most complex form of behavior as it involves hurting one's own self. It is a repetitive behavior that can be widely observed among mentally disabled people, however, it is also prevalent in normal people who do not have any intention of suicide (Van Den Bogaard et al., 2018).

Studies have revealed the prevalence of self-injurious behavior among youth most commonly (Brereton & McGlinchey, 2019). This behavior has many categories, such as it causes physical harm from damaging the body tissues to slow poison. Moreover, such a behavior is normally monotonous and repetitive. It involves the arousal of certain emotions, such as anxiety, anger, or having repeated thoughts about a situation that is getting out of control which may stimulate self-harm and self-injurious behavior. Self-injurious behavior may be triggered due to multiple reasons including

genes, social reinforcement, and self-regulation (Van Den Bogaard et al., [2018](#)).

Self-harm behavior is mostly prevalent in young generation as they remain stressed all the time due to countless reasons. The most common cause of self-harm is an unsupportive or dominated family that restricts an individual from expressing himself/herself (Duarte et al., [2019](#)). According to the deliberate self-harm model, a person who indulges himself in self-injurious behavior avoids undesirable emotional incitement. The avoidance can be related to inner emotions or external situations that give rise to that specific behavior. Studies also showed a positive correlation between deliberate self-harm model and avoidant personality type (Breton & McGlinchey, [2019](#)).

Furthermore, self-injurious behavior usually develops at the age of 12-14 years or from 18-19 years. The researchers argued that self-harm is considered as a coping strategy. It temporarily reduces the adverse psychic tension linked with negative conditions of stress, depression, anxiety, guilt, helplessness, and the condition of depersonalization (Christoffersen et al., [2015](#)). According to a study, approximately 68% of youth are at a higher risk of self-harm behavior. Although, it tends to be found in all ages, castes, and genders. However, it considerably prevails in teenagers and adults (Castellví et al., [2017](#)).

Literature suggests that women are more likely to develop interior pathologies, such as anxiety or depression that are linked with suicidal thoughts or self-injurious behaviors. On the other hand, men with suicidal thoughts tend to have more exterior causes which may make them display a spontaneous behavior towards a specific situation (Beckman et al., [2019](#)). Apart from this, suicide is now the 18th foremost cause when it comes to death which is often taking place in lower or middle-earning countries. According to the law of Pakistan, performing or exercising suicide or self-harm activities are illegal. Societal norms and religious values both discourage suicidal ideation and behavior; however, still, the ratio of attempting these acts is increasing in Pakistan (Nisar et al., [2020](#)).

As the temperaments of people are different from each other and every individual is unique in their own way, the connection between self-injurious behavior and temperament is also an interest of researchers which is helpful to understand the psychopathologies. Another study has determined that

both men and women showed different types of self-injurious behaviors according to their temperaments, for instance, men are more likely to engage in burning or punching behaviors and women often tend to perform cutting behaviors (Bresin & Schoenleber, [2015](#)).

Although, temperament has been studied with respect to suicide and many other psychological variables, unfortunately, it has not been studied well pertaining to self-harm behavior tendencies nationally or internationally. Evidence suggests that there is a 68% increase in self-harm among youth. People indulge in self-injurious behaviors to reduce the effect of an external distressful event (Castellví et al., [2017](#)). Hence, the current study assisted to understand which temperamental traits are more prone to encounter self-injurious behaviors in the present times and future. Several studies have been conducted to assess the self-injurious behavior in adolescents (Castellví et al., [2017](#); Duarte et al., [2019](#); Liao et al., [2022](#)) however, very few studies have been conducted on adult population. Therefore, the current study included adult population since they encounter more stressful situations, resulting in distress and dysfunctional behaviors.

Literature Review

Every person has a different approach when it comes to dealing with or exercising certain emotions and behaviors. Youth encounter and deal with numerous daily stressors that significantly impact their mental health, resulting in the development of many self-harm behavioral issues (Tanabe et al., [2016](#)). The current study aimed to examine certain types of temperaments prevalent in adults that have more self-harm tendency

A study argued that personality traits are closely related to one's mental health and well-being where temperament is defined as an element of personality. The findings showed that the determination of self-sufficiency increases the quality and satisfaction of life, whereas avoidance and lack of empathy towards others or one's self give rise to mental health problems as well as self-injurious behaviors (Garcia et al., [2014](#)).

However, temperament is a component of human personality which determines the nature of an individual. Another study explored the intervening role of cognitive inflexibility between social adaptation and temperament. This study was conducted on teachers of Pakistan from both public and religious schools by restraining the experience factor. Purposive sampling technique was used to collect the data. A total of 300 teachers,

150 from each category were taken as participants. The findings revealed that the avoidance temperament positively correlates with cognitive inflexibility. Whereas, the approach temperament negatively correlates with cognitive inflexibility which indicates that the avoidance temperament is negatively related to social adjustment and the approach temperament is positively related to social adjustment. The negative correlation between approach temperament and cognitive inflexibility was higher in public school teachers and positive correlation between avoidance and cognitive inflexibility was higher in religious school teachers (Tariq & Adil, [2020](#)).

Moreover, a descriptive study was conducted to investigate the temperament, emotional regulation, perceived parenting, and character traits which provide a base for self-harm behavior in adolescents. The population consisted of all high school students of Tehran. Cluster sampling technique was used to collect the data. The results showed that emotional regulation had a positive relationship with self-harm behavior, whereas the authoritarian parenting style had no effect on self-injurious behavior. Novelty-seeking behavior traits and dysfunctional emotional regulation were anticipated in 22 % discrepancy in self-injurious behavior (Karimi et al., [2021](#)).

One more study revealed that people with reckless and impulsive behaviors positively related to self-injurious behaviors. The research also stated that people with healthy and positive traits, such as kindness, affection, pro-social behavior, thankfulness, and goal-directed behavior are less likely to harm themselves (Liu et al., [2017](#)).

The studies on adolescents have been increased lately because mental health practitioners prioritize them more in the current era. This is because adolescents spend most of their time in schools where behavioral and mental state of teachers contribute a lot towards their temperaments. The current study was conducted to inspect the type of temperament that affects the well-being of adolescents. Moreover, it also investigated the temperament of teachers who teach them. A total number of 677 students and 56 teachers were surveyed. The results revealed that girls with adaptable personalities are positively associated with well-being. Meanwhile, boys have a more under-controlled temperament and this temperament already has the potential to decrease school performance. Female teachers with a flexible and adaptive temperament can handle them more effectively (Khan & Kausar, [2020](#)). Teachers with a resilient nature can be more sympathetic

and emotionally accessible than a teacher who has an over or under-controlled nature (Puonti, et al., [2021](#)).

Objectives

The objectives of the study are as follows:

1. To investigate the relationship between temperament and self-injurious behaviors in university students.
2. To identify the association of demographic variables with temperament and self-injurious behaviors.

Hypotheses

1. There would be a positive relationship between impulsivity and self-injurious behavior.
2. There would be a positive relationship between introversion and self-harm behavior.
3. There would be a positive relationship between submissiveness and self-harm behavior.
4. Introversion, apprehensiveness, and a submissive temperament would predict self-injurious behavior.
5. Men would engage in more self-injurious behavior than women.

Method

Research Design

Cross-sectional design was used for data collection from university students (both private and government sectors).

Participants

The current study comprised a sample of 300 students, where 149 were women and 151 were men. The data was collected from private and public universities of Lahore and Sialkot through a convenience sampling technique. The age composition of study participants varied, ranging from 19 to 23 years. The Table 1 given below shows demographic characteristics of the study participants.

Table 1
Demographic Characteristics of the Participants (N= 300)

Demographics	<i>f</i>	%	<i>M</i>	<i>SD</i>
Age			21.04	1.26
Gender				
Men	151	50.3		
Women	149	49.7		
Family System				
Joint	119	40		
Nuclear	181	60		
Socioeconomic Status				
Lower	06	2.0		
Middle	261	87		
Upper	33	11		
Type of Institution				
Government	175	58		
Private	125	42		
Living area				
Urban	203	68		
Rural	97	32		
Graduation level				
Semester 1-2	51	17		
Semester 3-4	69	23		
Semester 5-6	91	30		
Semester 7-8	89	30		

Measures

Demographic Information Sheet

Demographic information sheet was used to obtain the personal information of each participant that can potentially influence the results. The demographic variables included gender, age, family system, current semester, type of institution, living area, and socioeconomic status.

Temperament Scale for University Students (TSUS)

The TSUS (Durrani et al., [2017](#)) was used to measure different temperaments of participants. It is the first tool that was developed to assess the temperament according to Pakistani culture. The inventory included 56

items that measured six different factors of temperaments on a four-point Likert scale that ranged from never to most of the time. The factors of these temperaments were apprehensiveness, impulsivity, cautiousness, introversion, submission, and extroversion. The reliability coefficients for these subscales was reported to be ranged from .80 to .90 and for the full scale, it was .79.

Self-Harm Tendencies Scale (SHTS)

The SHTS (Saleem, [2018](#)) was used to assess self-harm tendencies among university students. This indigenous tool was constructed to measure two factors of self-harm behaviors, such as acting out behavior and emotional rational behavior. The standardized tool included 41 items to evaluate the tendency of self-harm behavior. The Cronbach's alpha value reported for this scale was .94.

Procedure

Permission was sought from the authorities of respective universities to conduct the research. Participants were also informed about the purpose of conducting this research. Before the data collection, consent was obtained from participants after assuring them about the confidentiality of their responses. Both scales, that is, TSUS and SHTS were used in the Urdu language for a better understanding. The guideline was provided as per the authors of the scales. It took 15 to 20 minutes to fill out the questionnaire. The concerns and questions of participants were also addressed.

Results

The observations based on inferential statistics calculated to investigate the relationship between primary variables are given below. It was hypothesized that impulsivity and self-harm behavior tendency have a positive relationship which was supported by the results.

Table 2

Correlation among Temperament and Self-harm Tendency (N= 300)

Variables	<i>M (SD)</i>	1	2	3	4	5	6	7
1.Impulsivity	30.88(6.66)	-	.20**	-.04	.48**	-.12*	.01	.17**
2.Extrovert	14.67(2.83)			-.15**	.10	.28**	.25**	.08
3.Introvert	20.41(4.11)				.19**	.09	.12*	.15**

Variables	<i>M (SD)</i>	1	2	3	4	5	6	7
4.Apprehensiveness	26.38(6.52)					-.17**	.27**	.29**
5.Cautiousness	34.82(6.29)						.33**	-.01
6.Submissive	14.91(2.89)							.14*
7.SHTS	132.50(29.94)							

Note. * $p < .05$. ** $p < .01$.

The second and third hypotheses included two dimensions of temperament that are associated with self-harm behavior. It was hypothesized that submissiveness and introversion are positively associated with self-harm behavior. The results also exhibited that people with introversion and submissiveness traits are positively correlated with self-harm behavior. People with these two temperaments develop self-harm behavior more as mentioned in Table 2 that the correlational value between submissiveness and self-harm behavior as well as between introversion and self-harm behavior was significant.

It was hypothesized that self-injurious behavior would be predicted by introversion, apprehensiveness, and submissive temperament. Regression was used to determine the impact of different demographic variables on self-injurious behavior.

Table 3
Multiple Regression Analysis for Self-Harm Behavior

Variables	<i>B</i>	95% <i>CL</i> for <i>B</i>		<i>SE</i>	β	<i>R</i> ²	ΔR^2
		<i>LL</i>	<i>UL</i>				
Step 1						.464 ^a	.215
Age	.214	-2.74	3.16	1.50	.00		
Gender	-11.27	-18.23	-4.30	3.54	-.18**		
Family system	-7.3	-13.69	-.98	3.22	-.12**		
Type of institution	-23.7	-30.81	-16.68	3.58	-.39***		
Step 2						.530 ^b	.280
Introversion	.270	-.513	1.05	.398	.03		
Apprehensiveness	.901	.289	1.51	.311	.19**		
Submissive	.410	-.795	1.61	.612	.04		

Note. ** $p < .01$, *** $p < .001$. Gender (1=Men, 2= Women). Family system (1= Joint, 2= Nuclear). Type of institution (1=Government, 2= Private).

Table 3 shows that some of the demographic variables, such as gender, family system, and type of institution are significant variables in step I. They can potentially induce self-harm behavior in students.

In step II, self-harm behavior was regressed against different temperament traits including submissiveness, introversion, and apprehensiveness. Results show that only apprehensiveness is a positive predictor of self-harm behavior.

It was hypothesized that men would be practicing more self-injurious behavior as compared to women (see Table 4).

Table 4

Mean, Standard Deviation, t and Cohen's d Values of Men and Women (N= 300).

Variables	Men (n = 151)		Women (n = 149)		t	Cohen's d
	M	SD	M	SD		
Impulsivity	29.41	6.29	32.36	6.71	3.92	0.44
Extroversion	14.24	2.99	15.11	2.59	2.68*	0.31
Introversion	20.21	4.02	20.62	4.21	.86	0.09
Apprehensiveness	24.23	5.89	28.57	6.41	6.09***	0.70
Cautiousness	34.95	6.27	34.68	6.32	-.37	0.04
Submissiveness	14.67	3.17	15.15	2.55	1.43***	0.16
SHTS	125.52	25.86	139.57	32.14	4.17***	0.48

Note. * $p < .05$, *** $p < .001$.

Table 4 shows that women were seen to exercise more self-harm behavior than men which refutes our hypothesis. Similarly in examining temperament dimensions from a statistical perspective; it is observed that women exhibit higher levels of extroversion, apprehensiveness, and submissiveness as compared to men.

Discussion

The current study determined the relationship between temperament and self-injurious behavior. The results revealed a positive relationship between self-harm behavior and temperaments, such as impulsivity, submissiveness, and introversion. Moreover, the results also demonstrated that apprehensiveness predicted self-injurious behavior. It was also found that

women have more tendency to indulge in self-harm behaviors as compared to men.

Studies have strongly suggested that people with an impulsive personality are more likely to induce self-injurious behavior. One of the studies stated that self-harm behavior is drawn on mood-related impulsive traits (Sagiv & Gvion, [2020](#)). Some previous studies have also revealed impulsivity as the causal factor of self-injurious behavior. According to urgency theory, people act recklessly while experiencing some unpleasant event and to reduce negative emotional reactions they perform some impulsive activities to acquire momentary comfort (Lockwood et al., [2017](#)).

Studies also revealed that people who are easily suppressed by others, involved in self-accusation, and have an introverted personality trait can escalate the possibility of self-harm behavior. Since introversion is way too thoughtful towards emotions and feelings, the literature suggests that a lack of required extroversion might induce self-harm behavior and mental health problems (Liao et al., [2022](#)). Furthermore, those who exercise submissiveness involving excessive acquiescence due to fear of abandonment or helplessness suffer from depression which later causes self-injurious behavior (Görgülü & Tutarel-Kişlak, [2014](#)).

Numerous studies have been conducted to analyze the relationship between depression and self-harm. Daily life chronic stress leads a person towards depression or apprehensiveness and the worst outcomes would cause self-harm behavior. People who are always preoccupied with overthinking are very sensitive which a major reason of their engagement is in self-injurious behavior. It was observed that self-injurious behavior is positively linked with depression, low self-worth, anxiety, self-accusation, and impulsivity (Steinhoff et al., [2020](#)). Another study suggested that social causes, that is, family system, influence of friends, and apprehensiveness are positively associated with self-injurious behavior (Rahman et al., [2021](#)). The results of the current study and previous literature showed that only apprehensiveness predicts self-injurious behavior.

Previous literature has shown that women are involved in self-injurious behavior more as compared to men, however, the intensity of performing self-harm behavior is relatively stronger in men. (Beckman et al., [2019](#)). Another study supported the results according to which men are more likely to perform acting out behaviors. Women might hurt themselves by carrying

out indirect forms of self-harm, such as being in a toxic relationship (Abdelraheem et al., [2019](#)).

Conclusion

The current study suggested that people who have impulsivity, submissiveness, and introversion temperament are positively associated with self-harm tendency. Apprehensiveness positively predicts self-injurious behavior. Similarly, gender, family, and academic system also appeared as positive predictors of self-harm behavior. Furthermore, women exhibit more self-harm behavior than men. Correspondingly, women have more extroversion temperament as compared to men.

Implications

The current research provides a detailed description of the temperaments of people who are more vulnerable to self-harm behavior. It assists in identifying at-risk populations and promotes awareness regarding self-injurious behaviors among the general population who may later develop worsening consequences such as suicidal ideation.

Limitations

The study still has room for improvement. Some of the limitations are discussed. Most of the study data was collected from universities in the Sialkot city. Therefore, the results cannot be generalized. In addition, the present study didn't include students of matric, intermediate, and master's level students. The present findings rely on the quantitative data only, therefore, in-depth information regarding self-harm behavior couldn't be obtained.

Suggestions

- It is highly recommended that in the future research can focus on collecting data from other populations so that the ratio of self-destructive behaviors in particular populations could be examined.
- Future researchers may employ qualitative research methods along with quantitative measures to ensure in-depth data surrounding this phenomenon.

References

- Abdelraheem, M., McAloon, J., & Shand, F. (2019). Mediating and moderating variables in the prediction of self-harm in young people: A systematic review of prospective longitudinal studies. *Journal of Affective Disorders*, 246, 14–28. <https://doi.org/10.1016/j.jad.2018.12.004>
- Beckman, K., Lysell, H., Haglund, A., & Dahlin, M. (2019). Prognoses after self-harm in youth: Exploring the gender factor. *Social Psychiatry and Psychiatric Epidemiology*, 54(4), 437–444. <https://doi.org/10.1007/s00127-018-1618-7>
- Bresin, K., & Schoenleber, M. (2015). Gender differences in the prevalence of nonsuicidal self-injury: A meta-analysis. *Clinical Psychology Review*, 38, 55–64. <https://doi.org/10.1016/j.cpr.2015.02.009>
- Brereton, A., & McGlinchey, E. L. (2019). Self-harm, emotion regulation, and experiential avoidance: A systematic review. *Archives of Suicide Research*, 24(Suppl 1), 124. <https://doi.org/10.1080/13811118.2018.156375>
- Christoffersen, M. N., Møhl, B., DePanfilis, D., & Vammen, K. S. (2015). Non-suicidal self-injury--Does social support make a difference? An epidemiological investigation of a Danish national sample. *Child Abuse & Neglect*, 44, 106–116. <https://doi.org/10.1016/j.chiabu.2014.10.023>
- Castellví, P., Lucas-Romero, E., Miranda-Mendizábal, A., Parés-Badell, O., Almenara, J., Alonso, I., Blasco, M. J., Cebrià, A. I., Gabilondo, A., Gili, M., Lagares-Franco, C., Rodríguez, J. a. P., Roca, M., Marín, J. R., Rodríguez-Jiménez, T., Soto-Sanz, V., & Alonso, J. (2017). Longitudinal association between self-injurious thoughts and behaviors and suicidal behavior in adolescents and young adults: A systematic review with meta-analysis. *Journal of Affective Disorders*, 215, 37–48. <https://doi.org/10.1016/j.jad.2017.03.035>
- Cloninger, C. R. (1994). Temperament and personality. *Current Opinion in Neurobiology*, 4(2), 266–273. [https://doi.org/10.1016/0959-4388\(94\)90083-3](https://doi.org/10.1016/0959-4388(94)90083-3)
- Duarte, E., Pereira, M. D. C., Gomes, H. S., & Sampaio, D. (2019). How do families represent the functions of deliberate self-harm? A comparison between the social representations from adolescents and their parents.

Archives of Suicide Research, 24(Suppl 1), 173–189.
<https://doi.org/10.1080/13811118.2018.1545713>

Durrani, S. M., Mahmood, Z., & Saleem, S. (2017). The development and validation of Temperament Scale for University Students. *FWU Journal of Social Sciences*, 11(1), 264–275.

Garcia, D., Al Nima, A., & Kjell, O. N. (2014). The affective profiles, psychological well-being, and harmony: Environmental mastery and self-acceptance predict the sense of a harmonious life. *PeerJ*, 2, Article e259. <https://doi.org/10.7717/peerj.259>

Görgülü, T., & Tutarel-Kışlak, Ş. (2014). Submissive behaviour, depression, and suicide probability in male arrestees and convicts. *Noro psikiyatri arsivi/ Archives of Neuropsychiatry*, 51(1), 40–45. <https://doi.org/10.4274/npa.y6563>

Husain, M. O., Umer, M., Taylor, P., Chaudhry, N., Kiran, T., Ansari, S., Chaudhry, I. B., & Husain, N. (2019). Demographic and psychosocial characteristics of self-harm: The Pakistan perspective. *Psychiatry Research*, 279, 201–206. <https://doi.org/10.1016/j.psychres.2019.02.070>

Karimi, S., Pirmoradi, M., Ashouri, A., & Aghebati, A. (2021). Relationship of temperament and character traits, emotional regulation and perceived parenting with self-harming behaviors in adolescents. *Iranian Journal of Psychiatry and Clinical Psychology*, 26(4), 448–463. <http://dx.doi.org/10.32598/ijpcp.26.4.2955.2.1>

Khan, S., & Kausar, R. (2020). Psychosocial factors of non-suicidal self-injury among adolescents and young adults. *Pakistan Journal of Psychological Research*, 35(4), 637–655. <https://doi.org/10.33824/PJPR.2020.35.4.34>

Liao, C., Gu, X., Wang, J., Li, K., Wang, X., Zhao, M., & Feng, Z. (2022). The relation between neuroticism and non-suicidal self-injury behavior among college students: Multiple mediating effects of emotion regulation and depression. *International Journal of Environmental Research and Public Health*, 19(5), Article e2885. <https://doi.org/10.3390/ijerph19052885>

Liu, R. T., Trout, Z. M., Hernandez, E. M., Cheek, S. M., & Gerlus, N.

- (2017). A behavioral and cognitive neuroscience perspective on impulsivity, suicide, and non-suicidal self-injury: Meta-analysis and recommendations for future research. *Neuroscience & Biobehavioral Reviews*, 83, 440–450. <https://doi.org/10.1016/j.neubiorev.2017.09.019>
- Lockwood, J., Daley, D., Townsend, E., & Sayal, K. (2017). Impulsivity and self-harm in adolescence: A systematic review. *European Child & Adolescent Psychiatry*, 26(4), 387–402. <https://doi.org/10.1007/s00787-016-0915-5>
- Nisar, H., Aqeel, M., & Ahmad, A. (2020). Indigenous need arise to protect human from self-harm behavior in Pakistan: Translation and validation of inventory of statements about self-injury. *International Journal of Human Rights in Healthcare*, 13(5), 421–433. <https://doi.org/10.1108/IJHRH-10-2019-0080>
- Oakland, T., Callueng, C., Rizwan, M., & Aftab, S. (2012). Temperament styles of children from Pakistan and the United States. *School Psychology International*, 33(2), 207–222. <https://doi.org/10.1177/0143034311420358>
- Plener, P. L., Schumacher, T. S., Munz, L. M., & Groschwitz, R. C. (2015). The longitudinal course of non-suicidal self-injury and deliberate self-harm: A systematic review of the literature. *Borderline Personality Disorder and Emotion Dysregulation*, 2(1), Article e2. <https://doi.org/10.1186/s40479-014-0024-3>
- Puonti, V., Hirvonen, R., & Kiuru, N. (2021). Associations of temperament types and gender of early adolescents and teachers with adolescents' school well-being. *Scandinavian Journal of Psychology*, 62(4), 510–521. <https://doi.org/10.1111/sjop.12729>
- Rahman, F., Webb, R. T., & Wittkowski, A. (2021). Risk factors for self-harm repetition in adolescents: A systematic review. *Clinical Psychology Review*, 88, Article e102048. <https://doi.org/10.1016/j.cpr.2021.102048>
- Sagiv, E., & Gvion, Y. (2020). A multi factorial model of self-harm behaviors in anorexia-nervosa and bulimia-nervosa. *Comprehensive Psychiatry*, 96, Article e152142. <https://doi.org/10.1016/j.comppsy.2019.152142>
- Saleem, I. (2018). *Impulsive personality traits, emotional disclosure and*

self-harm tendencies in early adults [Doctoral dissertation, University of Management and Technology].

Steinhoff, A., Bechtiger, L., Ribeaud, D., Eisner, M., & Shanahan, L. (2020). Stressful life events in different social contexts are associated with self-injury from early adolescence to early adulthood. *Frontiers in Psychiatry*, *11*, Article e487200. <https://doi.org/10.3389/fpsy.2020.487200>

Strelau, J. (2020). *Temperament*. Springer.

Tanabe, S., Terao, T., Shiotsuki, I., Kanehisa, M., Ishii, K., Shigemitsu, O., Fujiki, M., & Hoaki, N. (2016). Anxious temperament as a risk factor of suicide attempt. *Comprehensive Psychiatry*, *68*, 72–77. <https://doi.org/10.1016/j.comppsy.2016.04.001>

Tariq, S., & Adil, A. (2020). Rigidity as mediator between temperaments and social adjustment: A comparative study of teachers of madaris and schools of Pakistan. *Archiv für Religionspsychologie / Archive for the Psychology of Religion*, *42*(2), 194–210. <https://doi.org/10.1177/0084672420921956>

Van Den Bogaard, K., Nijman, H., Palmstierna, T., & Embregts, P. (2018). Self-injurious behavior in people with intellectual disabilities and co-occurring psychopathology using the Self-Harm Scale: A pilot study. *Journal of Developmental and Physical Disabilities*, *30*(5), 707–722. <https://doi.org/10.1007/s10882-018-9614-0>

Watson, D. (2000). *Mood and temperament*. Guilford Press.