

Mental health screening questionnaire: A Study on reliability and correlation with perceived stress score

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Abstract

Introduction: Screening of mental disorders and psychological distress is important in clinical as well as research setting. The objective of this study is to test the reliability of mental health screening questionnaire developed by authors and see its correlation with perceived stress scale scores.

Material And Method: A self-report screening instrument was designed by the authors in consultation with experts and was tested for reliability among 162 participants from general population gathered for stress management program. The correlation of the designed scale was tested with the Perceived Stress Scale score.

Results: Scale reliability (Cronbach's alpha) for the designed psychological distress scale was found to be 0.7558 which is regarded as having acceptable internal consistency. The questions of the designed scale had weak to moderate positive correlation with the score on Perceived Stress Scale.

Conclusion: Despite many shortcomings of the designed scale we may be able to use it for basic screening of psychological distress and mental health problems. We recommend the validity of scale be tested in larger sample size.

Keywords: Mental Health, Mental Health Screening Questionnaire, Nepal

INTRODUCTION

Screening for mental health is essential in clinical practice as well as in research. It plays an important role in detecting mental disorders in primary care set-up.¹ Research has demonstrated that it is possible to construct a self-report questionnaire that can screen mental disorders.^{2,3} The importance of screening can be justified by accumulating evidence that diagnostic co-morbidity is under-recognized in routine clinical practice especially in time- and resource-constraint settings.^{3,4} The screening instruments offer advantages of ease of administration and economy of professional time, but the validity and practical utility of self-report screening tests are often questioned.⁵ In the context of Nepalese population, the psychometric properties of different scales have been studied in specific groups of population.^{6,7} ^{8,9} However, there is dearth of literature on screening of psychological distress among general population of Nepal. This paper

describes the development of a 15-item screening questionnaire and testing its psychometric properties for psychological distress in Nepalese population.

MATERIAL AND METHOD

The designed scale is a 15-item instrument to assess psychological distress. The item pool was collected in line with the common psychiatric disorders prevalent in the community. The pool was then discussed among psychiatrist, psychologist, public health experts and community nurse. On the basis of the discussion 15 items were finalized. An additional 16th question was added which assessed the level of difficulty due to the problems of other 15 questions. The difficulty levels were: not difficult at all, somewhat difficult, very difficult and extremely difficult. Participants responded using a one-point format for Q1-15: 1= Yes, 0 =

No. Higher scores indicate higher ratings on the dimension assessed. There is no specific score or cutoff for defining psychological distress in the questionnaire. The distinction is best derived from distributional information from the data collected. For example, high psychological distress could be defined as scores that are in the top 25% (quartile) of the distribution, whereas low psychological distress could be defined as scores that are in the bottom 25% (quartile) of the distribution. Another alternative would be to define high psychological distress as scores that are two standard deviations above the mean, whereas low psychological distress as scores that are two standard deviations below the mean. The response of question 16 could be used as final screening. If a participant has a response of 'very difficult or extremely difficult' they can be advised to seek help of mental health expert considering him/her to be screen positive.

The scale was tested among 162 participants from general population after an awareness session about stress and its management, and mental disorders from May 13th 2019 to July 15th 2019. The participants of stress management program had to report the problems based on their experience of last 15 days. Along with the scale for psychological distress, perceived stress among the participants was also assessed using "The Perceived Stress Scale (PSS)." ¹⁰ It is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. The questions in the PSS ask about feelings and thoughts during the last month. It has good psychometric properties when used in general population.¹¹

The question was in English language and only the participants who perceived themselves to be fluent in spoken and written English language were taken. Informed consent was taken from the participants and the PSS score was disclosed to them and based on their score they were

advised on stress management and about the need to see a mental health professional. The statistical analysis was done using Easy R (EZR) version 1.40 that is freely available in public domain.

RESULT

Among the participants, 50 were female and 112 were male with mean age of 28.98±8.47 years.

Table 1: Reliability Of The Item in Scale

S. N.	Questions	Alpha	Std. Alpha	R (item, total)
1	Do you have little interest or pleasure in doing things that you enjoyed before?	0.7554	0.7550	0.2449
2	Have you been feeling sad or depressed?	0.7216	0.7283	0.5538
3	Do you have problems in asleep (sleeping too little or sleeping too much)?	0.7478	0.7496	0.3155
4	Have you been feeling tired or having little energy?	0.7435	0.7469	0.3519
5	Do you have poor appetite or have problems of overeating?	0.7354	0.7367	0.4330
6	Do you feel guilt about yourself or feel that you are worthless?	0.7358	0.7372	0.4256
7	Do you have trouble in attention and concentration while doing day to day activities of life?	0.7451	0.7465	0.3363
8	Have you been anxious, restless or having multiple worries and doubts in mind more than usual?	0.7218	0.7285	0.5466
9	Have you been less confident than before?	0.7489	0.7506	0.2853
10	Have you been having thoughts that you would be better off dead or of hurting yourself in some way or thoughts of suicide?	0.7430	0.7428	0.3843
11	Do you hear voices not heard to others?	0.7520	0.7537	0.2489
12	Have you become more suspicious to people than usual or feel insecure for yourself?	0.7388	0.7395	0.4064
13	Do you have to wash your hands repeatedly, check something repeatedly or have a repeated thought in mind?	0.7555	0.7573	0.2193
14	Do you feel happier or angrier than your usual self?	0.7456	0.7473	0.3293
15	Do you use alcohol or other substance that is causing problem in your daily life?	0.7465	0.7493	0.3161
Total		0.7558	0.7577	

The minimum age of the participants was 18 years and maximum age was 69 years. As seen in Table1, scale reliability (Cronbach's alpha) for the designed psychological distress scale was found to be 0.7558 which lies between 0.7 and 0.8, thus having acceptable internal consistency. The correlation of the designed scale was done with the Perceived Stress Scale. Table 2 shows that the questions of the designed scale had weak to moderate positive correlation with the score on Perceived Stress Scale.

DISCUSSION:

The value of Cronbach alpha of the test scores is 0.7577 which is satisfactory.^{12 13} This value is less than the value seen in the study of another screening questionnaire, the Psychiatric Diagnostic Screening Questionnaire (PDSQ) which had overall reliability of 0.85.¹⁴ Similarly, another screening tool, Brief Symptom Inventory had the reliability of 0.75 to 0.85 for different diagnoses that is comparable to our study.¹⁵ Internal consistency coefficients of the Brief Symptom Rating Scale (BSRS-5) ranged from 0.77 to 0.90 which is also comparable to our study.¹⁶ When compared to other screening tools, our scale has less number of items and hence is more convenient to use with comparable internal consistency.

As described earlier it has 15 questions to look at the psychological symptoms and the 16th question assesses whether the symptoms have caused difficulty in day to day activities (graded into four options: not difficult at all, somewhat difficult, very difficult and extremely difficult). The scale doesn't give the cut-off score from the first 15 questions. However, depending upon the response of 16th question, an approximate estimate of the problem can be made. This is in line with our concept of dysfunction as the core of mental disorders.^{17 18}

The items of the designed questionnaire showed weak to moderate positive correlation with the scores on Perceived Stress Scale. It is a known fact that perceived stress influences the mental health status and psychological well-being.^{19 20} There is a direct association between perceived stress and psychological distress and mental illness. It is seen that the scores on Perceived Stress Scale and its factors correlate significantly with depression scores.²¹

Table 2 : Correlation of Q1 to Q16 of designed scale with scores on PSS

Questions	Pearson's product moment correlation (R) with score on PSS	95% Confidence Interval of R	p-value	Correlation
Q1	0.1630	0.0091 - 0.3094	0.0382*	Weak positive
Q2	0.4995	0.3741 - 0.6069	<0.001**	Moderate positive
Q3	0.3145	0.1684 - 0.4470	<0.001**	Moderate positive
Q4	0.4322	0.2979 - 0.5498	<0.001**	Moderate positive
Q5	0.3823	0.2424 - 0.5066	<0.001**	Moderate positive
Q6	0.4724	0.3432 - 0.5841	<0.001**	Moderate positive
Q7	0.2797	0.1311 - 0.4159	<0.001**	Weak positive
Q8	0.4680	0.3382 - 0.5803	<0.001**	Moderate positive
Q9	0.2817	0.1332 - 0.4177	<0.001**	Weak positive
Q10	0.4023	0.2645 - 0.5240	<0.001**	Moderate positive
Q11	0.2102	0.0579 - 0.3530	0.007*	Weak positive
Q12	0.2730	0.1240 - 0.4099	<0.001**	Weak positive
Q13	0.2248	0.0732 - 0.3663	0.004*	Weak positive
Q14	0.2962	0.1488 - 0.4307	<0.001**	Weak positive
Q15	0.2118	0.0595 - 0.3544	0.006*	Weak positive
Q16	0.5743	0.4609 - 0.6693	<0.001**	Moderate positive

**Highly significant: p value <0.001

*Significant: p value <0.05 to >=0.001

In the large, population-based study, it has been seen that middle-aged men and women who experienced depression or anxiety had more perceived stress.²² Similarly, the patients with Obsessive-Compulsive Disorder (OCD) also demonstrate a higher level of perceived stress than general population.²³ In a study of 360 undergraduate students, it was seen that perceived stress scores had positive correlation with suicidal ideation.²⁴ There are other robust evidences showing higher perceived stress predicts greater odds of suicidal ideation.²⁵ In cases of psychosis, large epidemiological studies have found greater stress sensitivity and perceived stress to be associated with increased odds of psychotic experiences.²⁶ In the case of mania, it would be difficult for a patient to acknowledge the stress, hence our study shows a very weak positive correlation between the symptom of mania and perceived stress score. There are reports suggesting substance use disorders are also related to higher perceived stress score.^{27 28} The difficulty level the symptoms have created as reported in Q16 also shows moderate positive correlation with the stress score. Hence, pointing to these indirect evidences, we conclude that the newly

developed mental health screening questionnaire can be used to measure the psychological distress in general population.

The major strength of the study is that it is one of the few studies in Nepalese general population regarding psychological distress and mental health problems. The scale has less items and therefore, is less time consuming and is self-reported. The positive correlation shown with the already validated Perceived Stress Scale is another strength. The age of the sample is between 18 years to 69 years, so some amount of generalizability for age is present. However, there are some limitations to our work, as this is only a screening questionnaire, therefore, no diagnosis can be made based on this scale and in screening not all mental health conditions can be assessed. Like all other self-reporting instruments, this questionnaire cannot be free of biases. Our study doesn't account for various confounders affecting the total score. The questions are also not validated with gold standard and scale's diagnostic accuracy has not been studied. Similarly, in the second part of the study we have correlated the items of the developed scale with the score on Perceived Stress Scale and concluded that we might be able to screen psychological distress and this might not be true in severe mental disorders with no insight like mania or psychosis.

Hence, we recommend the sensitivity, specificity, and diagnostic accuracy to be measured in another study. We also recommend the scale be translated in Nepali language with stratified sampling so that it can be used in heterogeneous population to look for generalizability.

CONCLUSION:

Despite many shortcomings of our scale we may be able to use it for basic screening of psychological distress. The scale has acceptable internal consistency and the items are positively correlated with the scores on Perceived Stress Scale. Further modifications and studies in larger heterogeneous population for validity are warranted.

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