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Measuring the well-being of health care professionals in the Punjab: a psychometric evaluation of the Warwick-Edinburgh Mental Well-being Scale in a Pakistani population

**Background:** There is growing awareness of the public health importance of the mental well-being of population in general. This study was carried out to examine the wellbeing of Pakistani healthcare professionals, and to evaluate the psychometric properties of Warwick-Edinburgh Mental Well-being Scale in this population. The well-being of health professionals is likely to influence their care delivery. **Methods:** A cross-sectional survey was carried out from June, 2013 to December, 2014 among 1271 Pakistani health personnel (HCPs) belonging to seven different cities of Punjab province, Pakistan, to examine the acceptability, internal consistency, test-retest reliability and the content and construct validity of the English version of the Warwick-Edinburgh Mental Well-being Scale in a Pakistani population sample. All data were analyzed in SPSS v.21. **Results:** Our analysis demonstrated a unidimensional construct, a high internal consistency (0.89) and test-retest reliability, good convergent validity and easy readability of WEMBS among Pakistani HCPs. The mean on WEMWBS score was 48.1 (9.4) which is lower than general population sample in other nations. Male healthcare professionals scored significantly higher on WEMWBS than their female counterparts (P < .05), and older respondents had higher scores. **Conclusion:** The WEMBS appears feasible and acceptable for use in the Pakistani healthcare professionals, and findings from this study indicate its validity and internal consistency. The well-being scores of the health professional respondents were lower than those identified in general population surveys in the UK.
Measuring the well-being of health care professionals in the Punjab: a psychometric evaluation of the Warwick-Edinburgh Mental Well-being Scale in a Pakistani population

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Abstract

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Methods:

A cross-sectional survey was carried out from June, 2013 to December, 2014 among 1271 Pakistani health personnel (HCPs) belonging to seven different cities of Punjab province, Pakistan, to examine the acceptability, internal consistency, test-retest reliability and the content and construct validity of the English version of the Warwick-Edinburgh Mental Well-being Scale in a Pakistani population sample. All data were analyzed in SPSS v.21.

Results:

Our analysis demonstrated a unidimensional construct, a high internal consistency (0.89) and test-retest reliability, good convergent validity and easy readability of WEMBS among Pakistani HCPs. The mean on WEMWBS score was 48.1 (9.4) which is lower than general population sample in other nations. Male healthcare professionals scored significantly higher on WEMWBS than their female counterparts (P < .05), and older respondents had higher scores.

Conclusion:
The WEMBS appears feasible and acceptable for use in the Pakistani healthcare professionals, and findings from this study indicate its validity and internal consistency. The well-being scores of the health professional respondents were lower than those identified in general population surveys in the UK.

Introduction:

Subjective or psychological well-being is increasingly recognized as a crucial aspect of overall health that highlights the importance of positive mental health. It relates to the classic World Health Organization (WHO) definition of health as more than just the absence of disease; “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” [1]. The importance of mental health within overall well-being is emphasized in international policy as the 'foundation for well-being and effective functioning for both the individual and the community' (which) allows individuals to realise their abilities, cope with the normal stresses of life, work productively and fruitfully, and make a contribution to their community.'[2,3]

Subjective well-being has a long tradition as a key part of the conceptualisation of quality of life [3] and its measurement has been embedded within this construct, with measures of quality of life and of health related quality of life commonly incorporating questions concerning positive
and negative affect \[4,5\] as well as life satisfaction and considerations of fulfilment and purpose,
as for instance within the triennial European Quality of Life Survey \[6\].
However, over the past two decades, interest in measuring subjective well-being has expanded,
with the emergence of evidence that it can be measured in ways that are valid and reliable \[3\],
and here is now a widespread acknowledgement that focusing on the measurement of subjective
well-being is an essential part of measuring quality of life that merits particular measures and
approaches \[7\].

This focus on the positive elements of mental health and functioning is augmenting a previous
emphasis on deficits, problems and symptoms. This is evident within psychiatry research, mental
health policy and clinical practice \[8\] where the concepts of recovery and the increasing use of
wellbeing measures are increasingly commonly used \[9\]. Within broader public health and
policy it relates to an acknowledgment that promoting wellbeing and independence are essential
to preventing ill health, which is of particular relevance in light of the growing burden of
long-term conditions \[10\].

Within health services, there is a recognition that staff wellbeing is relevant to the quality and
safety of healthcare delivery \[11\] as well as to efforts and expenditure to recruit and retain
clinical staff \[12\]

The healthcare sector rates highly on important potential causes of work stress \[13\] with health
professionals (in particular nurses) among the occupations reporting the highest rates of work-
related stress, depression or anxiety (three-year averages) \[14\]. An extensive literature has
explored stress among health professionals, using measures of psychological distress as well as more conceptually developed and specific tools such as burnout instruments [15]. Stressors that may be evident within health professionals’ work include working long and unsocial hours, prolonged and cumulative involvement with seriously ill patients and their relatives, and exposure to organisational conflicts. Even during their training, HCPs are exposed to a plethora of academic, psychosocial and health-related stressors [16]. Medical students and junior doctors have been reported to be at particular risk, but estimates of prevalence vary widely, from 18% to 82% [17].

Studies among healthcare professionals in Pakistan have reported a high prevalence of anxiety, depression, high stress levels and burn-out, highlighting the need to address the issues of poor job satisfaction, sleep deprivation due to shift patterns, patient overload, authoritarian work relationships and limited peer and social support [18–20].

In line with the growing emphasis on measures of positive health rather than a focus on deficits and problems, it was considered useful to measure the subjective mental well-being of health care professionals in Pakistan. The most widely known measure of mental wellbeing in the UK is the Warwick Edinburgh Mental Well-being Scale (WEMWBS). WEMWBS is a measure of mental wellbeing, developed by the Universities of Warwick and Edinburgh, and funded by NHS Scotland.

The current study was devised to examine the psychometric characteristics of the WEMWBS measure among English-speaking Pakistani health professionals. This is useful because there is a
paucity of psychological and psychiatric rating scales that have been cross-culturally validated for use within Pakistan population [21], and the mental health scales that have been evaluated for use in this population are largely measures of symptoms of mental disorder rather than of positive mental health.

Materials and methods:

Questionnaire and Instrument:

The questionnaire consisted of two sections. The first section recorded information related to the demographics and profession of the respondents, and the second section assessed mental well-being levels with WEMWBS.

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was developed and extensively validated in the UK general population [22]. It is a self-administered questionnaire and comprises 14 positively worded items assessing eudaimonic (focused on psychological functioning and a sense of meaning and purpose in life), and hedonic (focused on happiness, contentment and life satisfaction) constructs of mental wellbeing. Responses are recorded on a 5 point Likert scale ranging from “none of the time” to “all the time”. For analysis, scores ranging from 14-70 are obtained by summing all of the items. There is no reverse coding. The overall score is the sum of all items, with higher scores indicating greater well-being, varying from 14 (low well-being) to 70 (high well-being).

Use in the UK, and in other nations [23] reveal the scale has good psychometric properties, and is feasible, reliable, and sensitive to change. Chronbach’s $\alpha$ for the scale lies between 0.87 and
0.91 and the one-week test-retest reliability at $r = 0.83$. Validation studies have been undertaken in different populations in the UK such as Scottish undergraduate and postgraduate students and general population samples [22], English and Scottish teenagers [24], as well as Pakistani and Chinese ethnic minorities in the UK [25]. It has also demonstrated high internal consistency, good content, face validity, normal distribution and no floor and ceiling effects in previous validation studies [22,24,25].

**Pilot Survey:**

A pilot study was conducted in which a convenience sample of 50 healthcare professionals including doctors, nurses and dentists in the Combined Military Hospitals, Lahore, completed and commented on the WEMWBS to assess if the original English language version WEMWBS could be easily understood and completed. We received positive comments from the participants that WEMBS was very easy to understand. Therefore, we did not feel the need to translate this instrument to Urdu language.

**Sample size calculation:**

In general terms sample size calculation is based on variability in the sample and the size of effects expected. Usually both of these are unknown before starting the study and figures are estimated from previous studies or sometimes “rules of thumb” based on previous experience are used. Most of the studies on validation of questionnaires in social sciences use 5-10 respondents per questionnaire item for factor analyses. Factor analyses are subject to the strength of communalities and factor loading and these statistical tests should instead be based on large samples for reliable results [26]. Comrey and Lee recommend at least 500 cases and according to
their rating scale a sample size of 1000 or more is considered as excellent for factor analytic studies [27]. Therefore, we aimed for a sample size of at least 1000 HCPs.

**Procedure:**

This cross-sectional survey was carried out from June, 2013 to December, 2014. The study sample consisted of practicing doctors, nurses, physiotherapists, pharmacists and dentists practicing either in hospital based or private settings in various cities of the province of Punjab, Pakistan. Seven districts; Lahore, Faisalabad, Gujrat, Multan, Rawalpindi, Islamabad and Sheikhupura were included in the survey for a study sample representative of the Punjabi population. However, due to resources limitations, we could not conduct a systematic random sample. Data were collected by convenience sampling approach. Sixteen medical students (currently final year MBBS) approached HCPs in all available clinical settings in the Punjab province. An independent sample of 50 HCPs from CMH Lahore participated in test-retest assessment of WEMWBS and completed the questionnaire twice with a test-retest interval of 7 days.

Ethical approval was obtained from the Ethical Review committee of CMH Lahore Medical College, Lahore Cantt, Pakistan. Written informed consent was provided by all the study participants. The respondents were ensured anonymity and informed that only group level findings would be reported.

**Statistical analysis:**

All data were analyzed in SPSS v. 21 (IBM Chicago, IL, USA). Frequencies and descriptive statistics were calculated for demographic variables and total scores on WEMWBS. Histograms and QQ-plots were visualized to assess the assumption of normality for WEMWBS scores and
Floor and ceiling effects in the response distribution of WEMWBS. Factor analysis with principal component analysis (PCA) and Quartimax rotation method was done to evaluate the construct of WEMWBS. Prior to performing principal component analysis (PCA), its suitability was assessed with following criteria: correlation coefficient > 0.3 for all variables, an overall Kaiser-Meyer-Olkin (KMO) greater than 0.6 and a statistically significant Barlett’s Test of Sphericity test (P < .05). The number of components to retain were assessed with Cartell’s scree plot, eigen values > 1, interpretability criterion, the amount of variance explained and reliability analysis.

Only those statements were included that had a factor loading > 0.3. Cronbach’s alpha coefficient was calculated to assess the internal consistency of WEMWBS in our study sample and a value of 0.70 - 0.9 was considered acceptable [28]. Item-total correlations were used to assess the convergent validity of the questionnaire. Correlations were calculated using Pearson’s product moment correlation coefficient, and values that were substantial but not excessive (greater than or equal to 0.2 and less than 0.8) were sought [28]. Test-retest reliability was evaluated by the intra-class correlation coefficient using a two factor mixed effects model and type consistency.

Floor and ceiling effects were assessed by examining response patterns for each of the factors derived from factor analysis. Scores were graphed as a histogram and the distribution of scores inspected; the percentage of individuals with the lowest and highest possible score in each of the factors was recorded, and values greater than 20% were considered as floor and ceiling effects.

Association between participant characteristics and WEMWBS scores were examined with independent sample t-tests. Although focus groups have been used to evaluate understanding and meaning to participants [25] but in previous studies on WEMBWS, its readability had not been
assessed. Therefore, we used the Flesch Reading Ease score and Flesch-Kincaid Grade level functions to assess the readability of the questionnaire [29].

**Results:**

**Response rate:**

Total response rate was 90.7% (1271/1400).

**Demographics:**

1271 individuals responded to the questionnaire. As noted in Table 1, participants’ ages ranged between 20 and 68 years, with mean age (SD) 31.8 (9.4). Male participants were older, 34.1 (10.3) than females, 30.0 (8.1). Most of the respondents were doctors (n=840, 66%) or nurses (n=218, 17.2%), female (n=720, 57%), and practicing in Lahore (n= 70%).

There were some differences in respondent age and gender in relation to profession: nurses were almost all (97%) female, whereas among doctors and dentists there was near equal gender representation. 42 of the pharmacists were male (79%), as were 64% of the physiotherapists.

There were no significant age differences between the professional groups, except for the dentists in the sample, who were younger than the other professions - mean age 28.5 (6.6); p<0.001)

Respondent characteristics are presented in Table 1.

**Descriptive Statistics and floor or ceiling effects:**
Mean (SD) and median scores on WEMBWS were 48.1 (9.4) and 48 respectively. The assessment of item response frequencies from respondents showed little evidence of highly skewed distributions: scores exhibited mild skewness of -.31 (.07) and kurtosis of .42 (.14). Visual inspection of histogram and QQ plots did not reveal any significant deviation of response distribution from normality. All response categories were used by at least one person for all the scale items. Mean values for individual items ranged from 2.88 (1.1) for “I’ve had energy to spare” to 3.74 (.99) for “I’ve been feeling confident” (Table 2). A histogram representing distribution of mean scores of participants on WEMWBS is given in Figure 1. Based on these results, it can be concluded that WEMWBS validated for Pakistani population is free from any floor or ceiling effects.

As in the UK validation study (Tenant et al, 2007), mean WEMBWS scores were significantly higher for men (49.16) than for women (47.30) (t = 3.486, df =1269, p =0.001) (See Table 1). There were differences in well-being scores between the professional groups, with doctors’ and nurses’ WEMWBS mean scores lower than those for the other professional groups. The difference between WEWBS for doctors and nurses combined, compared to the other professional groups combined was statistically significant: p=0.002 (mean difference= 2.22; t=-3.14, df =1269). A difference in wellbeing score was evident across age group, with participants aged 30 years and older noting higher WEMWBS than the younger participants: (p=0.013, mean difference=1.33, t=2.48, df=1269).

Items 2, 10, 11 and 12 were the most positively endorsed items by both male and female respondents; whereas, items 3, 4 and 5 were least endorsed by the HCPs (both males and females).
Factor analysis with Principal Component Analysis (PCA):

A principal components analysis (PCA) was run on WEBWS responses. Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.3. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.83 with individual KMO measures all greater than 0.7, classifications of 'middling' to 'meritorious' according to Kaiser (1974).

Bartlett’s Test of Sphericity was statistically significant ($p < .0005$), indicating that the data was suitable for factor analysis. PCA revealed two components that had eigenvalues greater than one and which explained 42.1% and 8.5% of the total variance, respectively. Eigen values, visual inspection of the Catell’s scree plot, interpretability criterion and Cronbach’s alpha value, indicated that one component should be retained. A single-component solution explained 42.1% of the total variance. Total score was obtained by summing all of the items. Factor loadings of the rotated component solution for 14-item WEMWBS based on eigen values greater than 1 are presented in Table 3. The Scree plot is given as Figure 2.

For interest of readers, exploratory factor analysis with principal axis factoring method have been provided as a supplementary file Table S1.

Internal Consistency and content validity:

The WEMBS consists of 14 items. The Cronbach’s alpha value obtained for one factor structure of WEMBS was found to be .89. Corrected item correlations of all the items were greater than 0.3, thus, exhibiting the same construct of all the statements of WEMWBS. Item-total statistics for all items of WEMWBS are given in Table 4. For further assessment of internal consistency,
item-total score correlations, adjusted for overlap, were calculated for each item and ranged between 0.46 and 0.68, that is substantial but not excessive values. The item-total statistics for all items of WEMWBS are given in Table 4.

**Test-retest reliability:**

The test-retest reliability evaluated by intraclass correlation coefficient was .921 with a 95% confidence interval from .861-.955, thus, indicating a very high degree of reliability.

**Readability:**

The values for Flesch reading ease and FK grade level score were calculated on Microsoft Word 2013. Flesch reading ease score for 14-item WEMWBS and FK grade level score 73.5 and 4.4 respectively which indicates the easy readability and understanding level of WEMWBS.

**Discussion:**

The present study confirms one factor construct, a high internal consistency, convergent validity, high readability of WEMWBS in the Pakistani population.

It also indicates no floor and ceiling effects exist in response distribution of WEMWBS for Pakistani population. Our study sample was relatively large and consisted of a diverse range of healthcare professionals - physicians, surgeons, general practitioners, nurses, pharmacists, dentists and physiotherapists - which is an important strength of this study.

The mean (SD) well-being score of HCP respondents in this study was 48.1 (9.4), which is lower than values obtained in general population surveys in the UK. The Health Survey for England identified a mean WEMWBS score for adults of 52.3 [30]; whilst the mean score found in a
recent population survey for Scotland was 50.0 [31]. The median score was 48, compared to 51 in the initial validation study [22] and 50 in a large-scale population sample in Northern Ireland [32].

We also identified gender differences in well-being scores, as well as some differences between professions and age groups. In this study, male HCPs scored higher on WEMWBS than females, which is consistent with the findings of UK population studies [30,31].

Items 3, 4 and 5 were least endorsed by the HCPs in our study. According to Taggart et al (2013), item 4 (I’ve been feeling interested in other people) was misinterpreted by Chinese and Pakistani groups in the UK who took it in a sexual context [25], which might be a potential reason for low positive response to this item in our study.

Similar to other studies conducted in the general population of the UK, our analysis has confirmed the unidimensional construct of WEMWBS and a high internal consistency [22,24]. However, the factor structure was not as clear cut as in the original validation study [22] and other analyses, with some suggestion of two factors; but the extent of cross-loading and the modest additional variance explained by 2 factors/components, together with the lack of explanatory or theoretical underpinning for this structure indicated that a unidimensional model be retained.

A study conducted with Pakistani people in the UK also showed a high internal consistency, but, as in the current study, the factor structure was less clear, with three factors evident, but the limited variance explained by the second and third factors supporting a one-factor model. [25]

There was some correspondence between the item-total correlations identified in our study and in the Taggart et al study of UK English-speaking Pakistanis. The three items with lowest item
total correlations in our study (item 1: ‘I’ve been feeling optimistic about the future’; item 4: ‘I’ve been feeling interested in other people’; and item 5: ‘I’ve had energy to spare’) had lowest correlations in the UK-Pakistani study, though the markedly low value for item found in the UK sample (0.28) was not evident in our sample of Pakistani HCPs (.0.488). In focus groups conducted as part of the UK study it was indicated that a quarter of Pakistanis completing the questionnaire were Pashtun speaking and born abroad and there is no translation for “optimistic” in the Pashto language [25]. However, our sample consisted of Punjabi and Urdu speaking healthcare professionals.

The histogram was slightly negatively skewed and kurtotic, however, no floor and ceiling effects were observed in WEMWBS in consonance with other validation studies. WEMWBS can also prove useful for assessing mental wellbeing of undergraduates due to its easy readability and lucid content as demonstrated by its values for Flesch reading ease and FK grade level score of 4.4. This fact was also supported by favorable comments from the participants in the pilot survey. Based on this data, we can speculate that this scale can be easily used in teenagers, college and university students as well.

**Limitations:**

This cross-sectional study used a convenience sample of HCPs and so, unlike a systematically derived probability sample, the extent to which the respondents are representative of the target population is uncertain. This is likely to be of lesser importance to the psychometric evaluation than the descriptive results, and is partially compensated for by the relatively large sample size and high response rate; 91% of those requested to complete the measure did so, which limits participation and selection bias.
Comparator instruments were not used alongside WEMWBS to enable criterion validity evaluation.

Translation and back-translation to develop an Urdu language version (the national language of Pakistan) was not conducted as part of this study, because our sample consisted of HCPs who were all capable of reading and writing in English language. So although the WEMWBS has been shown suitable for assessing mental wellbeing in a diverse group of HCPs, it cannot yet be used for studies within the general population of Pakistan, where the extent of fluency in English is considerably less.

WEMWBS assesses hedonic and eudaimonic constructs of mental wellbeing but does not have any items assessing spiritual and religious wellbeing of an individual which predominate in Eastern traditions and culture of Pakistan where religious tendencies have emerged as an important coping mechanism [33,34], emphasized in a study conducted in ethnic minority groups of Malay, Chinese and Indian Muslims and Hindus [35]. Therefore, it is suggested that new generation of psychometric instruments should include items assessing these constructs as well.

**Recommendations:**

This scale is particularly useful in monitoring mental wellbeing levels of HCPs and medical students working in a highly demanding roles and environments. Further studies are required to develop and validate an Urdu version of this scale in the general community. Alongside general investigations of the range of factors that are associated with mental health and well-being, the WEMWBS may also have value in evaluating efficacy of stress reduction programs such as...
mindfulness programs, relaxation exercises, cognitive therapies, and social support and group therapies that have proven useful in academic and hospital based settings [36].

Conclusion:

According to our knowledge, this is the first study validating a scale for assessing mental wellbeing in Pakistan and thus, it is an important addition to the limited arsenal of validated psychometric instruments that exist for the Pakistani population. The WEMWBS has demonstrated excellent psychometric properties in Pakistani HCPs and it appears a valid and reliable tool for use among English-speaking Pakistani people.

Acknowledgement:

The authors thank Professor Dr. Atif Rahman, Professor of Child Psychiatry at University of Liverpool, United Kingdom, for his valuable suggestions to improve this manuscript.

References:


**Table 1** (on next page)

Demographic characteristics of HCPs participating in the survey (n=1271)
Table 1: Demographic characteristics of HCPs participating in the survey (n=1271)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (n)</th>
<th>WEMWBS Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>551 (43.4%)</td>
<td>49.16 (9.16)</td>
</tr>
<tr>
<td>Female</td>
<td>720 (56.6%)</td>
<td>47.30 (9.59)</td>
</tr>
<tr>
<td><strong>Healthcare Profession</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td>840 (66.1%)</td>
<td>47.74 (9.57)</td>
</tr>
<tr>
<td>Nurse</td>
<td>218 (17.2%)</td>
<td>47.74 (9.45)</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>53 (4.2%)</td>
<td>50.28 (8.35)</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>25 (2%)</td>
<td>49.44 (6.90)</td>
</tr>
<tr>
<td>Dentist</td>
<td>135 (10.6%)</td>
<td>49.93 (9.26)</td>
</tr>
<tr>
<td><strong>City</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lahore</td>
<td>893 (70.3%)</td>
<td></td>
</tr>
<tr>
<td>Multan</td>
<td>86 (6.8%)</td>
<td></td>
</tr>
<tr>
<td>Sheikhupura</td>
<td>54 (4.2%)</td>
<td></td>
</tr>
<tr>
<td>Gujrat</td>
<td>58 (4.6%)</td>
<td></td>
</tr>
<tr>
<td>Rawalpindi</td>
<td>101 (7.9%)</td>
<td></td>
</tr>
<tr>
<td>Faisalabad</td>
<td>54 (4.2%)</td>
<td></td>
</tr>
<tr>
<td>Islamabad</td>
<td>25 (2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;= 30</td>
<td>542 (42.6%)</td>
<td>48.87 (9.11)</td>
</tr>
<tr>
<td>&lt; 30</td>
<td>729 (57.4%)</td>
<td>47.54 (9.65)</td>
</tr>
</tbody>
</table>
Table 2 (on next page)

Item level statistics for WEMWBS for Pakistani HCPs (n = 1271)
### Table 2. Item level statistics for WEMWBS for Pakistani HCPs (n = 1271)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’ve been feeling optimistic about the future</td>
<td>3.36</td>
<td>1.109</td>
</tr>
<tr>
<td>I’ve been feeling useful</td>
<td>3.74</td>
<td>.991</td>
</tr>
<tr>
<td>I’ve been feeling relaxed</td>
<td>3.03</td>
<td>1.085</td>
</tr>
<tr>
<td>I’ve been feeling interested in other people</td>
<td>2.97</td>
<td>1.140</td>
</tr>
<tr>
<td>I’ve had energy to spare</td>
<td>2.88</td>
<td>1.113</td>
</tr>
<tr>
<td>I’ve been dealing with problems well</td>
<td>3.53</td>
<td>.959</td>
</tr>
<tr>
<td>I’ve been thinking clearly</td>
<td>3.59</td>
<td>1.034</td>
</tr>
<tr>
<td>I’ve been feeling good about myself</td>
<td>3.58</td>
<td>1.052</td>
</tr>
<tr>
<td>I’ve been feeling close to other people</td>
<td>3.33</td>
<td>1.053</td>
</tr>
<tr>
<td>I’ve been feeling confident</td>
<td>3.74</td>
<td>.999</td>
</tr>
<tr>
<td>I’ve been able to make up my own mind about things</td>
<td>3.72</td>
<td>.992</td>
</tr>
<tr>
<td>I’ve been feeling loved</td>
<td>3.64</td>
<td>1.038</td>
</tr>
<tr>
<td>I’ve been interested in new things</td>
<td>3.58</td>
<td>1.111</td>
</tr>
<tr>
<td>I’ve been feeling cheerful</td>
<td>3.42</td>
<td>1.022</td>
</tr>
</tbody>
</table>
Table 3 (on next page)

Factor loadings for 14 item WEMWBS in Pakistani health personnel (n = 1271)
<table>
<thead>
<tr>
<th>Statements</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’ve been feeling confident (Item 10)</td>
<td>.789</td>
</tr>
<tr>
<td>I’ve been feeling good about myself (Item 8)</td>
<td>.776</td>
</tr>
<tr>
<td>I’ve been thinking clearly (Item 7)</td>
<td>.744</td>
</tr>
<tr>
<td>I’ve been able to make up my own mind about things (Item 11)</td>
<td>.722</td>
</tr>
<tr>
<td>I’ve been dealing with problems well (Item 6)</td>
<td>.703</td>
</tr>
<tr>
<td>I’ve been feeling cheerful (Item 14)</td>
<td>.686</td>
</tr>
<tr>
<td>I’ve been feeling close to other people (Item 9)</td>
<td>.670</td>
</tr>
<tr>
<td>I’ve been feeling useful (Item 2)</td>
<td>.637</td>
</tr>
<tr>
<td>I’ve been feeling loved (Item 12)</td>
<td>.625</td>
</tr>
<tr>
<td>I’ve been interested in new things (Item 13)</td>
<td>.578</td>
</tr>
<tr>
<td>I’ve been feeling optimistic about the future (Item 1)</td>
<td>.541</td>
</tr>
<tr>
<td>I’ve been feeling interested in other people (Item 4)</td>
<td>.390</td>
</tr>
<tr>
<td>I’ve had energy to spare (Item 5)</td>
<td>.378</td>
</tr>
<tr>
<td>I’ve been feeling relaxed (Item 3)</td>
<td>.508</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Quartimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.
Table 4 (on next page)

Item total statistics for 14-item WEMWBS (n = 1271)
<table>
<thead>
<tr>
<th>Item Description</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’ve been feeling optimistic about the future</td>
<td>44.75</td>
<td>78.422</td>
<td>.488</td>
<td>.293</td>
<td>.887</td>
</tr>
<tr>
<td>I’ve been feeling useful</td>
<td>44.37</td>
<td>78.627</td>
<td>.548</td>
<td>.350</td>
<td>.884</td>
</tr>
<tr>
<td>I’ve been feeling relaxed</td>
<td>45.08</td>
<td>77.650</td>
<td>.544</td>
<td>.355</td>
<td>.884</td>
</tr>
<tr>
<td>I’ve been feeling interested in other people</td>
<td>45.13</td>
<td>78.590</td>
<td>.462</td>
<td>.292</td>
<td>.888</td>
</tr>
<tr>
<td>I’ve had energy to spare</td>
<td>45.23</td>
<td>79.177</td>
<td>.445</td>
<td>.289</td>
<td>.889</td>
</tr>
<tr>
<td>I’ve been dealing with problems well</td>
<td>44.58</td>
<td>77.894</td>
<td>.616</td>
<td>.447</td>
<td>.881</td>
</tr>
<tr>
<td>I’ve been thinking clearly</td>
<td>44.52</td>
<td>76.722</td>
<td>.631</td>
<td>.490</td>
<td>.880</td>
</tr>
<tr>
<td>I’ve been feeling good about myself</td>
<td>44.53</td>
<td>75.597</td>
<td>.684</td>
<td>.525</td>
<td>.878</td>
</tr>
<tr>
<td>I’ve been feeling close to other people</td>
<td>44.78</td>
<td>76.788</td>
<td>.614</td>
<td>.424</td>
<td>.881</td>
</tr>
<tr>
<td>I’ve been feeling confident</td>
<td>44.37</td>
<td>76.938</td>
<td>.644</td>
<td>.518</td>
<td>.880</td>
</tr>
<tr>
<td>I’ve been able to make up my own mind about things</td>
<td>44.39</td>
<td>77.959</td>
<td>.587</td>
<td>.421</td>
<td>.882</td>
</tr>
<tr>
<td>I’ve been feeling loved</td>
<td>44.47</td>
<td>78.118</td>
<td>.547</td>
<td>.348</td>
<td>.884</td>
</tr>
<tr>
<td>I’ve been interested in new things</td>
<td>44.52</td>
<td>77.251</td>
<td>.550</td>
<td>.352</td>
<td>.884</td>
</tr>
<tr>
<td>I’ve been feeling cheerful</td>
<td>44.69</td>
<td>76.463</td>
<td>.656</td>
<td>.492</td>
<td>.879</td>
</tr>
</tbody>
</table>
Frequency distribution of total scores of Pakistani HCPs on WEMWBS (n = 1271)
Scree plot for 14-item WEMWBS