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Original Research Article

Risk factors for depression among elderly in Bangalore urban district: a case control study

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ABSTRACT

Background: With a rapidly aging society, geriatric mental health is emerging as an important public health concern. According to the WHO, prevalence of depression in adults aged ≥60 years in developed and developing countries was 0.5 million and 4.8 million respectively in 2004.
The objective of this study is to estimate the prevalence of depression and to assess risk factors of depression among elderly in an urban population.
Methods: A case control study was conducted in May-June 2016 in the Bagalgunte area in Bangalore urban district. Purposive sampling technique was employed and all elderly persons (≥60 years) residing in that area were included. Participants were assessed for depression using validated 15 item (short version) geriatric depression scale (GDS).Those with GDS score >5 were considered as cases and th**o**se with GDS score ≤5 as controls. Final sample size was 201. Study variables included socio-demographic parameters and all possible risk factors of depression.
Results: Of the 201 respondents interviewed, 90 (44.8%) were cases and 111 (55.2%) were controls. 159 (79.1%) were aged 60–69 years and 116 (58%) were male. Low socioeconomic status, elderly who were living alone (single/divorced/death of spouse), h/o dependency on others for daily living, negligence, abuse, economic loss in last 5 years, substance abuse, change of residence, insomnia and anorexia were found to be significantly associated with depression among elderly.
Conclusions: In this study, depression among elderly was found to be high. These study findings can help programme managers to focus on mental health of elderly and implement practical and comprehensive strategiesand timely interventions to promote mental health and prevent depression.

Keywords: Depression, Elderly, Urban, Mental health, Bangalore

INTRODUCTION

People worldwide are living longer. Life expectancy has increased dramatically over the past century. Today, for the first time in history, most people can expect to live into their sixties and beyond. By 2050, the world's population aged 60 years and older is expected to reach 2 billion, up from 900 million in 2015.[1] World Health Organization (WHO) determines the elderliness as the reduction in the competency to accommodate the environmental factors and accepts 65 year of age as the lower elderliness limit though they accept it as 60 in some conditions.[2]

The World Health Organization defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community".[3] In this, the absence of mental disorder does not necessarily mean the presence of good mental health.

Looked at in another way, people living with mental disorder can also achieve good levels of wellbeing – living a satisfying, meaningful, contributing life within the constraints of painful, distressing, or debilitating symptoms.[4]

The burden of disease due to mental diseases has increased since the late nineties. According to the WHO Global Burden of Disease report 2004, depression was the leading cause of burden of disease during 2000-2002, ranked as third worldwide. About 14% of the global burden of disease has been attributed to neuropsychiatric disorders. The global burden of disease project indicates there are significant and increasing levels of mental disorders among the global adult population.[5]

The types of mental disorders that mostly affect elderly are cognitive impairment, depression, dementia, severe mental disorders in older adults such as schizophrenia and other late-life psychoses, anxiety, sexual, and sleep disorders, substance abuse, personality disorders, and sometimes marital or family conflict. Despite variations in geographic, national and cultural contexts, the prevalence of mental disorders in the older subpopulation have been found to increase.

Elderly persons are particularly prone to psychological issues; depression is the commonest psychiatric disorder reported in the elderly. The prevalence of depression among elderly persons has been estimated in 2011 to be 10.2% globally, and 21.9% in India. Thus, India has a substantial share of elderly persons with depression.[6]

Globally, more than 350 million people of all ages suffer from depression. It is projected that depression will be ranked second in the global burden of disease in terms of DALYs (disability adjusted life years) by 2020, and ranked first by 2030.[6]

The prognosis of these depressive states is poor. A meta-analysis of outcomes at 24 months estimated that only 33% of subjects were well, 33% were depressed, and 21% had died. Moreover, studies of depressed adults indicate that those with depressive symptoms, with or without depressive disorder, have poorer functioning, comparable to or worse than that of people with chronic medical conditions such as heart and lung disease, arthritis, hypertension, and diabetes. In addition to poor functioning, depression increases the perception of poor health, the utilization of medical services, and health care costs.[7]

Risk factors for depression - female sex, no care takers/living alone, divorce/spouse died, economic factors, cognitive dysfunction, cigarette/alcohol abuse, reduced intellectual skills, social inhibitions. Higher age, personal history of depression, death of spouse, health related factors and comorbid organic or anxiety syndrome showed significant bivariate associations with depression incidence. In multivariate analysis, the effect of stress factors on incident depression was not modified by a genetic/familial vulnerability, nor by an organic vulnerability. Effect modification by environmental factors was however evident; having a marital partner, and if unmarried having social support, significantly reduced the impact of functional disabilities on the incidence of depression.[8]

A large body of evidence has accumulated over the last few decades that points out that mental ill health and poverty interact in a negative cycle. This vicious cycle increases the risk of mental illness among those people who live in poverty and increases the likelihood of drifting into poverty in those living with mental illness. The precise causal mechanisms for this cycle are difficult to identify.[9]

Studies have used various scales and instruments to assess the presence of depression. Depression is the most common psychiatric disorder among the elderly, and although India is the second-most populous country in the world in terms of elderly population, depression in the elderly has not received the importance in public health planning in the country. India has the second most elderly population in the world, yet has limited research on depression in elderly.

Few community-based studies have been conducted in India so far to address this issue. A study conducted to estimate the prevalence of depression in the elderly (> 60 years old) in Ludhiana and to identify the major risk factors for depression in the study population showed that early identification and management of depression improves the quality of life. Estimating burden of depression among elderly persons is necessary for planning public health interventions.[10]

METHODS

India has the second most elderly population in the world, yet has limited research on depression in elderly. The present study aims to find out the prevalence rate of depression among elderly in an urban setting and to identify the risk factors. The study is designed as a case-control study. The study was conducted in the Bagalgunte ward of Bangalore Urban District, Karnataka. Ethical clearance for the study was obtained from Institutional Ethics Committee. Oral consent was obtained from each subject before data collection. The study was conducted during the months of May and June of 2016.

The sampling frame consisted of all the elderly persons aged 60 years and above residing normally in the area for the past one year. All persons aged 60 years and above who consented were included in the study. Bedridden elderly with serious illness not able to communicate and known cases of dementia were excluded.

The data was collected by door to door survey of all the households in the ward. Information was obtained from consenting respondents using a pre-tested questionnaire containing various socio-demographic parameters and data on risk factors of depression. The risk factors that were assessed included

- Living and co-habitation arrangements,
- Ambulatory or not,
- Economic loss
- Financially dependent or not
- Working or not working
- Death or loss of dear/loved ones,
- Elderly abuse
- Elderly neglect,
- Chronic illness/comorbid conditions
- Substance abuse,
- Change of residence
- Insomnia/unsatisfactory sleep, 13. Anorexia

To assess the depression status, data was collected using a pre designed and pre validated 15 item (short version) Geriatric depression scale (GDS).[11] The 15-item GDS, is a 15-item self-report assessment used as a basic screening measure of depression in the elderly. Accuracy of the GDS-15 is not influenced by the severity of medical burden, age, or other socio-demographic characteristics and even the "very old" and ill can be screened appropriately.

The questions in the GDS were translated to Kannada (local language) and back translated to English, then face validated. Based on Geriatric Depression Scale, a score was given for each item and the final depression score was calculated for each study participant. A GDS score of more than or equal to 5 is considered to be a probable case of depression and was classified as case. A GDS score of less than 5 is considered not indicative of depression and were classified as controls.

Analysis was done using SPSS v20. Frequencies, Odd's ratio and its 95% confidence intervals were calculated. Chi-square test was used to determine statistical significance of the observed differences. 'p' representing the statistical significance was designated as $p<01$ at 90% confidence interval, $p<005$ at 95% confidence Interval, and $p<0.001$ at 99% confidence interval.

RESULTS

A total of 201 participants were interviewed out of which 90 had a GDS score equal to or more than 5 and hence were classified as cases. Majority of the study subjects belonged to the age group of 60-69 years (79.1%). 58% of the subjects were females and nearly 41% of the subjects were illiterate. The socio economic status of the two third of the participants belonged to lower middle class or less. 60% of subjects were married and for nearly 30% of them, spouse was not alive.

The significant risk factors for depression in this study were found to be Socioeconomic status, Elderly without spouse, elderly living alone or with others, dependency on others for daily living, elderly negligence, elderly abuse, economic loss, substance abuse, change of residence, unsatisfactory sleep / insomnia, anorexia.

Subjects belonging to below lower middle class were found to be at a risk of depression more than twice compared to those living in upper middle or upper class status.($p<0.1$ at odds ratio of 2.793). Living alone or not living with family members was found to be a significant risk factor (Odds ratio 4.5).

Elderly persons who experienced negligence were at 3.5 times at higher risk of depression compared to those who didn't experience negligence. Similarly elderly who experienced abuse from family members were at 4 times higher risk of depression ($p<0.05$, odds ratio 4). Substance abuse like alcohol addiction, tobacco smoking and chewing were also found to be significant risk factors for depression.

Risk factors not significantly associated with depression in this study are not ambulatory, absence of caretaker, recent loss of dear ones, occupation status, financial dependency, chronic diseases/co-morbidities. Results are presented in Tables 1 and 2.

Table 1: Table showing frequency of various demographic characteristics.

	No (%)
Age distribution of study subjects	
60-69	159 (79.1%)
70-79	33 (16.4%)
80-89	8 (4%)
90-99	1 (0.5%)
Gender distribution of study subjects	
Male	85 (42%)
Female	116 (58%)
Educational status of study subjects	
Illiterate	82 (40.8%)
Literate	119 (59.2%)
Socioeconomic status of study subjects	
Upper	11 (5.5%)
Upper middle	61 (30.3%)
Lower middle	51 (25.4%)
Upper lower	75 (37.3%)
Lower	3 (1.5%)
Marital status of study subjects	
Married	122 (60.7%)
Single	4 (2%)
Divorced/separated	2 (1%)
Spouse not alive	73 (36.3%)

Table 2: Table showing association between risk factor and depression.

	Cases (90)	Controls (111)	Total	P value	Odds ratio
Socioeconomic status v/s Depression					
Upper/Upper middle	69 (53.5%)	60 (46.5%)	129	<0.01	2.793
Lower middle/Upper lower/Lower	21 (29.2%)	51 (70.8%)	72		
Marital status v/s Depression					
Single/ divorced/ widowed	46 (58.2%)	33 (41.8%)	79	<0.01	2.471
Married	44 (36.1%)	78 (63.9%)	122		
Living arrangement v/s Depression					
Other than family member/Single	10 (76.9%)	3 (23.1%)	13	<0.05	4.5
Spouse/Children/Both	80 (42.5%)	108 (57.5%)	188		
Dependency for daily activities v/s Depression					
Dependent	22 (61%)	14 (39%)	36	<0.05	2.242
Independent	68 (41.2%)	97 (58.8%)	165		
Elderly negligence v/s Depression					
Present	15 (71.4%	6 (28.6%)	21	<0.01	3.5
Absent	75 (41.6%)	105 (58.4%)	180		
Elderly abuse v/s Depression					
Present	9 (75%)	3 (25%)	12	<0.05	4.0
Absent	81 (42.8%)	108 (57.2%)	189		
Economic Loss in last 5 years v/s Depression					
Yes	20 (62.5%)	12 (37.5%)	32	<0.05	2.357
No	70 (41.4%)	99 (58.6%)	169		
Substance abuse v/s Depression					
Yes	39 (56.5%)	30 (43.5%)	69	<0.05	2.065
No	51 (38.6%)	81 (61.4%)	132		
Change of residence in last 5 years v/s Depression					
Present	33 (60%)	22 (40%)	55	<0.01	2.342
Absent	57 (39%)	89 (61%)	146		
Sleep v/s Depression					
Unsatisfactory	49 (70.6%)	19 (29.4%)	68	<0.01	5.787
Satisfactory	41 (30.8%)	92 (69.2%)	133		
Anorexia v/s Depression					
Present	23 (62.2%)	14 (37.8%)	37	<0.05	2.378
Absent	67 (40.9%)	97 (59.1%)	164		

DISCUSSION

The prevalence of depression, based on GDS scores >5, was found to be 44.8% in the present study. Studies have revealed that the prevalence rates for depression in community samples of elderly in India vary from 12 to 50%. The prevalence has been reported to be 45.9% in the urban slums of Mumbai, 29.36% in the urban slums of Dharwad district, Karnataka, 31.4% in a rural population of Ahmednagar, Maharashtra, 12.7% in a cross-sectional study of 1000 elderly in Vellore, Tamil Nadu, 36% in an urban poor locality of bangalore city and 42.2% in an urban area of Bangalore.[12-17] When compared with these studies, the present study documented higher prevalence of depression.

Depression in elderly is mostly under-reported and under diagnosed. Most clinicians will encounter older patients with depression in their day to day practice. Although treatment is as effective for older patients as for younger adults, the condition is often under-recognized and under-treated.

The current study brings out the high prevalence of depression in the study area. Measures are needed to address these growing public health problems. information, education and communication (IEC) activities in the community need to be intensified to create awareness about the disease & risk signs.

Elderly negligence and abuse have been found to be significant risk factors for predisposing an elderly to depression. Stricter implementation of laws in crimes against elderly.

Establishing elderly day care centres and alcohol de-addiction centres, financial empowerment of elderly through old age pensions and other social security measures will help in fighting depression.

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