ORIGINAL RESEARCH ARTICLE

DEPRESSION AND ITS PREDICTORS AMONG ELDERLY POPULATION IN AN URBAN COMMUNITY IN PUDUCHERRY

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Abstract

Background: Depression is commonly encountered in elderly population. The symptoms associated with depression are likely to be dismissed as 'normal' by self as well as family caregivers. Other than organic causes, social factors play a significant role in development of depression. In many primary care settings, patients presenting with depression often do not get diagnosed. **Objectives:** To assess the burden of depression and its association with socio demographic predictors among elderly population in a selected urban community in Puducherry. **Material and Methods:** A community based cross sectional study was conducted among 150 randomly selected elderly persons in the urban service areas of a medical college. Socio demographic details, activities of daily living, family care and social interaction particulars were collected. Geriatric Depression Scale-15 screening questionnaire was used to assess depression. **Results:** The mean age of the participants was 69.8 ± 7.2 years. Two-thirds participants (70.3%) reported good family care. About half (52.4%) of the participants had good social interaction and 38.6% had depression. More women (48.6%) reported depression than men (28.2%). Female gender, living alone, poor family care, dependency in activities of daily living, perceived burden and less social interaction were significantly ($p<0.05$) associated with depression. **Conclusion:** Community screening of elderly for depression can be a made a routine practice in primary health care settings. Risk factors could be identified and alleviated to improve the quality of life of the elderly.

Key-words: Caregivers, Depression, Interpersonal relations, Social isolation.

Introduction

People worldwide are living longer and the pace of population ageing is also increasing dramatically.[1] In India, the proportion of elderly population ($\geq$ 60 years) is likely to increase from the current 8.1% to 11% in 2025 and 20% by 2050.[2,3,4] A major concern among this rapid ageing population is the increasing prevalence of cardiovascular diseases, respiratory diseases, neurological and mental disorders. Among the mental disorders, depression is commonly encountered.

Depression is associated with an increased risk of decreased cognitive and social functioning of the elderly.[5] Depression when compounded with cardiovascular morbidities worsens their clinical outcomes. It also reduces the activities of daily living of a person and his ability to rehabilitate.[6] Late identification of depression affects the quality of life of the elderly.[1,7] Studies have reported association between socio demographic factors and depression among the elderly. Female gender, lower educational attainment, income inadequacy, and major life events are predicted as possible risk factors associated with geriatric depression.[5,7,8,9]

Most often, the symptoms that the older people present with does not meet the diagnostic criteria for a depressive disorder. Hence they are under-identified by healthcare professionals, family caregivers and the aged people themselves.[1,4] In many primary care settings, depression of elderly patients does not get screened often. If identified early, depression can be treated at primary care level with locally available cost-effective interventions.[5]

Given the significant impact of depression on elderly and need for its early identification, this study was conducted to assess the prevalence of depression and its relationship with socio demographic factors in selected urban areas of Puducherry where no prior studies had been conducted on this aspect. The identified protective and risk factors can help in formulating interventions to improve quality of life of elderly in these areas.[5]

Material and Methods

Study Design, Area & Population: A community based cross sectional study was conducted among elderly persons aged 60 years and above during the period November 2015 to February 2016, in the service areas of Urban Health Training Centre (UHTC), attached to Community Medicine Department of a Medical College in Puducherry. The Centre has been providing outpatient as well as outreach services to the surrounding 11 wards, comprising a population of 7379.

Sample Size : Taking the prevalence of depression among elderly as 47% from a study done in Tamilnadu[10], relative precision as 18% and an expected non-response rate of 10%, the sample size was calculated as 150 using OpenEpi software.

Data Collection Instrument: The data collection instrument included three sections. The first section comprised of socio demographic information covering parameters namely age, gender, marital status, education, socio economic status, present employment status, financial dependence and type of family system, the participant was currently residing in. Modified Kuppusamy scale was used to assess the socio economic status.[4] The second section included questions to assess information on activities of daily living, family care and social interaction status of the participants. Activities of daily living were assessed using Katz Index of Independence in Activities of Daily Living (ADL) Scale.[11] Family care and Social interaction questions were adopted from an earlier study [12] and modified to local culture. Content validity was obtained from experts. There were 5 questions related to family care and 5 questions related to social interaction. The responses were scored 0,1,2 and 3. A score of $\geq$ 6 was considered good and a score of < 6 was considered as poor family care. Similarly for social interaction, a score of $\geq$7 was considered good and a score less than 7 was considered as poor interaction. The third part comprised of Geriatric Depression Scale (GDS-15). It had 15 questions designed to elicit symptoms found in depression by means of yes / no answers. The maximum score was 15. Depression was considered to be present for a score of >5. This scale has a sensitivity of 80% and specificity of 75%.[13] Suggestions were obtained from a psychiatrist in appropriate translation of the GDS -15 english version to tamil.

Data Collection: The questionnaire was pretested with elderly patients in the outpatient department of UHTC and necessary modifications were made. From the family registers of the wards, the required sample was randomly selected. The elderly persons were identified with the help of field workers, informed about the study, assured confidentiality and enrolled, after obtaining consent. Sick persons were excluded from the study.

Statistical Analysis: Statistical analysis of the data was done using SPSS Version 23. Mean, Standard Deviation and Proportions were calculated. Chi Square Test and Odds Ratio were applied to check association of socio demographic variables with depression. Logistic Regression model was used to analyze the independent effects of the variables on depression.

Results

The mean age of the participants was 69.8$\pm$7.2 years. The mean age of women (70.4$\pm$7.5 years) was higher than men (69.2$\pm$6.9 years). More women (14.2%) were above 80 years than men (9.6%). Among the illiterates, there were more women (70.7%) than men (29.3%). Among the widowed, majority (78.8%) were women. While 17.3% of the participants were still working, 12% were retired and 18.7% were receiving old age pension. Nearly half (52%) had no source of income (Table I).

Table 1: Socio Demographic Characters of the Study Population

Baseline Characters	Males (n=73)		Females (n=77)		Total (N=150)	
	No.	%	No.	%	No.	%
Age Group (years)						
60-64	25	34.2	22	28.6	47	31.3
65-69	17	23.3	16	20.8	33	22.0
70-74	15	20.5	17	22.1	32	21.3
75-79	9	12.4	11	14.3	20	13.3
80-84	4	5.5	6	7.8	10	6.7
85- 89	3	4.1	5	6.4	8	5.4
Marital Status						
Married	58	79.4	21	27.3	79	52.6
Widowed	15	20.6	56	72.7	71	47.4
Education Status						
Nil	29	39.7	70	90.9	99	66.6
Primary	31	42.5	6	7.8	36	24.0
Secondary	10	13.7	1	1.3	11	7.4
High School	3	4.1			3	2.0
Income Status						
Currently Working	14	19.3	12	15.6	26	17.3
Retired	15	20.5	3	3.9	18	12.0
Old age Pension	15	20.5	13	16.9	28	18.7
No source of Income	29	39.7	49	63.6	78	52.0

Good family care was reported by 102 participants (70.3%). Only half (52.4%) of the subjects had good social interaction. About 31.7% perceived being a burden to their family members. The GDS scale was administered to 145 participants. About 38.6% of the subjects had depression. More women (48.6%) reported depression than men (28.2%). It was statistically significant (<0.01). In univariate analysis, female gender [OR 2.4(95% CI 1.2 - 4.8)], living alone[OR 4.6(95% CI 1.3-15.5)] , poor family care [OR 6.7(95% CI 3.1-14.8)], dependency in ADL [OR 2.7(95% CI 1.1-7.8)], perceived burden[OR14.2(95% CI 6.1-33.4)] and less social interaction [OR4.5 (95% CI 2.2-9.2)] were significantly (p<0.05) associated with depression (Table II). In logistic regression analysis, perceived burden [OR 11.48 (95% CI 4.19-31.48)], family care [OR 3.52 (95% CI

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1.31-9.50)] and social interaction [OR 5.55(95% CI 2.15-14.31)] were independently associated with depression (Table III).

Table II: Univariate Analysis of Socio Demographic Variables and Depression (N=145)

Socio Demograhic Variables	Depression		Odds Ratio	X^2
	Present (n=56)	Absent (n=89)	(95%CI)	(p value)
	No. (%)	No. (%)		
Age Group(years)				
60-69	29 (36.2)	51 (63.8)	1	0.6(0.72)
70-79	20 (40.0)	30 (60.0)	1.2(0.5-2.4)	
80-89	7 (46.7)	8 (53.3)	1.5(0.5-4.7)	
Gender				
Male	20 (28.2)	51 (71.8)	1	6.4(0.01)
Female	36 (48.6)	38 (51.4)	2.4(1.2 - 4.8)	
Marital Status				
Married	28(36.4)	49(63.6)	1	0.3(0.55)
Widowed	28(41.2)	40(58.8)	1.2(0.6-2.4)	
SES				
Lower	19(51.4)	18(48.6)	1	4.7(0.09)
Middle	29(37.7)	48(62.3)	0.5(0.2-1.2)	
Upper	8(25.8)	23(74.2)	0.3(0.1-0.9)	
Family Type				
Living with children	46(35.1)	85(64.9)	1	
Alone	10(71.4)	4(28.6)	4.6(1.3-15.5)	7.1(0.007)
Burden				
No	20(20.2)	79(79.8)	1	
Yes	36(78.3)	10(21.7)	14.2(6.1-33.4)	44.6(0.001)
Family Care				
Good	26(25.4)	76(74.6)	1	
Poor	30(69.8)	13(30.2)	6.7(3.1-14.8)	25.1(0.01)
ADL				
Independent	6(21.4)	22(78.6)	1	
Dependent	50(42.7)	67(57.3)	2.7(1.1-7.8)	4.3(0.03)
Social Interaction				
Good	17(22.4)	59(77.6)	1	
Poor	39(56.5)	30(43.5)	4.5(2.2-9.2)	17.8(0.001)

Table III. Independent Association of Socio Demographic variables with Depression

SocioDemograhic Variables	Adjusted Odds Ratio (95%CI)	(p value)
Family Care	3.52 (1.31- 9.50)	0.013
Social Interaction	5.55 (2.15-14.31)	0
Burden	11.48 (4.19- 31.48)	0

Discussion

Among the study population, nearly two thirds were illiterates and half were with lack of economic independence and belonged to middle income group. Similar findings were observed in the study by Kulkarni et al. in Dharwad.[14] More than one third participants (38.6%) had depression. Community based studies from India had reported variable rates (11.4% to 61.4%) of depression.[8,15] The most likely reason for the disparity may be the non-uniform methodology adopted in the studies.[8] The high prevalence in our study could be due to small sample size.

Family system plays a significant role in health in Asian society. Respect and care for elderly and joint family system have been part of our tradition and culture in the past, but at present, with moving out of the young adults of the family on employment grounds, the joint family system and family values are gradually being eroded, which have affected the social health of the elderly. Studies have reported that incidence of depression in older adults living in joint family system is lesser than those living in nuclear family.[7,9,12,15,16] Similar finding was observed in the present study. Good family support was found to be a protective factor against depression. Perceived sense of burden was found to be a significant predictor for depression. These findings are substantiated by previous studies that have reported that negligence by family members, lack of affection and care at the later stage of life are important factors for depression among elderly.[8,9,15]

We observed that depression was associated more with female gender and widowed status. Similar findings were reported from studies in India [17,18,19] and abroad.[20] The findings highlight the fact that elderly women need special attention.[2,3] Depressive symptoms were low in the elderly who were functionally independent. This finding is supported by other studies. [15,16,18,21] In a study in Brazil , as cited by Saha[16] physically active elderly had a 68% lower probability of having depressive symptoms compared with those who were not sufficiently active. It has to be remembered that functional status can also be deteriorated by depression.[6] Early identification and treatment for depression can improve elderly persons' quality of life by reducing dependence on others. [21]

In the present study, less social interaction was linked to high depression scores. Similar observation was noted in the study by Borges et al.[22] This signals the importance of a social network in staying healthy and in preventing depression in the elderly. It is also possible that it may increase the increase the self-esteem of older people. People who are socially isolated and with less interaction have poor quality of life. It would be important to motivate them for better interaction, identify and rectify the reasons for poor social interaction. [22]

Limitation

GDS 15 was a screening tool. Further confirmation of diagnosis by psychiatrist could not be made for the identified subjects. The low sample size restricts the generalizability of the findings of the study to entire urban elderly in Puducherry. As it was a cross-sectional design, the cause and effect relationships between the variables

and depression could not be defined. On the other hand, the high response rate contributed to the study's internal validity. Further analytical studies are needed to find out the association between predictors and depression.

Ethical Consideration

Permission was obtained from Institutional Ethics Committee prior to the study. During the course of the study, all the participants were provided a general health check up and appropriate health counseling.

Conclusion

The high prevalence of depression observed in the study warrants the need for effective, community level primary mental health care for older people. As good general health and social care is important for improving the quality of life of elderly, training health providers for early identification of depression among the elderly is essential.[23] It is equally important to provide caregivers with counseling, education, training and support. Social security and rehabilitation measures schemes should be made reached for the needy elderly people.

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References

1. World report on ageing and health 2015. World Health Organization. (Available at apps.who.int/iris/bitstream/10665/186463/1/97892406948 11_eng.pdf, accessed on 5 October 2015).
2. National policy for senior citizens 2011– Ministry of Social Justice and Empowerment. (Available at socialjustice.nic.in/writereaddata/UploadFile/dnpsc.pdf, accessed on 7 October 2015).
3. State of elderly in India 2014 – HelpAge India. (Available at https://www.helpageindia.org/wp-content/.../helpageindia/pdf/state-elderly-india-2014.p..., accessed on 23 September 2015).
4. Park K. Park's text book of preventive & social medicine. 23rd ed. Jabalpur: M/s Banarsidas Bhanot; 2015.
5. Peltzer K, Mafuya NP. Depression and associated factors in older adults in South Africa. Glob Health Action 2013;6:10.
6. Kazama M, Kondo N, Suzuki K, Minai J, Imai H, Yamagata Z. Early impact of depression symptoms on the decline in activities of daily living among older Japanese: Y-HALE cohort study. Environ Health Prev Med 2011;16(3):196-201.
7. Javed S. Role of sociocultural factors in depression among elderly of twin cities (Rawalpindi and Islamabad) of Pakistan. Current Gerontology and Geriatrics Research 2014. (Available at https://www.hindawi.com/journals/cggr/2014/230737/, accessed on 2 October 2015).
8. Akhtar H, Khan AM, Vaidhyanathan KV, Chhabra P, Kannan AT. Socio-demographic predictors of depression among the elderly patients attending outpatient departments of a tertiary hospital in North India. Int J Prev Med 2013; 4(8): 971–975.
9. Cong L, Dou P, Chen D, Cai L. Depression and associated factors in the elderly cadres in Fuzhou, China: A community-based study. Int J Gerontol 2015; 9:29-33.
10. Reddy NB, Pallavi M, Reddy NN, Reddy CS, Singh RK, Pirabu RA. Psychological morbidity status among the rural geriatric population of TamilNadu, India: A cross-sectional study. Indian J Psychol Med 2012;34:227-31.
11. Katz index of independence of activities in daily living. (Available at https:// clas.uiowa.edu/ socialwork/sites/clas.uiowa.../Katz%20ADL_LawtonIAD L.pdf, accessed on 15September 2015).
12. Souza RA, da Costa GD, Yamashita CH, Amendola F, Gaspar JC, Alvarenga MRM, et al. Family functioning of elderly with depressive symptoms. Rev. esc. enferm. USP 2014; 48(3). (Available at www.scielo.br/scielo.php? script=sci_arttext & pid=S0080-62342014000300469, accessed on 15 September 2015).
13. Wancata J, Alexandrowicz R, Marquart B, Weiss M, Friedrich F. The criterion validity of the geriatric depression scale: a systematic review. Acta Psychatr Scand 2006;114(6):398-410.
14. Kulkarni UN, Rao M. Demographic profile and health status of elderly at Dharwad, Karnataka. International Journal of Farm Sciences 2014; 4(2): 227-232.
15. Behera P, Sharan P, Mishra AK, Nongkynrih B, Kant S, Gupta SK. Prevalence and determinants of depression among elderly persons in a rural community from northern India. Natl J Commun Med 2016;29(3):129-135.
16. Saha SS, Saha PK. An epidemiological study on depression and related factors among geriatrics in a tertiary care hospital. IOSR Journal of Dental and Medical Sciences 2013;12(6):14-17.
17. Nair SS, Hiremath SG, Ramesh, Pooja, Nair SS. Depression among geriatrics: prevalence and associated factors. International Journal of Current Research and Academic Review 2013; 5(8): 110-112.
18. Sengupta P, Benjamin AI. Prevalence of depression and associated risk factors among the elderly in urban and rural field practice areas of a tertiary care institution in Ludhiana.Indian J Public Health 2015;59:3-8.
19. Pushparani JP, Chitrasena S, Ramasubramanian R. A study on the prevalence of depression and its associated factors among the elderly in Kancheepuram district, South India. National Journal of Research in Community Medicine 2017;6(4):288-94.
20. Alamri SH, Bari AI, Ali AT. Depression and associated factors in hospitalized elderly: a cross-sectional study in a Saudi teaching hospital. Ann Saudi Med 2017;37(2):122-129.
21. Soundararajan SS. A study on activities of daily living among elderly in a rural population of Tamilnadu. National Journal of Research in Community Medicine 2017;6(4):326-330.
22. Borges LJ, Bertoldo Benedetti TR, Xavier AJ, d'Orsi E. Associated factors of depressive symptoms in the elderly: EpiFloripa study. Rev. Saúde Pública 2013; 47(4). (Available at www.scielo.br/scielo.php?script=sci...pid...891020130004 00701, accessed on 27 December 2017).
23. Mental health of older adults 2017. World Health Organization. (Available at http://www.who.int/ mediacentre / factsheets/fs381/en/, accessed on 30 December 2017).