



Prevalence of Depression among Adults Residing in A Coastal Area of Thiruvananthapuram District, Kerala

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ABSTRACT

Introduction: Depression is an important public health problem. The National Mental Health Survey (NMHS) 2015-16 of India reports that the current prevalence of depression is 2.7%.

Objective: To estimate the prevalence of depression among adults living in a coastal area of Trivandrum district. To find the factors associated with depression among adults living in a coastal area of Trivandrum district.

Materials and methods: A cross sectional study was carried out in two wards of Anchuthengu, a coastal area in Trivandrum district. The sample size obtained was 855. Patient Health Questionnaire (PHQ)-9 was used to assess depression, the data was entered in MS Excel and was analyzed using SPSS version 16.

Results: Majority of the participants had minimal depression 85.5% (84.1 -88.9), mild depression 5.5% (4.0 -7.1), moderate 4.6% (3.2 - 6.0), moderately severe 2.5% (1.5 -3.6) and severe 0.9% (0.4 - 1.6). Married status, mental illness in family, presence of financial burden and belonging to BPL family were found to be associated with depression.

Conclusion: Proper treatment and counselling for depressed individuals and health education in community is necessary in order to address this problem.

Key words: Prevalence, depression, adults, coastal area, Thiruvananthapuram

INTRODUCTION

Depression is a major public health issue in India. It amounts to significant morbidity, disability, mortality as well as socioeconomic losses. Depression affects all; irrespective of age and gender, whether residing in urban or rural areas and slums in India.¹ Globally, greater than 300 million people are estimated to suffer from depression; amounting to 4.4% of the world's population in 2015 and a quarter of these people live in the South East Asian Region (SEAR). Females (5.1%) suffer from depression much more as compared to males (3.6%). Prevalence rates are also affected by age, increases in older adulthood (above 7.5% in females aged 55-74 years and above 5.5% in males). It also

affects children and adolescents below 15 years.² The National Mental Health Survey 2015 -16 reported that the life time prevalence of depression in India was 5.25% and the current prevalence of depression was 2.68%.³ Depressive disorders are characterized by sadness, depressed mood, loss of interest and energy, changes in appetite, decreased or increased sleep pattern, increase in purposeless physical activity, feeling guilty or worthless, indecisiveness and thoughts of death or suicide.^{2,4} There are several causes of depression i.e biological, cultural, social and economic which are triggered by environmental factors. Depression is closely associated with chronic communicable diseases such as TB and HIV; non communicable dis-

eases such as cancer, substance use disorders and nutritional disorders. Depression and suicide are interlinked and hence recognizing depression is crucial in reducing suicides or deliberate self harm. People with depression are often stigmatized and excluded by family or society. As their performance decreases in education and work, they are deprived of economic and social opportunities and hence their quality of life is also decreased. There are several evidence based and cost effective pharmacological and non pharmacological interventions managing depression. These can be delivered in various settings by different groups of health and non health professionals and related service providers.¹

The theme for World Health Day 2017 was Depression and the slogan is 'Depression : Let's Talk'. The goal of the campaign is that people everywhere in the world must seek and get help from health care providers to combat depression.⁵

Rationale of the study: The population living in coastal area is constantly at threat due to floods and deaths at sea. Their living standards are also quite poor and hence form a vulnerable group. This study was carried out in order to estimate the burden and to understand the factors related to depression among residents of a coastal area of Trivandrum district.

OBJECTIVES

The present study was conducted to estimate the prevalence of depression among adults living in a coastal area of Trivandrum district and also to assess the factors associated with depression.

METHODOLOGY

A cross sectional study was carried out among adults residing in Anchuthengu, a coastal area of Trivandrum district. Two coastal wards were randomly selected for the purpose of the study. Using the formula $Z_{1-\alpha/2} pq/d^2$, the calculated sample size was 851 with lifetime prevalence of depression (p) = 5.25% (from National Mental Health Survey 2015-16)³, absolute precision (d)=1.5% , α =5%. We recruited 855 participants for our study.

Data collection was carried out using a pretested questionnaire in local language by house to house visit. The list of houses for the selected ward was obtained with the help of health workers. One house was selected by simple random sampling and the remaining was covered by consecutive sampling. Data was collected by the investigators with the help of trained interns and health workers. The study was carried out during a period of

four months i.e from May to August 2017. All individuals who were greater than 20 years at the time of survey were included in the study. Only participants present at the time of data collection and who had given consent to participate in the study were included. Those participants who were mentally challenged/ suffering from other mental ailments / or unable to respond to our questions due to debilitating conditions were excluded from the study.

A pretested validated semi structured questionnaire (adapted from Patient Health Questionnaire-9) containing nine questions was used for data collection. Details of the study participants such as age, gender, socioeconomic status, marital status, education, occupation, income, family history of depression or any illness, family history of stressors (debts/loans/deaths), mental illness / history of illnesses in participant were obtained. The Patient Health Questionnaire (PHQ)-9 is a self-administered questionnaire based on Primary Care Evaluation of Mental Disorders for common mental disorders. It can be used by the clinician or self-administered to check for depression which scores nine DSM -IV criteria as 0 which means "not at all" to 3 which means "nearly every day". These nine criteria are experience of pleasure, sleep disturbances, feeling low, trouble concentrating, slow speech, suicidal or negative thoughts, energy levels, feeling a failure or appetite changes. The sum total of scores obtained for each of the questions were used to categorize the participants as No or minimal, mild, moderate or severe depression. The scores were as follows :0-4 (No or minimal), 5 -9 (mild), 10-14 (moderate clinical depression), 15-19 (moderately severe depression) and 20-27 (severe depression) as per PHQ 9.⁶ The study participants were briefed regarding the study using a Participant Information Sheet (PIS) and a written informed consent was obtained from the participants at the start of the study. Ethical clearance was obtained from the Institute Ethics Committee (IEC) and confidentiality was maintained.

Qualitative variables were expressed in frequency and percentage. Levels of depression were expressed as frequency (percentage) along with 95% Confidence Interval (CI). To test the association between levels of depression and various sociodemographic parameters and mental stressors, Chi Square test and Analysis Of Variance (ANOVA) was used. P value less than 0.05 was considered as significant.

RESULTS

Among 855 participants, there were 299 (35%) males and 556 (65%) females. There were 202 (23%)

Table 1: Distribution of participants according to level of depression (n=855)

Depression status	Participants	95%CI
No or Minimal	740 (85.5%)	(84.1 - 88.9)
Mild	47 (5.5%)	(4.0 - 7.1)
Moderate	39 (4.6%)	(3.2 - 6.0)
Moderately severe	21 (2.5%)	(1.5 -3.6)
Severe	8 (0.9%)	(0.4 - 1.6)

Table 2: Depressive symptoms experienced among participants (based on PHQ-9) (n=855)

Depression symptoms	Participants
Feeling tired/less energy	374 (43.7%)
Poor appetite /over eating	348 (40.7%)
Feeling down, depressed, hopeless	309 (36.1%)
Lack of sleep/trouble sleeping	301 (35.2%)
Feeling of failure	296 (34.6%)
Thought of hurting self / feeling of better dead	242 (28.3%)
Moving or speaking slowly / fidgety & restless	238 (27.8%)
Little interest or pleasure in doing things	197 (23.0%)
Trouble concentrating on things	188 (21.9%)

participants between age group of 20 to 30 years, 170 (19.9%) between 30 to 40 years, 215 (25.1%) between 40 to 50 years, 125 (14.6%) between 50 to 60 years, 96 (11.2%) between 60 to 70 years and 47 (5.5%) greater than 71 years.

Out of the study participants, 77 (9.0%) were illiterate, 138 (16.1%) had studied up to primary school while 118 (13.8%) had studied upto middle school. Most of the participants i.e 272 (31.8%) had studied up to high school, whereas 152 (17.8%) had studied up to higher secondary and 45 (5.3%) were graduates and 53 (6.2%) were post graduates.

Among the study participants 79 (9.2%) were unmarried, 708 (82.8%) were married, 47 (5.5%) were widowed, 15 (1.8%) were divorced while 6 (0.7%) were living separately. 322 (37.7%) belonged to non nuclear families while 533 (62.3%) belonged to nuclear families. A large proportion of participants were unemployed (mostly being housewives or college students) i.e 173 (20.47%), 167 (19.5%) were daily wagers or labourers. While most of the participants i.e 187 (21.9%) were involved in semi-skilled or skilled activities such as fishing, 160 (19.18%) participants were involved in some form of business, 113 (13.45%) were semiprofessionals while 55 (6.32%) were professionals. 249 (29.1%) belonged to Above Poverty Line (APL) while 606 (71.9%) belonged to Below Poverty Line (BPL).

Majority of the participants had no or minimal depression 85.5% (95% C.I 84.1 -88.9), mild depression 5.5% (95% CI 4.0 -7.1), moderate 4.6% (95% CI 3.2 - 6.0) , moderately severe 2.5% (95% CI 1.5 -3.6) and severe 0.9% (95% CI 0.4 -1.6). (Table 1)

Predominant symptoms of depression were feeling tired (43.7%), appetite disturbances (40.7%), feeling

down or hopeless (36.1%), sleep disturbances (35.2%) and feeling of failure (34.6%) (Table 2).

Table 3 shows the association between various risk factors and depression. It was found that there was no association between middle age (p value 0.736), male gender (p value 0.315), high level of education (p value 0.224), presence of chronic disease in the participant (p value 0.196), recent deaths in family/ close friends or relatives (p value 0.493), use of alcohol (p value 0.66), tobacco use (p value 0.06) and depression. Factors related to depression were belonging to BPL family (p value 0.012), married status (p value <0.001), presence of mental illness in family (p value <0.001) and presence of financial burden such as debts or loans in the family (p value 0.015). ANOVA was used to assess the relation between marital status and depression. It was found that there was no statistically significant difference between depression levels among married and unmarried groups. However there was statistically significant difference between depression among widowed, divorced and individuals living separately when compared with married or unmarried individuals.

DISCUSSION

This is one of the few studies carried to study the proportion of depression among adults residing in a coastal area. Anchuthengu is predominantly a coastal village within Thiruvananthapuram district, Kerala that comprises of 14 wards and a land area of 3.36sq.km. The total population here is 23,614 with 12,516 males and 11,098 females.⁷

In our study, the prevalence of minimal depression was 740 (85.5%), and that of depression was 115 (14.5%) of which mild depression was 47 (5.5%), moderate depression was 39 (4.6%), moderately severe depression was 21 (2.5%) while severe depression was 8 (0.9%). (Table 1) The commonest symptoms of depression were tiredness 374 (43.7%) and appetite changes 348 (40.7%) followed by symptoms such as depressed mood 309 (36.1%), lack of sleep 301 (35.2%) and feeling of failure 296 (34.6%). (Table 2).

The National Mental Health Survey 2015-16 reported that the current prevalence of depression in India was 2.68% while lifetime prevalence of depression was 5.25% i.e almost 1/20 individuals suffer from depression. Higher rates of depression was observed in females, those residing in urban metros and within the age group of 40 to 49 years.³

In a study carried out in 2009 in Chennai among 26,001 subjects (Chennai Urban Rural Epidemiology Study CURES) overall prevalence of depression was 15.1%.

Table 3: Association between selected variables and depression (n=855)

Variables	No or Minimal Depression (%)	Total depression (Mild to Severe) (%)	Total	P value
Age group				
20-30	181 (89.6)	21 (10.4)	202	0.732
31-40	147 (86.5)	23 (13.5)	170	
41-50	186 (86.5)	29 (13.5)	215	
51-60	105 (84.0)	20 (16.0)	125	
61-70	81 (84.4)	15 (15.6)	96	
>70	40 (85.1)	7 (14.9)	47	
Gender				
Male	254 (34.3)	45 (15.1)	299 (35)	0.315
Female	486 (65.7)	70 (12.9)	556 (65)	
Education				
Illiterate	63 (81.8)	14 (18.2)	77	0.199
Primary	118 (85.5)	20 (14.5)	138	
Middle	99 (83.9)	19 (16.1)	118	
HSc#	243 (89.3)	29 (10.7)	272	
HSe@	131 (86.2)	21 (13.8)	152	
Graduate	36 (80.0)	9 (20.0)	45	
PG^	50 (94.3)	3 (5.7)	53	
Marital Status*				
Married	75 (94.9)	4 (5.1)	79	<0.001
Unmarried	625 (88.3)	83 (11.7)	708	
Widowed	31 (66.0)	16 (34.0)	47	
Divorced	7 (46.7)	8 (53.3)	15	
Separate\$	2 (33.3)	4 (66.7)	6	
Ration Card				
APL	536 (88.4)	70 (11.6)	606	0.011
BPL	204 (81.9)	45 (18.1)	249	
Type of family				
Nuclear	464 (87.1)	69 (12.9)	533	0.578
Non Nuclr	276 (85.7)	46 (14.3)	322	
Financial burden				
Present	134 (80.7)	32 (19.3)	166	0.014
Absent	606 (88.0)	83 (12.0)	689	
Mental illness in family				
Present	38 (69.1)	17 (30.9)	55	<0.001
Absent	702 (87.8)	98 (12.3)	800	
Chronic disease in individual				
Present	237 (84.3)	44 (15.7)	281	0.195
Absent	500 (87.6)	71 (12.4)	571	
Recent deaths among friends or relatives				
Present	153 (85.0)	27 (15.0)	180	0.493
Absent	587 (87.0)	88 (13.0)	675	
Use of alcohol				
Present	173 (85.6)	29 (14.4)	202	0.666
Absent	567 (86.8)	86 (13.2)	653	
Use of tobacco				
Present	133 (82.1)	29 (17.9)	162	0.066
Absent	606 (87.6)	86 (12.4)	692	

*ANOVA was done to compare between marital status and depression; #High School; @Higher Secondary; ^Post Graduate; \$Married but Living separately from spouse

This study reported that depressed mood and tiredness were common symptoms i.e 30.8% and 30% respectively while suicidal thoughts and speech or motor retardation was less common i.e both being about 12.4%.⁸

CURES also found the proportion of depression was higher in females i.e 16.3% as compared to males 13.9% and that divorced or widowed status was found to have a significant association with depression.⁸ Other studies have similarly reported more depression among females. This could be attributed to certain biological factors apart from genetic, psychological, social, environmental and hormonal factors. It has been observed that premenstrual syndrome causes depression in one third to two third of women. Similarly depression in pregnancy and postpartum blues are common in women. Elderly women also suffer from depression which could be sometimes due to widowhood.⁹ Another study by Nisar N in Pakistan found that prevalence of depression among adult women in fishing community was 7.5%.¹⁰ In contrast, males were more depressed i.e 45 (15.1%) in comparison to females 70 (12.9%) in our study but this relation between male gender and depression was found to be statistically insignificant (p value 0.315) (Table 3). The reason for this finding could be that we could interview only fewer males as being predominantly a fishing community, most of the adult males ventured out into the sea and hence were absent during our home visits which was between morning to late noon. The consumption of alcohol was moderately high among the males 202 (23.6%) while that of tobacco use was 162 (18.9%). However there was no statistical association between alcohol use (p value 0.66) and tobacco use (p value 0.06) with depression. The pooled estimates from a study by Kim JH reveal that 26.9% of Asian Americans had depressive symptoms according to PHQ9 and that there was no effect of gender on prevalence of depression.¹¹

It is to be noted that most of the depressed individuals in our study belonged to middle age i.e age group between 41 to 50 years, 29 (25.2%) followed by 31 to 40 years, 23 (20%) during which most individuals are stressed due to responsibilities (both personal and family related) and hence have greater chance of getting depressed compared to elderly as seen in our study. Depression was comparatively much lesser among old age i.e 61 to 70 years, 15 (13%) and greater than 70 years 7 (6.1%). However there was no statistical association between middle age and depression (p value 0.732).

We found that depression was less common among the well educated such as graduates and post graduates 12 (25.7%) when compared to illiterate or primary schooling 34 (32.7%). However, the relation between higher education status and lesser depression was not found to be statistically significant (p value 0.199). Similar findings were reported by Yeoh Si H et al who found that there was no significant relation between education and depression. In their study they found that age and

depression were negatively co related i.e older individuals were less depressed compared to the younger population.¹²

In our study, depression was more among married 83 (11.7%), widowed 16 (34.0%), divorced 8 (53.3%) or individuals living separately 4 (66.7%) compared to unmarried persons 4 (3.5%). A statistical association was observed between married status and depression (p value < 0.001). ANOVA showed that there was no statistically significant difference between depression among married and unmarried groups. However there was statistically significant difference between depression among widowed, divorced and individuals living separately when compared with married or unmarried. Similarly participants belonging to BPL family suffered from depression much more i.e 45 (18.1%) compared to APL families 70 (11.6%). (p value 0.011) In our study we also observed that 32 (19.3%) individuals with financial problems had depression and the presence of financial problems was found to be statistically associated with depression. (p value 0.015).

N Nisar et al reported that increasing age, married status, illiteracy, financial problems and greater than four children in a family were some of the factors associated with depression.¹⁰ Similar findings were reported from a study in a rural area by Bhat GA in Jammu and Kashmir wherein illiterates, married individuals and low income status had significant relation with depression.¹³

We observed that 44 (15.7%) of the individuals with chronic diseases were depressed in our study but the presence of chronic illness participants was not found to be statistically associated with depression. (p value 0.195). A study by Joseph et al in three private hospitals among Type II DM patients found that the proportion of depression was 45.2% of which 30.9% had moderate depression and 14.3% had severe depression.¹⁴ A study by Unnikrishnan B among coastal women with HIV/AIDS in South India found that 51.1% were depressed. Widowed women and women from lower socioeconomic class were more prone to depression.¹⁵ A study by Rajangam T found that the risk of depression was higher among uncontrolled diabetics as compared to patients with good glycaemic control.¹⁶ Another study by De S, found that depression was higher among COPD patients and it's severity increased with increased severity of COPD.¹⁷ Similarly depression rates are found to be higher among persons with malignancies.¹⁸

Our study found that 27 (15%) of participants who had suffered from death of a close family member or relative were depressed for which we found a statistically significant association. (p value <0.001). In our study we found that there was not

much difference between depression levels among participants from nuclear and non nuclear families i.e 69 (12.9%) of participants from non nuclear families and 46 (14.3%) from nuclear families were depressed. There was no statistically significant relation between family type and depression. (p value 0.578). When compared with families that did not have mental illnesses, depression rates were higher among families with mental illness i.e 17 (30.9%) and this relation was found to be statistically significant. (p value <0.001)

It was similarly reported by Pilania M who conducted a study in Haryana and found that female gender, chronic morbidity, elderly, not being consulted for decisions in family, lack of work or hobbies and death of close relative in previous one year had a relation with depression.¹⁹ M Buvneshkumar carried out a study in rural Tamil Nadu among elderly and found that overall prevalence of depression was 35.5%. Female gender, nuclear family, widowed status, death of close family member or relative, conflicts in family, unemployed or low socioeconomic status, cardiac disease and visual impairment were related with depression.²⁰ Shivalli S conducted a study among post natal women in Karnataka and found that prevalence of Post Natal Depression (PND) was 31.4%. The factors associated with depression were joint family, working women, poverty, birth of a female baby, pregnancy related complications and other medical illnesses.²¹

CONCLUSION

The present study was carried out to assess the burden of depression in a coastal area and we found that majority of the study participants had no or minimal depression i.e 85.5% while 14.5% Married status, presence of financial problems, belonging to BPL family and mental illness in family were found to be factors associated with depression. Proper treatment and counselling of those individuals who were depressed and health education of the community is essential to address this problem.

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