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Prevalence of Mental illness and its determinants among the elderly population in rural Puducherry, A Community Based Cross-Section Study

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Abstract

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Introduction

Mental disorders are currently an important cause of worldwide health-related burden. Depressive and anxiety disorders were the two most disabling mental disorders, according to the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2019.[1,2] Despite these being the most common mental disorders among geriatrics, it is often less diagnosed and treated.

Depressive symptoms include mood swings, feelings of guilt, sleep issues and insomnia, decreased appetite, decreased energy, increased tiredness, a loss of interest in daily activities, and/or poor concentration on tasks.[3–6] Quite a lot of risk factors (i.e., biological, social, psychological, environmental, etc.) have been advised in the progress of Depression.[7]

On the other hand, elders are exposed to anxiety-causing factors like restricted motor activity, dependency, illness, and fear of death.[8] These disorders have important effects on the quality of life, functional status and use of medical services, and mortality and morbidity of the individuals.[9]

Stress may be mentioned as an unpleasant state of emotional and physiological arousal that people are familiar with in situations that they perceive as threatening to their well-being. Some people describe stress as an event or situation that makes them feel tense, pressured, or negative emotions like anxiety and anger. Some of them view stress as a situation like physiological changes–such as increased heart rate and muscle tension–as well as emotional and behavioral changes.[10]

According to the National Mental Health Survey (NMHS) in India, which was done from 2015 to 2016, the lifetime prevalence of depression, anxiety, and stress-related illnesses is 12.3%, and these disorders are referred to as common mental disorders (CMDs).[11] CMDs range in intensity from mild to severe, and persons with milder forms of the disease go about their daily lives with little disturbance, making them difficult to recognise in the healthcare system. Among CMDs, depression was found to had the highest forever prevalence of 5.1%. Three Indian studies conducted among patients in primary care settings revealed a prevalence of CMDs ranging from 15 to 44%, with 33 to 83% of those diagnosed with CMDs being depressed.[12–14] According to the NMHS, 22 to 33% of persons with chronic non-

communicable diseases, such as ischemic heart disease, diabetes mellitus, hypertension, stroke, and cancer, also suffer from depression. Suicide is a disorder that is frequently linked to severe depression. The female gender and population in the 40–49-year-old age range have been discovered to be independent risk factors for major depression.[11] In India, one in every twenty people suffers from depression. The current and lifetime estimated prevalence of depression was 2.7% and 5.2%, respectively, with equally high rates recorded among the elderly (3.5%). Three fourth of severe mental illness people were unable to do their daily work, social activities, or care for their close relatives; there was a high proportion of disability among people suffering from major depressive disorder (67 - 70%).[11] Difficulties in carrying out their daily activities were revealed in nearly 50% of persons with major depressive disorders.

The leading causes of disability are depression and anxiety. And they are projected to become one of the most important economic and human diseases in the years 2020-2030.[15] Still studies to assess the prevalence of depression, anxiety, and stress-related problems among elderly individuals have hardly been done. As an effect, this study will give an insight into the extent of mental illness among geriatrics in Puducherry.

So, our study incorporated by the following objectives, 1)To estimate the prevalence of Depression, Anxiety, and Stress among the elderly population of rural Puducherry. 2)To assess the severity of Depression, Anxiety, and Stress among the elderly. 3)To Determine the association of Socioeconomic status with Depression, Anxiety, and Stress.

Methodology:

This is a community-based descriptive cross-sectional study conducted among elderly people in rural Puducherry. The study duration was from April to August 2021. The selection of the research setting was collected from the rural field practicing area of a medical college, Puducherry. The villages under the Rural Health Training Center were selected randomly that including Kumarapalayam, Thethampakkam, Mutrampet, Suthukeni, Kodathur, and Katterikuppam. The settlements chosen were near Puducherry's coastal area and covered an area of around 10 square kilometers with a population of around 26034. The family Health Records of the rural field practice area were utilized to select the elderly population of our sampling frame. Using the Simple Random Sampling technique with a computer-generated random number table the study participants were selected according to the inclusion criteria. The following were the criteria for inclusion: (1)Those who are over 60 years old, of both genders; (2)Those who have lived in the research region for at least one year; (3)Elderly who gave consent to participate in the study. Participants who were not available in the field area after three visits, the Elderly who were so crippled that they were unable to cooperate in the study, and those who are deaf, dumb, or psychologically afflicted were all excluded from the study. Informed consent was taken from each participant. The study population consisted of a rural population above 60 years of age of both genders. Based on Kanimozhi S et al the reported prevalence of depression was 42.34%,[16] power: 80%, 95% Confidence Interval, and 5% Absolute precision the minimum sample size was calculated to be 375.

A pilot study was conducted among 30 elderly people in Kodathur village, which is part of the Kumarapalayam RHTC's field practice area, using a predesigned and structured questionnaire that was face and content validated by the authors and external experts in the field of public health to make any necessary changes. A house-to-house survey was done to investigate the prevalence of depression, anxiety, and stress in the elderly, as well as its relationship to socio-demographic and socioeconomic factors. After obtaining written informed consent the investigator used the questionnaire to conduct the face-to-face interview. Age, gender, marital status, religion, educational qualification, and living arrangements were among the parameters noted during the interview. The Mental Illness was then assessed using the Depression Anxiety Stress Scale - Short Form (DASS 21). Each subscale contains 7 elements. The responses were tallied on a four-point scale, with 0 indicating "didn't apply to me at all" and 3 indicating "applied to me a very large percentage of the time or most of the time." Cronbach's alphas for the stress, anxiety, and depression subscales were determined to be 0.85, 0.75, and 0.80, respectively. The total number for each subscale was multiplied by two and

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interpreted as the authors indicated (Lovibond and Lovibond 1995).[17]The severity ratings used to interpret are shown below:

Severity	Depression	Anxiety	Stress
Normal	0–9	0–7	0–14
Mild	10–13	8–9	15–18
Moderate	14–20	10–14	19–25
Severe	21–27	15–19	26–33
Extremely severe	28 +	20 +	34 +

Statistical analysis:

Data were analyzed using IBM SPSS 21 version. All of the data was coded in SPSS, and any data that was found to be invalid was eliminated. For analysis, we used descriptive statistics like frequency and proportions. The association between independent variables i.e., age, gender, socioeconomic status, literacy, working status, and type of family with dependent variables i.e., presence of Depression, anxiety, and stress was determined using Pearson's chi-square test. A P value of < 0.05 and a 95% confidence interval (CI) were used to determine the significance level.

Ethical approval:

Scientific and ethical approval was taken from the Institutional Ethics Committee, (IEC/C-P/15; dated: 03.02.2021) before conducting the present study. We explained our study and its importance to the participants in the vernacular language, Tamil. Throughout the study, anonymity and confidentiality were maintained.

Results:

Table 1 shows, data were collected from 388 participants. On grouping, the elderly based on age, the majority of 250 (64.6%) were young-old (60–69 years), around one-fourth of 110 (28.4%) were Old-old (70–79 years) and 27 (7.0%) were Oldest-old (80 years and above). An almost equal number of participants of either gender, male 208(53.6%) and female 180(46.4%) were included. The majority 248(63.9%) were illiterates and around one-third 140(36.1%) were literate Based on the occupational status, the majority of 58(66.5%) of the study participants were unemployed and one-third of 130(33.5%) of the participants were employed. The distribution of study participants based on the family type was found to majority 322(83.0%) belonged to the nuclear family, 48(12.4%) belonged to the joint family and 18(4.6%) belonged to third-generation families. The Hindus 332(85.6%) constituted the majority followed by Christian 31(8.0%), Muslims 23(5.9%), and others 2(0.5%).

The prevalence of depression, anxiety, and stress are depicted in figure 1. The prevalence of depression was 45.6%, anxiety was 58.5% and stress was 21.6% among the rural elderly population. Among those who had depression, the proportion of participants with mild, moderate, severe, and extremely severe levels of depression were 20.1%, 22.9%, 1.5%, and 1% respectively. Among the participants with anxiety 12.4% were a mild degree, 28.4% had a moderate degree, 12.9% had severe and 4.9% had extremely severe anxiety. Similarly, the study participants' stress severity was distributed as follows: 11.6%

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mild, 7.7% moderate, 1.8% severe, and 0.5% extremely severe stress.

Table 2 depicts that, the majority of study participants with mild 42(53.8%) to moderate 44(49.4%) depression belong to the middle socioeconomic class. Whereas one-third (33.3%) of the study participants with severe depression were equally distributed in the upper-middle and lower classes. Interestingly around three fourth (75.0%) of the study participants with extreme severe depression were found to be in the upper socioeconomic class(according to the Modified BG prasad scale). These differences were found to be statistically highly significant (P value = 0.000).

Table 3 depicts that, the distribution of participants with mild anxiety was comparatively higher in middle socioeconomic class 18(37.5%). The majority of the study participants with moderate 60(54.5%) and severe 26(52.0%) anxiety were also found to be in the middle socioeconomic class. Study participants with extreme severe anxiety were equally distributed (26.3%) in the upper and lower middle class (according to the Modified BG prasad scale). P value = 0.001 showed statistical significance.

Table 4 shows the distribution of participants with varying grades of stress. Mild stress was comparatively higher in middle socioeconomic class 23(51.1%) and around half of the study participants with moderate 13(43.3%) and severe 3(42.9%) stress belonged to middle and lower-middle socioeconomic classes respectively. Surprisingly, three-quarters (75.0%) of study participants with extreme severe stress were found to be from an upper socioeconomic class (according to the Modified BG prasad scale). These differences were found to be statistically significant (P value = 0.003).

Tables:

Table 1: Socio-Demographic Characteristics of Study Participants (N=388)

Socio-Demographic Variables		**Frequency(n)**	**Percent(%)**
Age	60-69 years	250	64.6
	70-79 years	110	28.4
	80-89 years	27	7.0
Gender	Male	208	53.6
	Female	180	46.4
Occupation	Working	130	33.5
	Not working	258	66.5
Family Type	Nuclear family	322	83.0
	Joint family	48	12.4
	Third generation family	18	4.6
Literacy	Literate	140	36.1
	Illiterate	248	63.9
Religion	Hindu	332	85.6
	Christian	31	8.0
	Muslim	23	5.9
	Others	2	0.5

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Figure 1: Distribution of Depression, Anxiety, and Stress among Study Participants (N=388)

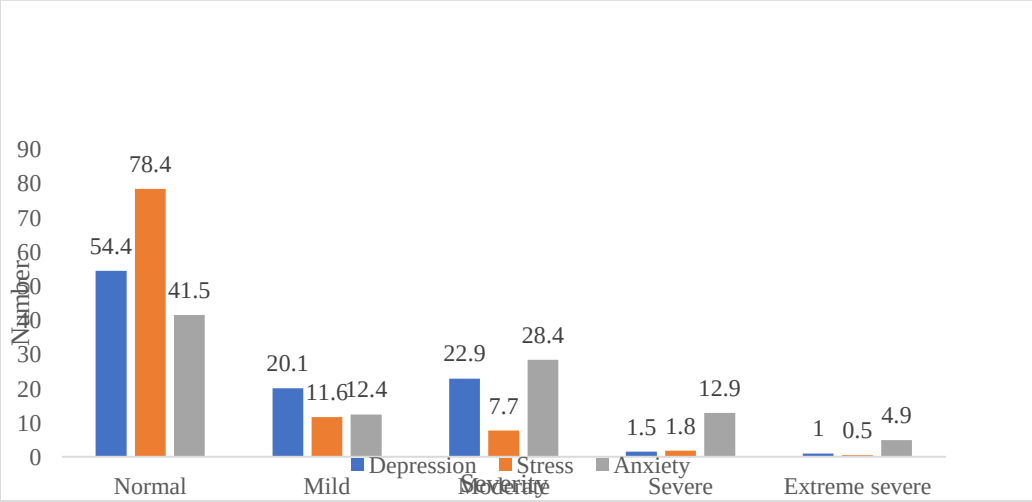

Table 2:Association of Socio-economic status with increasing grades of Depression (N=388)

Socioeconomic status	Depression					Pearson Chi-Square (p-value)
	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Extreme severe n (%)	
Upper class	21(10.0%)	3(3.8%)	8(9.0%)	1(16.7%)	3(75.0%)	50.394[a] (.000)
Upper Middle class	46(21.8%)	19(24.4%)	13(14.6%)	2(33.3%)	0(0.0%)	
Middle class	65(30.8%)	42(53.8%)	44(49.4%)	1(16.7%)	1(25%)	
Lower Middle class	37(17.5%)	6(7.7%)	16(18.0%)	0(0.0%)	0(0.0%)	
Lower class	42(19.9%)	8(10.3%)	8(9.0%)	2(33.3%)	0(0.0%)	
Total	211	78	89	6	4	

Table 3: Association of Socio-economic status with increasing grades of Anxiety (N=388)

Socioeconomic status	Anxiety					Pearson chi-square (p-value)
	Normal n(%)	Mild n(%)	Moderate n(%)	Severe n(%)	Extreme severe n(%)	
Upper class	15(9.3%)	5(10.4%)	6(5.5%)	5(10.0%)	5(26.3%)	39.492[a] (.001)
Upper middle class	37(23.0%)	11(22.9%)	20(18.2%)	10(20.0%)	2(10.5%)	
Middle class	45(28.0%)	18(37.5%)	60(54.5%)	26(52.0%)	4(21.1%)	

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Lower middle class	28(17.4%)	8(16.7%)	15(13.6%)	3(6.0%)	5(26.3%)	
Lower class	36(22.4%)	6(12.5%)	9(8.2%)	6(12.0%)	3(15.8%)	
Total	161	48	110	50	19	

Table 4: Association of Socio-economic status with increasing grades of Stress (N=388)

Socioeconomic status	**Stress**					**Pearson chi-square (p-value)**
	Normal n(%)	**Mild n(%)**	**Moderate n(%)**	**Severe n(%)**	**Extreme severe n(%)**	
Upper class	26 (8.6%)	5(11.1)	1(3.3%)	2(28.6%)	2(100.0%)	35.499[a] (.003)
Upper middle class	64(21.1%)	9(20.0%)	7(23.3%)	0(0.0%)	0(0.0%)	
Middle class	115(37.8%)	23(51.1%)	13(43.3%)	2(28.6%)	0(0.0%)	
Lower middle class	47(15.5)	5(11.1%)	4(13.3%)	3(42.9%)	0(0.0%)	
Lower class	52(17.1)	3(6.7%)	5(16.7%)	0(0.0%)	0(0.0%)	
Total	304	45	30	7	2	

Discussion:

We recruited 388 participants intending to evaluate common mental disorders and the association between them in the elderly population. In this present study majority were male 53.6% around two-thirds of the participants (66.5%) were unemployed and 63.9% were illiterates, our study finding indicates that the prevalence of depression, anxiety, and stress was 45.6%, 58.5%, and 21.6% respectively. A cross-sectional study conducted by Manikandan Srinivasan et al in Puducherry with 301 participants in the age group of 18-59 years shows that depression was 15%, anxiety was 10.6% and stress was 5%.[18] In comparison with this study, our findings were higher than could be possibly because of the study population chosen (elderly) and conducted in the background of the COVID-19 pandemic.

In our study, the distribution of depression, anxiety, and stress were higher among males compared to females. But the study done by Khairul Anwar et al at villages in the Ranau district reported that women had a higher prevalence of depression, anxiety, and stress compared to males.[19] These differences could be due to the inclusion of the study participants in the latter study, where the majority (91.3%) of them aged <60 years and 63.5% were employed in comparison with our study findings. This finding was also supported by the evidence from the study by Weiss Wiesel et al that suggests as age increases the severity of depression also increases.[20]

Using the DASS-21 scale, the prevalence of depression was 45.6% in this study. In comparison to the study done by Kamalesh S et al among the elderly, the prevalence of depression was 10.3% and 9.5% using GDS and HAM-D tools respectively.[21]

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This major difference in the finding may be due to the study tool used to assess depression.

Using the DASS-21 scale Supasiri et al conducted a community study in Thailand showed that the prevalence of depression was 20.2%, anxiety 25.6%, and stress 10.9% among older adults.[22] Also, Gomez et al conducted a community-based study in Australia that reported the prevalence of severe and extremely severe levels of depression, anxiety, and stress were 2.3 %, 1.9 %, and 4.1 % respectively.[23] These findings were almost similar to our study as these studies were conducted among the elderly in the community using the DASS-21 scale. But the study conducted by Manaf et al. in Malaysia showed a higher prevalence of depression and anxiety and stress at 27.8%, 22.6%, and 8.7% respectively.[24] This could be due to the convenience sampling technique adopted by the author.

The study done by Rodrigo et al in Sri Lanka found that the prevalence of anxiety and depression was more among females compared to males. The prevalence of severe depression was 19%, and the severe grade of anxiety was 28% which is higher compared our findings.[25] These contrast findings may be due to the inclusion of adolescents as a study population by Rodrigo et al compared to the elderly population in the present study. Because of their fear of tests, adolescents are more likely to develop depression and anxiety, which can lead to obesity, peer difficulties, long-term bullying, or academic problems, all of which have a detrimental impact on self-esteem.

In our study severe and extremely severe form of depression, anxiety and stress was 2.5%, 17.8%, and 2.3 respectively. The bulk of the elderly who were determined to be severely and extremely severely mentally ill lived alone, either because they were widowed or because their family members had abandoned them. This may be avoided if family members were made more aware of the need for elderly care, as they also must provide an old-friendly environment. A considerable number of elderly people also reported that they have not screened themselves for the presence of senility-related morbidities because they believe it is unavoidable and a result of senility. This attitude highlights the fact that health isn't usually seen as a desire among the elderly.

Conclusion:

Depression, anxiety, and stress have been shown to affect a large proportion of the elderly in the study population. The high prevalence of mental illness indicates the need to screen the elderly in primary health care settings by the trained medical team for common mental illnesses and to incorporate mental health screening in the Community Based Assessment Checklist for NCDs to identify at an earlier stage.

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