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Kessler Psychological Distress Scale (K6): Psychometric Testing of the Farsi Form in Psychiatric Outpatients

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ABSTRACT

Psychiatric outpatients' psychological distress need to be explored. The Kessler Psychological Distress Scale (K6) has not previously been used in the Farsi language. The aim of this study was to examine the reliability and validity of the Farsi version of the K6. A convenience sample of 103psychiatric outpatients was recruited. The Farsi version of the K6 was used to test construct validity, concurrent validity, convergent validity, and internal consistency. The Cronbach's alpha coefficient of the Farsi version of the K6 was 0.885. The inter-correlations between the items ranged from 0.154 to 0.805, and the item-total correlations ranged from 0.503 to 0.923. The test-retest reliability was satisfactory (r=0.80, P<0.001). One factor was identified in exploratory factor analysis with eigenvalues3.875and % of variance 64.577%) labeled: Psychological Distress. The results provide preliminary support for the reliability and validity of the K6 in Iranian psychiatric outpatients. Additional psychometric testing is recommended to confirm the factor analysis, but this study provides further evidence of the applicability of the K6 in clinical and non clinical care services.
Keywords: psychological distress, mental disorders, psychometric testing, validation, K6

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INTRODUCTION

Psychological distress, using Kessler Psychological Distress screening Scales (K10/K6), have been studied in various general population [1-10]; community mental health surveys[11-15]; quality of life and well-being research [16]; college students [17]; patients with mood and anxiety disorders [18]; and patients with type 2 diabetes [19].
The Kessler Psychological Distress Scale (K6) is a six item variant, a smaller version of the The Kessler Psychological Distress Scale-10 (K10).The K6 has been used in major surveys in several countries where it was found to be a good predictor of mood and anxiety disorders.The aim of this study was to examine the reliability and validity of the Farsi version of the K6 in Iranian psychiatric outpatients.

MATERIAS AND METHODS

A convenience sample of 103 Iranian psychiatric outpatients was selected from psychiatric and psychological clinic at Tehran Institute of Psychiatry-School of Behavioral Sciences & Mental Health, Iran University of Medical Sciences (IUMS), Tehran, Iran. The mean age was 31.33 years (SD= 10.65); 457.7% of them were female, 39.4% were single. 11.2% of them had mood disorders, and 6.9% anxiety disorders, and 3.3% other mental disorders; the mean duration of disorder was 6.53 years (SD= 5.32) .They responded to the scales in individual sessions.

The Kessler Psychological Distress scale-6 (K6): The K6 is brief short six-item questionnaire, used to measure the extent and the severity of generalized distress in the preceding month [20]. The K6 was a screener for mental health problems and as a measure of severity of impact of mental health problems, and was an appropriate screening and severity measure for mood disorders in 2 American Indian samples [7]. The K6 is rating scale identifying syndrome. Items measure feel nervous, hopeless, restless, jumpy, sadness, and worthless. Each item of the K6 is ranged on a 5-point Likert-type intensity scale: None of the time (0); A little of the time (1); Some of the time (2); Most of the time (3), and All of the time (4). The items of the K6 are scored from 0 to 4 and the total score is the sum of these responses which ranges from 0-24 [8, 21-22].

Krynen, Osborne, Duck, et al indicated that the K6 had good measurement precision in the New Zealand population inPacific,Asian, Māori, and Pākehā/European peoples[9]. The correlations K6 with the Kessler Psychological Distress Scale-10 (K10) score was r = 0.89, in college students [17-18].

The English version of the Kessler Psychological Distress scale-6 (K6) was translated into Persian by two Iranian Persian-speaking authors, and then was back translated to English by a person fluent in English in order to make final corrections to the Farsi version. To estimate there reliability of the K6, Cronbach's alpha, split-half and Spearman-Brown coefficients were calculated, as well as the one-week test-retest correlation. In order to study the construct validity of the K6, subjects also completed the Persian versions of three scales (1) The Kessler Psychological Distress scale-10 (K10); (2) Wish to be Dead Scale (WDS); and (3) Loneliness Scale (LS).

RESULTS

Cronbach's alpha of the K6 was 0.885, one-week test-retest reliability 0.80, the Spearman-Brown coefficient 0.90, the split-half reliability 0.89, and significant positive correlations with the Kessler Psychological Distress Scale-10 (K10) (r = 0.933, p<.01); Wish to be Dead Scale (WDS)(r = 0.314, p<.01); and the Loneliness Scale (LS)(r = 0.479, p<.01)) scores. The correlations with K6 scores are shown in Table 1.

Table 1 - Pearson r the K10, the WDS, and the LS with the Kessler Psychological Distress (K6)

Scales	Pearson r with the K6
Kessler Psychological Distress (K10)	.933**
Wish to be Dead Scale (WDS)	.314**
Loneliness Scale (LS)	.479**

** two-tailed p < .01

The inter-correlations between the items ranged from 0.154 to 0.805, and the item-total correlations ranged from 0.503 to 0.923 (See Table 2).

Table 2- Inter-correlations between items and with the total score of the of the Kessler Psychological Distress Scale (K6)

Item	1	2	3	4	5	6	Total
1	1						
2	.700**	1					
3	.539**	.805**	1				
4	.154	.354**	.399**	1			
5	.527**	.710**	.673**	.263**	1		
6	.660**	.789**	.702**	.298**	.669**	1	
Total	.749**	.923**	.872**	.503**	.816**	.877**	1

** Significant at the 0.01 level (2-tailed).

The criteria for a factor analysis were evaluated using Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity. The KMO was 0.873, indicating the adequacy of the sample, and Bartlett's Test of Sphericity (381.315, df = 15, p<.001) indicated that the factor analysis was justified. To investigate the factor structure the scale, a Principal Component Analysis with a Varimax rotation and Kaiser Normalization were used. One component with eigen values greater than one was extracted labeled Psychological Distress and had eigen value of 3.875, and explained 64.577% of variance (See Table 3, and Fig. 1).

Table 3- Factor loadings (> .5) of the Kessler Psychological Distress Scale (K6) in Iranian psychiatric outpatients (N=103)

Kessler Psychological Distress Scale (K6) Items	Component 1
1. During the last 30 days, about how often did you feel nervous?	.768
2. During the last 30 days, about how often did you feel hopeless?	.932
3. During the last 30 days, about how often did you feel restless or fidgety?	.875
4. During the last 30 days, about how often did you feel so sad that nothing could cheer you up?	.444
5. During the last 30 days, about how often did you feel that everything was an effort?	.822
6. During the last 30 days, about how often did you feel worthless?	.883
Eigen value	3.875
% of Variance	64.577
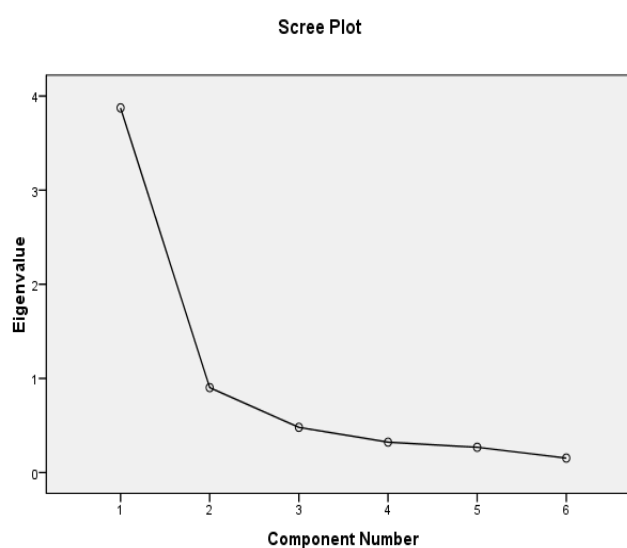
Figure 1- Screen Plot for extracted factors of the Kessler Psychological Distress Scale (K6)

DISCUSSION

The K6 had good internal consistency and test-retest reliability in this sample of Iranian psychiatric outpatients. The present study identified one component of the K6: Psychological Distress. In the present study mean of scores was 13.33, SD 6.01. The correlation between the K6 and K10 was high. The Farsi version of the K6is appropriate for screening depressive and anxiety disorders in primary care. It will be useful a tool for evaluating psychological distress both in research and clinical setting.

The results provided preliminary support for the reliability and validity of the K6 in psychiatric outpatients. Additional psychometric testing is recommended to confirm the factor analysis, but this study provides further evidence of the applicability of the K6 in clinical and non clinical care services. The study carried out in Iranian psychiatric outpatients, so generalizability of the study merits more investigation. Psychological distress should be assessed among different mental disorders, sex and age-groups. Factorial composition of the K6 should examine in a prospective community survey and cross-validated in a separate large community survey and general population.

Using a combination of Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 1994) depression and anxiety diagnoses along with the K6, and the World Mental Health Composite International Diagnostic Interview module for major depression (1-month and 12-month estimates) are recommended.

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