

Mental health, suicidal ideation, and experience of bullying among university students in Pakistan

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Abstract

This study investigates mental health, access to treatment, suicidality, and bullying among Pakistani university students. Data were collected from a sample of 355 university students in Pakistan. For reference, we compared these data to a sample previously collected from German and Chinese students. Results indicated relatively poorer mental health and access to mental health treatments among the Pakistani sample, including a higher rate of recent suicidal ideation and bullying. Acknowledgment of these issues in Pakistani culture would be a good starting point to work on developing solutions to enhance the overall mental health of Pakistani students.

Keywords

bullying, mental health, Pakistan, suicide, treatment

Introduction

While there is evidence to suggest that problems with mental health pose a major challenge among university students in Pakistan, these problems have rarely been addressed. Previous investigations of mental health problems among university students in Pakistan have suggested high prevalence. For example, Saleem et al. (2013) investigated the mental health problems of 1850 Pakistani university students in Lahore using the “Student Problem Checklist” (SPCL), which asks questions about anxiety proneness, lack of self-regulation, loss of confidence, and a sense of being dysfunctional (Mahmood and Saleem, 2011). They found that 31 percent reported “severe,” and 17 percent “very severe” levels of problems according to the cut-offs for the SPCL. Similarly, Rehman et al. (2018) administered the SPCL to 1662 university

students in Lahore and found that 24 percent reported “severe” and 13 percent “very severe” levels of problems. Although the authors suggest that “very severe” reflects a need for clinical attention, given the bespoke nature of the scale used, it is difficult to know how these data would compare to results from student surveys in other countries. Bukhari and Khanam (2015) administered the Center for Epidemiological Studies Scale for Depression (CES-D; Radloff, 1977) to 331 students in Karachi, and found that 33.5 and 28.7 percent scored within the scale’s

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cut-offs for moderate and severe depression, respectively. Kumar et al. (2016) found similar figures using the short version of the Depression Anxiety Stress Scales (DASS) in a sample of 398 students in Karachi, with 32 and 21 percent scoring within the scale's cut-offs for moderate and severe/very severe depression, respectively. In terms of the anxiety scale, 26 percent scored within the cut-off for moderate anxiety, and 54 percent scored as having severe or very severe levels of anxiety. Thus, the existing data suggest high levels of problems such as depression and anxiety. This article provides a preliminary investigation of mental health problems and access to treatment among Pakistani university students, including consideration of one particularly severe potential consequence of mental health difficulties, suicidality, and one potentially important risk factor, bullying.

Several factors such as the transition to adulthood, academic stress, and problems with interpersonal relationships may make university students a particularly vulnerable group for developing mental health difficulties (Eisenberg et al., 2007). This in turn can impair students' social functioning and academic achievement, leading to longer-term consequences over the subsequent course of their life (e.g. Tosevski et al., 2010). In Pakistan, these problems and their impact may be amplified by a number of other factors related to social and cultural pressures, mental health stigma, and lack of potential treatments (Ahmad, 2007). The available data suggest the need for the development of policies and interventional programs to tackle the problem of poor mental health among university students in Pakistan. However, due a variety of factors, including financial constraints and political instability, there are no comprehensive health policies and interventional programs to deal with mental health problems.

Despite their prevalence, mental health problems in Pakistan are often ignored and misinterpreted as "Jinn possession," social ineptness, ordinary shyness, and ill-fate, which prevents individuals seeking help from mental

health professionals (Burr, 2002). The treatment gap (percentage of people who need care but do not receive treatment) for psychological disorders has been estimated 90 percent in Pakistan (Whiteford et al., 2013). The mental health budget in Pakistan is only 0.4 percent of the total budget, which is far less than that in other south Asian countries (Jooma et al., 2009). There are only five mental hospitals with 1.9 beds per each 100,000 of the population, and 400 psychiatrists with 0.23 per each 100,000 of the population, and similar figures have been reported for psychologist and other psychiatric services staff (Jooma et al., 2009). Only a small number of urban mental health care centers are able to provide treatments such as psychotherapy or pharmacotherapy (Jooma et al., 2009), and there is a shortage of mental health professionals, such as certified and professionally trained psychologists (Ahmad, 2007). Finally, due to poverty at both an individual and national level, neither parents nor the state is able to provide support to address these issues among students (Clement et al., 2015).

One particularly severe potential outcome of poor mental health is suicide. Recent studies suggest that suicide rates in Pakistan have been rapidly increasing (Shahid and Hyder, 2008). However, the only official data available come from police records, which are likely to be under-estimates due to cultural and religious factors (Jordans et al., 2014). Ironically, Pakistani newspapers report instances of suicide every day, and have been suggested by some to be the only useful source of basic information about death by suicide (Khan and Reza, 2000). Other estimates may come from non-government organizations, for example, a report issued by the Lawyers' Committee for Human Rights estimated that there were about 5800 suicides within the 9-month period from January to September 2006 (Khan, 2007). Given the paucity of data and the indication that rates may be extremely high, it is extremely important to further investigate suicidality among university students.

Apart from broader societal and cultural factors, individual negative life events in the life of an individual may also increase the risk of mental health problems and suicide. One kind of negative life event that may be particularly pertinent in the context of Pakistani students is bullying, which is considered both a social problem and an important public health concern (Srabstein and Merrick, 2013). Victims of bullying have an elevated risk of suicidality, possibly because of their higher risk of developing psychological disorders (Owusu et al., 2011), reduced impulse control, and intensified emotional arousal (Wolke et al., 2001). Khan and Reza (2000) investigated Pakistani school and college students and found adverse effects of bullying similar to those indicated by studies in North America and Europe (e.g. Wolke and Lereya, 2015), such as reduced academic achievement, lower self-esteem, and elevated symptoms of depression. Thus, to generate a comprehensive picture of mental health and suicide risk among students in Pakistan, it is important to incorporate data about bullying.

This study aimed to further delineate the problems of poor mental health, lack of treatment, and suicidality among university students in Pakistan, including an investigation of the potential prevalence of history of bullying in this population. An anonymous online survey method was used, as this allows data collection from a large number of respondents, and may facilitate disclosure of stigmatized experiences, such as mental health problems, suicidality, and bullying. To aid interpretation of the results, the data from this study are presented alongside data previously collected using similar methods in a similar sample from two other countries, Germany and China. Germany provides a useful example of a European country with a strong economy, well-developed educational and health services, and a relatively individualistic society (e.g. scoring 67 on the individualism index; Hofstede, 2001). China provides an example of another Asian country, with a relatively collectivistic society (scoring 20 on the individualism index, which is similar to

Pakistan's score of 14; Hofstede, 2001), but with many economical and societal differences from Pakistan, such as a strong economy and education system.

Methods

Participants and data collection

Data were taken from Bochum Optimism and Mental Health (BOOM) study program in Pakistan, which is a large scale cross-sectional and longitudinal study program investigating protective and risk factors of mental health across several countries. The Ethics Committee of the Faculty of Psychology, Ruhr University Bochum, approved the study. All participants provided informed consent for their participation in the study. Data were collected via online questionnaires, and the measures presented here form part of a larger dataset. Participant characteristics are presented in Table 1. Participants were provided with information encouraging them to contact a relevant service, for example, the counseling service of their psychology department, if they felt they were experiencing psychological difficulties.

Pakistan sample. The study was advertised on social media such as Facebook. Data for this article were taken from a follow-up to an earlier survey, as questions about treatment, suicidality, negative life events, a bullying were first introduced at this stage. Questionnaires were completed in English, as the medium of instruction and official language at Universities in Pakistan is English.

German and Chinese comparison samples. Data for the German and Chinese comparison samples were randomly extracted from previously collected datasets, with a sample of equal size selected to match the Pakistani sample in terms of gender and faculty (i.e. program of study). Questionnaires were completed in German for the German sample and in Mandarin Chinese for the Chinese sample.

Table 1. Sample characteristics and questionnaire measures of mental health and wellbeing.

	Pakistan (N=355)	Germany (N=355)	China (N=355)
	M (SD)	M (SD)	M (SD)
Gender N (%)			
Male	111 (31.27)	111 (31.27)	111 (31.27)
Female	244 (68.73)	244 (68.73)	244 (68.73)
Age	22.72 (3.28) ^a	28.31 (4.27) ^{**}	22.10 (1.53) ^{**}
Depression	6.45 (4.58)	3.93 (4.36) ^{b**}	2.40 (3.54) ^{**}
Anxiety	7.17 (4.18)	2.37 (3.30) ^{b**}	2.78 (3.44) ^{**}
Stress	7.86 (4.07)	6.68 (5.13) ^b	3.38 (3.75) ^{**}
Daily hassles	16.66 (8.38)	14.46 (6.52) ^{c**}	14.80 (7.71) ^{**}
Social support	50.63 (10.47)	61.29 (9.11) ^{**}	57.66 (9.07) ^{**}
Subjective happiness	17.64 (4.78)	19.04 (4.73) ^{**}	21.06 (4.26) ^{**}
Life satisfaction	22.71 (6.12)	24.32 (6.45) ^{**}	22.78 (6.87)

SD: standard deviation.

"The total sample size and proportion of male and female respondents is equal across the three samples, as data for the German and Chinese comparison samples were randomly extracted from previously collected datasets, with a sample of equal size selected to match the Pakistani sample in terms of gender and faculty (i.e. program of study). Variations in sample size for individual measures result from missing/incomplete data."

^an=352; ^bn=353; ^cn=354.

^{**}p < .01. (t-test comparison with Pakistani sample; uncorrected p values).

Measures

All the scales used in this study have validated English, German, and Chinese versions.

Current mental health

Depression Anxiety Stress Scales (short form: DASS-21). The Depression Anxiety Stress Scales-21 (DASS-21) (Henry and Crawford, 2005) was used to assess symptoms of depression, anxiety, and stress over the past week. Participants responded on 4-point scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). Higher scores on each sub-scale score indicate higher symptoms of depression, anxiety, and stress. In the current Pakistani sample, internal consistency (Cronbach's α) was as follows: Depression: .85 (Good); Anxiety: .77 (Acceptable); and Stress: .79 (Acceptable). In the German sample, due to changes in data collection over the course of the BOOM study, three different versions of DASS had been used and were included in our sample. One version (n=48)

was the standard DASS-21, for which internal consistencies were as follows: Depression: .91 (Excellent); Anxiety: .81 (Good); and Stress .92 (Excellent). A sub-sample (n=284) had alternatively completed a 21-item scale comprising the first 21 items of the DASS-42, for which internal consistencies were as follows: Depression: .88 (Good); Anxiety: .80 (Good); and Stress .89 (Good). A further sub-sample (n=21) had completed the full 42-item DASS, and the 21-item scales were extracted from this. The sub-scale scores from these different versions appear to provide equivalent values and this variation in version used would therefore not be expected to influence interpretation of the mean scores in the German sample. Internal consistencies were as follows: Depression: .92 (Excellent); Anxiety: .89 (Good); and Stress: .91 (Excellent). In the Chinese sample, internal consistencies were as follows: Depression: .90 (Good); Anxiety: .87 (Good); and Stress: .88 (Good).

Social support scale (F-SozU K-14). The 14-item social support scale (Fydrich et al.,

2009) was used to measure the level of social support individuals perceived themselves to receive from their social networks. Participants responded on 5-point Likert-type scale ranged from 1 (*not true*) to 5 (*true*). Higher scores indicate higher level of social support. The internal consistency of the F-SozU K-14 scale in the Pakistani sample was .90 (Good), in the German sample .92 (Excellent), and in Chinese sample .95 (Excellent).

Subjective Happiness Scale. Subjective happiness (Lyubomirsky and Lepper, 1999) was measured by the four-item Subjective Happiness Scale (SHS). Participants rated each item on 7-point Likert-type scales. Higher scores indicate higher levels of happiness. In the Pakistani sample, internal consistency was .49 (Unacceptable), in the German sample .82 (Excellent), and in the Chinese sample .79 (Acceptable).

Satisfaction With Life Scale. The five-item Satisfaction With Life Scale (SWLS) (Diener et al., 1985) was used to measure general life satisfaction. Participants responded on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate higher life satisfaction. In our Pakistani sample, internal consistency was .79 (Acceptable), in the German sample .90 (Excellent), and in the Chinese sample .93 (Excellent).

Daily hassles (Brief Daily Stressor Screening). Routine stressful experiences were measured using the nine-item Brief Daily Stressor Screening Scale (BDSS) (Scholten et al., 2014). Items are rated on 5-point Likert-type scale ranging from 0 (*not at all*) to 4 (*very much*). The scale assesses inconveniences and hassles in the previous 12 months related to everyday life such as family responsibilities and conflicts, health complications, dissatisfaction with study, work, or accommodation. Higher scores indicate higher levels of stress associated with the daily routine. In our Pakistani sample, internal consistency was .85 (Good), in the German sample .72 (Acceptable), and in the Chinese sample .87 (Good).

Current and past mental health difficulties and treatment

Mental health screening questions. A simple screening questionnaire was used to ask participants about their current or past experience of mental health problems. This comprised a single item per mental disorder reflecting the primary symptom, and asked participants to indicate whether they had experienced that difficulty in the past 12 months (current), over 12 months ago (past), or never (Margraf et al., 2013). The following mental disorders were covered: panic disorder, specific phobias, agoraphobia, social phobia, post-traumatic stress disorder, obsessive-compulsive disorder, generalized anxiety disorder, and depression. For the purpose of reporting the data, we created two simple yes/no scores indicating whether the participant had reported experiencing symptoms of any one of the disorders in the past year (current) or previously (past). The questionnaire also included a question about experiences related to bipolar disorder, but as this did not use a simple yes/no response we did not include it in our analyses.

Treatment history. Following the mental health screening questions, participants were asked whether they had ever been treated for these or similar problems.

Suicidality. Participants' history of suicidal ideation and attempts was measured using items from the Suicidal Behaviors Questionnaire-Revised (SBQ-R; Osman et al., 2001). Participants were asked, "Have you ever thought about or attempted to kill yourself?" and then "How often have you thought about killing yourself in the past year?" The SBQ-R has been suggested as a screening measure and has been used frequently in clinical and non-clinical populations. For the purpose of reporting the data, we coded participants as having experienced suicidal ideation or behavior in the past year/in their lifetime if they provided an answer other than "Never" to these items. Presence of a lifetime suicide attempt was coded if participants reported ever having made an attempt in their lifetime.

Bullying

Bullying. We used a retrospective questionnaire to investigate participants' experience of bullying over their lifetime (adapted from Wolke and Sapouna, 2008). First, bullying was defined as follows:

We would like to ask you some questions about bullying now. Bullying refers to the act of repeatedly harming others by directly getting at them. Over and over again some people experience: (1) being threatened or blackmailed or having their things stolen (2) being insulted or called nasty names (3) being subject to ridicule and having nasty tricks played on them by others (in person or via text messages or websites or social media) (4) being hit, shoved around or beaten up.

Participants were then asked about their bullying experience at primary school, secondary school, home, and work/university by asking questions about each of these specific times: "How often did these things happen to you in primary school (e.g. perpetrated by your classmates or other children)?"; "How often did these things happen to you in secondary/high school (e.g. perpetrated by your classmates or other children)?"; "How often did these things happen to you at home (e.g. perpetrated by a sibling or another family member)?"; and "How often did these things happen to you at work or college (e.g. perpetrated by a colleague or employer)?" Participants rated these retrospective questions on a 5-point Likert-type scale with the following anchors: 1 (*never*), 2 (*once or twice*), 3 (*occasionally*), 4 (*about once a week*), 5 (*several times a week*).

For reporting the data, because we were interested in repeated bullying rather than a one-off incident, we coded "never" and "once or twice" responses as "no," and other responses as "yes."

Data analysis. The Statistical Package for Social Sciences (SPSS) version 25 was used for all analyses. In the Pakistani sample, 1344 students were contacted, having completed an earlier survey, but only 355 students completed the

whole battery of questionnaires. Because the questions were not obligatory for them, a large proportion of the German and Chinese sample did not answer the bullying and treatment-related questions (see results section for sample sizes per questionnaire). The Pakistani sample was compared with the German and Chinese samples using *t*-tests for continuous variables and chi-square tests for categorical variables. Because we were primarily interested in the Pakistani sample, using the other two samples as reference points, we did not compare the Chinese with the German sample. No corrections for multiple comparisons were made.

Results

Sample characteristics

A total of 355 individuals (244 female) provided responses to the Pakistani survey, and an equal number of participants were selected for the German and Chinese reference samples. Sample characteristics are presented in Table 1. Due to differences between the countries in the typical age profile of students, the Pakistani sample was on average younger than the German sample but slightly older than the Chinese sample. The scores on the questionnaire measures indicated poorer mental health and worse subjective wellbeing in the Pakistani sample compared with the other samples on all indices used (see Table 1), with the exception of Stress on the DASS-21 (Pakistan and German equal) and Life satisfaction (Pakistan and China equal).

Endorsement of mental disorder screening items, treatment history, and suicidality

Rates of endorsement of mental disorder screening items were high, with the majority of the sample endorsing lifetime experience of at least one of the difficulties listed. Rates of endorsement were overall higher in the Pakistani sample than in the German and Chinese sample (see Table 2), but the Pakistani sample did not differ

Table 2. Screening for potential experience of psychological disorders, treatment history, and suicidality among Pakistani, German, and Chinese students.

	Pakistan		Germany		China	
	Past year N (%)	Lifetime N (%)	Past year N (%)	Lifetime N (%)	Past year N (%)	Lifetime N (%)
Endorsement of any mental disorder screener	(N=355) 321 (90.4)	(N=355) 355 (100.0)	(N=345) 259 (75.1)**	(N=352) 330 (93.8)**	(N=334) 290 (86.8)	(N=334) 318 (95.2)**
Received treatment	(N=354) 25 (7.1)	(N=354) 50 (14.1)	(N=352) 260 (73.9)**	(N=352) 325 (92.3)**	N=355 347 (97.7)**	(N=355) 353 (99.4)**
Suicidal ideation or behavior	(N=139) 107 (77.0)	(N=354) 139 (39.3)	(N=38) 13 (34.2)**	(N=66) 30 (45.5)	(N=355) 48 (13.5)**	(N=355) 94 (26.5)**
Suicide attempt	–	(N=354) 25 (7.1)	–	(N=66) 3 (4.5)	–	(N=355) 1 (0.3)**

Participants' responses to the "Past year" and "more than 12 months ago" questions were combined to provide an indication of lifetime experience of these problems. The numbers vary as not all respondents answered all questions.

** $p < .01$, indicating chi-square test versus the Pakistani sample; uncorrected p values.

from the Chinese sample in their endorsement of disorders in past year.

Despite their high rates of endorsement of the mental disorder screening items, few people in the Pakistani sample reported ever receiving any treatment for these problems. In contrast, the majority of the German and Chinese sample reported having received treatment at some point in their lives (see Table 2).

Approximately 40 percent of the Pakistani sample reported a lifetime history of suicidal ideation or behavior, including 30 percent in the past year. Seven percent reported having made a suicide attempt. In contrast, German students reported lower suicidality in past year compared Pakistani students; however, results of lifetime prevalence of suicide ideation or behavior were comparable (albeit in the context of a high rate of missing responses). The Chinese sample reported a lower rate of suicidal ideation and only one person reported ever having made a suicide attempt.

Bullying

The number and proportion of students who reported experiencing bullying is shown in Table 3. In general, Pakistani students reported a higher incidence of bullying than Chinese students, regardless of gender or context. Compared

with the German sample, both male and female Pakistani students reported a greater experience of bullying at work or college. Male Pakistani students reported experiencing more bullying at home than male German students, but female Pakistani students reported experiencing less bullying at secondary school and overall than female German students. However, the comparisons with the German sample need to be interpreted with caution due to the large amount of missing data. A substantial proportion (45.9 percent of men, 33.2 percent of women) in the Pakistani sample reported having experienced bullying at least "occasionally" at some point during their life.

Discussion

This study investigated the mental health of Pakistani university students via an online survey. In addition to questionnaire measures of various aspects of mental health, participants reported any previous experiences of treatment, suicidal ideation or behavior, and bullying. Gender-matched samples using similar methods among German and Chinese students were used as a comparison point. The results are consistent with higher endorsement of mental health problems, recent suicidal ideation, and reduced access to treatments among

Table 3. Incidence of bullying among university students of Pakistan, Germany, and China.

Role	Pakistan ^a (N= 355) N (%)	Germany ^b (N= 68) N (%)	China ^c (N= 355) N (%)
Primary school			
Male	34 (30.6)	3 (20.0)	13 (11.7)**
Female	29 (11.9)	10 (18.9)	22 (9.0)
Secondary school			
Male	26 (23.4)	6 (40.0)	10 (9.0)**
Female	31 (12.7)	20 (37.7)**	13 (5.3)**
Home			
Male	30 (27.0)	0 (0)*	6 (5.4)**
Female	59 (24.2)	10 (18.9)	10 (4.1)**
Work/college			
Male	25 (22.5)	0 (0)*	6 (5.4)**
Female	19 (7.8)	0 (0)*	6 (2.5)**
Experienced bullying at any time			
Male	51 (45.9)	7 (46.7)	20 (18.0)**
Female	81 (33.2)	27 (50.9)*	37 (15.2)**

Bullying among university students of Pakistan, German, and China.

^aPakistan: male (N= 111), female (N= 244).

^bGermany: male (N= 15), female (N= 53).

^cChina: male (N= 111), female (N= 244).

* $p < .05$, ** $p < .01$, indicating chi-square test versus the Pakistani sample; uncorrected p values.

the Pakistani students compared with their German and Chinese counterparts. While rates of bullying were high, comparisons to the German and Chinese sample presented a more mixed picture. Overall, the potentially high endorsement of mental health difficulties among university students in Pakistan combined with the low numbers reporting ever having received treatment for such problems does appear to be a cause for concern.

In this study, Pakistani students reported higher levels of depression, anxiety, and daily hassles, and lower levels of social support, and subjective happiness than German and Chinese students. Cultural factors and socioeconomic challenges may both play a role in contributing to these differences (Naveed et al., 2017). For example, higher rates of psychological difficulties among Pakistani students could be contributed to by poor educational policies, a lack of trained mental health professionals, limited opportunities, an unmeritocratic job market, and the generally poor economic and political

condition of the country (Peterson, 2017). Moreover, social discrimination, peer pressure (Bukhari and Khanam, 2015), unhygienic food in communal accommodation (Memon et al., 2018), restrictions in the campus as well as hostels (Ghani, 2017), declining trends in sports and exercise (Tausif, 2017), excessive use of the Internet (Awan, 2015), and an often unsafe environment, particularly for women (“Pakistan ranked fourth among worst countries for women—Pakistan,” *Dawn*, 2017), who were in the majority in our sample, may also contribute to higher prevalence of symptoms of psychological disorders among Pakistani students.

It is difficult to draw direct comparisons with previous studies that have investigated mental health symptoms among university students in Pakistan, due to the differences in methods used. For example, Rehman et al. (2018) and Saleem et al. (2013) used the Student Problem Checklist (SPCL) developed by Mahmood and Saleem (2011), and Bukhari and Khanam (2015) used the CES-D. Compared

with the one study in which the DASS-21 were also used, the scores on this measure in our sample were comparable and if anything, slightly lower. There are also differences between this and previous studies in terms of the method of data collection (online vs pen-and-paper), sampling techniques, and geographical location. However, these studies all indicate a potentially high prevalence of mental health problems, and this study adds to these by providing comparison samples and further collecting information about receipt of treatment, suicidality, and experience of bullying.

The high endorsement of potential mental health problems in our sample (using the mental health screener questionnaire) must be interpreted with caution, but it is notable that despite comparable or higher rates of endorsement of potential mental health problems among Pakistani students than in the other countries, very few of these students had ever received any treatment. This could be due to a number of factors, such as lack of awareness and acceptance of psychological illness, limited resources and lack of mental health services. Generally, people avoid visiting mental health professionals because of social discrimination and stigma, and therefore, prefer to seek treatment from general physicians (Sultan, 2011). Moreover, very few universities offer psychological and counseling services to students. Rather, psychological services are generally only available in tertiary care hospitals (Whiteford et al., 2013).

Pakistani students also reported higher recent (past year) suicidality compared with German and Chinese students, although Pakistani and German students did not differ in past suicidal ideation or suicidal attempts (albeit confounded by low response rates in the German sample). While an endorsement rate of 7.1 percent for ever having made a suicide attempt is concerningly high, it does not appear unusually high, for example in comparison to UK national statistics (McManus et al., 2016). However, it is difficult to know how accurate such a report may be. Pakistan is a Muslim country where suicide is condemned by religion and culture. Suicidality is thought

to be generally under-reported due to legal taboos, traditional and social norms associated with it (Lester, 2006). Previous studies have indicated that most young people who die by suicide do so by age 30 in Pakistan, with higher rates for women compared with men (Naveed et al., 2017). Among women, gender roles, family structure, and relationship issues are obvious stressors, and potential contributors to psychological disorders and suicidality (Khan et al., 2008). The high rate in our Pakistani sample of 77 percent reporting suicidal ideation or behavior in the past year is in any case a cause for concern.

In addition to potentially high rates of mental health issues and suicidal ideation, the results also indicate that a substantial proportion of the Pakistani sample had experienced bullying at some point during their life. Comparison to the other samples is to some extent confounded by the lower response rate in the German sample, but it is interesting to note that it is bullying at work or college where the Pakistani sample reported higher rates of bullying than both the other samples. It is also noteworthy and unexpected that reported rates of bullying were similar or if anything lower among women compared with men in the Pakistani sample, given the pressures often reported by women in relation to sociocultural norms and gender roles such as inequality, discrimination, and emphasis on marriage (Bibi et al., 2018; Niaz, 2004). For example, women are expected to be an obedient, resilient, and compromising member of the family, and generally have limited opportunities to receive education or have a career (Bibi et al., 2018). In fact, from this perspective, it is likely that the women taking part in our study—who were all receiving a university education—reflect a relatively privileged sample, compared with the men, for whom attending university is more common. However, lower rates of reported bullying among women in this sample may to some extent reflect restricted employment and educational opportunities among women, which might lead to them encountering fewer situations outside of the

home in which bullying might be experienced. Furthermore, if cultural or societal pressures and attitudes are particularly entrenched it may be that bullying experienced by women is less likely to be recognized as such, and rather is relatively normalized, which could lead to underreporting. However, these suggestions are only speculative. Finally, given that the sample was predominantly (68.73 percent) female, data from the male participants are based on a smaller sample and it may be that those male participants who chose to participate are less representative of men in the broader student population. Given that bullying is associated with poor mental health, it is important to consider different approaches to deal with bullying among children and adolescents as well as among university students (Kodish et al., 2016).

The results of this study need to be interpreted within the context of several limitations. The use of online self-report questionnaires and convenience sampling may result in selection bias. The limitations of the study notwithstanding the results clearly highlight a potentially high prevalence of problems with mental health and suicidal ideation among university students in Pakistan, as well as an extremely low rate of treatment access. An implication is that the government should allocate a sufficient mental health budget to reduce the treatment gap and allow coordinated approaches to tackle mental health issues. Early diagnosis and proper treatment can improve the prognosis of psychological illnesses, academic performance, social relationships, and quality of life of university students. It is also important to provide awareness to community members, family, and peers about identification of suicidal ideation in individuals, and how to react to suicidality and provide support. Awareness sessions could be arranged to increase knowledge about bullying, and role models could also prove helpful in this regard (Lempp and Seale, 2004). Universities should provide support in non-threatening way, to encourage the reporting behavior among students. However, although increasing access to

treatments, identification of suicidality, and reductions in bullying may all help in reducing the mental health burden among students in Pakistan, these are of course all embedded within a broader cultural and economic picture that likely plays a substantial role in the development and maintenance of mental health problems.

This study has highlighted the concerning state of mental health among university students in Pakistan, and some of the potential contributors and consequences. The mental health of university students in Pakistan does appear to be a cause for concern, with poorer mental health than comparable samples in the other reference countries. Acknowledgment of these issues in Pakistani culture would be a good starting point from which to work on potential solutions to enhance the overall mental health of university students in Pakistan.

Author contributions

A.B., S.E.B., and J.M. conceived the study and contributed to study design. A.B. and S.E.B. developed study materials. A.B. collected and analyzed the data and wrote the first manuscript draft. All authors contributed to interpretation of data and manuscript revisions, and all authors read and approved the final manuscript.

Availability of data and material

The datasets generated and analyzed during the current study is available in the Open Science Framework repository, https://osf.io/kfghb/?view_only=238653f78a8f4444a8759f82eed91f94. Materials are available from the corresponding author (A.B.) on request.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval and consent to participate

The study received ethical approval from the ethics committee for the Faculty of Psychology, Ruhr-Universität-Bochum, Germany (ref: 315). All participants provided written informed consent.

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