The Physician
Journal of The British Association of Physicians of Indian Origin

Impact of COVID-19 on Mental Health, Well-being and Quality of Life of Women in Rural Maharashtra

ABSTRACT

In Maharashtra, Mahila Aarthik Vikas Mandal (MAVIM), a non-profit initiative of the Government of Maharashtra, India, works to build the overall capacities of women. It acts as a nodal agency to implement various female-empowerment schemes of central and state governments.

The general observation of MAVIM was that post-COVID-19, women from rural sectors experienced high rates of depression and anxiety. Hence, to understand the extent of the mental well-being of rural women, a cross-sectional field study was planned in the two worst-affected rural sectors of the Vidarbha region, located in central India.

Women not in formal employment, and those widows, are sub-groups of concern for whom immediate action plans are needed from MAVIM for their mental health restoration. Some skill development programs should be designed explicitly for this subset of women that would help them to achieve a better quality of life for better livelihood.

Keywords; mental health, COVID-19, rural health, women's health

Ashok Khandelwal, Ranjan Wankhede, Dhananjaye Raje & Parag Singhal
British Association of Physicians of Indian Origin
director@bapio.co.uk

Cite as: Khandelwal, A., Wankhede, R., Raje, D., Singhal, P. (2022) Impact of COVID-19 on mental health, wellbeing and QoL of women in rural Maharashtra. The Physician Vol7;issue3:p1-7 doi.org/10.38192/1.7.3.4

Article Information
Submitted 15.09.22
Reviewed 21.10.22
Published 04.11.22

Introduction

COVID-19 outbreak originated in December 2020, and soon became pandemic, affecting humanity in many ways for last two years. Every country followed strict public health measures to combat the disease, by imposing lockdowns, travel bans, closing of educational institutions, restrictions on other public and private services etc. In India, the first case was detected in February 2020 and later the occurrences scaled up exponentially. The Indian government also developed and implemented stringent protocols to curb the spread of the disease. There was not only a fear about physical health, but also the surrounding situations impacted the mental health of individuals. The situation became worse during second wave in India in early months of 2021. States such as Maharashtra, Kerala, Karnataka and Andhra Pradesh were the worst hit during this wave. The mortality rates were as high as 0.035%, which created panic in the country. Due to unpredictable swing in the disease pattern, there was confusion in the civic administration in policy making, as a result the livelihood of many individuals was at stake. The health infrastructure collapsed and was unable to cope with the growing requirements in some states, despite the best possible efforts from the government. The unforeseen loss of dear ones shattered many families across the nation, leading to immense economical, and mental stress. The pandemic-related stressors affected nearly everyone, but women suffered disproportionally [1].

In last two years, women, especially those from rural sectors, were the worst hit from socio-economic view point. Due to lack of educational and social opportunities, they were more vulnerable and faced issues such as isolation, loneliness, loss of income and economic hardship. COVID-19 had its repercussions on the well-being of women and surviving widows in part due to social isolation.

In Maharashtra, Mahila Aarthik Vikas Mandal (MAVIM), a non-profit initiative of Government of Maharashtra, India, works for building overall capacities of women. It acts as a nodal agency to implement various female-empowerment schemes of central and state government. The general observation of MAVIM was that post-COVID-19, women from rural sectors experienced high rates of depression and anxiety. Hence, to understand the extent of mental wellbeing of rural women, a cross-sectional field study was planned in two worst affected rural sectors of Vidarbha region, located in central India. The study was supported by British Association of Physicians of Indian Origin (BAPIO) UK, which is a national voluntary organization with a commitment to provide high quality patient care through National Health Service (NHS) UK.

Materials and Methods

This was a cross-sectional observational study aimed at physical, social and mental well-being of women from rural Maharashtra, planned during March – May 2022 in selected villages from Nagpur and Yavatmal districts. The respondents were women, either married or widowed, registered at MAVIM in these districts. All the blocks from both the districts were considered and the list of members from each village in each block was obtained. Women were selected for the study following simple random sampling technique. It was ensured that the villages have adequate representation in the sample proportionate to the population. Assuming that the mental wellbeing is affected in nearly 50% of the female population, a sample of 384 was obtained with 95% confidence level. A list of 384 women was drawn, with 232 from Nagpur and 152 from Yavatmal district. Two survey instruments viz., Patient Health Questionnaire-9 (PHQ-9) and WHO-QOL (World Health Organization – Quality of Life) were used to determine the level of depression and quality of life of women. PHQ-9 is a well-known questionnaire for measurement of depression in patient, with a score ranging from 1 to 27. WHO-QOL measures individual's perception about their position in life in the context of culture, their goals, expectations, standards and concerns. It highlights the effects of disease and health interventions on the quality of life of individuals. The recognition of multi-dimensional nature of quality of life gets reflected through the questionnaire. The sessions were organized for social health workers to familiarize them with the survey instruments and train them to obtain reliable information through these interview-assisted questionnaires. The village wise list of sampled women was handed over to the respective village health workers. Both the survey questionnaires were utilized

simultaneously during the interview session. Additionally, the details such as age, education level, marital status, occupational details were also obtained for each respondent. Formal consent was taken from each female respondent before interview session.

Statistical analysis

Descriptive statistics such as mean, standard deviation were obtained for continuous variables in the study, while frequencies and percentages were obtained for categorical variables. The statistical significance of association of PHQ-9 score categories and education level, occupational status and marital status were determined using Pearson's chi-square test. The domain wise WHO-QOL scores were compared across the categories of demographic variables using Mann-Whitney U test or Kruskal-Wallis test. The correlation between PHQ-9 score and domain wise score on WHO scale was obtained using Spearman rank correlation. All the analyses were performed using SPSS ver 26.0 (IBM Corp., ARMONK USA) and the statistical significance was evaluated at 5% level.

Results

Out of total 384 identified women, 36 could not be traced or not available at the time of interview, while data on 24 women were incomplete. Hence, the final analyses involved data on 324 respondents from two districts. Both PHQ-9 and WHO-QOL questionnaires were used to obtain their mental, physical, social and environmental health status, after second wave of COVID-19 outbreak.

Table 1 provides the descriptive statistics for various demographic characteristics of respondents. The mean age of women was 42.52 (SD: 8.99) years. Majority of women had completed higher secondary education [171 (52.8%)], while only 25 (7.7%) were graduates. There were 125 (38.6%) married women living with a husband, while 199 (61.4%) were widows. There were 243 (75%) working women with the occupation distribution as given in Figure 1. The majority of women i.e. 175 (54%) were labourers, while 30 (9.26%) worked in farming.

As regards to depression, the majority i.e. 131 (40.4%) women had mild depression, while 96 (29.6%) had moderate depression. Overall, approximately 84% of women had depression in the mild to moderate range. The domain wise WHO-QOL score showed a median of 56 for physical domain, while other domains had a median score of 50 each.

Table 2 provides the association of various respondent characteristics with level of depression. The association of age with depression was statistically non-significant (p=0.668), suggesting that age of women was not associated with the of level of depression. Similarly, education level was also not associated with level of depression (p=0.089). Occupation showed significant association with level of depression, as indicated by p-value < 0.0001. Marital status was also independent of the level of depression (p=0.183).

The comparison of WHO-QOL scores was performed across educational levels for each domain independently, as shown in Table 3. It shows that the median scores for social domain differed significantly across age categories with a p-value of 0.034. Also, the median score for this domain differed significantly across educational categories with a p-value of 0.004. The median scores for primary and secondary levels were significantly smaller than that of higher secondary and graduate levels, suggesting inferior quality of life on social front for women with primary and secondary level education. The proportion of mild to moderate depression was significantly higher for working women. In other words, working women had lower severity of depression as compared to non-working women. The median scores on psychological, social and environmental domains of WHO-QOL scale were significantly more for working women as compared to non-working women, with p-values 0.015, 0.01 and 0.046 respectively. The median scores for widows on physical, psychological, social and environmental domains were significantly smaller than that of married women staying with their husband, with p-values 0.004, 0.001, < 0.0001 and < 0.0001 respectively. The proportion of widows with any level of depression was higher than married women, as a result, the WHO scores were smaller for widows

than married category. For physical domain, the median scores were same, although the distribution of scores differed significantly between two groups.

Figure 2 shows the scatter plot of relationship between PHQ-9 scores and domain wise scores of respondents. The relationship of PHQ-9 score was negative with all the domains and statistically significant with p-value < 0.0001. The higher the PHQ-9 score, the higher the level of depression, and lower the score on WHO-QOL scale for any domain, poorer is the well-being of the individual. The scatters reveal that as the PHQ-9 score increases, the domain score decreases. In other words, the responses obtained on both the scales suggested that as the severity of depression increases, the QOL deteriorates.

Table 1: Descriptive statistics for various characteristics of participants

Characteristic	Level	Statistic
Age in years [Mean (SD); Median]		42.52 (8.99); 42
Education [n (%)]	Illiterate	44 (13.6%)
	Primary	41 (12.7%)
	Secondary	43 (13.3%)
	Higher secondary	171 (52.8%)
	Graduate	25 (7.7%)
Marital status [n (%)]	Married*	125 (38.6%)
	Widow	199 (61.4%)
Occupation code [n (%)]	Non-working	81 (25.0%)
	Working	243 (75.0%)
PHQ-9 category [n (%)]	Mild depression	131 (40.4%)
	Minimal depression	44 (13.6%)
	Moderate depression	96 (29.6%)
	Mod Severe depression	42 (13.0%)
	Severe depression	11 (3.4%)
WHO-QOL [Mean (SD); Median]	Physical domain	52.91 (14.67); 56
	Psychological domain	50.53 (19.51); 50
	Social domain	48.85 (26.33); 50
	Environmental domain	50.58 (18.91); 50

Figure 1: Horizontal bar chart showing number of participants according to occupation

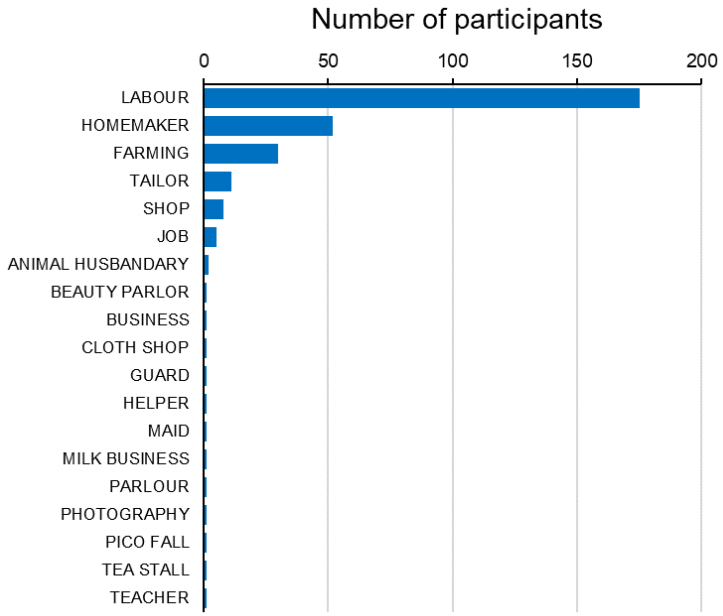

Figure 2: Scatter plot showing relationship between PHQ-9 score and WHO-QOL domains.

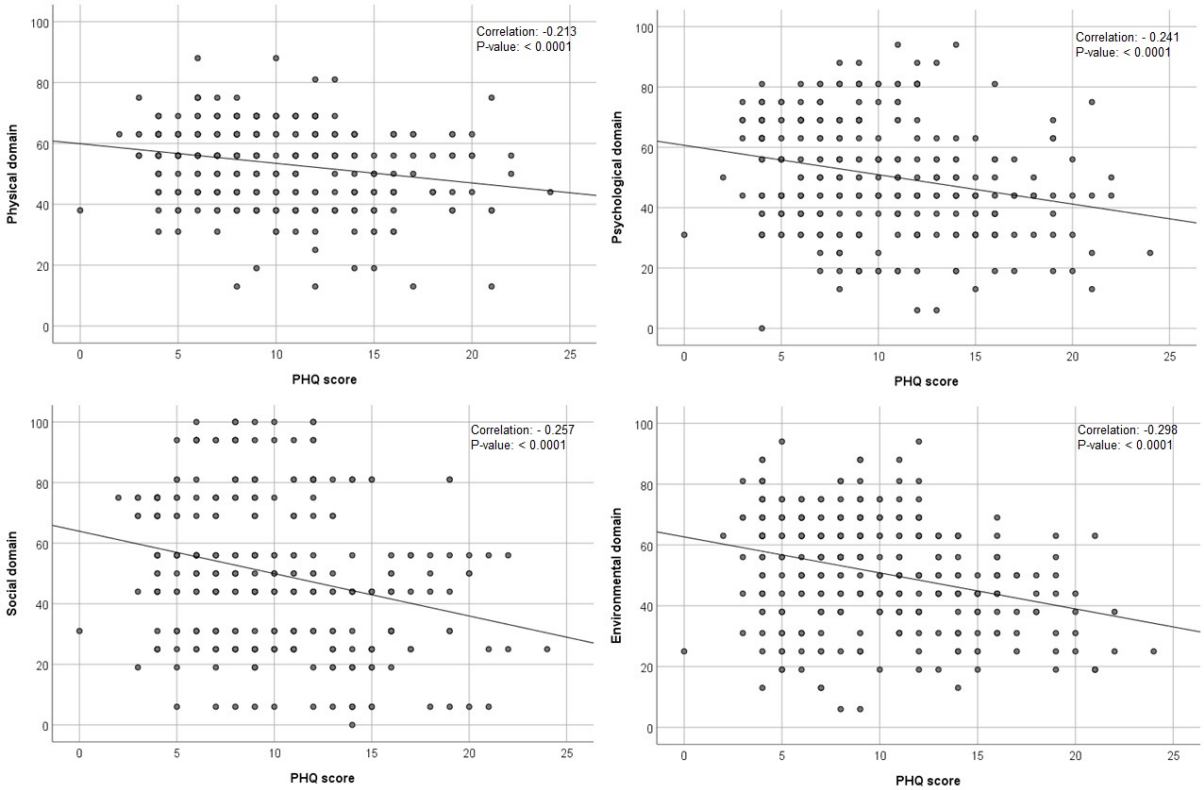

Table 2A: Association of educational level with level of depression using PHQ-9 scale

		PHQ-9 category					Total
		Mild depression	Minimal depression	Moderate depression	Mod Severe depression	Severe depression	
Education	Illiterate	11	9	17	6	1	44
	Primary	19	2	13	4	3	41
	Secondary	13	6	17	7	0	43
	Higher secondary	79	24	43	21	4	171
	Graduate	9	3	6	4	3	25
	Total	131	44	96	42	11	324

P-value: 0.089 using Pearson's chi-square test

Table 2B: Comparison of WHO-QOL scores for each domain across educational levels

Education level		WHO-QOL			
		Physical domain	Psychological domain	Social domain	Environmental domain
Illiterate	n	44	44	44	44
	Mean	53.818	51.295	49.318	52.818
	SD	10.493	19.138	22.216	17.562
	Median	56.000	44.000	47.000	53.000
Primary	n	41	41	41	41
	Mean	53.925	51.600	42.450	49.575
	SD	14.127	19.330	24.562	17.814
	Median	56.000	50.000	37.500	50.000
Secondary	n	43	43	43	43
	Mean	50.047	48.907	42.558	46.419
	SD	12.040	19.960	20.215	18.007
	Median	50.000	50.000	31.000	44.000
Higher secondary	n	171	171	171	171
	Mean	53.612	50.712	52.527	51.376
	SD	13.402	17.963	25.044	17.514
	Median	56.000	50.000	50.000	50.000
Graduate	n	25	25	25	25
	Mean	58.458	56.583	62.792	55.875
	SD	13.749	18.563	25.399	18.660
	Median	59.500	53.000	56.000	56.000
P-value*		0.122	0.604	**0.004**	0.273

*Obtained using Kruskal-Wallis test; Bold p-value indicate statistical significance

Table 3A: Association of occupational status with level of depression using PHQ-9 scale

		PHQ-9 categories					Total
		Mild depression	Minimal depression	Moderate depression	Mod. severe depression	Severe depression	
Occupation status	Non working	20	7	34	14	6	81
	Working	111	37	62	28	5	243
	Total	131	44	96	42	11	324

P-value < 0.0001 using Pearson's chi-square test

Table 3B: Comparison of WHO-QOL scores for each domain between occupation status

Occupation code		Physical domain	Psychological domain	Social domain	Environmental domain
Non-working	n	81	81	81	81
	Mean	52.864	47.160	44.025	47.827
	SD	12.062	19.691	23.181	16.204
	Median	56.000	44.000	44.000	44.000
Working	N	243	243	243	243
	Mean	53.800	52.429	52.367	52.100
	SD	13.371	18.040	24.645	18.148
	Median	56.000	50.000	50.000	56.000
P-value*		0.35	**0.015**	**0.01**	**0.046**

*Obtained using Mann-Whitney U test; Bold p-values indicate statistical significance

Table 4A: Association of marital status with level of depression using PHQ-9 scale

		PHQ-9 categories					
		Mild depression	Minimal depression	Moderate depression	Mod Severe depression	Severe depression	Total
Marital status	Married	51	21	31	15	7	125
	Widow	80	23	65	27	4	199
	Total	131	44	96	42	11	324

P-value=0.183 obtained using Pearson's chi-square test

Table 4B: Comparison of WHO-QOL scores for each domain between marital status

Marital status	Parameter	Physical domain	Psychological domain	Social domain	Environmental domain
Married	n	120	120	120	120
	Mean	55.758	55.108	63.735	56.600
	SD	14.640	19.607	23.930	18.156
	Median	56.000	56.000	69.000	63.000
Widow	n	199	199	199	199
	Mean	52.434	49.051	42.801	47.913
	SD	11.874	17.559	21.101	16.623
	Median	56.000	44.000	44.000	47.000
P-value*		**0.004**	**0.001**	**< 0.0001**	**< 0.0001**

*Obtained using Mann-Whitney U test; Bold p-values indicate statistical significance

Discussion

This study was primarily aimed at assessing the depression level and its effect on quality of life of women in rural settings, as a consequence of COVID-19 pandemic. Various research studies have shown that women are more prone to developing metal health problems due to infectious disease outbreaks [2-5]. The authorities of MAVIM believed that such problems exists among women in villages, and conducted this study in order to discern their types and severity. The interest was also to understand the socio-demographic factors influencing such problems. Accordingly, two survey instruments i.e. PHQ-9 questionnaire and WHO-QOL were used to assess depression level and quality of life of women, registered under MAVIM in two districts of Vidarbha region.

The study revealed that nearly 46% of the women had depression (moderate to severe) due to recent events related to pandemic. The severity of depression was similar across age groups (p=0.668). Our observation corroborates with some of the previous studies [6-9]. However, in some other studies, the authors observed significant association of age with severity of depression, with high levels in young adult groups [10-12]. The differences in the findings could be attributed to the context and the sample population. In our study, level of education also showed non-significant association with depression (p=0.089). Around 50% of the respondents had moderate to severe depression in each educational category. However, this result was in contrast to that observed in the Karachi study. [12] In this study, reported higher depression levels in respondents with lower education levels. In another study by Sagar SK et al. from Bangladesh, the authors reported significantly increased odds of depression among women with higher educational level. [13] Thus, there was no specific conclusion regarding education and level of depression across studies. The variable occupation, i.e. working or non-working showed statistically significant association with level of depression. Nearly 67% of the not-working women had moderate to severe depression level, as compared to 39% of working women.

A significant association between lack of occupation and depression has been reported in few studies [7, 9, 12]. The marital status and depression had no association (p=0.183); although, around 50% of widows showed moderate to severe depression, which was higher than the proportion of married women i.e. 42%. The quality of life of these women was also assessed to understand the influence of the disease on various quality of life domains. The older women indicated social insecurity especially in terms of personal relationships and social support. Even the lower education background led to such insecurity among women.

The psychological impact of the situation was pronounced among non-working women as compared to working women. This observation matches with the depression assessment based on PHQ-9 scale. Further, social and

environmental impact was more on women not in formal employment, compared to employed women. This is expected because monotonous living style, lack of opportunities to learn new skills and unhealthy domestic environment were major concerns of these women. These problems were more distinct among widows as observed through the study. The QOL scores were significantly lower on all the domains for widows as compared to women staying with their husband.

The mental health of women was evaluated using PHQ-9 questionnaire as well as through psychological assessment using WHO-QOL questionnaire. The two scores showed statistically significant correlation, although weakly related. Further, as the depression level increased on PHQ-9 scale, the quality of life related to physical, social and environmental domain indicated deterioration, which is justified.

One of the major limitation of the study was the sample size and the geographical representation. The study was restricted to only two districts; rather a wider geographical coverage with more districts would reveal the real mental health status pattern in the population. Nevertheless, this study provides insight into the mental status of women and the factors influencing the status.

Conclusion

The study explores the extent of depression among women from rural setting after COVID-19 pandemic. Women not in formal employment, and those who are widows, are sub-groups of concern for whom immediate action plans are needed from MAVIM for their mental health restoration. Some skill development programs should be specifically designed for this subset of women that would help them to achieve a better quality of life for better livelihood.

References

1. Almeida M, Shrestha AD, Stojanac D and Miller LJ. The impact of COVID-19 pandemic on women's mental health. Archives of Women's Mental Health. 2020; 23:741-748.

2. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. (2020) 17:1729. doi: 10.3390/ijerph17051729 30.

3. Lim GY, Tam WW, Lu Y, Ho CS, Zhang MW, Ho RC. Prevalence of depression in the community from 30 countries between 1994 and 2014. Sci Rep. (2018) 8:1–10. doi: 10.1038/s41598-018-21243-x 31.

4. Mazza C, Ricci E, Biondi S, Colasanti M, Ferracuti S, Napoli C, et al. A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: immediate psychological responses and associated factors. Int J Environ Res Public Health. (2020) 17:3165. doi: 10.3390/ijerph17093165 32.

5. Shevlin M, McBride O, Murphy J, Miller JG, Hartman TK, Levita L, et al. Anxiety, Depression, Traumatic Stress, and COVID-19 Related Anxiety in the UK General Population During the COVID-19 Pandemic. BJPsych Open. (2020). 6:1–9. doi: 10.1192/bjo.2020.109.

6. Özdin S, Bayrak Özdin S. Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: the importance of gender. Int J Soc Psychiatry. (2020) 8:0020764020927051. doi: 10.1177/0020764020927051.

7. Wang Y, Di Y, Ye J, Wei W. Study on the public psychological states and its related factors during the outbreak of coronavirus disease 2019 (COVID-19) in some regions of China. Psychol Health Med. (2020) 1–10. doi: 10.1080/13548506.2020.1746817.

8. Tang W, Hu T, Hu B, Jin C, Wang G, Xie C, et al. Prevalence and correlates of

PTSD and depressive symptoms one month after the outbreak of the COVID19 epidemic in a sample of home-quarantined Chinese university students. J Affect Disord. (2020) 274:1–7. doi: 10.1016/j.jad.2020.05.009

9. Mazza C, Ricci E, Biondi S, Colasanti M, Ferracuti S, Napoli C, et al. A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: immediate psychological responses and associated factors. Int J Environ Res Public Health. (2020) 17:3165. doi: 10.3390/ijerph17093165

10. Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. Gen Psychiatry. (2020) 33:e100213. doi: 10.1136/gpsych-2020-100213.

11. Cheng C, Jun H, Liang B. Psychological health diathesis assessment system: a nationwide survey of resilient trait scale for Chinese adults. Stud Psychol Behav. (2014) 12:735–42.

12. Asim SS, Ghani S, Ahmed M, Asim A and Qureshi AFK. Assessing Mental Health of Women Living in Karachi During COVID-19 Pandemic. Frontier's in Global Women's Health. 2021; doi: 10.3389/fgwh.2020.594970.

13. Sagar SK, Nusrat F, Rashid MU, Ghosh P, Sultana M, Ahsan A et al. Mental health status of married women during COVID-19 pandemic in Bangladesh: A cross-sectional study. Heliyon 2021; https://doi.org/10.1016/j.heliyon.2022.e08785.

Peer Review 1

This is a remarkable work and first of its kind using PHQ9 and WHO QOL questionnaires. The salient points which I noted are:

a. Severity of depression results in deterioration of Quality of Life (QOL).
b. Higher Educational levels result in better QOL
c. Working women had lesser severity of depression and better QOL
d. QOL for widows is poorer as compared to those who are married
e. The proportion of widows with depression was higher than married women

In my opinion while the above results can be seen universally, it would be useful to implement positive strategies to improve QOL and education level. With regard to Education, I am not saying that everyone should go for higher education, but I would suggest that women can be provided technical and craft work training which will result in enhancing their economic status. Further, there is a need to work with widows who may be feeling lonely and left out. Therefore, there is need for social skills, leisure activities and intergenerational work (this should involve young adults, middle age adults working side by side with older adults/widows. Further, in order to achieve the above objectives, supports/funding should be sought from Ministry of Social Justice and Empowerment. Central and State).

My suggestions for future work is as follows:

a. Form a Focus Group to discuss the findings and how to take things forward (this should involve the participants who were part of the study).

b. Share the result of the study with Ministry of Social Justice and Empowerment and local authorities.

c. Implement training programmes such as technical training, art and craft and positive programming (addressing social skills and quality of life).

d. Do a follow up study in one year's time.

e. Provide psychosocial support in form of counselling and psychological therapy.

f. Encourage and involve young adults (both male and female volunteers) to work with older adults especially widows and those with poor socio-economic background.

The points mentioned above are not exhaustive and we should get other people's advice and suggestions.

Dr. Shripati Upadhyaya, PhD., C.Pschol., AFBsS.
Chartered Clinical Psychologist
Registered Practitioner Psychologist (HCPC)

Peer Review 2

This is an important piece of work that highlights specific groups of women from rural communities as particularly vulnerable to mental health problems. Future research exploring the association between finances and employment of these women with mental health problems is needed to better understand the results of this study. Minor grammatical changes have been made to the manuscript.

Dr Triya Chakravorty, BMBCh (Oxon)
Foundation Year 1 Doctor at Croydon University Hospital