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Cross-cultural validation of the Urdu translation of the Patient Health Questionnaire for Adolescents among children and adolescents at a Pakistani school

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ABSTRACT

Objectives: There is a high prevalence of depressive disorders among children and adolescents globally, accounting for 45% of disability-adjusted life years among 10- to 24-year-olds. Although it has been recognized as a major public health concern in Pakistan, there have been no studies exploring the development or cross-cultural validation of instruments for screening and assessing the severity of adolescent depression. Therefore, the present study was designed to validate the Urdu translation of the Patient Health Questionnaire for Adolescents (PHQ-A) among Pakistani children and adolescents.

Study design: This is a cross-sectional study.

Methods: A total of 452 children and adolescents responded to a survey comprising demographic characteristics, the Urdu translation of PHQ-A, and the Urdu version of Strengths and Difficulties Questionnaire (SDQ). It was hypothesized that total scores on the PHQ-A would correlate significantly with the SDQ scores. Reliability analysis and exploratory factor analyses were carried out using SPSS v.20. Additional confirmatory factor analyses were conducted using the FACTOR program.

Results: No floor and ceiling effects were reported for PHQ-A total scores. Factor analysis confirmed good results for language interchangeability and unidimensionality among the sampled adolescents. Similarly, the findings showed good internal consistency (Cronbach's alpha 0.76), test–retest reliability (intraclass correlation coefficient = 0.61; 0.53–0.68), and concurrent validity.

Conclusion: The Urdu translation of the PHQ-A is a valid and reliable instrument for assessing depression among Pakistani adolescents, based on the Diagnostic and Statistical Manual diagnosis criteria.

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Introduction

Depression is a leading cause of morbidity, with an estimated worldwide prevalence of depressive disorders to be 2.6% among children and adolescents, a recurrence rate as high as 70% and afflicting more than 300 million people across the globe.^{1,2} This early onset is associated with an increased risk of academic decline, social dysfunction, substance use, recurrent depression, and suicidal behaviors.³ Childhood and adolescent psychiatric disorders are also one of the strongest predictors of psychopathologies in adulthood.⁴ Moreover, neuropsychiatric disorders, including depression, account for 45% of disability-adjusted life years among 10- to 24-year-olds.⁵ Therefore, adolescence is often cited as a window of opportunity for the early recognition and prevention of depression in adulthood.⁶

Despite the recognition of adolescent depression as a major public health concern, most rigorous scientific studies have been conducted in the context of North America and Europe and are of limited relevance in the Indian subcontinent, especially Pakistan.³ There is a paucity of data that explores the phenomenology, causation, and validity of psychometric tools related to depressive disorders among children and adolescents in the country. This scarcity of research on adolescent depression can be attributed to societal stigma, a lack of skilled clinicians and cross-culturally validated screening tools, and the low priority given to research. A review of the PubMed literature, for example, reveals only one study (by Rahman et al.), which reports the prevalence of depressive disorder among 16- to 18-year-old girls to be around 4.4%.⁷ The aforementioned study used the Structured Clinical Interview for Diagnostic and Statistical Manual (DSM)-IV Disorders and the Self-Reporting Questionnaire. The literature search did not, however, yield any specific studies related to the validation of screening and diagnostic tools for adolescent depression in the context of Pakistan. Thus, it appears that there is a need to develop, or cross-culturally validate, such tools, in the context of Pakistan.

The Patient Health Questionnaire for Adolescents (PHQ-A) is used to screen for depression among children aged 11–17 years, in a developmentally appropriate fashion, following Diagnostic and Statistical Manual (DSM-IV-TR) criteria. It is a popular, self-administered tool for use among the general population in school and primary care settings, because it is short and easily comprehensible. It provides clinically meaningful information about the severity of depressive symptomatology and effectively screens for adolescent depression.⁸

The nine-item PHQ-A is a self-reporting questionnaire that has been adapted from the adult version of the PHQ (PHQ-9) developed by Kroenke et al.⁸ It was originally derived as a self-reporting measure administered by primary care physicians [Primary Care Evaluation of Mental Disorders (PRIME-MD)], to assess a variety of mental disorders including mood, anxiety, alcohol, somatoform, and eating disorders.⁹ The two-stage diagnostic system includes a screening questionnaire and a clinical interview that, together, are designed to improve detection of mental disorders among patients presenting in primary care settings. According to Johnson et al.,¹⁰ PHQ-A

performs well in practice, with adequate sensitivity (73%), specificity (94%), overall accuracy (92%), and diagnostic agreement ($k = 0.59$) among American adolescents. It has also proved to be better than other screening instruments, including the Hamilton Depression Rating Scale, Zung's Self Rating Depression Scale, and the Beck Depression Inventory, which do not reflect DSM diagnostic criteria and are only designed to assess the severity of depressive symptomatology.^{11–13}

When the PHQ-A is used as a diagnostic tool, confirmation of five (or more) of the nine depressive symptoms, including anhedonia or depressed mood, which are present for at least 'more than half the days' in the past two weeks equates to major depression. The same applies to items that indicate self-harm or suicidal thoughts ('thoughts that you would be better off dead or of hurting yourself in some way')—in this case, regardless of duration. 'Other depressive disorders' are diagnosed if two to four symptoms have been experienced for least 'more than half the days' in the past two weeks, including depressed mood or anhedonia.⁸ Moreover, the questionnaire can be used as a severity measure, with scores ranging from 0 to 27 (increasing scores indicating more severe depression). A score of 20–27 is considered as major depression that requires immediate initiation of pharmacotherapy and psychotherapy by a trained mental health professional.⁸

The present study is designed to cross-culturally validate the Urdu translation of the PHQ-A among Pakistani children and adolescents. The aim is to address the paucity of clinical scales for the assessment of adolescent depression. This will help clinicians to accurately diagnose depression in adolescents, with a multitude of benefits for the screening and management of depression. To assess the concurrent validity of the PHQ-A, it was hypothesized that PHQ-A scores would be significantly correlated with total and subscales the Strengths and Difficulties Questionnaire (SDQ) scores, as depression is often comorbid with other mental disorders such as attention deficit hyperactivity disorder (ADHD) and conduct disorders.

Methods

This cross-sectional study was conducted at a high school in Nawabshah, a city in the Shaheed Benazir Abad District of Sindh province, Pakistan. The province was established by the British Raj in 1913, and the Indus river runs through it. According to the Pakistan Bureau of Statistics (2017), the population exceeds 1 million, with a population density of 241/km², a low literacy rate (34.13%), predominantly Muslim, and a majority (45%) aged < 15 years.¹⁴ A large population of Pakistani adolescents would benefit from the availability of this measure. According to the UNICEF, a large number of Pakistani population ($n = 39,900,000.7$) comprise of adolescents aged 10–19 years.¹⁵ Moreover, the lower secondary school gross enrollment ratio (2008–2012) is 46, and upper secondary school gross enrollment ratio (2008–2012) is 26.6.¹⁵ Urdu is the national language of Pakistan facilitating communication between the country's diverse linguistic populations, being spoken as a first, second, and often third language by nearly all Pakistanis.

The study was approved by the Research Ethics Committee of the Peoples University of Medical and Health Sciences for

Women, Nawabshah. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The interviewers explained the study's objectives to participants and obtained their consent to participate in the study. Written informed consent was obtained from all individual participants included in the study. Moreover, the school administration mailed information pamphlets and a letter seeking consent to all parents. They were ensured anonymity and that only group findings would be reported. Verbal consent was sought from the parents or legal guardians of participants who were ineligible to provide consent themselves.

A total of 452 students (response rate = 90.4%), selected using convenience sampling, were interviewed by two of this article's authors (A.R.M. and M.J.). Participants responded to a questionnaire comprising the following: (a) demographic characteristics; (b) an Urdu translation of the PHQ-A; and (c) the Urdu version of the SDQ.¹⁶

The nine-item, English-language version of the PHQ-A is recommended as a valid tool for clinical evaluation and research in Section III of the DSM-V.¹⁷ A committee consisting of two psychiatrists certified by the American Board of Psychiatry and Neurology, with expertise in English and Urdu, translated the PHQ-A into Urdu, following the Mapi institute linguistic validation methodology guidelines. All discrepancies in the initial version of the translation were discussed with the senior authors of this article and resolved. It was then back translated into English by a native Anglophone psychiatrist who was unaware of the purpose of the study. This back-translated version was then compared with the original English version. Problematic words and phrases were then rephrased to finalize the Urdu version ([Supplementary file 1](#)).

The Urdu version of the SDQ was included to assess the concurrent validity of the PHQ-A. The SDQ has undergone extensive validation and has been found to be suitable for adolescents in a number of regions globally.¹⁶ Scores are divided into several subscales, with increasing numbers being indicative of severe emotional problems, poor conduct, hyperactivity, problems with peers, and externalizing and internalizing symptoms.¹⁶ The total score is indicative of severe psychopathology. It was hypothesized that, consistent with the literature, increasingly severe depression (assessed by the PHQ-A) would correlate significantly with SDQ subscales.

Mundfrom et al.¹⁸ suggest that a sample size of 22–150 participants is needed for an exploratory factor analysis (EFA) that involves psychometric scales with a one-to-two factorial solution, a variable to factor ratio of four to nine, and low-to-wide communalities. A number of guidelines have been developed to estimate minimum sample size required for confirmatory factor analysis. This has led to a variety of recommendations. For instance Velicer and Fava²⁰ recommended an absolute minimum N ranging from 100 to 200 and ratios of N/p ranging from 2 to 20.^{19–21}

All data were analyzed in SPSS (version 20). Respondent characteristics were analyzed, and means (standard deviation, SD) were obtained for SDQ and PHQ-A scores. Histograms were used to present floor and ceiling effects regarding the

total PHQ-A score and individual SDQ items, as it has been established that when 20% of respondents obtain the lowest or the highest scores on a psychometric instrument, it limits its capability of measuring change.²²

Item–scale correlations, corrected for overlaps using Pearson's product–moment correlation coefficient, were considered acceptable at values ≥ 0.2 .²³ Internal consistency was assessed using Cronbach's alpha, which was considered acceptable at 0.6.²³ Test–retest reliability was assessed using the intraclass correlation coefficient with a two factor mixed effects model and type consistency. For this purpose, a total of 50 students completed the PHQ-A within an interval of one week.

EFA with principal axis factoring (PAF) assessed the dimensionality of the sample. PAF is more robust to the assumption of multivariate normality and, hence, deemed more suitable for the present study.²⁴

Before running EFA, data suitability was assessed using the Kaiser–Meyer–Olkin measure of sampling adequacy, which is considered acceptable at 0.6, and a statistically-significant Bartlett's (1954) test of sphericity. Total variance, explained by extracted factors, eigenvalues, Cattell's scree test, and a parallel analysis based on Monte Carlo simulation were used to assess the number of factors to retain. Factor loadings for each statement were considered significant at ≥ 0.32 . A confirmatory factor analysis was run using the FACTOR program (version 10.3.01) with unweighted least squares using the Pearson's correlation matrix.²⁵ Several goodness-of-fit indices were used to verify the unidimensionality of the factor structure of the PHQ-A. Acceptable cut-off values were considered to be comparative fit index and Tucker–Lewis index > 0.90 and a root mean square residual (RMSR) not significantly larger than the Kelley criterion.^{26,27}

The concurrent validity of the PHQ-A was assessed by correlating its scores with those of the SDQ, using Pearson's correlation.

Results

The sample consisted of 88 boys and 364 girls with a mean age (SD) of 13.93 years (1.18), ranging from 11 to 17 years. The mean PHQ-A score was 7.51 (5.57), exhibiting a significant skewness 0.78 (standard error 0.115) and kurtosis 0.56 (standard error = 0.229). Mean scores (SD) for SDQ subscales are given in [Table 1](#). According to the PHQ-A, a total of 162 participants (35.8%) suffered from mild depression, 88 (19.5%) moderate, 33 (7.3%) moderately severe, and 19 (4.2%) severe depression. No association was found for gender ($r_{pb} = 0.06$, $P = 0.20$). [Table 2](#) presents the frequency of responses (%) to individual items on the PHQ-A.

Before running the main study, a pilot test of the PHQ-A (Urdu version) was run with 20 adolescents, who found it easy to read and relevant to their age group. A team of bilingual (English and Urdu) psychiatrists judged the Urdu version of the PHQ-A to be an appropriate measure of the severity of depression based on DSM-V diagnosis criteria.

The histogram of PHQ-A scores did not indicate any significant deviation from normality [Fig. 1](#). The analysis showed that only one participant (0.2%) had a maximum score of 27,

Table 1 – Item-level statistics for the Urdu version of PHQ-A.

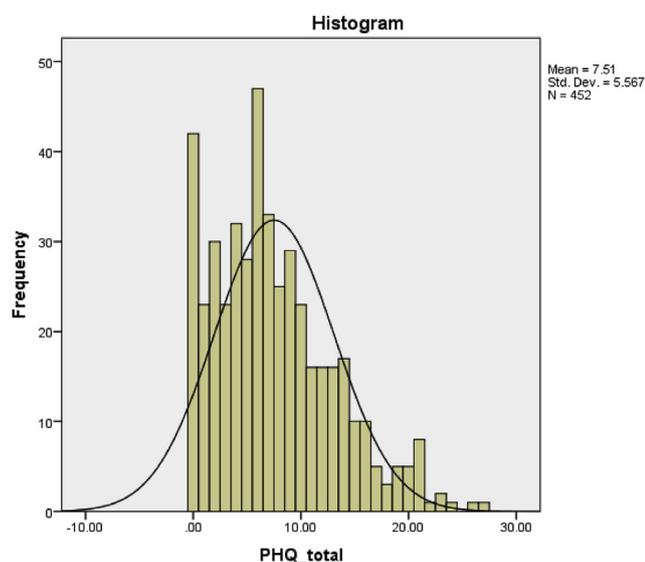
Statement	Score		Total item correlation	Alpha if item deleted	Factor loading (PAF)
	Mean	SD			
Feeling down, depressed, irritable or hopeless?	1.09	1.10	0.50	0.71	0.60
Little interest or pleasure in doing things?	1.12	1.22	0.30	0.75	0.32
Trouble falling asleep, staying asleep, or sleeping too much?	0.85	1.14	0.38	0.74	0.42
Poor appetite, weight loss, or overeating?	0.84	1.11	0.41	0.73	0.45
Feeling tired or having little energy?	1.32	1.20	0.40	0.73	0.46
Feeling bad about yourself, or feeling that you are a failure, or that you have let yourself or your family down?	0.39	0.85	0.45	0.72	0.56
Trouble concentrating on things like school work, reading or watching etc.?	0.82	1.09	0.47	0.72	0.55
Moving or speaking so slowly that other people could have notices or the opposite.	0.55	0.94	0.48	0.72	0.58
Thoughts that you would be better off dead, or of hurting yourself in some way?	0.53	0.95	0.51	0.72	0.64

PAF, principal axis factoring; PHQ-A, Patient Health Questionnaire for Adolescents; SD, standard deviation.

Table 2 – Response frequency (percentage) on the PHQ-A scale among the respondents.

Statement	Not at all		Several days		More than half the days		Nearly everyday	
	n	%	n	%	n	%	n	%
Feeling down, depressed, irritable or hopeless?	193	42.7%	88	19.5%	109	24.1%	62	13.7%
Little interest or pleasure in doing things?	211	46.7%	74	16.4%	68	15.0%	99	21.9%
Trouble falling asleep, staying asleep, or sleeping too much?	261	57.7%	70	15.5%	48	10.6%	73	16.2%
Poor appetite, weight loss, or overeating?	257	56.9%	72	15.9%	62	13.7%	61	13.5%
Feeling tired or having little energy?	166	36.7%	85	18.8%	93	20.6%	108	23.9%
Feeling bad about yourself, or feeling that you are a failure, or that you have let yourself or your family down?	360	79.6%	33	7.3%	33	7.3%	26	5.8%
Trouble concentrating on things like school work, reading or watching etc.?	259	57.3%	74	16.4%	61	13.5%	58	12.8%
Moving or speaking so slowly that other people could have notices or the opposite.	313	69.2%	63	13.9%	42	9.3%	34	7.5%
Thoughts that you would be better off dead, or of hurting yourself in some way?	322	71.2%	55	12.2%	39	8.6%	36	8.0%

PHQ-A, Patient Health Questionnaire for Adolescents.

**Fig. 1 – Histogram showing the normal distribution of total scores on the PHQ-A. PHQ-A, Patient Health Questionnaire for Adolescents.**

whereas 42 (9.1%) had the minimum score, demonstrating that there were no floor or ceiling effects. Scores for individual items did not exhibit any significant skewness, although item 6 was significantly kurtotic (Kurtosis/Standard error). The interitem correlation matrix evaluated using Pearson's correlation revealed that all items had at least one correlation >0.2 . All were positive, except for items 1 and 4 (-0.02), indicating the same construct. Cronbach's alpha for the one-factor structure highlighted the good internal consistency ($\alpha = 0.757$). The test–retest reliability analysis indicated reasonable agreement; the intraclass correlation coefficient was 0.61 (0.53–0.68) and Hotelling's $T^2 = 117.80$ ($P < 0.001$).

The data were found to be suitable for EFA; sampling adequacy was meritorious (0.85) as per the Kaiser's criteria (1974), and Bartlett's test of sphericity (1954) was statistically significant ($P < 0.001$). Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.2. The highest was 0.445, indicating no multicollinearity or singularity. An assessment of the anti-image of the correlation matrix revealed that sampling adequacy for individual PHQ-A items ranged from 0.805

(meritorious) to 0.885 (marvelous). Moreover, the determinant of the correlation matrix was insignificant (>0.001), and communality was acceptable for all items (>0.20). With respect to the EFA, two factors were extracted with an eigenvalue >1 , where the first factor (eigenvalue = 3.12) explained 27.21% of the variance, and the second factor (eigenvalue = 1.080) explained 4.49%. However, the scree plot and parallel analysis, based on a Monte Carlo simulation with 100 replicates, indicated that only one factor should be retained.²⁸ The Monte Carlo simulation showed that the eigenvalue of the second factor obtained through parallel analysis was 1.15 (0.03) and significantly greater than the 1.08 obtained by EFA. Similarly, Cattell's scree plot indicated a unidimensional PHQ-A structure Fig. 2. Adequate factor loadings (≥ 0.32) were found for all items.

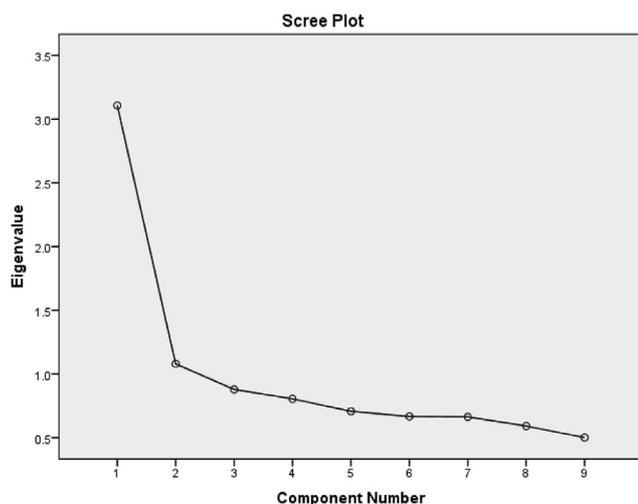


Fig. 2 – Scree plot showing the number of factors to retain.

A confirmatory factor analysis with the FACTOR program verified a unidimensional factor solution for the PHQ-A. Chi-square value was 64.989 ($df = 27$, $P < 0.001$) which was significantly excessive; however, this measure is over-sensitive and dependent upon the sample size.²⁹ All goodness-of-fit indices were found to be >0.90 , indicating excellent acceptability of the unidimensional nature. The analysis indicated the following: a comparative fit index of 0.94; a Tucker–Lewis index of 0.92; a goodness-of-fit index of 0.99; an adjusted goodness-of-fit index of 0.98; a goodness-of-fit index without diagonal values of 0.97; and an adjusted goodness-of-fit index without diagonal values of 0.96. Moreover, RMSR (0.0483) was not significantly greater than the expected mean value for an acceptable model (0.0471) as per the Kelley criterion, which is substantially less than the 0.19 obtained by formula $4/\sqrt{\text{sample size}}$.²⁷

The results from the SDQ indicated that participants scored highest on the emotional problems subscale, followed by problems with peers, hyperactivity, and conduct problems. Higher scores were found for the internalizing than the externalizing subscale. Detailed results are presented in Table 3. Good concurrent validity was found with the PHQ-A, demonstrated by a statistically significant correlation with total scores on the SDQ (Table 3). Similarly,

Table 3 – Correlation of PHQ and SDQ scores.

Strengths and difficulties scale	Score		Patient Health Questionnaire-A	
	Mean	SD	Pearson r	P-value
Emotional problems	4.14	2.03	0.41	<0.001
Conduct	2.62	1.82	0.30	<0.001
Hyperactivity	3.04	1.88	0.34	<0.001
Peer problems	3.18	1.74	0.16	0.001
Prosocial	6.63	1.79	0.08	0.090
Total difficulties	12.94	5.02	0.45	<0.001
Externalizing	5.66	3.01	0.39	<0.001
Internalizing	7.31	2.89	0.38	<0.001

PHQ, Patient Health Questionnaire; SDQ, Strengths and Difficulties Questionnaire.

adequate discriminative validity was found when normal, borderline, and abnormal groups were compared with the SDQ scale. A one-way analysis of variance revealed that participants with normal scores on the SDQ scored lower on the PHQ-A than those who scored in borderline abnormal and abnormal ranges ($F = 37.08$, $df_{\text{total}} = 440$, $P < 0.001$). Similarly, there were positive correlations with externalizing, internalizing, conduct, hyperactivity, problems with peers, and emotional problems subscales of the SDQ, demonstrating good convergent validity. An insignificant correlation was found with the prosocial subscale, a satisfactory measure of divergent validity.

Discussion

The Urdu version of the PHQ-A was found to perform well, with good internal consistency, test–retest reliability, and concurrent validity.

Our study found a high prevalence of depression among the sampled adolescents. The analysis revealed a large proportion (66.8%) suffered from mild to severe depression, including 4.9% requiring pharmacotherapy for severe depression. These rates are corroborated by Jha et al.,³⁰ who reported a 7.7% prevalence of severe depression among school children in Bihar, India. Similar statistics have been provided by Tsai et al.,³³ among adolescents in Taipei (10.9%). Significantly lower prevalence of depressive disorder was reported in another study among Pakistani young girls (4.4%) and among adolescent in Northeast China (1.32%).^{7,31} However, global estimates for depressive disorders among adolescents vary among studies. For instance, a recent meta-analysis estimated their prevalence to be around 2.6% (95% confidence interval = 1.7–3.9); however, this was solely based on literature from the Indian subcontinent.³

The SDQ was used to compare the psychometric properties of the PHQ-A. We hypothesized that PHQ-A scores would be significantly correlated with total and subscales SDQ scores, as depression is often comorbid with other mental disorders such as ADHD and conduct disorders. The SDQ also evaluates internalizing symptoms, and emotional difficulties such as problems with peers, isolation, hopelessness, low self-esteem and sociality, and positive correlations were found between PHQ-A and SDQ scores.³¹ These

results are consistent with Xiaoli et al.,³¹ who found that Chinese children with depression were more likely to have a comorbid diagnosis (36.9%) with other common mental disorders.

Our analysis identified a unidimensional structure for the Urdu version of the PHQ-A, with adequate factor loadings, goodness-of-fit indices, internal consistency, and test–retest reliability ($\alpha = 0.757$ and 0.61 , respectively). The unidimensional structure of the PHQ-9 has already been demonstrated among different age groups including women, children, and adolescents in countries in South America and Southeast Asia.^{24,25} Internal consistency and test–retest reliability results are comparable with other studies conducted among Chinese ($\alpha = 0.84$, test–retest reliability = 0.80) and Korean adolescents ($\alpha = 0.84$, test–retest reliability = 0.65).^{25,26} Our results are also consistent with studies conducted among Mexican women that yielded similar validity and reliability statistics.³² Thus, the PHQ-A has proven to be an excellent instrument for screening and assessing the severity of depression around the globe.

We used several approaches to ascertain the number of factors to retain for the PHQ-A. Criteria included eigenvalue >1 , Cattel's scree plot, and a Monte Carlo parallel analysis, all of which indicated a one-factor solution. This was supported by goodness-of-fit indices obtained by confirmatory factor analysis and reliability statistics. The results are consistent with previous studies conducted among Chinese, Korean, and Indian adolescents.^{33–35} Previous work has attempted to elucidate a two-dimensional factor structure for the PHQ-9, to distinguish between affective and somatic symptoms of depression and a three-factor (cognitive-affective, somatic, and pregnancy-related) structure of the PHQ-9 among the adult population in Mexico and the United States.^{32,36} However, both exploratory and confirmatory factor analysis favor a unidimensional structure, given the better goodness-of-fit indices, stronger communalities, and higher factor loadings.

This study makes several contributions to the literature. It explores the psychometric properties of the PHQ-A to ascertain its suitability for use in Pakistan, and it is the first to validate its use among Pakistani children and adolescents aged from 11 to 17 years. The translation into Urdu by an expert panel of bilingual psychiatrists certified by the American Board of Psychiatry and Neurology was found to be a valid and reliable instrument. Our findings are robust, given the sample size, appropriate statistical power, and multiple statistical techniques used to assess dimensionality.

However, there are some limitations as well as strengths. A lack of resources meant that the authors could not determine criterion validity and the operational characteristics of the PHQ-A by comparing it with the DSM and International Classification of Diseases criteria for psychiatric diagnoses by specialist mental health professionals. Anonymity of participants in the survey procedures was ensured throughout the study; therefore, we could not identify the children and adolescents at risk of depressive disorder and refer them for clinical care. Moreover, the study was conducted in one school, in one district; therefore, the results should be generalized with caution.

Conclusion

The Urdu translation of the PHQ-A is a valid and reliable instrument for assessing depression among Pakistani adolescents, based on DSM criteria for the diagnoses of adolescent depression. The prevalence of depressive symptoms was high among school-going children and adolescents, emphasizing the need for further epidemiological and interventional research in this field.

Author statements

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Ethical approval

The study was approved by the Research Ethics Committee of the Peoples University of Medical and Health Sciences for Women, Nawabshah. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Written informed consent was obtained from all individual participants included in the study. Moreover, the school administration mailed information pamphlets, and a letter seeking consent, to all parents. Verbal consent was sought from the parents or legal guardians of participants who were ineligible to provide consent themselves.

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Competing interests

The authors declare that they have no conflict of interest. Dr. Ahmed Waqas is a fellow of the Royal Society for Public Health, UK.

Consent to publish

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the present study are available from the corresponding author on reasonable request.

Authors' contributions

S.N. and A.W. conceived the idea of this study, coordinated the team efforts for collection of the data, conducted the analysis, and wrote the finalized version of the manuscript. A.R.M. and M.J. collected and entered the data, provided logistics, and contributed to the initial draft of the manuscript. M.H.S. conceived the idea, translated the questionnaires, and wrote the initial draft of the manuscript. All authors approved the finalized manuscript for submission.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhe.2018.11.022>.