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ORIGINAL ARTICLE

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 sample 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), Nowshehra (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).

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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.[5] It is also linked in matters of health to risk of disease, recovery and longevity.[6-8]

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.[9]

The WHO-5 has been tested for its validity and usefulness as an instrument for identifying depression.[10] Other scales of mental well-being are also in use[11] however the ease and reliability of the WHO-5 is confirmed by researchers.[12-14] The cost of disease studies also suggest that timely diagnosis can affect cure and treatment saving high financial costs to health care sectors.[15,16]

The significance of mental well-being in terms of improvement in quality of life and preventing illness has gained substantial ground.[17] As the cost of mental illness rises, the need for more attention to the question of mental health in the national perspective arise.[18] 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.[19]

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.[20] 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

psychological well-being in low income country.[21]

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), Nowshehra, 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;

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

Where
n = Sample Size
N = Population Size

$$s^2 = \text{Sample Variance} = \frac{(Y - \hat{Y})^2}{n-1}$$

$D = B^2/4$
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 1 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.)[22]

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

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
Nowshehra	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

TABLE II: WHO-5 WELLBEING SCORES OF DISTRICTS OF KHYBER PAKHTUNKHWA, PAKISTAN

DISTRICT	WHO-5 WELLBEING RAW SCORE (RANGE 0 TO 25)		
	Urban	Rural	Combine
Swabi	19.8 ± 3.243	17.20 ± 3.108	18.20 ± 3.201
Haripur	17.44 ± 2.760	18.33 ± 3.012	18.00 ± 2.983
Abbottabad	15.5 ± 2.438	19.42 ± 3.729	17.64 ± 3.391
Nowshehra	17.77 ± 3.107	16.16 ± 2.473	16.56 ± 3.004
Mardan	15.08 ± 2.365	17.70 ± 3.284	16.53 ± 2.849
Peshawar	14.2 ± 3.829	16.14 ± 3.859	15.20 ± 3.832
Swat	14.63 ± 2.137	15.53 ± 3.590	15.14 ± 3.192
Kohat	12.5 ± 3.337	13.78 ± 2.983	13.31 ± 3.221
Lower Dir	10.35 ± 2.573	14.70 ± 2.586	12.89 ± 2.571
Mansehra	12.06 ± 2.564	12.32 ± 3.294	12.22 ± 2.994
Dera Ismail Khan	13.76 ± 3.251	10.9 ± 3.255	12.03 ± 3.253
Charsadda	12.85 ± 3.245	10.70 ± 2.117	11.5 ± 2.894
Bannu	11 ± 2.801	9.66 ± 2.391	10.6 ± 2.716
Khyber Pakhtunkhwa Province	14.38±2.75	14.81±3.13	14.60±2.65

(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) & Nowshehra (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 Nowshehra (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 & Nowshehra 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 Pahunkhwa 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 & Nowshehra. Lowest scores were reported from Bannu, Charsadda & Dera Ismail Khan districts.

The study findings reflect that big cities of Khyber Pakhtunkhwa like Peshawar, Mardan, Dera Ismail Khan and Kohat have relatively less well-being as compared to cities like Swabi and Haripur. Abbotabad is a big city with good well-being. Districts with large well-developed centers have greater well-being experienced among its residents; however most of them reside in the rural areas of the districts. Similar study was conducted by Waqas, et. al; (2015).[23] They also found that people living in rural areas are happier than people living in urban areas. These rural areas are mostly peri-urban having relatively less pollution and more open spaces and fair access to urban amenities like transport, health & sanitation and education facilities. The results are in accordance with Pressman SD et al.[6] & Ostir GV, et al.[7]

In our study, the lowest scores was reported in Bannu, Charsadda, Dera Ismail Khan, Mansehra and Lower Dir. Majority of people living in these districts have lower socio-economic status and lower employment. Khan Y, et al; showed socio-demographic factors association with psychological well-being in young adolescents of Gilgit Pakistan.[24] In developing countries like Pakistan, poor economic status is significantly associated with poor well-being and higher risk of depression and anxiety symptoms.[25] Similarly, Jibeen T, et al; reported that demographic variables are associated with negative mental health outcome in Pakistani immigrants.[26]

The findings of the study highlight the importance of a much neglected area of mental well-being of the people living in various districts of Khyber Pakhtunkhwa province of Pakistan. These areas have been adversely affected by decade's long war on terror and previously the adverse effects of terror on psychological well-being has been documented in people living in Khyber Pakhtunkhwa.[27] Our study highlights the magnitude of the problem of lower mental well-being in various districts. These baseline findings can be utilized by the policy makers for future planning and research in improving the mental well-being of common people living in these areas. Moreover, it emphasizes the use of WHO-5 well-being index at the primary care level by health care providers for screening the population for mental well-being and further evaluation for psychiatric illnesses accordingly.

LIMITATIONS

This study was mainly focused on the magnitude of mental well-being of the general population of Khyber

TABLE III: WHO-5 WELLBEING SCORES OF DISTRICTS OF KHYBER PAKHTUNKHWA, PAKISTAN

District	WHO-5 WELLBEING RANKING SCORE (RANGE 0 TO 100)		
	Urban	Rural	Combine
Swabi	79.2	68.83	72.82
Haripur	69.77	73.33	72.00
Abbottabad	62	77.7	70.56
Nowshehra	71.11	64.66	66.24
Mardan	60.32	70.83	66.14
Peshawar	56.8	64.56	60.82
Swat	58.545	62.142	60.56
Kohat	50	55.14	53.24
Lower Dir	41.4	58.83	51.56
Mansehra	48.26	49.28	48.88
Dera Ismail Khan	55.07	43.6	48.12
Charsadda	51.42	42.83	46.00
Bannu	44	38.66	42.40

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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