RESEARCH ARTICLE

Prevalence of non-suicidal self-injury in medical students of Rawalpindi; its socio-demographics, methods, and functions

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Abstract

Objective: To investigate the prevalence of non-suicidal self-injury among Pakistani medical students, its association with demographic variables, and the distribution of its methods and functions.

Method: The cross-sectional study was conducted from April 2021 to March 2022 at Rawalpindi Medical University, Rawalpindi, Pakistan, and comprised medical students regardless of gender and year of study. Data was collected using the inventory of statements about self-harm scale to assess their socio-demographics, non-suicidal self-injury behaviors and functions. Data was analyzed using SPSS 28.

Results: Of the 411 subjects approached, 386(94%) correctly filled the forms; 170(44%) males and 216(55.9%) females. The overall mean age was 19.7 ±1.5 (range: 17-27 years). There were 132(34.1%) students from first year, 146(37.8%) second year, 44(11.3%) third year, 54(13.9%) fourth year and 10(2.5%) from the final year. There were 110(28.4%) with non-suicidal self-injury; 60(54.5%) males and 50(45.4%) females (p=0.008). There were 18(4.7%) subjects aged 18 years, and, of them, 14(77.7%) exhibited self-harm behaviour. Among specific non-suicidal self-injury behaviours, 'interfering with scabs and wound healing' was the most common method 80(72.7%). As for the functions of non-suicidal self-injury behaviour, there was a significant difference between intrapersonal and interpersonal functions (p<0.05).

Conclusion: Non-suicidal self-injury was highly prevalent among the young subjects, and it needs proper intervention for timely management.

Key Words: Behaviour, Behaviour mechanisms, Pakistan, Personality inventory, Self-injurious behavior,Young adult.

(JPMA 73: 2370; 2023) **DOI: 10.47391/JPMA.7544**

Submission completion date: 03-08-2022— **Acceptance date:** 20-07-2023

Introduction

Non-suicidal self-injury (NSSI) is defined as deliberate, self-directed damage of body tissue without suicidal intent and for purposes not socially or culturally sanctioned[1]. This means that we can identify NSSI as a form of self-harm (SH) that has no suicidal intent. It is concerning to notice that over the last decade, NSSI rates have visibly increased among young college students owing to a myriad of factors[2]. Depending on the way we define NSSI using various approved tools, the lifetime prevalence of NSSI varies from 7% to >50% among young adults[3]. This is because several studies describe NSSI as a behaviour that manifests in adolescence or early adulthood, and the age of joining college is the perfect time to exacerbate the factors that lead to it[4].

Early adulthood is a transitioning age where a number of stressors impact an individual psychologically, such as academic stress, identity confusion, relationship concerns, financial hardships and uncertainty about a future career and employment[5]. As such, a lot of young adults indulge in NSSI as a coping mechanism to all the changes in their lives.

NSSI can take many forms, like skin cutting, burning and self-hitting, and is most often used to escape aversive moods, like sadness and anger, and cognitive states, like worry and criticism[6]. These behaviours can further be defined as low lethality methods, like scratching, cutting and self-battery, that may not require medical attention compared to high lethality methods, like hanging, poisoning/overdose, firearms, used in suicide attempts[7]. In many cases, these behaviours are justified as a means of emotional regulation and stress relief, and a way to feel in control in a new and changing environment.

It is well-established by studies that NSSI may progress to suicide[8] which is why the American Psychiatric Association formally emphasized this viewpoint in 2013 with the inclusion of NSSI as a 'condition requiring further study' in Section III of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V)[9].

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Medical students are generally more stressed than an average university student. In Pakistan, this stress is caused by many reasons, some of them being, the pressure from peers to perform well, overburdening in the clinical setup due to decreased doctor-patient ratio and decreased sleeping hours[10]. Unfortunately, this population is under-represented for studies on NSSI because of social, religious, and legal stigmas as well as the lack of awareness.

According to one estimate, there have been nearly 100,000 documented acts of NSSI in Pakistan[11]. The World Health Organization (WHO) also estimated that for every suicide there are at least 10-20 acts of NSSI, and by this yardstick, there might be nearly 130,000 to 270,000 acts of NSSI in Pakistan annually[12,13].

The current study was conducted to investigate NSSI prevalence among Pakistani medical students, its association with demographic variables, and the distribution of its methods and functions.

Subjects and Methods

The cross-sectional study was conducted from April 2021 to March 2022 at Rawalpindi Medical University (RMU), Rawalpindi, Pakistan. After approval from the institutional ethics review board, the sample was raised using convenience sampling technique. Those included were medical students regardless of gender and year of study. Those with any mental or chronic illness, graduated alumni and house officers were excluded. Informed consent was taken from all the subjects.

The sample size was calculated using OpenEpi calculator.[14], with population size (for finite population correction factor [FPC]) (N) 1750, hypothesized % frequency of outcome factor in the population (p) 50%+/- 5, confidence limits % of 100 (absolute +/- %) (d) 5%, and design effect (for cluster surveys [DEFF]) 1. The equation used was: (n) = [DEFF*Np(1-p)]/ [(d2/Z21-α/2*(N-1)+p*(1-p)]. The confidence level was kept at 95%.

Each participant was instructed to fill a questionnaire based on the inventory of statements about self-injury (ISAS) scale[15]. The scale consists of three main sections. The first section assesses lifetime frequency of 12 NSSI behaviours performed "intentionally and without suicidal intent": banging/hitting self, biting, burning, carving, cutting, wound picking, needle-sticking, pinching, hair pulling, rubbing skin against rough surfaces, severe scratching, and swallowing chemicals. The participants were asked to estimate the number of times they had practiced any of the above.

In the second section, 5 additional questions assess descriptive and contextual factors, including age of onset, the experience of pain during NSSI, whether NSSI is performed alone or around others, time between the urge to self-injure and the act, and whether the individual wants to stop self-injuring. The latter four questions use a multiple-choice format.

Those endorsing one or more NSSI behaviours in the previous sections are asked to complete the third ISAS section, which assesses 13 potential functions of NSSI: affect-regulation, anti-dissociation, anti-suicide, autonomy, interpersonal boundaries, interpersonal influence, marking distress, peer-bonding, self-care, self-punishment, revenge, sensation-seeking, and toughness. Each function is scored on a Likert scale ranging from 0 = not relevant to 2 = very relevant" to the individual's "experience of [non-suicidal] self-harm".

Data was analyzed using SPSS 28. Categorical variables were expressed as frequencies and percentages, while continuous variables were expressed as mean, median and standard deviations. Chi-square and Pearson correlation tests were used to compare and correlate the data points. $P<0.05$ was taken as significant.

The whole data was kept strictly confidential and was destroyed after it was no longer needed. Apart from the questionnaire, no personal information of the participants practicing NSSI was kept. However, RMU-affiliated Institute of Psychiatry (IOP), Benazir Bhutto Hospital (BBH), Rawalpindi, was requested to provide help to those who need it without any ties to the current study. It was made clear to all concerned that the researchers were not linked to the counselling programme in any way.

Results

Of the 411 subjects approached, 386(94%) correctly filled the forms; 170(44%) males and 216(55.9%) females. The overall mean age was 19.7 ±1.5 (range: 17-27 years). There were 132(34.1%) students from first year, 146(37.8%) second year, 44(11.3%) third year, 54(13.9%) fourth year and 10(2.5%) from the final year. There were 110(28.4%) with non-suicidal self-injury; 60(54.5%) males and 50(45.4%) females (p=0.008) (Table 1). There were

Table-1: Prevalence of non-suicidal self-injury (NSSI) behaviours in gender terms.

Gender	Frequency (n=386)	Practice self-harm	Do not practice self-harm	p-value
Male	170 (44.0%)	60 (35.2%)	110 (64.7%)	0.008681
Female	216 (55.9%)	50 (23.1%)	166 (76.8%)	

Chi-square statistic 6.8874.

Table-2: Methods of non-suicidal self-injury (NSSI) behaviour and practice.

No.	NSSI Behaviors	Frequency (n=110)	Mean (SD)
1	**Interfering with wound healing**	80 (72.7%)	62.4 (130.3)
2	**Banging/Hitting**	72 (65.4%)	19.7 (69.8)
3	**Pulling hair**	64 (58.1%)	126.6 (679.9)
4	**Pinching**	58 (52.7%)	39.6 (144.3)
5	**Biting**	50 (45.4%)	27.5 (95.0)
6	**Abrasion of skin**	44 (40.0%)	11.8 (26.7)
7	**scratching**	42 (38.1%)	16.2 (68.8)
8	**Sticking oneself with needles**	42 (38.1%)	34.0 (102.3)
9	**Cutting**	28 (25.4%)	14.1 (81.2)
10	**Carving**	20 (18.1%)	1.4 (3.3)
11	**Swallowing harmful substances**	14 (12.7%)	9.7 (55.0)
12	**Burning**	10 (9.0%)	1.0 (5.4)

SD: Standard deviation.

Table 3: Functions of non-suicidal self-injury (NSSI) behaviour and practive.

No.	ISAS Functions Scale	Frequency (n=110)	Mean (SD)
A.	Intrapersonal functions		
1.	Affect Regulation	90 (81.8%)	2.8 (2.0)
2.	Self-Punishment	78 (70.9%)	2.2 (2.0)
3.	Marking Distress	68 (61.8%)	1.7 (1.8)
4.	Anti-Dissociation	66 (60.0%)	1.5 (1.7)
5.	Anti-Suicide	50 (45.4%)	1.3 (1.6)
B.	**Interpersonal functions**		
1.	Self-Care	76 (69.0%)	1.6 (1.4)
2.	Toughness	74 (67.2%)	2.2 (2.0)
3.	Sensation Seeking	70 (63.6%)	1.6 (1.6)
4.	Interpersonal boundaries	64 (58.1%)	1.7 (1.8)
5.	Autonomy	62 (56.3%)	1.7 (1.9)
6.	Peer Bonding	56 (50.9%)	1.4 (1.7)
7.	Interpersonal influence	50 (45.4%)	1.3 (1.7)
8.	Revenge	48 (43.6%)	1.0 (1.4)

ISAS: Inventory of statements about self-injury, SD: Standard deviation.

18(4.7%) subjects aged 18 years, and, of them, 14(77.7%) exhibited self-harm behaviour.

Among specific NSSI behaviours, 'interfering with scabs and wound healing' was the most common method 80(72.7%). Mean number of methods was 4.7+/-2.6, and 98(89%) participants reported having used more than one of the 12 NSSI methods explored (Table 2).

As for the functions of non-suicidal self-injury behaviour, there was a significant difference between intrapersonal and interpersonal functions (Table 3).

Discussion

Using the ISAS questionnaire, the study found a 28.4% NSSI prevalence, which was higher than was expected. However, the findings corresponded with Chinese adolescents (29.2%)[16]. The results, in contrast, were considerably higher compared to a study in Iran (6.2%)[17]. A meta-analysis also found that NSSI prevalence was 17.7% across various communities in typical adolescents[18]. Studies from Australia (17.3%)[19] and Germany (14.3%)[20] also reported low prevalence.

Women were 1.5 times more likely to commit NSSI than males, as per a meta-analysis of >120 studies[21]. On the contrary, the current data showed that males (55%) were more prone to committing self-harm compared to the females (45%).

Although the age of 18 showed the most incidence in NSSI behaviours in the current study, it is worth noting that our third-year students aged 20-22 years were the ones with the highest results, with 45% of them subjecting themselves to self-harm. This could be because in our medical education setup, the third year is the time when students are introduced to the clinical side of their studies which brings a change in their entire study pattern to accommodate new skills. This has also been endorsed by a study where it was seen that academic stress does in fact make students indulge in more self-injurious behaviour[17].

The current questionnaire evaluated 12 most common methods of self-injurious behaviour. Aside from the ones mentioned, the participants were asked to add any methods they used that were not in the list. The average number of methods used by the participants was 5, with 89% of the population reporting the use of more than one method.

The most common methods used were "interfering with scabs and wound healing" (72.7%). This was followed by "banging/hitting" (65.4%), "pulling hair" (58.2%), "pinching" (52.7%), and "biting" (45.4%). In contrast, the most common NSSI methods reported by an Iranian study were "scratching and pinching" (67.3%), followed by "impact with object" (20.8%), "cutting" (5.9%), "burning" (3.9%) and "hair pulling" (2.1%)[17], whereas a Chinese study suggested "hitting self" to be the most common method[16].

The current study reported the two most common reasons for NSSI as intrapersonal functions, which

included 'calming down one's emotions' (affect regulation) and 'punishing oneself if something does not go correctly' (self-punishment). This was followed by the interpersonal function of self-care i.e., creating a physical injury that is easier to care for than emotional distress. Being a medical student, stress is an everyday affair which can increase to substantial levels in days of exams or periods of clinical evaluations. In those days, to calm down the stressed mind, some students use NSSI as a distraction to their ongoing dilemma. These results are consistent with a South African study, which showed that the engagement in self-harm behaviour was to meet the intrapersonal needs of affect regulation, marking distress, self-punishment, and regulating suicidal and dissociative feelings, rather than interpersonal needs, like communicating distress, maintaining boundaries, bonding with peers, and sensation-seeking, as measured by the ISAS[22]. There was a strong positive correlation among the interpersonal and intrapersonal functions in the current study.

When the study inquired further about the environment needed to carry out an act of self-harm, 34 (56.6%) out of the 60 males and 26 (52.0%) out of the 50 females reported the need for an exclusive environment to harm themselves. This shows that more than half expressed the need to be alone to practice NSSI.

Another peculiar result obtained was that 48 (80.0%) of the 60 males and 38 (76.0%) of the 50 females showed a desire to stop. Moreover, 18 (30.0%) males and 16 (32.0%) females reported that they experienced pain when inflicting self-injury. In response to these results, the researchers personally requested the institutional Psychiatry department to form an independent panel to help such students. Announcements were made in all classes for students that those of them who wished to seek help could contact the panel anonymously and were reassured that they will not be asked to participate in any further study.

It has widely been suggested that self-harm lowers the fear of death and elevates physical pain tolerance, and that these two modalities develop through habituation, and, as such, an intervention is required. However, very few students are willing to seek help,[23], and, among those who do, it is still very hard for them to find their way to treatment[24]. In a developing country like Pakistan, where social and religious structures hold a huge influence over the masses, majority of cases are not presented to statutory services because of the social stigma concerning such behaviour. Self-harmers try instead to not disclose such personal information out of fear that somebody may find out about their socially unacceptable behaviour and report the matter to the relevant authorities, like parents, counsellors, and therapists, or worse, they will be treated as a pariah.

The current study had limitations. First, the cross-sectional design may not be representative, as it did not provide a follow-up on the students to find more associations with the factors leading to NSSI behaviours. Second, the participants were enrolled through convenience sampling at a single center, which limited the generalizability of the findings. Third, a larger sample size was needed to authenticate the findings. Besides, there is a need to conduct community-based studies to accurately assess the extent of the epidemic in the young adult population. Fourth, there was a probability of selection bias as many of the self-harmers might have skipped the data collection procedure entirely. Even though anonymity and confidentiality were strongly enforced, there was still a chance of inaccurate information being reported because of the stigma surrounding the subject.

The researchers tried their best to promote awareness regarding self-harm. Students were urged to come up with their problems, by giving them a safe environment where they could express themselves. Keeping in view the social and religious stigma related to such a subject in a developing country like Pakistan, these practices will continue before a change could be brought about.

Conclusion

NSSI was found to be highly prevalent among young medical students, and this needs proper and timely intervention. The students should be counselled about how to manage their stress. Future studies should focus on preventive as well as treatment programmes, thus reducing the incidence of self-injury among medical students.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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