WORLD HEALTH ORGANIZATION-FIVE WELL-BEING INDEX: AN APPRAISAL OF DISTRICTS OF KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

OBJECTIVE: To evaluate the mental wellbeing of the general population in districts of Khyber Pakhtunkhwa (KP) province of Pakistan using the World Health Organization-Five (WHO-5) well-being index.

METHODS: WHO-5 well-being index questionnaire was used to document the mental well-being of individuals from thirteen most populous districts from seven divisional administrations of KP province. A rural-urban administration within these districts was estimated on the basis of proportional allocation method. The towns, villages and households in the selected districts were chosen through systematic random sampling technique by dividing the total households by the sample size. The mean score for the province was calculated and compared it to each district’s scores and to the rural-urban scores.

RESULTS: Out of 500 households, 303 (60.6%) were from rural and 197 (39.4%) from urban areas. Mean WHO-5 wellbeing scores was 14.60±2.65, 14.38±2.75 & 14.81±3.13 for province, urban and rural areas respectively. Higher scores reflecting better quality of life in various life domains was reported for Swabi (18.20±3.201), Haripur (18.00±2.98) and Abbottabad (17.64±3.39). Lowest scores were reported from Bannu (10.6±2.716), Charsadda (11.5±2.89) & Dera Ismail Khan (12.03±3.25) districts. Higher score for urban areas was reported from Swabi (19.8±3.243), Nowshera (17.77±3.10) & Haripur (17.44±2.760), while for rural areas in Abbottabad (19.42±3.729), Haripur (18.33±3.01) & Mardan (17.70±3.284) districts.

CONCLUSION: Mental well-being is higher for people living in Swabi, Haripur, & Abbottabad and lower for residents of Bannu, Charsadda & Dera Ismail Khan districts. Further research is required to study the contributing factors for lower mental well-being in these districts.

KEY WORDS: WHO-5 Well-Being Index (MeSH); Mental Health (MeSH); Wellbeing (MeSH); Khyber Pakhtunkhwa (MeSH).

INTRODUCTION

Well-being is a condition which holds meaning for individuals as well as society, as it shows their perception of living good lives. ¹-⁴ This good life is comprised of both material living conditions (e.g., housing, employment etc.) as well as subjective feelings like quality of relationships, positive emotions, satisfaction with life etc. ¹ It is also linked in matters of health to risk of disease, recovery and longevity. ¹⁵ The World Health Organization-Five (WHO-5) well-being index is a concise self-reported measure of existing well-being. This measure was initially introduced by the World Health Organization/ Europe in 1998 as part of the DEPCARE Project on well-being which set out to introduce and use well-being measures in primary health care to identify and manage depression, psychological problems and stress related disorders focusing majorly on quality health care. It is a widely applied questionnaire with numerous language translations and found to be adequately valid in clinical trials as well as having adequate construct validity as a uni-dimensional measure gauging well-being. ⁶

The WHO-5 has been tested for its validity and usefulness as an instrument for identifying depression. ⁷ Other scales of mental well-being are also in use however the ease and reliability of the WHO-5 is confirmed by researchers. ⁸-¹⁰ The cost of disease studies also suggest that timely diagnosis can affect cure and treatment saving high financial costs to health care sectors. ¹¹,¹² The significance of mental well-being in terms of improvement in quality of life and preventing illness has gained substantial ground. ¹³ As the cost of mental illness rises, the need for more attention to the question of mental health in the national perspective arise. ¹⁴ In Pakistan there exists no reliable estimate of the cost of mental illness at the public health care level where the government spends less than 1% of its gross domestic product (GDP) on the entire health sector and much less on mental health. ¹⁵ Khyber Pakhtunkhwa (KP), the third largest province of the country on population basis and second poorest in terms of its contribution to the GDP, is also deficient in health care provision. ¹⁶ Moreover the province of KP has undergone a substantial part of recent years through terrorism based insecurity among its population. Adding to it the demands of a fast-paced life exerts further pressures on its inhabitants. It is, therefore, pertinent to shed some light on their mental health. As there is no large scale study on wellbeing of people of KP we planned this study to evaluate the mental well-being of the general population in thirteen districts of KP province of Pakistan. The present study has used the WHO-5 well-being instrument which has been previously used as an efficient and valid screen for

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psychological well-being in low income country.\(^2\)

**METHODS**

This cross sectional study was conducted in thirteen districts of Khyber Pakhtunkhwa, Pakistan in 2018-19. The target areas consisted of thirteen most populous districts of the province of Khyber Pakhtunkhwa. The selection of thirteen districts was done from all the seven divisional administrations of the province. Population was the basis of selection of the districts. The thirteen selected districts consist of more than seventy five percent of the total population of Khyber Pakhtunkhwa, which makes the selection an adequate sample for the purpose of this study (Bureau of Statistics, Islamabad, 2018-19). The selected districts are Peshawar, Mardan, Sawat, Mansehra, Sawabi,Charsadda, Dera Ismail Khan (D.I.K), Nowshera, Lower Dir, Abbottabad, Bannu, Haripur, and Kohat.

The sample size selected for this study is 500 households, estimated by applying formula containing error of measurement (5%), confidence interval and variance. The formula is given below:

\[
n = \frac{(N-1)D + s^2}{N^2}
\]

Where

- \(n\) = Sample Size
- \(N\) = Population Size
- \(s^2\) = Sample Variance = \(\frac{(Y - \bar{Y})^2}{n-1}\)
- \(D\) = \(B^2/4\)
- \(B\) = Bound on the error of estimation

Questionnaire was distributed by the researchers among the thirteen districts. The sample size was divided among the thirteen districts on the basis of population (given in table I below). Further a rural-urban sample within these districts was estimated on the basis of proportional allocation method. The towns and villages and the households in the selected districts were chosen through systematic random sampling technique by dividing the total households by the sample size.

The required data was collected from the households in the target areas through questionnaires. The questionnaires were directed towards head of the household. The unit of analysis was the household head. The household head is a person who has the authority to make important decisions of social and economic nature for the household.

The data was collected about the following WHO-5 aspects.

**WHO-1:** I have felt cheerful and in good spirits?

**WHO-2:** I have felt calm and relaxed?

**WHO-3:** I have felt active and vigorous?

**WHO-4:** I woke up feeling fresh and rested?

**WHO-5:** my daily life has been filled with things that interest me?

A Likert Scale of 0 to 5 is used for all these questions where;

0 = At no time
1 = Some of the time
2 = Less than half of the time
3 = More than half of the time
4 = Most of the time
5 = All of the time

(The validated Urdu translation of the questionnaire was also used as and when required.\(^3\)

As per WHO guidelines, the rough scores were estimated by summing Likert scale scores for all the five questions for a pre-determined range i.e. 0 to 5. The maximum score is 25 and the minimum be zero. A “0” score shows the worst condition while “25” score shows the best condition of mental well-being. The raw score (0 to 25) is then multiplied by 4 to get a total score in the range of 0 to 100. A “0” score shows the worst condition while “100” score shows the best condition of mental well-being. The standard score for worst wellbeing as well as depression is a score of 13.

The data was analyzed using SPSS software and the results were tabulated and explained.

**RESULTS**

Out of 500 participants, 393 (78.6%) were males and 107 (21.4%) were females. Majority (n=207; 41.4%) of study participants were aging less than 35 years, 257 (51.4%) were in 35-54 years age group and 36 (7.2%) were aging 55 years or above. Overall, 293 (58.6%) were from rural areas and 207

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**TABLE I: DISTRICT WISE DISTRIBUTION OF SAMPLE SIZE**

| District            | Rural (Households) | Urban (Households) | Total (Households) |
|---------------------|--------------------|--------------------|--------------------|
|                     | Population size   | Sample size        | Population size   | Sample size        | Population size   | Sample size        |
| Peshawar            | 1,736              | 44                 | 1,540              | 39                 | 3,276              | 83                 |
| Mardan              | 1,730              | 34                 | 470                | 22                 | 2,201              | 56                 |
| Swat                | 1,687              | 32                 | 302                | 18                 | 1,989              | 50                 |
| Mansehra            | 1,509              | 25                 | 92                 | 15                 | 1,600              | 40                 |
| Sawabi              | 1,257              | 22                 | 280                | 17                 | 1,537              | 39                 |
| Charsadda           | 1,252              | 25                 | 263                | 13                 | 1,514              | 38                 |
| Dera Ismail Khan    | 1,167              | 20                 | 163                | 13                 | 1,329              | 33                 |
| Nowshera            | 982                | 20                 | 316                | 13                 | 1,299              | 33                 |
| Lower Dir           | 1,072              | 18                 | 70                 | 11                 | 1,143              | 29                 |
| Abbottabad          | 896                | 18                 | 235                | 10                 | 1,130              | 28                 |
| Bannu               | 940                | 16                 | 52                 | 9                  | 991                | 25                 |
| Haripur             | 819                | 15                 | 115                | 9                  | 934                | 24                 |
| Kohat               | 638                | 14                 | 237                | 8                  | 855                | 22                 |
| Total               | 303                | 197                |                    |                    | 500                |                    |
(41.4%) were from urban areas. Two hundred and ninety-eight (59.6%) respondents were married and 202 (40.4%) were unmarried. Out of 293 participants from rural areas, 169 (57.7%) were married and 124 (42.3%) were unmarried. Among 207 participants from urban areas, 129 (62.3%) were married and 78 (37.7%) were unmarried. Thirty six (7.2%) respondents had no formal education, 57 (11.4%) had primary education, 126 (25.2%) had secondary education and 281 (56.2%) had higher education. Employment status of the respondents showed 160 (32%) had permanent employment, 148 (29.6%) had fixed/contract employment and 192 (38.4%) had an employment status other than permanent and contract status.

Wellbeing Ranking of the Districts

Overall mean WHO-5 well-being scores for Khyber Pakhtunkhwa province was 14.60±2.65 and was 14.38±2.75 & 14.81±3.13 for urban and rural areas respectively (Table II). Higher scores reflecting better quality of life in various life domains was reported for Swabi (18.20±3.201), Haripur (18.00±2.98), Abbottabad (17.64±3.39) & Nowshera (17.64±3.39). Lowest scores were reported from Bannu (10.6±2.716) & Charsadda (11.5±2.89) districts. Higher score for urban areas was reported from Swabi (19.8±3.243) and Nowshera (17.77±3.10), while for rural areas in Abbottabad (19.42±3.729) and Haripur (18.33±3.01) districts (Table II).

The raw scores of each respondent are then multiplied by 4 to give the final score, with 0 representing the worst well-being and 100 representing the best possible well-being. A person having less than 50 will be considered as having less mental wellbeing or at a risk of depression.

Overall score of WHO-5 well-being scale was 72.82, 72, 70.56 & 66.24 for Swabi, Haripur, Abbottabad & Nowshera districts respectively. Mansehra (48.88), Dera Ismail Khan (48.12), Charsadda (46.00) & Bannu (42.40) had less than 50 score showing lower mental well-being (Table III).

**DISCUSSION**

In our study, the mean WHO-5 well-being scores for Khyber Pakhtunkhwa province was 14.60±2.65 and mean score for urban and rural areas was 14.38±2.75 & 14.81±3.13 respectively. Higher scores reflecting better quality of life in various life domains was reported for Swabi, Haripur, Abbottabad & Nowshera districts respectively. Mansehra (48.88), Dera Ismail Khan (48.12), Charsadda (46.00) & Bannu (42.40) had less than 50 score showing lower mental well-being (Table III).

**LIMITATIONS**

This study was mainly focused on the magnitude of mental well-being of the general population of Khyber
Pakhtunkhwa and could not explore the underlying factors contributing for the low or high well-being among people living in various districts.

**CONCLUSIONS**

Mental well-being is higher for people living in Swabi, Haripur, & Abbottabad districts and is lower for residents of Bannu, Charsadda & Dera Ismail Khan districts of Khyber Pakhtunkhwa province of Pakistan. Urbanization, socioeconomic factors and living standard of the people could be responsible for variable mental well-being of various districts. Further research is required to study the contributing factors for lower mental well-being in these districts.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

**DWA:** Conception & study design, analysis and interpretation of data, drafting the manuscript, final approval of the version to be published

**AA:** Acquisition of data, drafting the manuscript, final approval of the version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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