Prevalence of geriatric depression and assessment of facilities available in old-age homes of Mysore: A comparative study between public and private homes

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ABSTRACT

Background: In elderly mental disorders are overlooked or underdiagnosed. Almost 20% of elderly above 60 years of age suffer from a mental or neurological disorder, and the most common ones are dementia and depression. Studies have pointed out the increased prevalence of depression in old-age homes. **Objectives:** The objectives are as follows: (1) To estimate and compare the prevalence of geriatric depression among people living in public and private old-age homes and (2) to study the factors associated with depression and compare the facilities in public and private old-age homes. **Materials and Methods:** A cross-sectional questionnaire-based study was conducted among geriatric population in old-age homes of Mysore. Depression was assessed using the short form of geriatric depression scale-15, cognitive impairment using Mini-Mental State Examination-30. Data relating to sociodemographic variables and facility assessment were collected separately. **Results:** The overall prevalence of depression in old-age homes of Mysore was 33.3% (46.3% in public and 21.6% in private old-age homes with $P = 0.002$). The facilities offered and reason for stay also varied significantly across both homes. Marital status, education, economical dependency, and uncorrected impairment were the factors associated with depression. Among the psychosocial factors, feeling of loneliness, and neglect were significant predictors in both settings. Other psychosocial factors such as feeling satisfied by the status of their children's life, advice taken by their children, financial and personal losses in the past 1 year, and presence in social events were significant predictors only in private old-age home. **Conclusion:** Prevalence of depression in the old-age homes differs significantly with the type of home, the facilities offered, and the reason cited by the inmates for admission probably is the contributing factor for the variation in depression.

KEY WORDS: Old-age Home; Depression; Geriatric Depression Scale; Elderly; Geriatric

INTRODUCTION

With the rapidly aging population around the world, between 2015 and 2050, the proportion of the world's older adults is estimated to almost double from about 12% to 22%.[1] Among this aging global population, 61% live in developing countries; this will rise to 70% by 2025.[2] The proportion of elder people is ever increasing in India and has reached 8.6% in 2011.[3] Healthy aging is defined by the World Health Organization (WHO) as the process of developing and maintaining the functional ability that enables well-being in older age.[4] With this kind of aging scenario, all aspects of care for the old people have to be enhanced such as socioeconomic, financial, health, and shelter. Because problems faced in any of the above mentioned areas, as they

have a bearing on their quality of life. There is a difference in the health of the elderly from country to country, caused mainly by the socioeconomic and environmental attributes. Hence, the elderly should be provided care which is a holistic combination of health care, socioeconomic care, and suitable environment.[5] In elderly mental disorders are overlooked or underdiagnosed, the most common ones are dementia and depression.[1] According to the WHO, the depressive disorders in elderly vary between 10% and 20%. Globally, the median prevalence rate of depression was determined to be 10.3% (interquartile range [IQR], 4.7%–16.0%) and in the elderly Indian population, it was determined to be 21.9% (IQR, 11.6%–31.1%). Conventionally, in Asian countries, the caretaking of the elderly has been the families responsibility.[6] In India, joint families were the common family structure and also in extended families two generations used to live together. This served to the advantage of the elderly as they had the social status and power in these kinds of living arrangements. With urbanization and dependency on the jobs, children are moving out of the joint family setup and establishing their own nuclear families. In the present day period of rapid changes, breakdown of the joint family system and migration of youth to the cities and abroad there is a need to revisit the idea of providing care through old-age homes in India.[5] Age-friendly homes can help to promote health, breakdown barriers, and provide support for people with reduced physical capacity, they can ensure safe aging in a place that is right for them, without poverty, or the feeling of being a burden, a place where they can continue to develop their skills, and be a part of a community with autonomy and health.[7] Although many studies have been carried out on the mental health of elderly in old-age homes, the facility assessment of these homes and their effect on the mental health of the elderly are least explored. This study compares the depression prevalence in different environments and will help us to throw light on the possible determinants that are associated with depression in a different environment, so it can be modified at the primary level.

Objectives

The objectives are as follows:
1. To estimate and compare the prevalence of geriatric depression among people living in public and private old-age homes.
2. To study the factors associated with depression in each setting.
3. To assess and compare the facilities in public and private old-age homes.

MATERIALS AND METHODS

This study was carried out in a South Indian city, Mysore, which is the cultural capital of Karnataka during the period April 2017–May 2018. Data were collected by direct interview using predesigned semi-structured questionnaire from the residents aged >60 years in the selected old-age homes of Mysore.

Sample Size

With the prevalence of depression as quoted in earlier studies as 18.2%, 5% level of significance, and 7% absolute error, the sample size was calculated to be 116. Assuming 20% non - responder rate, it was rounded off to 150.[8] Hence, 75 subjects each were selected in public and private old-age homes, respectively.

Sampling Method

There were 10 old-age homes in Mysore. 1 public funded and 1 private funded old-age home was selected randomly. The name list from each old-age homes was taken as the sampling frame from which the participants were selected by simple random sampling until the required sample size was reached.

Inclusion Criteria

Residents of old-age homes for >6 months who were willing to participate in the study were included in the study.

Exclusion Criteria

The following criteria were excluded from the study:
- Participants with Mini-Mental State Examination (MMSE) score <20.
- Participants suffering from terminal illnesses, diagnosed psychiatric illnesses (except depression).

Study Tools

A predesigned semi-structured questionnaire was used for the data collection from the study population after obtaining informed consent from the subjects.

Geriatric depression scale (GDS)

GDS is a reliable and valid measure of geriatric depression with 30 questions. There is also a short version with 15 items. The participants were asked to respond to 15 questions by answering "yes" or "no" in reference to how they felt on the day on which the questionnaire was administered. A score of >5 was suggestive of depression. In our study, we used the short version, which produced sensitivity and specificity rates of 92.7% and 65.2%, respectively, with the use of cutoff point 4 or 5. The scale was translated into local language Kannada and used.[9,10]

MMSE

It is a 30 item questionnaire used to measure the cognitive impairment suggestive of dementia. A score <20 implies increased odds of dementia. MMSE has satisfactory reliability and construct validity. Since the GDS is not a valid tool to assess depression in demented elderly subjects, those

who were found to score <20 in MMSE were excluded from the study.[11]

For assessing the old-age home facilities, inmates were interviewed to rate the food facilities, safety, privacy, staff facilities, medical service, and recreational facilities as excellent, good, average, and poor separately. For the analysis, above average/average and below were the two ratings used.

Ethical approval

The study was approved by the ethical review board of Mysore Medical College and Research Institute.

Statistical Methods

Data were entered into Microsoft Excel (Windows 7; Version 2007) and analyses done using the Statistical Package for the Social Sciences (SPSS) for Windows software (trial version 22.0; SPSS Inc., Chicago). Descriptive statistics such as frequencies, percentages, and rates were calculated. Comparison between groups was done using Chi-square test and Fisher's test. Bar chart was used for visual representation of the analyzed data. Level of significance was set at 0.05.

RESULTS

Out of 150 selected subjects, 9 were excluded as they had a MMSE score <20. Hence, the final analysis included 141 subjects out of which 74 were from private and 67 from public old-age homes. The majority of study participants (40.7%) belonged to the age group of 70–79 years followed by >80 years age group (32%). Three-fourth of the subjects (70.7%) belonged to Hindu religion followed by Christianity (28.7%) and Muslim (0.7%). Half the participants (56%) were widowed, followed by 18% of participants being married, 16.7% were unmarried, and 9.3% were separated. The overall prevalence of depression in old-age homes of Mysore was 33.3% (46.3% in public and 21.6% in private old-age
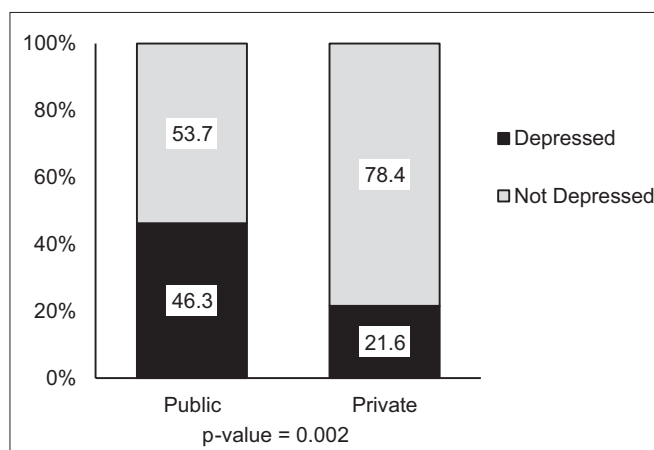

Figure 1: Prevalence of depression in public and private old-age homes of Mysore

homes). This difference between the type of old-age homes was statistically significant ($P = 0.002$) [Figure 1].

DISCUSSION

The overall prevalence of depression in old-age homes of Mysore was 33.3% (46.3% in public and 21.6% in private old-age homes with $P = 0.002$). The facilities offered and the reason for stay also varied significantly across both homes. Marital status, education, economical dependency, and uncorrected impairment were the factors associated with depression. Among the psychosocial factors, feeling of loneliness, and neglect were significant predictors in both settings. Other psychosocial factors such as feeling satisfied by the status of their children's life, advice taken by their children, financial and personal losses in the past 1 year, and presence in social events were significant predictors only in private old-age home.

In our study, the prevalence of depression in old-age homes of Mysore was 33.3% which was consistent with a study by Tiwari *et al.* with prevalence at 33.7%.[12] However, the prevalence of depression in old-age homes in India has varied across studies ranging from 23.5% to −75%.[13-20] In our study, the prevalence of depression was 21.6% and 46.3% in private and public old-age homes, respectively, this difference was statistically significant ($P = 0.002$). This may be contributed by the significant difference in facilities offered by these old-age homes [Table 1] which was similar to a study done by Gupta *et al*.[21] Facilities such as food, safety, staffing, and privacy were significantly better in private old-age homes compared to the public homes. More than half the participants had rated it as average and above in private homes. The other reason may be that different strata of people seek admission

Table 1: Assessment of Facilities available in old-age home

Facilities	Public (%)	Private (%)	*P* value
Food			
Average and below	49 (64.5)	27 (35.5)	0.000
Above average	18 (27.7)	47 (72.3)	
Recreational			
Average and below	19 (50)	19 (50)	0.720
Above average	55 (46.6)	48 (53.4)	
Safety			
Average and below	36 (56.2)	28 (43.8)	0.047
Above average	31 (40.3)	46 (59.7)	
Staff			
Average and below	50 (65)	27 (35)	0.000
Above average	17 (26.6)	47 (73.4)	
Privacy			
Average and below	55 (67)	27 (33)	0.000
Above average	12 (20.3)	47 (79.7)	
Medical			
Average and below	27 (41)	39 (59)	0.140
Above average	40 (53.3)	35 (46.7)	

Table 2: Reason for stay in public and private old-age homes

Reasons	Public (%)	Private (%)	Total (%)	*P* value
Self-choice	20 (30)	23 (31.1)	43 (30.5)	0.000*
No children	4 (6)	21 (28.4)	25 (17.7)	
Unmarried	0 (0.0)	4 (5.4)	4 (2.8)	
All daughters	4 (6)	10 (13.5)	14 (9.9)	
Children abroad	0 (0.0)	4 (5.4)	4 (2.8)	
Children not taking care	39 (58)	12 (16.2)	51 (36.2)	

*Fisher's exact test

in each of these old-age homes. The reason cited for admission in these old-age homes was significantly different across both groups [Table 2]. In the private homes, the most common reason was self-choice (31.1%) and in public homes, the leading cause was that their children were not taking care (58%). These reasons could have been the contributing factor for the significant difference in depression among both old-age home residents because seeking admission by self-choice provides a better sense of mental well-being. The most common reason cited for a stay in old-age homes on the whole was children not taking care cited by 36.2% of people, which was consistent with the study done by Gupta *et al*.[21] Various factors were analyzed for association with depression in both public and private homes separately. Age and sex were not a significant predictor of depression in both public and private facility, and in both depression was more prevalent in the age group of 60–69 years [Table 3] which was in contrast to studies by Singh *et al*., Shailaja *et al*., and Zalavadiya *et al*. where there was more prevalence of psychiatric morbidity as age increases.[14,16,17] The maladjustment of the elderly to the old-age home environment in 60–69 years of age might be the reason for this finding in our study. Although the factor gender was not a significant predictor in our study, the prevalence was more among males in private and females in public homes. However, most of the studies had reported the prevalence of depression to be significantly more among females.[14,15,20] The factors marital status, economic dependency, and education were found to be significantly associated with depression which was similar to other studies. The prevalence of depression was more in unmarried and separated subjects which was significantly associated with depression [Table 3] in both public and private homes.[15,20,22,23] Illiterates had more prevalence of depression in both the types of homes but it was statistically significant only for the combined total,[22-24] and a similar trend was observed for the factor of economic dependency. This was in agreement with various other studies.[17,23,24]

Among the psychosocial factors analyzed for association with depression, feeling of loneliness, and neglect were significant predictors in both settings which were similar to results from studies by Gupta *et al*. and Zalavadiya *et al*.[17,23] Other psychosocial factors such as feeling satisfied by the status of their children's life, advice taken by their children,

financial and personal losses in the past 1 year, and presence in social events were significant predictors only in private old-age home. In public homes, none of these factors were significantly associated, which implies that the high prevalence of depression in public homes is mostly explained by the less than average facilities. All the above psychosocial factors were identified as significant predictors of geriatric depression in a review article by Grover and Malhotra[8] Insomnia, anorexia, and uncorrected impairment (hearing and visual) were not significant predictors in both the types of homes individually. However, insomnia and uncorrected impairment were significantly associated with depression when considered in total which were similar to studies by Zalavadiya *et al*., Narkhede *et al*., and Buvneshkumar *et al*.[17,18,25] Physical dependency was not a significant predictor in our study the reason may be due to the regular care and geriatric friendly setups in old-age homes which makes them feel less dependent and hence morally uplifted. However, physical dependency was a significant predictor in community settings as shown in many studies.[24-27]

The strength of the study was that this was the first study to explore the possibilities of old-age home being a better-suited environment in changing Indian context. We have also analyzed many possible psychosocial factors in both settings. The limitation was limited sample size, the participants mental health status before admission into old-age home was not known.

CONCLUSION

The prevalence of depression among elderly in the old-age homes differs significantly with the type of home (public or private). The major significant differences between these two are the facilities offered and the reason cited by the inmates for admission which probably is the contributing factor for the variation in depression. Marital status, education, economical dependency, and uncorrected impairment were the factors associated with depression. Most of the psychosocial factors were associated with depression only in private setting which implies that the high prevalence in public homes can only be explained with respect to the less than average facilities and the presence of less proportion of individuals who had sought the facility by their own choice. Further large-scale research is needed before concluding that better-equipped homes are

Table 3: Distribution of factors associated with depression in each old-age homes

Characteristics	Prevalence of depression		
	Public (%)	Private (%)	Total (%)
Age group			
60–69	14 (60.9)	5 (27.8)	19 (46.3)
70–79	15 (45.5)	3 (12)	18 (31)
>80	2 (18.2)	8 (25.8)	10 (23.8)
P value	0.065	0.352	0.083
Sex			
Male	14 (43.8)	7 (26)	21 (35.6)
Female	17 (48.6)	9 (19)	26 (31.7)
P value	0.693	0.495	0.629
Marital Status			
Married	3 (75)	4 (17.4)	7 (26)
Unmarried	3 (23)	2 (18.2)	5 (21)
Widow	16 (41)	7 (18.9)	23 (30.3)
Separated	9 (81.8)	3 (100)	12 (85.7)
P value	0.013	0.028	0.000
Education			
Illiterate	11 (61)	1 (100)	12 (63.2)
Primary	7 (50)	1 (16.7)	8 (40)
Middle school	7 (35)	5 (35.7)	12 (35.3)
High school/diploma	6 (46.2)	7 (21.9)	13 (29)
Graduate/professional	0 (0.0)	2 (9.5)	2 (8.7)
P value	0.396	0.127	0.005
Economical dependency			
Independent	1 (50)	8 (15.7)	9 (17)
Partially dependent	6 (46.2)	1 (50)	7 (46.7)
Completely dependent	24 (46.2)	7 (33.3)	31 (42.5)
P value	0.994	0.121	0.006
Feeling of loneliness			
Present	21 (100)	13 (61.9)	34 (81)
Absent	15 (32.6)	4 (7.5)	19 (19.2)
P value	<0.001	<0.001	<0.001
Feeling of neglect			
Present	30 (81.1)	13 (56.5)	43 (71.7)
Absent	6 (20)	4 (7.8)	10 (12.3)
P value	<0.001	<0.001	<0.001
Insomnia			
Present	18 (62.1)	5 (38.5)	23 (54.8)
Absent	18 (47.4)	12 (19.7)	30 (30.3)
P value	0.232	0.160	0.006
Anorexia			
Present	2 (33.3)	9 (56.2)	11 (50)
Absent	15 (22.1)	27 (52.9)	42 (35.3)
P value	0.529	0.817	0.191

(Contd...)

Table 3: (*Continued*)

Characteristics	Prevalence of depression		
	Public (%)	Private (%)	Total (%)
Feeling satisfied with children life			
Yes	14 (61)	7 (20)	21 (36.2)
No	9 (64.3)	3 (100)	12 (70.6)
P value	0.835	0.003	0.012
Advice taken by children			
Yes	1 (20)	1 (4.3)	2 (7.1)
No	22 (63)	9 (45)	31 (56.4)
P value	0.070	0.002	<0.001
Loss in past 1 year			
Financial	4 (57)	4 (57)	8 (57)
Personal	2 (100)	1 (33.3)	3 (60)
None	25 (43)	11 (17.2)	36 (30)
P value	0.236	0.038	0.050
Presence in social events			
Present	5 (29.4)	4 (11)	9 (17)
Absent	26 (52)	12 (31.6)	38 (43.2)
P value	0.107	0.033	0.001
Fulfillment in life			
Personal	6 (16.2)	17 (38.6)	22 (28.4)
Work/career	4 (25)	6 (46.2)	10 (34.5)
Both	1 (6.2)	0 (0.0)	1 (5.9)
None	5 (100)	8 (89)	13 (93)
P value	0.000	0.021	0.000
Uncorrected impairment (Hearing/visual)			
Present	16 (57.1)	7 (36.8)	23 (49)
Absent	20 (51.3)	10 (18.2)	30 (32)
P value	0.635	0.096	0.049
Physical dependence			
Dependent	25 (43)	10 (1.2)	12 (38.7)
Independent	6 (66.7)	6 (27.3)	35 (32)
P value	0.187	0.539	0.472

indeed going to have an impact on the mental health of the elderly. However, it is high time to formulate standards for old-age homes and open the doors for possibilities of old-age homes being a better-suited environment for the elderly.

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