Original Article

Depression and its determinants among elderly in selected villages of Puducherry – A community-based cross-sectional study

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Abstract

Background: Depression is the leading cause of disease burden in most regions of the world. But depression among the elderly is usually unrecognized and they have higher morbidity and mortality than those without depression. **Aims:** To estimate the prevalence of depression among the elderly and identifying its determinants in selected villages of Puducherry. **Materials and Methods:** This is a community-based cross-sectional study conducted in three villages in Puducherry. Systematic random sampling is done to select households. Any person above the age of 60 years is considered as elderly. After obtaining informed consent, a pretested questionnaire is administered to obtain sociodemographic characteristics. Height and weight were measured. Chronic illnesses such as diabetes, hypertension, asthma, osteoarthritis, reduced vision, hard of hearing, and substance use were self-reported. Geriatric Depression Scale – Short form questionnaire was used as a screening tool for depression. **Results:** Among the 359 participants, 57% were females. The mean (standard deviation) age of the participants was 67.4 (5.9) years. The majority of them belonged to nuclear family (88%), had no formal education (62%), were unemployed (69%), currently married (68%), and receiving a pension (81%). The prevalence of depression among elderly age 60 years and above is 69% [95% confidence interval (CI) 63.6–73.1). Binary logistic regression showed that single/widow [adjusted odds ratio (aOR) = 3.9, 95% CI 2.0–7.5] and hard of hearing (aOR = 2.2, 95% CI 1.1–4.1) are significant risk factors for depression. **Conclusion:** Prevalence of depression among elderly in this rural area is high. All elderly persons must be screened for depression and appropriate treatment should be initiated.

Keywords: Depression, elderly, geriatric, Puducherry, rural

Introduction

Depression is one of the leading causes of disease burden in most regions of the world. Globally, 300 million people are estimated to have depression.[1] The Global Burden of Disease study has estimated that the disability-adjusted life year (DALY) due to depression is 44 million, and there is a 16.1% increase in the number of DALYs between 2006 and 2016.[2] Depression is an important risk factor for suicide and therefore it is an important public health problem. Depression affects the quality of life of an individual, and if left untreated, it may progress and affect the overall health. To highlight the importance of depression, the World Health Day theme for the year 2017 is "Depression – Lets Talk." The prevalence of depression increases with age and it is one of the commonest psychiatric disorders of the elderly. Depression among the elderly is usually unrecognized. As per the Census 2011, there are 104 million elderly persons (age 60 years or above) in India, which is 8.6% of the total population.[3] The prevalence of depression in elderly ranges from 9% to 39% in India.[4-9] With the increase in life expectancy and the resulting increase in the geriatric population, the prevalence

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of depression is also expected to grow. The objectives of this study are to estimate the prevalence of depression and to find its determinants among elderly in selected villages of Puducherry.

Materials and Methods

This is a community-based cross-sectional analytical study done in three villages in the field practice area of a tertiary care research institute in Puducherry in the month of February 2017. All men and women age 60 years and above residing in the village for the last 1 year were included in the study, and seriously ill patients were excluded. Considering the prevalence of depression in elderly as 39%,[4] with absolute precision as 5, the sample size required for this study is calculated as 366 using OpenEpi open source calculator for sample size.[10] Systematic random sampling was used to select household from the list of all the households available in the field practice area. In each household, one elder person was selected randomly.

Study instruments

A pretested, semi-structured questionnaire was used to obtain independent variables such as age, gender, education, occupation, marital status, and comorbidity. Chronic illnesses such as diabetes, hypertension, asthma, osteoarthritis, reduced vision, hard of hearing, and substance use were self-reported. Weight was measured using bathroom-weighing scales and height was measured using measuring tapes. Geriatric Depression Scale – Short Form (GDS-SF) was used to screen for depression. The original version of the GDS was developed in 1986, and later GDS-SF was developed to screen depression among the elderly in a community setting.[11] GDS SF is a screening tool with a sensitivity of 92% and specificity of 89%, and with moderate internal consistency (Cronbach's alpha of 0.75) to detect depression.[12] GDS-SF has 15 questions with "yes" or "no" responses based on how the participants have felt over the past week. Ten of the "yes" responses and five of the "no" responses are given in bold to give significance to depression. One point is scored for each bold answer. The total score of 0–4 is considered as normal, 5–8 suggests mild depression, 9–11 suggests moderate depression, and 12–15 suggests severe depression. GDS-SF tool was translated to Tamil and back-translated to check for any discrepancies. Pretesting of the questionnaire was done, and based on it modifications were done. It takes approximately 5–7 min to administer the tool for one participant.

The data are collected using the mobile phone application Epi Info[13] and transferred to the desktop. The data are analyzed using IBM SPSS version 19.0.[14] Continuous variables such as age were summarized as mean and standard deviation (SD), and categorical variables such as gender, marital status, family type, and morbidity were summarized as proportions. Chi-square test of proportion is used to test the difference in proportion. Odds ratio with 95% confidence interval (CI) is used to measure the strength of association. A P value <0.05 is considered statistically significant. Binary logistic regression is used to adjust for confounders.

The study protocol was approved by the Department of Community Medicine in the institute. Informed verbal consent was obtained before interviewing, and privacy was ensured during the interview at the house of the participant. Participants who screened positive for depression were referred to the psychiatry department of the institute for further management. Confidentiality of the participants was maintained throughout the study.

Results

There were 359 participants, and their mean (SD) age was 67.4 (5.9) years. The majority of them were females (57.4%), age less than 70 years, have no formal education (62.1%), currently married (67.7%), belong to a nuclear family (87.7%), and receive pension (81.3%). The sociodemographic characteristics and morbidity profile of the participants are shown in Table 1. Cataract (54.0%) is the most common comorbidity followed by diabetes (44.8%) and hypertension (32.0%). One-third of the participants (29.5%) have hard of hearing. Of the 359 participants,

Table 1: Sociodemographic and morbidity pattern of study participants in selected villages of Puducherry (*n*=359)

Characteristic	Frequency	Percentage
Gender		
Male	153	42.6
Female	206	57.4
Age (years)		
60-65	159	44.3
66-70	130	36.2
71-75	38	10.6
≥76	32	8.9
Education		
No formal education	223	62.1
Primary	86	24
Middle	31	8.6
High school and above	19	5.3
Employment		
Unemployed/retired/home maker	247	68.8
Employed	112	31.2
Marital status		
Single/widow	116	32.3
Married	243	67.7
Family type		
Nuclear	315	87.7
Joint	44	12.3
Receiving pension	292	81.3
Comorbidity*		
Cataract	194	54.0
Diabetes	161	44.8
Hypertension	115	32.0
Hard of hearing	106	29.5
Alcohol use	77	21.4
Osteoarthritis	74	20.6
Smoking	55	15.3
Asthma	17	4.7

*Multiple response types. One individual may have any number of morbidity

246 (69%, 95% CI 63.6–73.1) have depression (GDS ≥5). Among them, 137 (56%) have mild depression, 61 (25%) have moderate depression, and 48 (19%) have severe depression. The determinants of depression are shown in Table 2. Binary logistic regression showed that single/widow [adjusted odds ratio (aOR) = 3.9, 95% CI 2.0–7.5] and hard of hearing (aOR = 2.2, 95% CI 1.1–4.1) are significant risk factors for depression.

Discussion

In our study, the prevalence of depression among the elderly age 60 years and above is 69%. This is higher than prevalence reported by studies from other parts of the country.[15-17] The high prevalence of depression in our study could be because of difference in study setting and use of different tools such as the Goldberg and Bridges' Scale[5] or the International Classification of Diseases 10th Edition. Being single or widow is a significant risk factor for depression, and this observation is also noted in studies done by Udayar *et al.*[4] and Kamble *et al.*[5] Presence of chronic illnesses such as hard of hearing and current alcohol use are significant risk factors as observed in other studies.[18,19] However, in contrast to other studies, gender is not a major determinant for depression.

The National Program for Health Care of the Elderly envisages operating geriatric out-patient department (OPD) in primary health centers (PHCs).[20] During this OPD, elderly patients have to be screened for depression, as early diagnosis and treatment improve their quality of life. However, there is a shortage of psychiatrists in the country in comparison to the burden of psychiatric morbidity. The number of psychiatrists per one lakh population in the country varies from 0.05 to 1.2, much lesser than the high-income countries.[21] Posting psychiatrists in all the PHCs across the country is not feasible. The only option left is to train the primary care physicians in mental health as proposed by the National Mental Health Program.[22] By integrating mental health in primary care, elderly patients having depression can be identified at an early stage and can be managed at the PHCs.

Table 2: Determinants of depression among study participants in selected villages of Puducherry

Determinant	aOR	95% CI
Single/widow	3.9	2.0-7.5
Hard of hearing	2.2	1.1-4.1
Illiterate	0.7	0.4-1.3
Unemployment	1.3	0.6-2.4
Female	1.7	0.8-3.3
Receiving pension	0.7	0.3-1.3
Nuclear family	1.1	0.4-2.6
Cataract	0.7	0.4-1.3
Diabetes mellitus	1.2	0.7-2.1
Hypertension	1.1	0.6-2.0
Asthma	2.4	0.4-13.0
Osteoarthritis	0.9	0.5-1.8
Smoking	0.8	0.3-2.0
Alcohol use	0.5	0.2-1.2

aOR: Adjusted odds ratio; CI: Confidence interval

Psychological counseling can be provided at community-based day care centers to improve depression and quality of life of the elderly.[23]

The strength of this study is that this is a community-based study using a validated tool. Systematic random sampling was used and so the chance of selection bias is reduced. However, there were few limitations in this study. Depression was identified using a screening tool and not confirmed by a psychiatrist. GDS does not assess for suicidality. The comorbidities measured were self-reported by the participants, and there is a possibility of undiagnosed morbidity leading to underreporting of their chronic illnesses.

Conclusion

The prevalence of depression among elderly in this rural area is high. Single/widow and hard of hearing are significant risk factors for depression. All elderly persons must be screened for depression and treatment should be initiated.

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Conflicts of interest

There are no conflicts of interest.

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