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Systematic Review

One in Fourteen: Screening University Students for Suicidal Ideation Across Three Universities in Peshawar

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ABSTRACT

University students are often assumed to be at low risk, yet little is known about how many have suicidal thoughts in Khyber Pakhtunkhwa. This study screened students at three public universities in Peshawar to estimate how many screened positive for suicidal ideation, how severe their ideation was, and how this varied by university. Using convenience sampling, 5,950 students from departments across the universities were approached and screened with the Modified Scale for Suicidal Ideation. In all, 424 (7.1%, 95% CI [6.5, 7.8]) screened positive. The rate differed by university, from 6.3% to 9.4%, $\chi^2(2) = 13.58$, $p = .001$, although the difference was small (Cramér's $V = .05$). Among the 384 positive students retained for analysis, 56.8% had severe ideation and 56.0% had made at least one earlier attempt. Earlier attempts ($r = .43$) and a family history of psychological disorder ($r = .29$) were associated with more severe ideation, and men scored higher than women ($d = 0.35$). The figures describe a convenience sample and are screening rates, not population prevalence. Even so, about one in fourteen students screened positive, and more than half of these students had already attempted. Universities in Peshawar may need routine screening, trained counsellors and clear referral routes.

I. INTRODUCTION

Suicide is a major public health problem. The World Health Organization (WHO) estimates that more than 700,000 people die by suicide every year, and for every death many more people attempt suicide (WHO, 2021). Suicide is one of the leading causes of death among young people (Thompson & Swartout, 2018; WHO, 2021), and each death leaves families and communities affected for years afterwards (WHO, 2014).

Suicidal Ideation and the Continuum of Suicidal Behaviour

Suicidal behaviour is usually divided into suicidal ideation, suicide plans and suicide attempts (Nock et al., 2008). Ideation means thoughts, ideas and considerations about suicide. A plan means working out how one might die, and an attempt means a self-destructive act carried out with some intent to die (Nock et al., 2008). These are better seen as steps along a continuum of severity than as separate states, and surveys of young people show that the move from thoughts to plans and attempts often happens within a year of the first suicidal thoughts (Nock et al., 2013). Ideation is therefore both a warning sign in its own right and the stage at which help is most likely to prevent later harm.

Studies of completed suicide have an obvious difficulty, because the people of interest cannot be asked about their thoughts, feelings and intentions. Studying people who are still alive, and who report suicidal thoughts, is one practical way to learn about the problem while there is still time to offer help.

Suicidal Ideation among Young People and University Students

Late adolescence and early adulthood are years of change and risk. Young people finish school, enter university or work, form new relationships and take on new responsibilities, often while still living within the family home. Strong emotions and coping skills that are still developing can make a crisis harder to manage (Valois et al., 2015). Rates of suicide and attempted suicide among young people differ by age, gender and country (Cantor & Neulinger, 2000), and reviews of college students worldwide show that suicidal thoughts are common in this group (Mortier et al., 2018).

Gender and Suicidal Behaviour

Patterns of suicidal behaviour differ between men and women. Women are generally reported to attempt suicide more often than men, whereas men die by suicide more often, partly because they tend to use more lethal methods (American Foundation for Suicide Prevention [AFSP], 2014). In Pakistan, gender differences in non-fatal suicidal behaviour are shaped strongly by sociocultural factors (Khan & Reza, 1998a). It is less clear how men and women compare on the severity of suicidal ideation among university students, which is one of the questions of the present study.

Suicide in Pakistan

Pakistan is a low- and middle-income country with a young population, and a large share of its people are under 25 years of age (Mahar, 2014). The WHO estimated that about 13,000 people died by suicide in Pakistan in 2012, a rate of 7.5 per 100,000, and that each suicide is accompanied by at least 10 to 20 acts of deliberate self-harm (WHO, 2014). These figures are uncertain. Suicide deaths are not recorded in a national vital registration system, and there is no standard system for confirming them (Khan & Hyder, 2006; Shekhani et al., 2018). Families may ask that a suicide be recorded as an accident or an illness because of stigma (Khan & Reza, 1998b).

Attempted suicide has been a punishable offence under Section 325 of the Pakistan Penal Code, and people who harm themselves often avoid the designated medico-legal centres for fear of legal consequences and shame, going instead to private clinics that do not report (Altaf et al., 2021). In a country where most people are Muslim and suicide is condemned on religious grounds; students may also be reluctant to admit to suicidal thoughts. As a result, much of what is known comes from hospital and police records, newspaper reports and studies of people who attempted suicide, not from asking students directly (Khan & Prince, 2003; Shekhani et al., 2018). Common mental disorders are frequent in Pakistan while treatment is scarce (Mirza & Jenkins, 2004), and counselling services in universities are limited, so students often do not know where to go for help.

Risk Factors

Many risk factors for suicidal thoughts and behaviours have been described. A meta-analysis of 50 years of research concluded that no single risk factor predicts suicidal thoughts and behaviours well on its own (Franklin et al., 2017). Even so, several factors are consistently linked to suicidality among young people, including depression and other psychiatric disorders, earlier suicide attempts, family conflict, adverse life events and academic pressure (Carballo et al., 2020). Anxiety disorders (Cougle et al., 2009), substance use (Miller et al., 1991; Schneider, 2009), weak social connection (You et al., 2011), bullying (Bauman et al., 2013), emotional and behavioural problems in adolescence (Strandheim et al., 2014), parental divorce (Fuller-Thomson & Dalton, 2011) and poor productive activity in studies or work (Tekin & Markowitz, 2008) have also been linked with suicidal thoughts or behaviour. Two of these factors, earlier suicide attempts and a family history of psychological disorder, are easy to ask about in a screening setting, and both are examined here.

Screening in Universities and the Present Study

Universities bring large numbers of young people together, and teachers and counsellors are in a position to notice distress. Reviews of youth suicide prevention describe school- and college-based screening and gatekeeper training among the main strategies that have been tried (Gould et al., 2003).

Screening is useful only when it is matched by access to assessment and care, and it needs local evidence on how many students are affected and how seriously. Screening studies answer practical questions. How many students report suicidal thoughts? Do some universities have more students at risk than others? How severe are the thoughts among those who screen positive, and what other signs of risk go with them? To our knowledge, no published study has screened students at several universities in Peshawar and reported these figures. The present study did this at three public universities, as the first stage of a doctoral project on suicidal ideation among youth in Peshawar. It had four aims:

1. To estimate the proportion of screened students who screened positive for suicidal ideation.
2. To compare screening rates across the three universities.
3. To describe the severity of ideation and the number of earlier attempts among students who screened positive.
4. To examine whether earlier attempts, family history of psychological disorder and gender were related to the severity of ideation.

II. METHOD

Design and Sites

This was a cross-sectional screening study at three public universities in Peshawar, Khyber Pakhtunkhwa. It was the first stage of a doctoral project on suicidal ideation among youth. Students who screened positive went on to complete further measures of personality and parenting, which are reported elsewhere (Rehman & Khan, 2024). Enrolment during data collection was 14,064, 7,640 and 6,625 students at the three universities (28,329 in total). The universities are referred to as University A, B and C in this article.

Population and Sample Size

The youth population of Peshawar aged 18 to 24 years was reported as 591,095 at the time of the study, and the exact number of young people with suicidal ideation was not known. A target of 384 students with suicidal ideation was set with the Raosoft sample size calculator. This is the number the calculator gives for a population of this size at a 95% confidence level and a 5% margin of error.

Sampling and Participants

Students were approached by convenience sampling in classes across many departments, including psychology, English, political science, computer science, economics, sociology, social anthropology, statistics, law, Islamic studies, Urdu, Pakistan studies, business, physics, international relations, electronics, chemistry, Arabic, philosophy, veterinary medicine, architecture and fine arts. In all, 5,950 students aged 18–24 years were approached (University A, 2,500; University B, 2,131; University C, 1,319), about 21% of total enrolment. Students were eligible if they were aged 18 to 24 years and could understand the questionnaire. Students who could not understand it because of a developmental disorder, cognitive impairment or communication disorder were excluded, and so were orphans. There was no exclusion on the basis of ethnicity, gender or race. Participants who screened positive and were retained for analysis are described in the Results.

Measures

A socio-demographic sheet was developed for this study. It recorded age, gender, birth order, number of siblings, field of education, parents' monthly income, parents' education, urban or rural residence, family system (nuclear or joint), family history of major physical illness and of psychological disorder, smoking, use of other substances, marital status and the number of earlier suicide attempts. The items used in this article are age, gender, marital status, earlier suicide attempts and family history of psychological disorder. The Modified Scale for Suicidal Ideation (MSSI) (Miller et al., 1986) has 18 items scored from 0 to 3 (range 0–54), with higher scores meaning more severe ideation. The original authors reported a Cronbach's α of .94. Scores of 0–8, 9–20 and 21–54 were treated as mild, moderate and severe ideation. Cronbach's α was .91 in this sample. Students whose responses indicated suicidal ideation were counted as screening positive.

Procedure

Written permission was obtained from the concerned departments of the three universities. The researcher first spoke formally with students to build a cooperative atmosphere, and then explained the purpose and procedure of the questionnaires to each class as a group, asking students to answer honestly and in their own words. Every student completed the MSSI. Students who screened positive were asked to complete further questionnaires, which took about an hour, and the researcher stayed available to answer questions throughout. After screening, 424 students were positive. Outliers (standardised scores beyond ±3.29) were then removed for the analysis of the positive group, leaving 384.

Ethical Considerations

Permission to carry out the study was granted by the Graduate Studies Committee and the Advanced Studies and Research Board of the University of Peshawar. Institutional permission was obtained from each university, and each participant gave verbal consent. Participants could withdraw at any time, were not pressed to complete the questionnaire, were assured of confidentiality, and could ask for their individual results. The study was not intended to cause participants any bodily or psychological harm, and time for taking part was arranged flexibly to suit them.

Data Analysis

The screening rate was calculated as the number who screened positive divided by the number approached, with a Wilson 95% confidence interval. Rates were compared across universities with a chi-square test, with Cramér's V as the effect size, and pairwise comparisons were checked against a Bonferroni-adjusted significance level. Severity and earlier attempts were described with frequencies and percentages. Pearson correlations tested the links of earlier attempts and family history with MSSI scores, with 95% confidence intervals from Fisher's z transformation, and an independent-samples t test compared men and women (Cohen's d). Analyses were run in SPSS (version 20), and the screening-rate figures were checked in a separate calculation.

III. RESULTS

Participant Characteristics

The 384 students retained for analysis were aged 18 to 24 years (M = 21.92, SD = 1.94). There were 172 men (44.8%, mean age 22.01 years) and 212 women (55.2%, mean age 21.86 years). Most students were unmarried (n = 307, 79.9%), and students aged 24 years formed the largest age group (n = 116, 30.2%). About one in four (n = 101, 26.3%) reported a family history of psychological disorder, and 215 (56.0%) had made at least one earlier suicide attempt (Table I).

Table I: Characteristics of Students who Screened Positive for Suicidal Ideation (*N* = 384)

Characteristic	*n*	%
Gender		
Men	172	44.8
Women	212	55.2
Age (years)		
18	28	7.3
19	30	7.8
20	37	9.6
21	51	13.3
22	59	15.4
23	63	16.4
24	116	30.2
Marital status		
Unmarried	307	79.9
Married	77	20.1
Family history of psychological disorder		
Yes	101	26.3
No	283	73.7
Earlier suicide attempts		
None	169	44.0
At least one	215	56.0

Note. Age: $M = 21.92$, $SD = 1.94$. Percentages are of the 384 students retained for analysis.

Screening Rates

Of 5,950 students screened, 424 (7.1%, 95% CI [6.5, 7.8]) screened positive for suicidal ideation, or about one in fourteen. Rates differed by university (Table II), $\chi^2(2, N = 5{,}950) = 13.58$, $p = .001$, but the effect was small (Cramér's $V = .05$). Pairwise tests showed that University C had a higher rate than University A, $\chi^2(1) = 12.34$, $p < .001$, and University B, $\chi^2(1) = 8.26$, $p = .004$. Universities A and B did not differ, $\chi^2(1) = 0.35$, $p = .55$. Both differences involving University C stay significant after a Bonferroni correction for three comparisons ($\alpha = .017$).

Table II: Students Approached and Screening-Positive Rates by University

University	Enrolment	Approached (% of enrolment)	Screened positive	Rate % [95% CI]	Retained for analysis
A	14,064	2,500 (17.8)	157	6.3 [5.4, 7.3]	143
B	7,640	2,131 (27.9)	143	6.7 [5.7, 7.9]	128
C	6,625	1,319 (19.9)	124	9.4 [7.9, 11.1]	113
Total	28,329	5,950 (21.0)	424	7.1 [6.5, 7.8]	384

Note. CI = Wilson 95% confidence interval. 'Retained for analysis' is the number left after removing outliers (standardised scores beyond ±3.29).

Outlier removal reduced the positive group from 424 to 384 students (14 at University A, 15 at University B and 11 at University C). Dividing the 384 retained students by the 5,950 approached gives 6.5%, but this figure leaves out 40 students who screened positive, and the 7.1% reported here counts all 424.

Severity of Ideation and Earlier Attempts

The 384 students retained for analysis had a mean MSSI score of 24.60 (*SD* = 9.36). More than half were in the severe range (*n* = 218, 56.8%, 95% CI [51.8, 61.6]), 165 (43.0%) were in the moderate range and one student (0.3%) was in the mild range. More than half had made at least one earlier attempt (*n* = 215, 56.0%, 95% CI [51.0, 60.9]), and 86 of these 215 students (40.0%) had made two or more attempts (Table III). The mean number of earlier attempts was 0.99 (*SD* = 1.22). Because severity and earlier attempts were recorded only for the retained students, the shares among all approached students were at least 3.7% for severe ideation (218 of 5,950) and at least 3.6% for an earlier attempt (215 of 5,950). The number of students approached by gender was not recorded, so gender-specific screening rates cannot be given.

Table III: Severity of Ideation and Earlier Suicide Attempts among Students who Screened Positive (*n* = 384)

Characteristic	*N*	%
Severity: mild (0–8)	1	0.3
Severity: moderate (9–20)	165	43.0
Severity: severe (21–54)	218	56.8
No earlier attempt	169	44.0
One earlier attempt	129	33.6
Two earlier attempts	40	10.4
Three earlier attempts	22	5.7
Four earlier attempts	15	3.9
Five earlier attempts	9	2.3

Earlier Attempts, Family History and Severity of Ideation

Students with more earlier attempts had more severe ideation, and so did students with a family history of psychological disorder (Table IV). The correlation with earlier attempts was moderate, *r* = .43, 95% CI [.35, .51], and earlier attempts accounted for about 19% of the variance in MSSI scores. The correlation with family history was smaller, *r* = .29, 95% CI [.19, .38], accounting for about 8% of the variance. Earlier attempts and family history were not significantly related to each other, *r* = .09, 95% CI [−.01, .19].

Table IV: Descriptive Statistics and Pearson Correlations among MSSI Scores, Earlier Attempts and Family History (*N* = 384)

Variable	*M*	*SD*	1	2
1. MSSI score	24.60	9.36	—	
2. Number of earlier suicide attempts	0.99	1.22	.43***	—
3. Family history of psychological disorder (0 = no, 1 = yes)	0.26	0.44	.29***	.09

Note. MSSI = Modified Scale for Suicidal Ideation. Higher scores mean more severe ideation. ***$p < .001$.

Gender Differences

Men scored higher than women on the MSSI. The difference was statistically significant and the effect was small to medium (Table V). Men had a mean score of 26.41 (*SD* = 9.50) and women a mean score of 23.12 (*SD* = 9.08), a mean difference of 3.29 points, 95% CI [1.42, 5.15].

Table V: Independent-Samples *t* Test: MSSI Scores by Gender (*N* = 384)

Gender	*n* (%)	*M*	*SD*	Mean difference	*t*(382)	*p*	95% CI [LL, UL]	Cohen's *d*
Men	172 (44.8)	26.41	9.50	3.29	3.47	.001	[1.42, 5.15]	0.35
Women	212 (55.2)	23.12	9.08					

Note. CI = confidence interval of the mean difference; LL = lower limit; UL = upper limit.

IV. DISCUSSION

Main Findings

About one in fourteen students screened positive for suicidal ideation, and the students who did were not mildly affected. More than half had severe ideation and more than half had already attempted at least once. Screening in universities in Peshawar therefore finds students who are already at serious risk, not only students with passing thoughts. Earlier attempts and a family history of psychological disorder were both linked to more severe ideation, and men scored higher than women, although the differences between the three universities were small.

The Screening Rate in Context

The 7.1% figure is a screening rate for a convenience sample, not the prevalence of suicidal ideation among all students in Peshawar. It depends on which departments were approached, on who agreed to take part, and on the score used to define a positive screen. Comparisons with other studies are difficult for the same reasons. Surveys that ask about any suicidal thoughts over the past year or over a lifetime in school and college populations in other countries often report higher percentages (Mortier et al., 2018; Nock et al., 2013), but those surveys count any thought, whereas the present study counted students whose MSSI responses indicated ideation.

Stigma, religious condemnation of suicide and the legal status of attempted suicide may also lead some students to under-report their thoughts (Altaf et al., 2021; Khan & Reza, 1998b), in which case the true proportion would be higher. Students who were absent from class on the day of screening, or who were too distressed to attend, were not reached. For these reasons the screening rate is better read as a lower estimate of the number of students who would benefit from a conversation with a counsellor than as a precise prevalence figure.

Differences between Universities

The screening rate was higher at University C (9.4%) than at University A (6.3%) or University B (6.7%). The difference was statistically clear but small (*V* = .05), and it held after correction for multiple comparisons. Possible reasons include which departments were approached, differences in student background, and conditions on each campus, but none of these was measured here. The share of enrolment that was approached also differed, from 17.8% at University A to 27.9% at University B. The difference needs to be checked with a design that samples students in a planned way at each site.

Severity, Earlier Attempts and Family History

The high share of severe ideation and the high share of earlier attempts among positive students fit with what is known about the continuum from thoughts to action (Nock et al., 2008). Earlier attempts were moderately related to the severity of ideation, and a family history of psychological disorder was also related to it. Both findings agree with reviews that list earlier attempts and family and psychiatric history among the risk factors for suicidality in young people (Carballo et al., 2020; Franklin et al., 2017). Because earlier attempts and family history were not significantly correlated with each other, they may carry separate information about risk, although this would need to be tested in a model that includes both together.

These links are cross-sectional and do not show that earlier attempts or family history cause more severe ideation. They apply within the group of students who screened positive, so they say nothing about whether these factors make a student more likely to screen positive in the first place, since no comparison group of students who screened negative was assessed on the same variables.

Gender

Men scored higher than women on the MSSI, with a small-to-medium difference of about three points. This is worth noting because women are generally reported to attempt suicide more often than men (AFSP, 2014), and because gender differences in suicidal behaviour in Pakistan reflect sociocultural factors such as the different pressures on young men and women (Khan & Reza, 1998a). The present study cannot say whether men were also more likely to screen positive, because gender was not recorded for the students who were approached. Women made up the larger share of the positive group (55.2%), and a higher mean score among men does not mean that fewer women were affected.

Implications for Practice and Policy

A university that screens students for suicidal thoughts needs a clear route for those who screen positive: trained counsellors, a quick referral pathway to mental-health services, and ways to involve family where the student agrees. Without this, screening can do harm. Because over half of positive students had already attempted, screening forms should ask directly about earlier attempts and about family history, since both help to identify the students at highest risk.

Training teachers and peers to recognise warning signs and refer students, an approach described in reviews of youth suicide prevention (Gould et al., 2003), may also help reach students who would not complete a screen. Universities can also work to reduce stigma by talking openly about mental health, so that students know where help is available and feel able to use it. Public messages about suicide should follow safe-reporting guidance. At the policy level, the lack of national suicide data (Shekhani et al., 2018) means that studies of this kind are among the few sources of evidence, and routine, confidential reporting by universities would make planning easier.

Strengths and Limitations

The study approached a large number of students (5,950) across three universities and many academic departments, used a scale with high reliability in this sample ($\alpha = .91$), and reported confidence intervals and effect sizes alongside significance tests. It is also, to our knowledge, the first screening study of its kind across several universities in Peshawar.

The sample was a convenience sample at three public universities in one city, so the figures cannot be generalised. The number who declined to take part is not known. The MSSI is a self-report screening scale and does not diagnose, and the score used to define a positive screen strongly affects the rate. The 40 students removed as outliers were counted as positive in the screening rate but not in later analyses. Gender-specific screening rates could not be calculated, and students who screened negative were not assessed on earlier attempts or family history. The design was cross-sectional, so changes over time and causes cannot be examined.

Future Research

Future work should use planned sampling, record non-response and the gender of all approached students, include private universities and other cities, and follow students over time to see who moves from thoughts to attempts. Studies that pair screening with a clinical interview would show how well a positive screen matches clinical need, and evaluations of counselling and referral services in universities would show whether screening leads to help.

V. CONCLUSION

In this convenience sample of 5,950 students at three public universities in Peshawar, about one in fourteen screened positive for suicidal ideation, rates differed modestly between universities, and more than half of the students who screened positive had severe ideation and had already attempted suicide. Earlier attempts and a family history of psychological disorder went with more severe ideation, and men scored higher than women. Universities in Peshawar need screening that comes with counselling and referral, not screening alone. The figures are screening rates for a convenience sample, and a planned sample is needed to estimate prevalence.

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