Prevalance Of Depression, Anxiety, Stress And Its Associated Factors Among Married Women In Rural Areas Of Kolar -A Cross-Sectional Study

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ABSTRACT

Introduction:

Mental health disorders such as depression, anxiety, and stress are significant public health concerns, particularly among married women in rural India. Socio-economic challenges, cultural norms, and familial responsibilities increase their risk of psychological distress.
The study aimed to estimate the prevalence of depression, anxiety, and stress among rural married women in Kolar and to identify the associated socio-demographic factors.

Materials and methods

A community-based cross-sectional observational study was conducted between July 2023 and December 2024 among 630 married women aged 18–60 in the Rural Health Training Centre (RHTC) field practice area of Devarayasamudra, Kolar. Participants were selected using multi-stage random sampling. Data was collected using a pre-tested, semi-structured questionnaire and the DASS-42 scale. Statistical analysis was performed using SPSS version 22.0 with Chi-square tests and logistic regression, with a p-value less than 0.05 defined as statistically significant.

Results

The prevalence of depression, anxiety, and stress was 72.3%, 71.9%, and 61.9%, respectively, among 630 married rural women. Significant associations were found between mental health status and factors such as age, education level, socioeconomic status, and family structure (p<0.05). Older women and individuals from lower socioeconomic backgrounds exhibited higher prevalence rates.

Conclusion

A significant burden of depression, anxiety, and stress exists among married women in rural Kolar. Socio-demographic factors play a crucial role in influencing mental health. Community-based mental health programs focusing on early detection and socio-economic empowerment are urgently needed.

Keywords:Depression, Anxiety, Stress, Married Women, Rural Health, Mental Health.

INTRODUCTION

Mental health is a condition of well-being in which a person can cope with the everyday stresses of life, realize their potential, and be productive to make valuable contributions to their community. Most people are resilient, but individuals who are subject to unfortunate circumstances like poverty, violence, disability, and inequality are more likely to suffer mental health problems.[1] Depressive disorder, commonly known as depression, is a widespread mental health condition that is characterized by persistent feelings of sadness or a loss of interest and enjoyment in daily activities over an extended period.[2] According to data from the Global Burden of Disease (GBD) report of 2021, the World Health Organization estimates that around 3.8% of the global population experiences depression. This includes 5% of adults, with prevalence rates differing by gender—4% among men and 6% among women.[3] Anxiety disorders are widespread across different populations, with considerable variations based on demographic and situational factors. According to Syed Fahad Javaid's study, anxiety disorders affect approximately 4.05% of the world's population, impacting around 301 million

individuals.[4] According to the WHO, stress is a state of worry or mental tension resulting from a challenging situation. In developing countries like India, stress among females is twice as prevalent as in males, particularly when they are required to balance both professional and household responsibilities.[5] Research findings from a 2015 study highlighted a substantial rise in these disorders over the past decades, reporting a 42% increase in anxiety disorders and a 54% surge in depressive disorders since 1990.[6] A study done in India by M.K., Rema and Kaur, Parneet et al., on 2020 reveals that a substantial proportion of married women in India experience high levels of anxiety, stress, and depression, raising serious mental health concerns. Notably, 87% of the participants reported experiencing frequent stress, and findings indicate a strong correlation between stress and depression with marital adjustment, suggesting that difficulties in marital relationships may significantly contribute to the mental health challenges faced by women [7]

A study conducted in rural Maharashtra by Michelle Kermode et al. highlights that various socioeconomic factors, such as poverty, unemployment, and low education levels, can contribute to financial strain and elevate mental health risks among rural women. Recognizing these influences is essential for developing targeted interventions that effectively address mental health challenges faced by married women in these communities.[8] A study conducted in rural Puducherry by Manikandan Srinivasan et al. found that women aged 18 to 59 years experienced high levels of depression, anxiety, and stress. The research identified several predictors of depression, including financial instability, marital difficulties, and restricted access to mental health support. These findings emphasize the urgent need for targeted interventions to address the challenges women face in rural areas, promoting better mental well-being and overall quality of life.[9] The Systematic Medical Appraisal, Referral, and Treatment (SMART) Mental Health Project, conducted in rural Andhra Pradesh, reveals disproportionately higher rates among women, indicating their increased vulnerability to psychological distress. Among the various contributing factors analyzed, financial stress emerges as a key determinant, further exacerbating the mental health burden faced by women in these rural settings.[10] A study conducted in rural Tamil Nadu emphasized that factors such as socio-economic status, marital conflicts, and lack of social support play a crucial role in contributing to poor mental health outcomes among married women, highlighting the urgency for targeted research and community-based mental health initiatives.[11] With this background, the study was conducted with the objectives to estimate the prevalence of depression, anxiety, and stress among married women in rural areas of Kolar and to study the factors associated with depression, anxiety, and stress among married women in rural areas of Kolar.

MATERIALS AND METHODS:

This study was carried out in the rural area of Kolar District, which includes six Taluks: Mulbagal, Kolar, Malur, Srinivaspura, Bangarapet, and Kolar Gold Fields (KGF). Kolar District comprises a total of 331 villages. The study design is a community-based cross-sectional study. The study population consisted of married women from the primary health center of Devarayasamudra in Mulbagal Taluk, Kolar District, with the study duration spanning from July 2023 to December 2024. All married women aged 18 to 60 years who could understand the questionnaire and comprehend the local language were included, while those unavailable during house visits or suffering from severe physical disabilities or chronic illnesses were excluded. The sample size was estimated based on a study by Vikram Aditya et al. from 2020, which reported an 18% prevalence of depression among married women, using an absolute error of 3% with a 95% confidence interval.[13] The estimated sample size was 630 married women aged 18 to 60 years. The study took place in the Rural Field Practice Area of the Rural Health Training Centre in Devarayasamudra, encompassing 20 villages with a total of 11,638 residents. Eight villages were randomly selected using simple random sampling. The sample of 630 participants was distributed across villages using Probability Proportionate to Size (PPS) to account for population variations. Within each village, eligible women were randomly chosen from health records with assistance from ASHA and Anganwadi workers. Participants provided informed consent prior to completing a socio-demographic questionnaire. All participants provided written informed consent. Socio-demographic data were collected using a pre-tested, semi-structured, self-administered

questionnaire, while the DASS-42 questionnaire was utilized to assess levels of depression, anxiety, and stress levels.[14]

FIG.NO:1 - Flow diagram of Sampling

To evaluate depression, anxiety, and stress among married women in rural Kolar, the Depression,
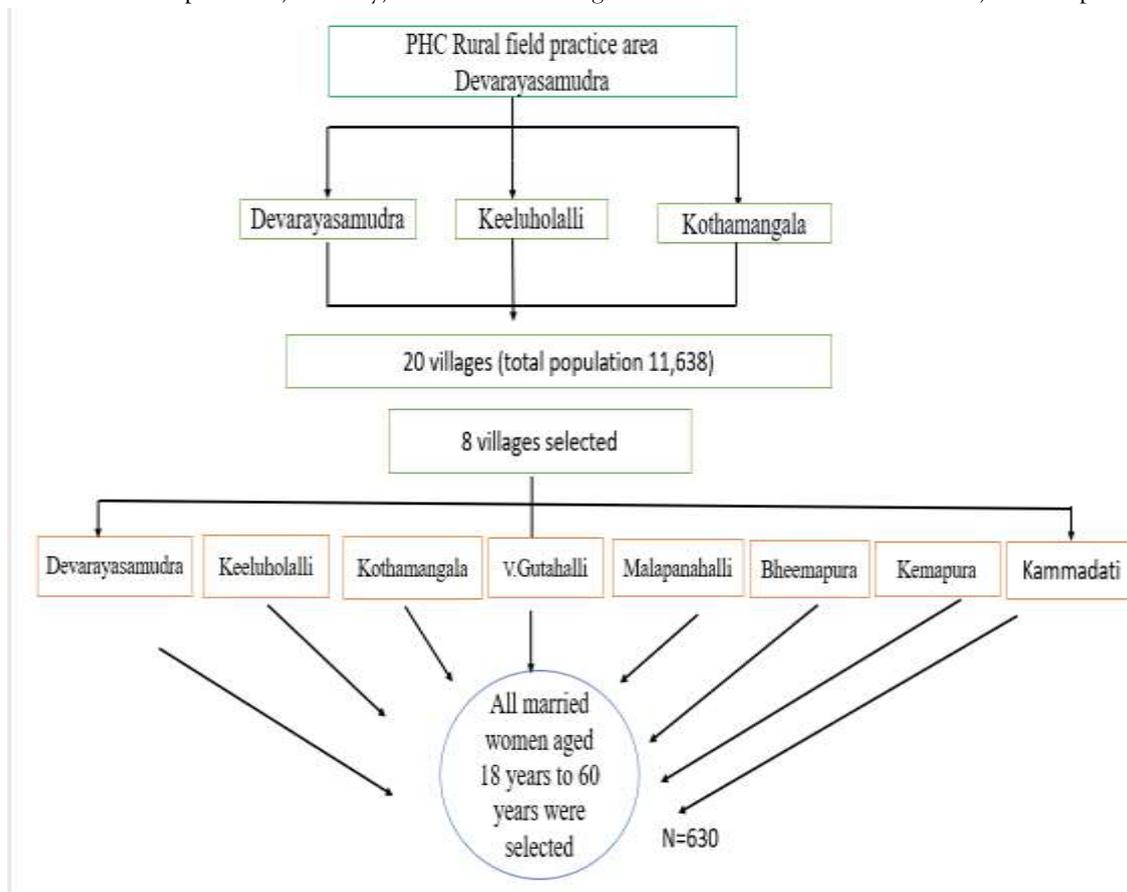
Anxiety, and Stress Scale-42 (DASS-42) served as the primary assessment tool. The DASS-42 is a widely recognized self-report instrument designed to gauge the severity of symptoms related to these conditions. This scale comprises 42 items, categorized into three distinct subscales: depression, anxiety, and stress. Each subscale includes 14 items, with responses measured on a 4-point Likert scale which is ranging from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time). The DASS-42 is a self-report tool designed to assess depression, anxiety, and stress through 42 items grouped into three subscales. Each question is rated on a four-point Likert scale, with scores determining severity levels ranging from normal to extremely severe. The total scores are interpreted using specific cut-off values for each subscale. Unlike the shorter DASS-21, no multiplication factor is applied to scores in this version. The instrument has been widely validated across different populations and is commonly used in both clinical and research settings. It provides a comprehensive assessment of emotional distress, particularly for vulnerable groups such as married women in rural areas. The responses to the DASS-42 were scored according to the standard procedure, with higher scores on each subscale indicating greater severity of symptoms.[14]

Statistical analysis

Following the necessary data cleansing and validation, the coded and entered data were subsequently transferred to IBM SPSS Statistics software, version 22.0, for statistical analysis. Factors such as age, socioeconomic status, and education level were summarized using summary statistics, including mean ± standard deviation and proportion distributions. The distribution of key research variables was visually represented using tools like pie charts and bar graphs. Chi-Squared analysis was employed to examine the relationship between the intensity of depression, anxiety, and stress and categorical

independent variables (such as religious beliefs, educational attainment, and socioeconomic status). To ascertain the probability of psychological distress, including depression, anxiety, and stress based on several independent factors, bivariate logistic regression analysis was conducted. The findings were expressed as unadjusted odds ratios (COR) with 95% confidence intervals (CI). To evaluate the influence of each independent variable on depression, anxiety, and stress while considering relevant confounders, a multivariate logistic regression analysis was conducted. The relationships were quantified using adjusted odds ratios (AOR) with 95% confidence intervals (CIs). A 95% confidence interval that excluded the null value was deemed statistically significant for both crude and adjusted odds ratios, while a p-value below 0.05 is considered statistically significant for the Chi-Square test.

Ethical Considerations

The Ethics Board of Sri Devaraj Urs Academy of Higher Education and Research, Kolar, examined and authorized this study (No. DMC/KLR/IEC/12/2023-24). All participants were included in the study only after providing their consent, along with the assurance that safety and welfare would be upheld by the research's adherence to ethical standards, which include autonomy, confidentiality, beneficence, and fairness.

RESULTS

Table no 1: Distributions of study participants according to Clinico socio demographic variables

Category	Variable	Frequency (%)
Age-wise distribution	Early Adulthood (18-24)	36 (5.7)
	Early Reproductive Age (25-34)	174 (27.6)
	Late Reproductive Age (35-44)	143 (22.7)
	Perimenopausal Phase (45-54)	172 (27.3)
	Postmenopausal Phase (55+)	105 (16.7)
Educational background	Professional	13 (2.1)
	Graduate	108 (17.1)
	Intermediate	89 (14.1)
	High School	139 (22.1)
	Primary School	153 (24.3)
	Illiterate	127 (20.2)
Occupation	Professional	27 (4.3)
	Semi-Professional	65 (10.3)
	Clerical, Shop Owner, Farmer	102 (16.2)
	Skilled Worker	46 (7.3)

Category	Variable	Frequency (%)
	Semi-skilled Worker	59 (9.4)
	Unskilled Worker	87 (13.8)
	Unemployed	244 (38.7)
Comorbidities	Nil	596 (94.6)
	Type 2 Diabetes Mellitus	17 (2.7)
	Hypertension	6 (1.0)
	Both	11 (1.7)
Type of family	Joint	274 (43.5)
	Nuclear	308 (48.9)
	Three-generation	48 (7.6)
Socioeconomic class	Upper	3 (0.5)
	Upper middle	32 (5.1)
	Middle	165 (26.2)
	Lower middle	267 (42.4)
	Lower	163 (25.9)
Number of family members	Small	274 (43.5)
	Medium	308 (48.9)
	Large	48 (7.6)

Category	Depression n (%)	Anxiety n (%)	Stress n (%)
Normal	175 (27.7)	177 (28.09)	240 (38.09)
Mild	82 (13.02)	24 (3.8)	77 (12.22)
Moderate	160 (25.4)	79 (12.53)	241 (38.25)
Severe	173 (27.46)	113 (17.93)	62 (9.84)
Extremely Severe	40 (6.35)	237 (37.61)	10 (1.58)

From the above table number 1 it shows that the majority of participants were in the early reproductive (27.6%) and perimenopausal (27.3%) age groups. Most women had primary (24.3%) or high school

(22.1%) education, with 20.2% being illiterate. A significant proportion were unemployed (38.7%), while 16.2% were farmers, shop owners, or in clerical jobs. The vast majority (94.6%) reported no comorbidities. Nuclear families were slightly more common (48.9%) than joint families (43.5%). Most belonged to the lower middle (42.4%) or middle (26.2%) socioeconomic classes, and nearly half had medium-sized families (48.9%) and it also shows that the overall prevalence of depression, anxiety, and stress among participants was 72.3%, 71.9%, and 61.9%, respectively. A majority experienced moderate stress (38.25%) and normal stress (38.09%), indicating a relatively balanced stress response. In contrast, extremely severe anxiety was the most common category at 37.61%, followed by severe anxiety (17.93%), highlighting a significant burden. Depression was more evenly distributed, with higher proportions in the severe (27.46%), normal (27.7%), and moderate (25.4%) categories. Only 6.35% experienced extremely severe depression and 1.58% faced extremely severe stress. Mild anxiety was the least reported (3.8%), suggesting that most cases fall toward the more severe end of the spectrum.

Table No. – 2: Association between socio-demographic variables and depression status of rural married women (n=630)

Variable	Category	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely Severe (%)	Total	Chi-square value (p value, df)
Age	18–24 (Early Adulthood)	10 (27.8)	1 (2.8)	11 (30.6)	9 (25.0)	5 (13.9)	36	χ2=34.817 p=0.004, df=16
	25–34 (Early Reproductive)	53 (30.5)	23 (13.2)	42 (24.1)	38 (21.8)	18 (10.3)	174	
	35–44 (Late Reproductive)	48 (33.6)	19 (13.3)	32 (22.4)	39 (27.3)	5 (3.5)	143	
	45–54 (Perimenopausal)	39 (22.7)	16 (9.3)	50 (29.1)	58 (33.7)	9 (5.2)	172	
	55+ (Postmenopausal)	25 (23.8)	3 (2.9)	33 (31.4)	39 (37.1)	5 (4.8)	105	
Education	Professional	4 (30.8)	1 (7.7)	5 (38.5)	3 (23.1)	0 (0.0)	13	χ2=92.046 p=0.001, df=20
	Graduate	47 (43.5)	13 (12.0)	24 (22.2)	18 (16.7)	6 (5.6)	108	
	Intermediate	45 (50.6)	7 (7.9)	8 (9.0)	18 (20.2)	11 (12.4)	89	
	High School	32 (23.0)	18 (12.9)	45 (32.4)	37 (26.6)	7 (5.0)	139	
	Primary School	28 (18.2)	14 (9.1)	51 (33.1)	58 (37.7)	3 (1.9)	154	
	Illiterate	19 (15.0)	9 (7.1)	35 (27.6)	49 (38.6)	15 (11.8)	127	
Occupation	Professional	3 (11.1)	3 (11.1)	10 (37.0)	8 (29.6)	3 (11.1)	27	

Variable	Category	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely Severe (%)	Total	Chi-square value (p value, df)
	Semi-professional	19 (29.2)	6 (9.2)	12 (18.5)	17 (26.2)	11 (16.9)	65	$\chi2$=53.539 p=0.001, df=24
	Clerical/Shop Owner	23 (22.5)	7 (6.9)	28 (27.5)	43 (42.2)	1 (1.0)	102	
	Skilled Worker	16 (34.8)	3 (6.5)	12 (26.1)	13 (28.3)	2 (4.3)	46	
	Semi-skilled Worker	13 (22.0)	11 (18.6)	22 (37.3)	12 (20.3)	1 (1.7)	59	
	Unskilled Worker	21 (24.1)	6 (6.9)	21 (24.1)	34 (39.1)	5 (5.7)	87	
	Unemployed	80 (32.8)	26 (10.7)	63 (25.8)	56 (23.0)	19 (7.8)	244	
Comorbidities	None	168 (28.2)	60 (10.1)	153 (25.7)	175 (29.4)	40 (6.7)	596	$\chi2$=8.746 p=0.724, df=12
	Diabetes	4 (23.5)	1 (5.9)	8 (47.1)	3 (17.6)	1 (5.9)	17	
	Hypertension	1 (16.7)	1 (16.7)	3 (50.0)	1 (16.7)	0 (0.0)	6	
	Both	2 (18.2)	0 (0.0)	4 (36.4)	4 (36.4)	1 (9.1)	11	
Family Type	Joint	62 (22.6)	27 (9.9)	83 (30.3)	77 (28.1)	25 (9.1)	274	$\chi2$=34.38 p=0.001, df=8
	Nuclear	108 (35.1)	32 (10.4)	75 (24.4)	82 (26.6)	11 (3.6)	308	
	Three Generation	5 (10.4)	3 (6.3)	10 (20.8)	24 (50.0)	6 (12.5)	48	
Socioeconomic Status	Upper Class	1 (33.3)	0 (0.0)	2 (66.7)	0 (0.0)	0 (0.0)	3	$\chi2$=92.046 p=0.001, df=20
	Upper Middle	7 (21.9)	5 (15.6)	8 (25.0)	12 (37.5)	0 (0.0)	32	
	Middle	37 (22.4)	17 (10.3)	49 (29.7)	45 (27.3)	17 (10.3)	165	
	Lower Middle	92 (34.5)	29 (10.9)	63 (23.6)	71 (26.6)	12 (4.5)	267	
	Lower	38 (23.3)	11 (6.7)	46 (28.2)	55 (33.7)	13 (8.0)	163	

Table 2 shows the association between socio-demographic variables and depression status among rural married women (n = 630). Depression severity increases with age, with the highest proportion of severe depression observed in the perimenopausal (33.7%) and postmenopausal (37.1%) age groups (χ^2 = 34.817, p = 0.004). Depression severity is higher among less-educated women, particularly among

illiterate (38.6% severe, 11.8% extremely severe) and primary school-educated women (37.7% severe). In contrast, professionally educated women reported no cases of extremely severe depression (χ^2 = 92.046, p = 0.001). Unemployed and unskilled women show higher rates of severe and extremely severe depression, with unemployed women reporting 23% severe and 7.8% extremely severe depression (χ^2 = 53.539, p = 0.001). Most women with depression had no comorbidities; however, among those with comorbidities, moderate and severe depression were more common, though the association was not statistically significant (χ^2 = 8.746, p = 0.724). Severe and extremely severe depression were more frequent among women from joint (28.1% and 9.1%) and three-generation families (50% and 12.5%) compared to nuclear families (χ^2 = 34.338, p = 0.001). Socio-economic status was also significantly associated with depression, with lower middle (26.6% severe, 4.5% extremely severe) and lower-class women (33.7% severe, 8% extremely severe) being most affected (χ^2 = 92.046, p = 0.001).

Table No. – 3: Association between Socio-demographic variables and Anxiety status of rural married women (n=630)

Variable	Category	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely Severe (%)	Total (%)	Chi-square value (p value, df)
Age	Early Adulthood (18–24)	9 (25.0)	2 (5.6)	0 (0.0)	8 (22.2)	17 (47.2)	36	χ^2=36.015, p=0.003, df=16
	Early Reproductive Age (25–34)	51 (29.3)	11 (6.3)	27 (15.5)	32 (18.4)	53 (30.5)	174	
	Late Reproductive Age (35–44)	51 (35.7)	5 (3.5)	26 (18.2)	16 (11.2)	45 (31.5)	143	
	Perimenopausal Phase (45–54)	42 (24.4)	4 (2.3)	13 (7.6)	37 (21.5)	76 (44.2)	172	
	Postmenopausal Phase (55+)	24 (22.9)	2 (1.9)	13 (12.4)	20 (19.0)	46 (43.8)	105	
Education	Professional	5 (38.5)	0 (0.0)	1 (7.7)	2 (15.4)	5 (38.5)	13	χ^2=68.48, p=0.001, df=20
	Graduate	47 (43.5)	4 (3.7)	11 (10.2)	15 (13.9)	31 (28.7)	108	
	Intermediate	45 (50.6)	5 (5.6)	4 (4.5)	12 (13.5)	23 (25.8)	89	
	High School	32 (23.0)	6 (4.3)	28 (20.1)	23 (16.5)	50 (36.0)	139	
	Primary School	27 (17.5)	5 (3.2)	22 (14.3)	33 (21.4)	67 (43.5)	154	
	Illiterate	21 (16.5)	4 (3.1)	13 (10.2)	28 (22.0)	61 (48.0)	127	
Occupation	Professional	4 (14.8)	0 (0.0)	1 (3.7)	9 (33.3)	13 (48.1)	27	χ^2=33.745, p=0.089, df=24
	Semi-Professional	18 (27.7)	1 (1.5)	4 (6.2)	10 (15.4)	32 (49.2)	65	

Variable	Category	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Extremely Severe (%)	Total (%)	Chi-square value (p value, df)
	Clerical, Shop Owner, Farmer	22 (21.6)	6 (5.9)	16 (15.7)	18 (17.6)	40 (39.2)	102	
	Skilled Worker	14 (30.4)	3 (6.5)	6 (13.0)	9 (19.6)	14 (30.4)	46	
	Semi-skilled Worker	14 (23.7)	3 (5.1)	10 (16.9)	13 (22.0)	19 (32.2)	59	
	Unskilled Worker	22 (25.3)	7 (8.0)	11 (12.6)	13 (14.9)	34 (39.1)	87	
	Unemployed	83 (34.0)	4 (1.6)	31 (12.7)	41 (16.8)	85 (34.8)	244	
Comorbidities	None	172 (28.9)	24 (4)	71 (11.9)	101 (16.9)	228 (38.3)	596	χ2=19.654 p=0.074, df=12
	Diabetes	42 (23.5)	0 (0)	4(23.5)	5 (29.4)	4 (23.5)	17	
	Hypertension	1 (16.7)	0 (0)	2 (33.3)	3 (50)	0 (0)	6	
	Both	0 (0)	0 (0)	2 (18.2)	4 (36.4)	5 (45.5)	11	
Family types	Joint	67 (24.5)	5 (1.8)	40 (14.6)	53 (19.3)	109(39.8)	274	χ2=27.939 p=0.001, df=8
	Nuclear	104 (33.8)	17 (5.5)	37 (12)	51 (16.6)	99 (32.1)	308	
	Three Generation	6 (12.5)	2 (4.2)	2 (4.2)	9 (18.8)	29 (60.4)	48	
Socioeconomic Status	Upper Class	1 (33.3)	0 (0.0)	1 (33.3)	0 (0)	0 (0)	3	
	Upper Middle	7 (21.9)	1 (3.1)	2 (6.3)	6 (18.8)	16 (50)	32	
	Middle	37 (22.4)	10 (6.1)	16 (9.7)	33 (20)	69 (41.8)	165	
	Lower Middle	93 (34.8)	10 (3.7)	40 (15)	41 (15.4)	83 (31.1)	267	
	Lower	39 (23.9)	3 (1.8)	20 (12.3)	33 (20.2)	68 (41.7)	163	χ2=24.342 p=0.082, df=16

Table 3 shows the association between socio-demographic variables and anxiety status among rural married women. Anxiety severity increases with age, with extremely severe anxiety being most prevalent in the perimenopausal (44.2%) and postmenopausal (43.8%) groups, followed by early adulthood (47.2%) and early reproductive age (30.5%) (χ^2 = 36.015, p = 0.003). Anxiety levels are also higher among less educated women, particularly among the illiterate (48% extremely severe, 22% severe) and

primary school-educated (43.5% extremely severe, 21.4% severe), while professionally educated women reported the lowest levels (χ^2 = 68.48, p = 0.000). Unemployed and unskilled women show higher levels of severe and extremely severe anxiety (16.8% and 34.8% for unemployed; 14.9% and 39.1% for unskilled), though professionals had the highest extremely severe anxiety (48.1%); however, the association was not statistically significant (χ^2 = 33.745, p = 0.089). Most women with anxiety had no comorbidities, while among those with comorbidities, severe and extremely severe anxiety were highest in women with both diabetes and hypertension (36.4% and 45.5%, respectively), but this too lacked statistical significance (χ^2 = 19.654, p = 0.074). Anxiety severity was highest among women from large families (60.4% extremely severe, 18.8% severe), followed by small and medium families, showing a significant association (χ^2 = 27.939, p = 0.001). While extremely severe anxiety was prevalent across socio-economic classes—highest in the upper middle (50%), middle (41.8%), and lower (41.7%) groups—the association between socio-economic status and anxiety was not statistically significant (χ^2 = 24.342, p = 0.082).

Table No. – 4: Association between Socio-demographic variables and Stress status of rural married women (n=630)

Variable	Category	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Total	Chi-square value (p value, df)
Age	18–24 (Early Adulthood)	14 (38.9)	5 (13.9)	14 (38.9)	3 (8.3)	36	χ^2=10.953 p=0.533, df=12
	25–34 (Early Reproductive)	75 (43.1)	22 (12.6)	60 (34.5)	17 (9.8)	174	
	35–44 (Late Reproductive)	65 (45.5)	13 (9.1)	54 (37.8)	11 (7.7)	143	
	45–54 (Perimenopausal)	59 (34.3)	25 (14.5)	71 (41.3)	17 (9.9)	172	
	55+ (Postmenopausal)	35 (33.3)	12 (11.4)	42 (40)	16 (15.2)	105	
Education	Professional	5 (38.5)	1 (7.7)	6 (46.2)	1 (7.7)	13	χ^2=86.022 p=0.001, df=15
	Graduate	60 (55.6)	10 (9.3)	32 (29.6)	6 (5.6)	108	
	Intermediate	59 (66.3)	2 (2.2)	21 (23.6)	7 (7.9)	89	
	High School	42 (30.2)	23 (16.5)	64 (46)	10 (7.2)	139	
	Primary School	47 (30.5)	21 (13.6)	75 (48.7)	11 (7.1)	154	
	Illiterate	35 (27.6)	20 (15.7)	43 (33.9)	29 (22.8)	127	
Occupation	Professional	5 (18.5)	2 (7.4)	16 (59.3)	4 (14.8)	27	

Variable	Category	Normal (%)	Mild (%)	Moderate (%)	Severe (%)	Total	Chi-square value (p value, df)
	Semi-professional	31 (47.7)	4 (6.2)	26 (40)	4 (6.2)	65	χ2=28.163 p=0.060, df=18
	Clerical/Shop Owner	32 (31.4)	17 (16.7)	42 (41.2)	11 (10.8)	102	
	Skilled Worker	20 (43.5)	5 (10.9)	18 (39.1)	3 (6.5)	46	
	Semi-skilled Worker	24 (40.7)	5 (8.5)	27 (45.8)	3 (5.1)	59	
	Unskilled Worker	31 (35.6)	14 (16.1)	36 (41.4)	6(6.9)	87	
	Unemployed	105 (43)	30 (12.3)	76 (31.1)	33 (13.5)	244	
Comorbidities	None	241 (40.4)	71 (11.9)	226 (37.9)	58 (9.7)	596	χ2=17.634 p=0.040, df=9
	Diabetes	5 (29.4)	3 (17.6)	5 (29.4)	4 (23.5)	17	
	Hypertension	2 (33.3)	2 (33.3)	1 (16.7)	1 (16.7)	6	
	Both	0 (0)	1 (9.1)	9 (81.8)	1 (9.1)	11	
Family Type	Joint	103 (37.6)	37 (13.5)	106 (38.7)	28 (10.2)	274	χ2=33.861 p=0.001, df=6
	Nuclear	137(44.5)	35 (11.4)	115 (37.3)	21 (6.8)	308	
	Three Generation	8 (16.7)	5 (10.4)	20 (41.7)	15 (31.3)	48	
Socioeconomic Status	Upper Class	1 (33.3)	1 (33.3)	1 (33.3)	0 (0)	3	χ2=25.137 p=0.014, df=12
	Upper Middle	9 (28.1)	1 (3.1)	20 (62.5)	2 (6.3)	32	
	Middle	61 (37)	21 (12.7)	70 (42.4)	13 (7.9)	165	
	Lower Middle	126 (47.2)	30 (11.2)	82 (30.7)	29 (10.9)	267	
	Lower	51 (31.3)	24 (14.7)	68 (41.7)	20 (12.3)	163	

The table 4 shows the association between various socio-demographic factors and stress status among rural married women. Age-wise distribution reveals that moderate stress was predominant across all groups, particularly in the late reproductive (37.8%), perimenopausal (41.3%), and postmenopausal phases (40%), though the association was not statistically significant (χ^2 = 10.953, p = 0.533).

Education level showed a significant association (χ^2 = 86.022, p = 0.001), with moderate stress highest among primary (48.7%) and high school (46%) educated women, and severe stress most common among the illiterate (22.8%). Professionally educated women had the lowest severe stress (7.7%). Stress levels across occupations revealed moderate stress was most common in professionals (59.3%) and clerical/shop owner/farmers/unskilled workers (around 41%), with no significant association found (χ^2 = 28.163, p = 0.060). Women with comorbidities showed a substantial association with stress (χ^2 = 17.634, p = 0.040), with diabetic women (23.5%) and hypertensive women (16.7%) having the highest severe stress, while those with both conditions had the highest moderate stress (81.8%). Stress levels varied significantly with family type (χ^2 = 33.861, p = 0.001), with three-generation families showing the highest severe (31.3%) and moderate (41.7%) stress. Socio-economic status also showed a significant association (χ^2 = 25.137, p = 0.014), where lower-class women had the highest severe stress (12.3%) and upper/upper middle classes had none or minimal severe stress but higher moderate stress (33.3% and 62.5%, respectively).

Table No. 5: Regression analysis of clinico-socio-demographic factors with depression

Socio-Demographic Characteristics		Sig	Adjusted OR	95% Confidence interval	
				Upper Limit	Lower Limit
Age in years	Early Adulthood (18 – 24)	0.635	0.813	0.345	1.913
	Early Reproductive Age (25 – 34)	0.231	0.713	0.410	1.240
	Late Reproductive Age (35 – 44)	0.097	0.618	0.351	1.091
	Perimenopausal Phase (45 – 54)	0.828	1.066	0.600	1.891
	Postmenopausal Phase (55 and above) (reference)	0.001	3.200		
Occupation	Professional	0.030	3.902	1.141	13.346
	Semi Professional	0.585	1.181	0.650	2.147
	Clerical, Shop Owner, Farmer	0.059	1.676	0.981	2.863
	Skilled worker	0.792	0.915	0.471	1.775
	Semi-skilled worker	0.111	1.726	0.882	3.377
	Unskilled worker	0.134	1.533	0.877	2.681
	Unemployed (reference)	0.001	2.050		
Type of family	Joint	0.062	0.398	0.151	1.047
	Nuclear	0.002	0.215	0.083	0.560
	Three generation (reference)	0.000	8.600		
Socio Economic Status	Upper	0.688	0.608	0.054	6.891
	Upper middle	0.860	1.086	0.436	2.706
	Middle	0.848	1.052	0.628	1.761
	Lower middle	0.015	0.578	0.372	0.900
	Lower (reference)	0.001	3.289		

Table 5 displays adjusted odds ratios (ORs) with confidence intervals (CIs) for various socio-demographic factors associated with depression among rural married women. Postmenopausal women (55 years and above) had significantly higher odds of depression (OR = 3.200, p = 0.001) compared to other age groups. Professionally employed women also showed higher odds of depression (OR = 3.902, p = 0.030) relative to the unemployed reference group (OR = 2.050, p = 0.001). Among family types, individuals from three-generation families had the highest association with depression (OR = 8.600, p = 0.000) compared to other structures. Socio-economic status was also significantly associated, with those from lower socio-economic groups (reference) having higher odds of depression (OR = 3.289, p = 0.001). At the same time, individuals from the lower-middle class had reduced odds (OR = 0.578, p = 0.015).

Table no 6: Regression analysis of clinico socio demographic factors with Anxiety

Socio-Demographic Characteristics		Sig	Adjusted OR	95% Confidence interval	
				Upper Limit	Lower Limit
Age in years	Early Adulthood (18 – 24)	0.793	0.889	0.368	2.146
	Early Reproductive Age (25 – 34)	0.240	0.715	0.408	1.252
	Late Reproductive Age (35 – 44)	0.031	0.535	0.302	0.945
	Perimenopausal Phase (45 – 54)	0.767	0.917	0.517	1.627
	Postmenopausal Phase (55 and above) (reference)	0.001	3.375		
Occupation	Professional	0.052	2.964	0.992	8.855
	Semi Professional	0.335	1.346	0.736	2.464
	Clerical, Shop Owner, Farmer	0.023	1.875	1.091	3.220
	Skilled worker	0.637	1.178	0.596	2.330
	Semi-skilled worker	0.131	1.657	0.860	3.192
	Unskilled worker	0.135	1.523	0.878	2.643
	Unemployed (reference)	0.001	1.940		
Type of family	Joint	0.074	0.441	0.180	1.084
	Nuclear	0.005	0.280	0.115	0.681
	Three generations (reference)	0.001	7.0		
Socio Economic Status	Upper class	0.708	0.629	0.056	7.126
	Upper middle	0.803	1.123	0.451	2.796
	Middle	0.747	1.088	0.651	1.818
	Lower middle	0.018	0.588	0.379	0.913
	Lower (reference)	0.001	3.179		

Table 6 presents adjusted odds ratios (ORs) along with confidence intervals (CIs) for various socio-demographic characteristics related to anxiety among rural married women. Postmenopausal women exhibited significantly higher odds of experiencing anxiety (OR = 3.375, p = 0.001). In terms of occupation, professionals (OR = 2.964, p = 0.052), clerical/shop owners/farmers (OR = 1.875, p = 0.023), and the unemployed group (reference category, OR = 1.940, p = 0.001) showed increased odds of anxiety. Within family structures, individuals from three-generation families faced significantly

higher odds of anxiety (OR = 7.0, p = 0.001) compared to other family types. Furthermore, individuals from lower socio-economic groups (reference category) had significantly heightened odds of anxiety (OR = 3.179, p = 0.001), indicating these groups are at greater risk.

Table No. 7: Regression analysis of clinico-socio-demographic factors with Stress

Socio-Demographic Characteristics		Sig	Adjusted OR	95% Confidence interval	
				Upper Limit	Lower Limit
Age in years	Early Adulthood (18 – 24)	0.546	0.786	0.359	1.720
	Early Reproductive Age (25 – 34)	0.107	0.660	0.398	1.093
	Late Reproductive Age (35 – 44)	0.055	0.600	0.356	1.012
	Perimenopausal Phase (45 – 54)	0.869	0.958	0.573	1.600
	Postmenopausal Phase (55 and above) (reference)	0.001	2.000		
Occupation	Professional	0.019	3.324	1.218	9.067
	Semi Professional	0.502	0.828	0.479	1.434
	Clerical, Shop Owner, Farmer	0.044	1.652	1.013	2.695
	Skilled worker	0.955	0.982	0.520	1.854
	Semi-skilled worker	0.743	1.102	0.618	1.964
	Unskilled worker	0.229	1.365	0.822	2.265
	Unemployed (reference)	0.030	1.324		
Type of family	Joint	0.07	0.332	0.150	0.737
	Nuclear	0.01	0.250	0.113	0.551
	Three generations (reference)	0.001	5.0		
Socio Economic Status	Upper class	0.940	0.911	0.081	10.274
	Upper middle	0.723	1.164	0.503	2.692
	Middle	0.278	0.776	0.491	1.227
	Lower middle	0.001	0.510	0.338	0.767
	Lower (reference)	0.001	2.196		

Table 7 displays adjusted odds ratios (ORs) with confidence intervals (CIs) for socio-demographic characteristics about stress among rural married women. Postmenopausal women had significantly higher odds of experiencing stress (OR = 2.000, p = 0.001). Professionals showed increased odds of stress (OR = 3.324, p = 0.019), indicating elevated risk across occupational groups, including clerical/shop owners/farmers and the unemployed. Individuals from three-generation families had the highest odds of stress (OR = 5.0, p = 0.001), while nuclear (OR = 0.250, p = 0.01) and joint families (OR = 0.332, p = 0.07) had comparatively lower odds. Socio-economic status also showed a significant association, with lower-middle-class individuals having reduced odds (OR = 0.510, p = 0.001) and those from the lower class showing higher odds of stress (OR = 2.196, p = 0.001).

4. DISCUSSION

In the present study, it was found that 72.3% of married women experienced depression, encompassing mild, moderate, severe, and extremely severe cases. Similarly, 71.91% of married women experienced anxiety across these severity levels, while 61.91% reported stress, including mild, moderate, severe, and extremely severe cases. The prevalence of depression among married women in rural areas of Kolar, as assessed using the DASS-42 questionnaire, stands at 72.3%. This rate is significantly higher than the prevalence rates reported in various international studies. In a study conducted in Egypt by D.S. Osman et al., the occurrence of depressive symptoms in married women attending a primary healthcare facility was 30.2%, as assessed using the PHQ-9 diagnostic criteria. This suggests that rural populations often face unique socio-economic challenges and limited mental health resources.15 A study from Turkey by Sule Ergol et al. reported that 29.1% of married women aged 15–49 exhibited varying symptoms of depression, while 38.4% displayed anxiety symptoms.[16] Compared to the present study, the lower prevalence in Turkey may stem from differences in cultural perceptions, healthcare access, or even methodological differences. A study conducted in Bangladesh by Azharul Islam et al. examined the impact of employment status, academic qualifications, marital satisfaction, and psychological well-being on depression among 200 married women, reporting that 15% of participants scored above the cut-off point for depression. Factors such as employment status, academic qualifications, marital satisfaction, and psychological well-being, as measured by GHQ-28, were the most influential predictors, accounting for 56.2% of the variability in depression.[17] A research study carried out in South Korea by In Sook Choo et al. found that elevated levels of depression were associated with factors such as occupational demands, life stress, deteriorating health, limited social support, and personality vulnerabilities.[18] A study by K. Lamiya et al. in rural North Kerala reported a depression prevalence of 24.2% among married women.[19] Similarly, Krithiga S. Sivakumar et al. found a prevalence of 11.4% in rural Puducherry, with factors such as age, marital status, obesity, adverse pregnancy outcomes, and physical abuse contributing to the risk.[20] In Rajasthan, Manish Kumar et al. reported a prevalence of 15.2%, identifying family ailments, unusual family events, addiction, debt, early marriage, and infertility as significant contributors. [21] Added to growing research, one more study done in rural Tamil Nadu in 2022 found the prevalence of depression among women of reproductive age to be 17.9%, with socio-economic status and religion as significant contributors. Interestingly, most women didn't report family conflicts, although some had family members with alcohol dependence.[22] Despite targeting a similar demographic, the prevalence in Tamil Nadu was far lower than in Kolar. This could be due to differences in local stressors, cultural expectations, or support systems available to women within the family and community. The study from Kashmir, conducted in 2018, also examined depressive symptoms among rural residents and found a strong link between depression and factors such as low income, illiteracy, and nuclear family settings. Although the exact prevalence in women wasn't isolated, women comprised a significant portion of the sample (66.3%).[23] The much higher prevalence found in the present study compared to these international studies suggests that rural areas of Kolar may have unique risk factors contributing to depressive symptoms. Limited access to healthcare services, poverty, cultural restrictions, and lack of mental health awareness may all contribute to the high prevalence rate. The results highlight the importance of implementing specialized mental health initiatives, educational campaigns, and available psychological support services in rural areas.

In this study, it was observed that 71.91% of married women experienced anxiety, ranging from mild to extremely severe. In a study conducted in the rural Ismailia governorate of Egypt by Salim et al., the prevalence of anxiety among women visiting primary healthcare facilities was 76%, with the majority experiencing mild anxiety (46%), followed by mild to moderate anxiety (18%).[24] In Ethiopia, a study conducted by Kefelew et al. among female employees of the Hawassa industrial park reported a prevalence of anxiety of 79.8% using the DASS-21 scale.[25] The similarity in anxiety prevalence between the Ethiopian study and the present study could be due to similar socio-economic challenges, limited social support, and high levels of stress experienced by the study populations. However, the difference in study design and population characteristics (industrial workers versus rural married women) may account for some variation. For instance, research conducted by Sweta Sinha et al. in Jaipur among women in urban slums reported an anxiety prevalence of 38.22% (DASS-21), which, although considerably high, remains much lower than the prevalence rate found in Kolar.[26] Additionally, the study conducted in Southern Karnataka by Rakshitha R Shenoy et al. indicated a much lower prevalence of anxiety disorders at 3.37% (GAD-7). This discrepancy can

be attributed to the variations in study populations, with the Southern Karnataka study encompassing urban and coastal populations and potentially different diagnostic criteria.[27] Overall, the results of the present study indicate a high occurrence of anxiety among rural married females. This finding is consistent with the studies conducted in Egypt and Ethiopia, but is significantly higher than the findings from Bangladesh. The elevated prevalence of anxiety in this study may be attributed to limited access to healthcare services, economic instability, cultural restrictions, and insufficient social support systems prevalent in rural areas. The present study, conducted in rural areas of Kolar using the DASS-42 questionnaire, found a prevalence of stress of 61.91%. A study from Pakistan in 2020 further emphasized how deep-rooted cultural norms contribute to women's stress.28 A study conducted by Maria Pis et al., in Udupi, reported a higher prevalence of stress among women, especially unmarried women (85%), compared to married women (76%). While the Udupi study focused on a descriptive survey among women aged 18-45, our study targeted rural married women, where social support systems may influence stress levels differently.[29] Similarly, the occurrence of stress in this study is significantly lower compared to the study conducted by P.J. Paramaeswari et al., in Chennai, where the prevalence was reported as 81.5% among women of reproductive age (18-45 years).[30] In contrast, the prevalence of stress in the present study is relatively consistent with the findings from Rekha et al., in Mangalore, where 83.9% of working women reported moderate stress.[31] When looking at similar findings from a 2020 study by Rema M. K. et al., in Bangalore, it was found that 87% of women reported being stressed most of the time, especially those aged 22 to 55, who were struggling to balance work, home, and social life.[32] Overall, the prevalence of stress observed in our study is lower than in most studies mentioned above. This discrepancy may arise due to differences in the study settings, sample populations, measurement tools, and socio-cultural factors unique to the rural context of Kolar. Additionally, variations in study methodologies, sampling techniques, and assessment tools may have contributed to the differences in reported stress levels. A study conducted in Russia examined gender differences in recurrent depressive disorder and found that women experienced an earlier onset of depression, more frequent episodes, and poorer recovery compared to men. Symptoms such as anxiety, fatigue, and sleep disturbances were more prevalent in women.[33] This supports the age-related trends seen in the present study, where younger age groups, such as early adulthood (18–24 years) and early reproductive age (25–34 years), showed a weaker association with depression (OR=0.813, p=0.635 and OR=0.713, p=0.231, respectively). A study from the United States followed women over time and found that concerns about declining health remained steady, while worries about attractiveness and reproductive aging tended to decrease.[34] The findings are similar to the present study, where older women had higher odds of depression, possibly due to ongoing health concerns. On the other hand, younger women (18–34 years) had lower odds of depression (OR=0.813, p=0.635 and OR=0.713, p=0.231, respectively). A study conducted in Lithuania in 2024 found that nearly half of older adults reported high levels of anxiety (49%) and depression (48.4%), with stress affecting about 30% of the population. This study also suggests that mental health issues can persist or even worsen with age, particularly when compounded by health concerns and declining independence.[35] A study done in Andhra Pradesh, India, in 2024 specifically examined depression among women aged 45–55 years during menopause.[36] A study done in Tamil Nadu in India from 2013 examined depression among reproductive-age women (15–49 years) and found a high prevalence of 39.7%, with significant associations between depression and factors like being widowed, having low education levels, and a lower socioeconomic status. This study emphasized that social determinants may contribute more to depression than biological age alone.[37] One more study was conducted in Tamil Nadu, India, where 70.4% of postmenopausal women reported very high stress levels, significantly affecting their quality of life. This research also showed a moderate inverse relationship between stress levels and overall quality of life, meaning overall well-being declined as stress increased.[38] A 2023 study from Bhubaneswar that examined married women aged 15–49 found high levels of stress, anxiety, and depression across various reproductive stages. In contrast to our study, which shows a significant increase in depression after menopause, the Bhubaneswar study revealed that even younger women face mental health challenges. This indicates that depression and anxiety are persistent concerns throughout a woman's life, not just during menopause.[39] Occupation plays a significant role in shaping mental health. These results were consistent with research from Ethiopia (2023), where female industrial workers reported high levels of work-related stress (59.3%) and anxiety (79.8%).[40] Similarly, research from Saudi Arabia (2024) found that stress, anxiety, and depression were influenced by occupation among pregnant women, suggesting that those balancing multiple responsibilities are more prone

to depression, anxiety, and stress.[41] Interestingly, a study from Iran (2015) found that employed women experienced lower levels of depression and anxiety compared to unemployed women. This suggests that having a job may offer protective effects, possibly due to financial independence, structured routines, and social interactions at work.[42] A study from Pakistan (2022) compared mental health between working and non-working women and found no significant differences in depression and anxiety levels. However, stress was significantly higher among working women. This suggests that while employment itself may not always lead to depression or anxiety, the pressures of the workplace, such as deadlines, responsibilities, and work-life balance, can contribute to higher stress levels.[43] A study conducted on Professionals in India showed that job satisfaction was closely tied to mental health among women. This also highlights how work-related pressures, rather than personal background, play a bigger role in shaping mental well-being.[44] Similarly, a study from Gujarat in 2017 found that homemakers had higher levels of stress and anxiety compared to working women. This suggests that having a job might provide a sense of purpose and social interaction that helps manage stress.[45] Another study from Tamil Nadu in 2018 looked at young girls working in textile factories and found a high prevalence of depression and behavioural issues. [46] Another study from South India in 2023 looked at low-income urban women and found that they experienced high levels of anxiety and depression. However, they were employed, many still struggled with stress due to migration issues, lack of social support, and city life . [47]A 2024 psychological review of working women in India further emphasized the struggles of balancing job responsibilities with family life. It pointed out that many married women experience stress due to male dominance in the household, lack of support from their husbands, and the expectation that they manage both work and home effortlessly. [48] Family structure plays a considerable role in a woman's mental health, shaping how much stress she experiences in her daily life. At the same time, women in nuclear families sometimes struggled with loneliness and a lack of immediate support. This finding is somewhat similar to what we observed in the present study, where women in nuclear families had lower stress levels than those in three-generation families but still faced mental health challenges.[49] A study from Punjab in 2015 focused on the family environment rather than just the type of family. It found that women in emotionally supportive families, whether joint or nuclear, had better mental health, whereas those in conflict-ridden households experienced higher stress levels. This indicates that simply being in a particular type of family isn't the only factor; how that family functions matters just as much.[50] A more recent study from Turkey in 2024 focused on women with severe mental disorders and found that joint family settings sometimes imposed additional caregiving responsibilities on them, leading to high levels of stress. In this study, women in three-generation families experienced the highest stress, likely because they had to juggle multiple roles, caring for children, managing household duties, and sometimes even looking after elderly family members.[51] Overall, these studies show that family structure plays a complex role in women's mental health. While some women benefit from the support of a joint or nuclear family, others find these arrangements stressful, depending on their specific family dynamics. An extensive study from China in 2023 also confirmed that women with lower income and education levels were at a greater risk of depression and anxiety. [52] Another study from Madagascar in 2021 found that women from poorer backgrounds had more exposure to life stressors, and this ongoing stress was the key link between poverty and depression.[53] A 2024 study from Mumbai, which found that financial instability increases the risk of mental health issues and highlighted how stress was a key factor leading to severe depression, a trend that aligns with my findings. Interestingly, it also noted that a positive emotional outlook could act as a protective factor, showing that resilience plays a vital role in mental well-being even under challenging circumstances.[54] Similarly, a 2018 study in a metropolitan city in India found that women from lower-income groups were at much higher risk for depression. Factors like poverty, lack of access to maternal healthcare, and lower education levels contributed significantly.[55]   A study conducted in India in 2024 focusing on economically marginalized communities also supports this link between financial hardship and mental health. It found that women in these communities reported moderate levels of distress, largely due to factors such as lack of resources, community violence, and gender discrimination.[56] In contrast, the present study was able to identify a clear connection between low socioeconomic status and higher odds of depression, anxiety, and stress. This suggests that mental health struggles among financially disadvantaged women are both widespread and often hidden.

In Tamil Nadu, a 2022 study found that lower socioeconomic status was strongly linked to depression among women. The study pointed out that social stigma, financial burdens, and lack of awareness about mental health challenges contribute to the high number of untreated cases. The current study aligns with this, as it also highlights how lower-income women face a greater burden of depression, anxiety, and stress. The Tamil Nadu study reported a depression prevalence of nearly 18%, which fits within the range seen in other studies and suggests that this is a widespread issue.[57] Whether it's due to financial instability, social stigma, lack of healthcare access, or stressful life experiences, the burden of depression, anxiety, and stress falls disproportionately on women. The present study findings reinforces that economic struggles remain a key factor in shaping mental health outcomes for women across India. Strengths of the study are few. Community-based design which used multistage sampling ensures grassroots-level data on mental health among rural women. The present study also used a validated tool which adds reliability and comparability of psychological measurements across populations. Limitations of the study are few. The nature of the cross-sectional study restricts causal interpretation, as observed associations do not establish directionality or time-related effects. No clinical diagnosis or psychiatric validation was performed to confirm depression, anxiety, or stress cases.

CONCLUSION

Recognizing that mental health is integral to overall well-being, there is an opportunity to expand community-driven mental health programs in rural areas. Strengthening primary healthcare services, integrating mental health screenings, and increasing awareness campaigns can ensure early identification and timely support for women facing anxiety, stress, or depression. By understanding the prevalence and influencing factors in this population, valuable insights can guide policy reforms and better resource allocation, ultimately improving mental health services and enhancing the quality of life for rural married women. Finally, early detection and intervention are key to preventing long-term complications of mental health problems. By addressing these challenges through a multi-sectoral approach, significant improvements can be made in the mental well-being and overall quality of life of rural married women.

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