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Prevalence of Depression among nursing staff in a tertiary care hospital in Wayanad, Kerala: An observational study

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ABSTRACT

Depression is a significant global health issue, affecting over 350 million individuals. A population-based study in India reported a 15.1% prevalence of depression. Nurses play a crucial role in healthcare, and their well-being directly impacts hospital quality, making their mental health an essential concern. Objectives-To estimate the prevalence of depression among nursing staff of a tertiary healthcare hospital. To determine the association between depression and the sociodemographic factors influencing poor mental health.

Methodology-This was a cross-sectional observational study conducted among 201 nursing staff in a tertiary healthcare hospital in Wayanad district of Kerala. Study was conducted between July 2024 to September 2024 by complete enumeration method. A standardized Beck's Depression Inventory Questionnaire was used to assess the severity of depression among nursing staff.

Results

The mean age of nursing staff was 30.22 ± 6.49 years; 86% were women, and 14% were men. The majority were Christians (44%). 42% of the study subjects were married and 54% were unmarried. 66% belonged to nuclear families, 22% to extended nuclear families, and 12% to joint families.35.2% (71) were normal, while 45.27 % had depression—19.40%(39) mild mood disturbance,12.43% (25) borderline clinical depression, 16.91% (34) moderate, 12.43% (25) severe, and 3.48% (7) extremely severe depression. Depression was linked to sex, age, marital status, work experience, time spent with friends and distance of hospital from home.

Conclusion

Our study reveals that there is significant prevalence of depression among nursing staff and there is association of depression with sociodemographic factors which can impact the Quality of service. Also due to the personal life and the difficulties faced such as increased distance from home, marital status, time spent with friends, etc, there can be a negative impact on professional life.

Keywords: Depression, Nursing staffs, Beck's depression inventory

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INTRODUCTION

Depression is a significant contributor to the global burden of disease and affects people in all communities across the world. Today, depression is estimated to affect more than 350 million individuals. Globally, an estimated one in 20 individuals reports an episode of depression in the previous year. The population-based study from India to report on depression shows that the prevalence of depression was 15.1% (1). depression and its associated symptoms present in each individual differently. Generally, depression is characterized by persistent sad, anxious, or empty feelings; feelings of hopelessness or pessimism; feelings of guilt, worthlessness, or helplessness; irritability; restlessness; and loss of interest in activities or hobbies once pleasurable (3) Depressive Disorder is a common and serious mental disorder characterized by a persistently low or depressed mood and a significant loss of interest or pleasure in activities. To receive a diagnosis, an individual must experience five or more specific symptoms within a two-week period, with at least one symptom being either depressed mood or anhedonia (loss of interest or pleasure).(2)Nurses are indispensable to the healthcare system and their well-being and work performance has a considerable effect on the quality of hospital. As front-line caregivers, nurses not only manage their own mental health but also influence the care and recovery of their patients. According to previous research, nurses have a high risk for suicide. They have been dealing with a lot of scrutiny in recent years, partly due to the increased number of populations with complex health problems, among other potential reasons (4,5,6). Therefore, in light of the escalating stressors that nurses have to deal with, and the fact that fatal medications are readily accessible to them, the high risk of suicide might not be a particularly surprising result. Therefore, understanding the prevalence and underlying factors of depression in this demographic is essential for improving both nurse welfare and patient outcomes. World Health Organization has classified depression as the leading contributor to global disability and emphasizes that depression is the primary factor contributing to suicide deaths [7].The corona virus disease 2019 (COVID-19) pandemic further exacerbated the country's overall situation [8].Depression is a significant public health concern globally, impacting not only individuals but also healthcare systems and the quality of care provided.[9]Tools such as the Okasha assessment tool and the Beck Depression Inventory-II (BDI-II) instrument can analyze suicide risk and depression [10,11].

RATIONALE: By addressing the unique challenges faced by these professionals, the study seeks to inform policies and practices that prioritize both nurse well-being and the quality of healthcare delivery. Through a comprehensive understanding of this issue, we can take significant strides towards creating a healthier work environment for nurses, ultimately benefiting the patients they serve.

STUDY OBJECTIVES

a. **Primary objective**: To estimate the prevalence of depression among nursing staffs of a tertiary health care hospital
b. **Secondary objective**: To determine the association between depression and the sociodemographic factors influencing poor mental health.

MATERIALS AND METHODOLOGY:

Study design: Cross sectional study
Study setting: The study was conducted in a tertiary healthcare hospital in Wayanad district of Kerala
Study period/duration: Study was conducted between July 2024 to September 2024
Study participants: Nursing staffs of tertiary healthcare hospital
Selection process: The participants for the study will be selected by complete enumeration method from tertiary care hospital
Inclusion criteria: Nursing staff giving consent to participate in the study are included.
Exclusion criteria: Individuals who are taking psychiatric medications will be excluded from the study.
Sample size: 201 nursing staffs who are giving consent to participate in the study are included.
Study variables
Outcome variable: Prevalence of depression
Independent variable: Age, Gender
Study tools:

A predesigned pre tested semi structured questionnaire were used encompassing of part 1 where sociodemographic profile and general examination and part 2 assess the prevalence of depression using Beck Depression Inventory questionnaire-I, which has 21 questions that measures the severity of depression. The BDI uses a 4 point likert scale to score each of item, with 0 indicating no impairment and 3 indicating severe impairment. The total score ranges from 0-63 with higher scores indicating more severe depression and a score above 17 is indicative of clinical depression.

Short description of the conduct of the study

Data was collected from 201 nursing staff who were included in the study. The questionnaire was distributed randomly to 201 nursing staff from different departments. Participation in the study was on a voluntary basis and informed consent was obtained from the staff. The questionnaire was in English language which is the medium of instruction in all medical college hospitals in India. Staffs were instructed to exclude their names in order to maintain anonymity

Data management and Statistical analysis details;

All responses were tabulated by the investigator using the Microsoft Excel 2019 software. Statistical analysis of all data was made using the SPSS version 22. Data was analyzed in the form of mean, standard deviation, percentage. Chi-square test was used to find out any association with mental morbidities with sociodemographic variables

Results

Data was collected from 201 nursing professionals. The majority were aged <25 years (50.2%), female (85.6%), and held at least a bachelor's degree (95.5%). Most were unmarried (54.2%) and lived in nuclear families (65.7%). A substantial proportion (74.6%) had ≤5 years of work experience, and 36.8% of nurses travelling more than 10km daily from hospital to home and vice versa, 47.8% of nurses are spending less than 1 hr with their friends in a week.

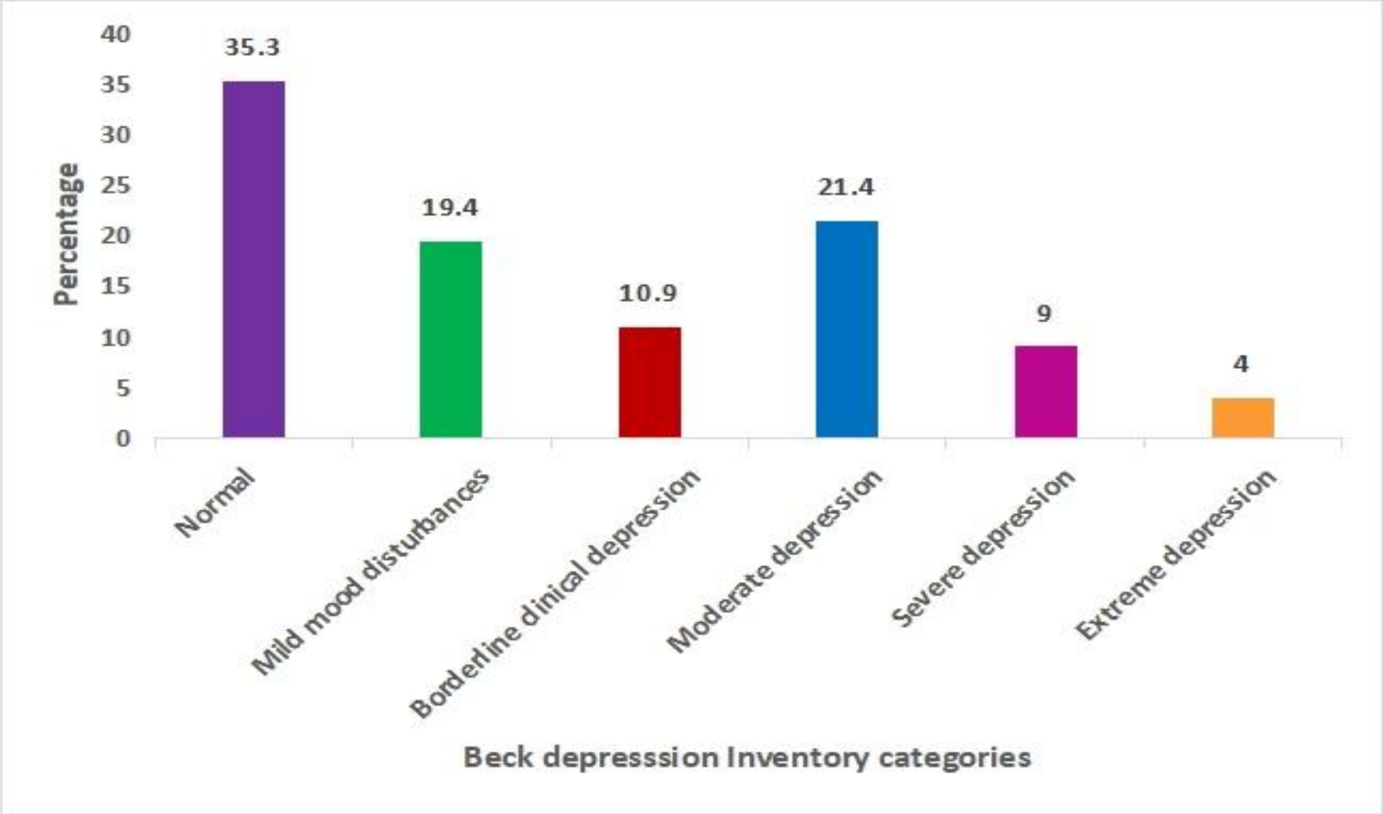
Also, among nurses 65.7% have normal body mass index (BMI),23.9% overweight and 10.4% obese. (Table:1)

Table 1: Demographic and Health-Related Information (N=201)

Category	Subcategory	n (%)
Age	Below 25	101 (50.2%)
	25-35	71 (35.3%)
	Above 35	29 (14.4%)
Sex	Female	172 (85.6%)
	Male	29 (14.4%)
Religion	Christian	78 (38.8%)
	Hindu	89 (44.3%)
	Muslim	34 (16.9%)
Marital Status	Divorced	5 (2.5%)
	Married	85 (42.3%)
	Unmarried	109 (54.2%)
	Widow	2 (1.0%)
Type of Family	Nuclear	132 (65.7%)
	Extended Nuclear	44 (21.9%)
	Joint	25 (12.4%)
Years of Working Experience	0-5 years	150 (74.6%)
	More than 5 years	51 (25.4%)
Distance of Hospital from Home	0-5 km	59 (29.4%)
	6-10 km	68 (33.8%)
	More than 10 km	74 (36.8%)
Time Spent with Friends in a Week	0-1 hr	96 (47.8%)
	2-3 hr	57 (28.4%)
	More than 3 hr	48 (23.9%)
BMI Category (BMI CAT)	Normal Weight	132 (65.7%)
	Overweight	48 (23.9%)
	Obesity	21 (10.4%)

Depressive symptoms, assessed using the Beck Depression Inventory (BDI), revealed that 35.3% of participants were normal, while 64.7% reported varying levels of depressive symptoms: 19.4% mild, 10.9% borderline clinical, 21.4% moderate, 9.0% severe, and 4.0% extreme. (Figure 1)

Figure 1: Distribution of Depressive Symptom Severity Among Participants (Based on BDI Scores)



In our study 45.3% of participants have clinical depression. In BDI questionnaire a score above 17 is indicative of clinical depression. The distribution of study subjects according to distance of hospital from their home. maximum study subjects are travelling a distance of more than 10 km (36.8%) and according to the time spend with friends maximum study subjects fall into 0-1 hr category (48%). Several demographic and occupational factors were significantly associated with clinically significant depression. Age was a strong correlation ($p < 0.001$), with prevalence increasing from 28.7% in those under 25 years to 72.4% in those over 35. Marital status was also significant ($p = 0.003$); married participants exhibited higher rates of depression (55.3%) than unmarried individuals (33.9%). Work experience correlated positively with depression ($p < 0.001$): 70.6% of those with >5 years of experience reported clinically significant symptoms versus 36.7% with ≤5 years. Time spent with friends per week was inversely associated with depression ($p = 0.003$); 55.2% of those spending ≤1 hour reported depression, compared to only 25.0% among those spending >3 hours. Other factors—sex ($p = 0.725$), religion ($p = 0.977$), BMI category ($p = 0.554$), and type of family ($p = 0.223$)—were not significantly associated with depression. Distance from home to hospital showed a marginal association ($p = 0.045$), with the highest prevalence among those traveling 6–10 km (57.4%).(**Table 2)**

Table 2: Association between Sociodemographic and Lifestyle Factors and Clinically Significant Depression

Variable		Clinically Significant Depression: Yes	Clinically Significant Depression: No	p-value
Age	below 25	29 (28.7%)	72 (71.3%)	<.001
	25-35	41 (57.7%)	30 (42.3%)	
	above 35	21 (72.4%)	8 (27.6%)	
Sex	Female	77 (44.8%)	95 (55.2%)	0.725
	Male	14 (48.3%)	15 (51.7%)	
Religion	Christian	35 (44.9%)	43 (55.1%)	0.977
	Hindu	41 (46.1%)	48 (53.9%)	
	Muslim	15 (44.1%)	19 (55.9%)	
BMI Category	Normal weight	57 (43.2%)	75 (56.8%)	0.554
	Overweight	25 (52.1%)	23 (47.9%)	
	Obesity	9 (42.9%)	12 (57.1%)	
Marital Status	Married	47 (55.3%)	38 (44.7%)	0.003
	Unmarried	37 (33.9%)	72 (66.1%)	
Type of Family	Nuclear	54 (40.9%)	78 (59.1%)	0.223
	Extended Nuclear	24 (54.5%)	20 (45.5%)	
	Joint	13 (52.0%)	12 (48.0%)	
Years of Working Experience	0-5 years	55 (36.7%)	95 (63.3%)	<.001
	More than 5 years	36 (70.6%)	15 (29.4%)	
Distance of Hospital from Home	0-5 km	22 (37.3%)	37 (62.7%)	0.045
	6-10 km	39 (57.4%)	29 (42.6%)	
	More than 10 km	30 (40.5%)	44 (59.5%)	
Time Spent with Friends	0-1 hr	53 (55.2%)	43 (44.8%)	0.003
	2-3 hr	26 (45.6%)	31 (54.4%)	
	More than 3 hr	12 (25.0%)	36 (75.0%)	

Univariate and multivariate logistic regression analyses were performed to identify factors associated with clinically significant depression. The results are presented in terms of unadjusted odds ratios (OR) and adjusted odds ratios (AOR). Age was found to be a significant factor in both the univariate and multivariate analyses. In the univariate model, individuals aged 25–35 years had significantly higher odds of clinically significant depression compared to those aged below 25 years (OR: 3.393, 95% CI: 1.792–6.425, $p < 0.001$), and those aged above 35 years had even higher odds (OR: 6.517, 95% CI: 2.594–16.376, $p < 0.001$). After adjusting for potential confounders, the increased odds remained significant for both age groups, with adjusted odds ratios of 3.717 (95% CI: 1.184–11.670, $p = 0.025$) for those aged 25–35 years and 5.407 (95% CI: 1.192–24.522, $p = 0.029$) for those aged above 35 years, indicating that older age groups were more likely to experience clinically significant depression.Marital status, the association found in the univariate model was attenuated (AOR: 2.522, 95% CI: 0.776–8.192, $p = 0.124$), suggesting that marital status did not independently predict clinically significant depression when controlling for other factors. Similarly, years of working experience showed a significant association with clinically significant depression in the univariate model. Participants with more than 5 years of work experience had significantly higher odds of depression (OR: 4.145, 95% CI: 2.084–8.247, $p < 0.001$). However, after adjusting for other variables, the relationship was only marginally significant (AOR: 2.202, 95% CI: 0.941 -- 5.153, $p = 0.069$), indicating that while work experience may influence depression, its effect is weaker once other confounders are accounted for. Factors related to distance from the hospital and time spent with friends per week were also evaluated. In the univariate model, participants living 6–10 km from the hospital had significantly higher odds of clinically significant depression (OR: 2.262, 95% CI: 1.108–4.620, $p = 0.025$), but this association was no longer significant after adjusting for other factors (AOR: 1.28, 95% CI: 0.561–2.921, p

= 0.558). Similarly, although time spent with friends per week was inversely associated with clinically significant depression in the univariate model, with those spending more than 3 hours weekly showing lower odds (OR: 0.27, 95% CI: 0.126–0.582, $p < 0.001$), this association weakened in the multivariate analysis (AOR: 0.474, 95% CI: 0.193–1.161, p = 0.102), suggesting a less significant relationship when controlling for other factors.

In summary, the logistic regression analysis identified that age, marital status, and years of working experience were significant predictors of clinically significant depression in the unadjusted models, with age remaining a significant predictor after adjustment. While distance from the hospital and time spent with friends showed some associations in the univariate analysis, these were attenuated in the adjusted model, suggesting that these factors have a weaker or non-significant relationship with clinically significant depression when other variables are considered; Table 3

Table 3: Univariate and Multivariate Logistic Regression Analysis of Factors Associated with Clinically Significant Depression

Variable	Category	OR	95% CI	p	AOR	95% CI	p
Age	**Below 25 (Reference)**	1			1		
	25–35	3.393	1.792–6.425	<.001	3.717	1.184–11.670	0.025
	Above 35	6.517	2.594–16.376	<.001	5.407	1.192–24.522	0.029
Marital Status	**Married (Reference)**	1			1		
	Unmarried	2.407	1.343–4.312	0.003	2.522	0.776–8.192	0.124
Years of Experience	**0–5 years (Reference)**	1			1		
	More than 5 years	4.145	2.084–8.247	<.001	2.202	0.941–5.153	0.069
Distance to Hospital	**0–5 km (Reference)**	1			1		
	6–10 km	2.262	1.108–4.620	0.025	1.28	0.561–2.921	0.558
	More than 10 km	1.147	0.568–2.320	0.703	1.068	0.487–2.342	0.869
Time with Friends/Week	**0–1 hr (Reference)**	1			1		
	2–3 hrs	0.68	0.352–1.314	0.252	0.82	0.391–1.719	0.6
	More than 3 hrs	0.27	0.126–0.582	<.001	0.474	0.193–1.161	0.102

DISCUSSION

Our research revealed that the average age was 30.22 years, which aligns closely with an American study, where general healthcare staff averaged 34.91 years [22]. Age group distribution showed 63 % (n=126) in the range of 20-29 , and 27% (n=54) in the 30-39group, similar to a Brazilian study by de Vargas and Vieira in 2010, where 55% of their participants were aged 21-30 (23) Regarding gender distribution, it was found that 86.% of the nursing personnel were women, while 14% were men, a percentage similar to a study in central America by Andrea P Rodriguez, Eliezer D Acosta Romero where 86.59% were women and 13.41% were men(1), also in a Brazilian study by da Silva and colleagues in 2017, where 90.5% of the studied population were women, and the study by Groves et al.(24,25) Regarding religion, it was found that 44% were Christians, 39% were Hindu and 17% were Muslims differing from a study conducted in Manipur, India where 68.4% were Hindus 23.5% were Christians and 8.1 % were others (26) In case of marital status, divorced and married health workers had depression, similar to a study conducted north west armed forces hospital Tabuk, Saudi Arabia [27] Regarding the type of family, our study revealed that 66% of the study population belongs to the nuclear family, 22% belongs to the extended nuclear family, 12% belongs to the joint family.

In our study 36.8% of nurses are long commutes ie, travelling more than 10km daily from hospital to home. Long commutes can lead to increased fatigue and sleep disturbances. These lead to reduced work life balance and in turn causes depressive symptoms in nurses. In a study conducted by Milner A et al longer commuting times have been recognized as potential time-related stressors that can negatively impact mental health. (33) 47.8% of nurses are spending less than 1 hr with the friends in a week. About half of our study population is spending less than one hour with friends. Spending less time with friends has been identified as a risk factor for depression in various studies. Research consistently demonstrates a link between reduced social interaction, particularly with friends, and an increased likelihood of experiencing depressive symptoms. (32) In our study 65.7% participants are normal weight ,23.9% are overweight a nd 10.4% are obese. In a study done by (L De Wit et al., 2010) have consistently reported a significant positive association between higher BMI, particularly in the overweight and obese categories, and an increased risk of depression.(31) In a study done by Mbanga et al among nurses in Cameroon shows that age, gender, marital status, work experience, and night shifts in a week shows significant association with depression (28). Similarly study done by Opoku et al from Ghana and shows that factors like young nurses, educational level, less interaction with friends and family have significant association with depression. (34) In the depression subscale, it was found that 35.2% (71) of the 201 nurses studied were normal; 12.43% (25) had mild; 16.91% (34) had moderate, 12.43% (25) had severe, and 3.48% (7) had extremely severe depression differing from the study conducted by Akshiti Kaushik and Ravikiran, where the results showed that 29.2% (126) of the 431 nurses studied were normal; 11.1% (48) had mild; 33.4% (144) had moderate, 15.1% (65) had severe, and 11.1% (48) had extremely severe depression. Concerning the prevalence of depression as assessed by the BDI-II, 45.27% exhibited a degree of depression. These results are compared to Abraham's 2021 findings, where the aggregated prevalence of depression among healthcare workers was 33% (,27) slightly differing from this study's results Consistently, Lerma-Martinez et al. showed a 20.3% prevalence of depression, and Vargas and Vieira demonstrated a 30% prevalence of some degree of depression among healthcare personnel (29,30) Some limitations of the study should be recognized. Firstly, the fact that the research was conducted in a single university makes it difficult to generalize the results. Secondly, our study relied on self-report measures Therefore, the results obtained should be interpreted with caution.

CONCLUSION

Our study reveals that there is significant prevalence of depression among nursing staff and there is association of depression with sociodemographic factors which can impact the quality of service. However, the underlying prevalence of these mental health conditions emphasized the importance of early identification in all age groups of the nursing staff. Also, due to the personal life and the difficulties faced such as increased distance from home, marital status, time spent with friends, etc. there can be negative impact on professional life. Future research should aim to include a more diverse range of healthcare settings and employ longitudinal designs to better understand the temporal relationships between work stressors and mental health outcomes among nursing staff. Concrete steps need to be taken by administrators in India to address the issue of depression among nurses as it is vital for both aspects: a healthy nursing work-force and quality patient care.

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