Socio-demographic Correlates of Depression Among Elderly Slum Dwellers of North India

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Original Article

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Abstract

Background

Ageing is an inevitable process which begins before birth and continues throughout the life. Though depression is the commonest psychiatric disorder in the elderly, it is commonly misdiagnosed and under treated. The objective of the current study is to know the socio-demographic correlates of depressive disorders amongst elderly.

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Materials and Methods

A cross-sectional community based study was designed and conducted in an urban slum of Muzaffarnagar city, of North India, comprising of 403 elderly aged 60 years and above for a period of 6 months. First of all, the listing of elderly in the study area was done then study was started with the randomly selected name entered in list as the first one and thereafter every second elderly was interviewed alternatively with the help of predesigned proforma. The collected data was subjected to suitable statistical analysis.

Results

As the age advances the depressive disorders also increase. The prevalence of depressive disorders was found to be 9.4% and it has been observed to double with advancement of one decade of years in the age. It has been noted that there is statistically significant association between decadal age advancement and rise in number of cases of depression. No significant difference in the occurrence of depressive disorders among male and female elderly population has been found.

Conclusion

A holistic approach to underlying causes of problems of elderly should be undertaken. There is need of strengthening the existing "package" of services for elderly in various initiatives and programmes.

Keywords: Elderly, Geriatric Depression, Geriatrics

Introduction

Ageing is an inevitable process; it implies predictable progressive universal deterioration in various physical systems. Elderly population aged 60 years and above in the world is estimated to reach 1.2 billion by the year 2025, the majority of whom will be in developing countries[1].

Even though depression is the commonest psychiatric disorder in the elderly, it is commonly misdiagnosed and under treated. This could be due to the misconception that depression is part of aging rather than a treatable condition. Depression decreases an individual's quality of life and increases dependence on others. If depression is left untreated, there will be significant clinical and social implications in the lives of the elderly[2]. Contrary to popular belief, depression is not a natural part of aging. Depression is often reversible with appropriate treatment but if left untreated, it may result in the onset of physical, cognitive and social impairment as well as delayed recovery from medical illness and surgery, increased health care utilization and suicide[3].

Depression is an affective illness characterized by depressive symptoms viz. disturbance in mood, cognition and behavior; its diagnosis in elderly is often difficult. Presence of cognitive impairment as well as reluctance and denial by the elderly and their family members may make eliciting history difficult and complicate the doctor's assessment. Manifestations of depression in the elderly are also different from depression in other periods of adulthood. The elderly often present with non-specific or somatic symptoms rather than the typical symptoms of depression[4].

WHO estimates that the overall prevalence rate of depression in geriatric population generally varies between 10 and 20 % depending on cultural situation [5,6]. The proportion of elderly individual affected with depression was significantly low in Asia (4.2%) and Europe (10.9%)[7]. While Dasgupta et al reported very high prevalence (58.8%) of depression in elderly in a rural area of India[8].

There are many instruments available to measure depression, but GDS first created by Yesavage et al has been tested and used extensively with the older population is the best one. It is a brief questionnaire in which participants are asked to respond to the 30 questions by answering yes or no in reference to how they felt on the day of administration. Scores of 0-9 are considered normal; 10-19 indicate mild depression and 20-30 as severe depression[9].

The validity/reliability of the GDS was found to have 92% sensitivity and 89% specificity when evaluated against diagnostic criteria [10]. The validity and reliability of the tool have been supported through both clinical practice and research. Strengths and limitations of GDS is that it is not a substitute for a diagnostic interview by mental health professionals. It is a useful screening tool in the clinical setting to facilitate assessment of depression in older adults especially when baseline measurements are compared to subsequent scores.

Keeping in mind that elderly are the marginalized section of our society and they face significant health problems especially depression, this study has been conducted with the objective to know the socio-demographic correlates of depressive disorders amongst elderly, so that adequate measures can be taken to strengthen the existing health and vocational services for elderly.

Material and Methods

Study design and the participants:

A cross-sectional community based study was designed and conducted in an urban slum named Khalapar of Muzaffar nagar city, of North India.

Data collection:

The study was conducted for a period of 6 months (15 June 2011 to 15 December 2011).

Inclusion criteria:

There were 856 (8.05%) elderly residing in the area. First of all, the listing of elderly in the study area was done in the first phase then in the second phase study was started by randomly selecting a name entered in the list as the first one and thereafter every second elderly was interviewed alternatively. To cover a sample size of 423 it was planned to interview 428 individuals with the help of predesigned

proforma (Hindi version of the GDS i.e., Geriatric Depression Scale)[11].

Exclusion criteria:

Those elderly who were home bound, wheel chair bound, having non-cooperative attitude and their non-availability in the study area during the study period.
Four hundred and three elderly were studied while 25 were not covered as they fall in to exclusion category. The participants were explained regarding the purpose of the study before starting the study. Informed consent was obtained from them and confidentiality and anonymity were ensured

Sample size calculation:

To have maximum sample size for geriatric depression, assuming prevalence as 50%*, confidence interval (CI) of 95%, and acceptable absolute error of 5%, sample size is calculated to be 384. Calculations are shown below:

$$\text{Sample size, } N = (1.96)^2 \times \frac{pq}{L^2} \times D_{eff} = 3.84 \times \frac{0.5 \times 0.5}{0.05^2} = \sim\mathbf{384}$$

Where,
p= assumed prevalence of geriatric depression
q= 1-p
L= absolute error
To cover the assumed risk of non response of up to 10% among the selected study subjects, the final sample size is arrived at 423.
Sample size (N) = 384+ 38.4= 422.4= 423
*Note: At any given absolute error (say 5% as in the current study), sample size is maximum for a probability of 0.5 for the positive outcome (or we can say a prevalence of 50%). Hence to have maximum sample size for geriatric depression surveys, sample size has been calculated assuming prevalence of geriatric depression as 50%.

Outcome Variable:

The main outcome variable were normal, mild depression and severe depression

Explanatory variables:

Age group, marital status, religion, caste, socio-economic class.

Ethical committee approval:

The Research was conducted in accordance to the latest version of the Declaration of Helsinki. Prior to the study, ethical committee approval was taken from the institutional ethical committee of Muzaffarnagar Medical College, Muzaffarnagar.

Data management and statistical analysis:

The collected data was recorded and subjected to suitable statistical analysis and for this Epi info statistical software package version 3.4.3 was used. To determine socio-demographic correlates of depression, univariate and multivariate regression analyses were also done. Univariate estimation was followed by derivation of different multivariate models through logistic regression with forward entry and forward step wise methods and the best multivariate derived model was selected. A two tailed P < 0.05 was considered statistically significant.

Result:

Out of 403 elderly studied 207 were males and 196 were females. The old-olds i.e., above 80 years of age female outnumbered male elderly study subjects (i.e., 12 and 9 respectively). The response rate of the study subjects was found to be 100%. Out of these 403 subjects 38 were found to have mild and severe depression.

Table-1 shows there were 9.4% elderly having mild (6.2%) and severe (3.2%) depression. It is evident that there was statistically significant (p<0.001) association between decadal age advancement and rise in number of cases of depression.

Table-1: Distribution of study subjects with & without depression by age

Geriatric Depression Scale (GDS)	AGE GROUP						TOTAL (N=403)	
	60-70 yrs (n=309)		70-80 yrs (n=73)		> 80yrs (n=21)			
	No.	%	No.	%	No.	%	No.	%
Normal 0-9	288	(93.2)	63	(86.3)	14	(66.7)	365	(90.6)
Mild depression 10-19	14	(4.5)	06	(8.2)	05	(23.8)	25	(6.2)
Severe depression 20-30	07	(2.3)	04	(5.5)	02	(9.5)	13	(3.2)
TOTAL	309	(100)	73	(100)	21	(100)	403	(100)
Chi-square test	p < 0.001; df = 2							

Table-2 depicts that there is no significant difference in the occurrence of depressive disorders among male and female elderly population.

Table-3 demonstrates that there is no significant relationship of socio-demographic correlates in the causation of depressive disorders among the study subjects except decadal age group advancement. However, those not living with spouse, unemployed and elderly belonging to low socio-economic class have higher prevalence of depression.

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Table-2: Distribution of study subjects with & without depression by Gender.

Geriatric Depression Scale (GDS)	SEX				TOTAL (N=403)	
	Male (n=207)		Female (n=196)			
	No.	%	No.	%	No.	%
Normal 0-9	187	(90.3)	178	(90.8)	365	(90.6)
Mild depression 10-19	13	(6.3)	12	(6.1)	25	(6.2)
Severe depression 20-30	07	(3.4)	06	(3.1)	13	(3.2)
TOTAL	207	(100)	196	(100)	403	(100)
Chi-square test	p > 0.05; df = 1					

Table-3: Distribution of subjects with depression by Socio-demographic correlates.

Sl. No.	Socio-demographic correlates (No.)		Depression		No depression		p - value
			No.	(%)	No.	(%)	
1	Age group	60-70 (309)	21	(06.8)	288	(93.2)	p < 0.001
		70-80 (73)	10	(13.7)	63	(86.3)	
		>80 (21)	07	(33.3)	14	(66.7)	
2	Sex	Male (207)	20	(09.6)	187	(90.3)	p > 0.05
		Female (196)	18	(09.2)	178	(90.8)	
3	Marital status	Married (192)	17	(8.8)	175	(91.2)	p > 0.05
		Widow/ widower/ Living alone (211)	30	(14.2)	181	(85.8)	
4	Occupation	Working (95)	08	(8.4)	87	(91.6)	p > 0.05
		Not Working (308)	39	(12.7)	269	(87.3)	
5	Religion	Hindu (27)	03	(11.1)	24	(88.9)	p > 0.05
		Muslims (371)	43	(11.6)	328	(88.4)	
		Sikhs (3)	01	(33.3)	02	(66.7)	
		Christian (2)	-	(-)	02	(100.0)	
6	Caste	General (170)	24	(14.1)	146	(85.9)	p > 0.05
		OBC (210)	19	(9.1)	191	(90.9)	
		SC (23)	04	(17.4)	19	(82.6)	
7	SEX	I (2)	-	(-)	02	(100.0)	p > 0.05
		II (35)	02	(5.7)	33	(94.3)	
		III (116)	09	(7.8)	107	(92.2)	
		IV (147)	18	(12.2)	129	(87.8)	
		V (103)	18	(17.5)	85	(82.5)	

Socio-demographic correlates of depression

Table 4 revealed that in univariate analysis of socio-demographic correlates of depression increasing age was associated with increasing risk of depression (P = 0.0001 for age >80 years). Socio-economic status class V was also associated with increasing risk of depression (P = 0.033). On multiple logistic regression, age >80 years, Widow/widower/Living alone, OBC caste and Socio-economic status class V were also found associated with increasing risk of depression significantly.

Discussion:

Prevalence of depression:

Countries across the world are experiencing an ageing population phenomenon. The proportion (8.05%) of elderly population in the current study has found to be comparable to the national estimates of 8.14% for the year of 2011. It is projected that the population of older adults in the world will rise by 21% in the next 50 years and by the year 2050 there will be an expected quadruple increase in the elderly population to almost two billion in the developing countries[12]. Although mental health is important to the elderly, only a fraction of those who need mental health care receive it. By one estimate only about 10% of older adults who are in need of psychiatric treatment ever receive this service[13]. Prevalence of depression in the Asia- Pacific region is comparable to that of the Western world [14]. Depression is associated with morbidity as well as disability among the elderly. They constitute a major public health problem worldwide and their prevalence rates range between 10 and 55%. Jain and Aras (2007) conducted a study which is the only available Indian study employing the Geriatric Depression Scale (GDS) as screening tool in a small sample of elderly reported the prevalence of up to 45.9%. The prevalence of depression in this study population (9.4%) has found to be comparable to the WHO estimates of depression in geriatric population between 10 and 20 % depending on cultural situation[5, 6]. Mental health studies in India have revealed that the point prevalence of depression in geriatric population varies between 13% and 25%[15, 16]. In a retrospective study it has been reported that the median prevalence rate of depressive disorders in the world for the elderly population from the 74 studies was determined to be 10.3% with a ± QR varying between 4.7% and 16.0% [7]. Almost similar findings have also been reported by Kirby et al and Kay et al[17,18]. Studies conducted by Geerlings et al, Newman et al and Liu et al, also reported the prevalence rate of depression among the elderly to be 10.5%, 11.2%, and 12.9%, respectively[19-21]. These findings are almost in consistent with our findings where prevalence of depression among elderly has been reported to be 9.4%. The comparison of the median prevalence rates of depression in the elderly population of India and the rest of the world was also studied and it was found that the proportion of the depressed elderly population in India (18.2%) was significantly higher than the rest of the world (5.4%) and this difference was found to be statistically highly significant (p<0.001).

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Table 4: Socio-demographic correlates of depression.

Predictor variables	Depression (%)	No depression (%)	Univariate analysis		Multivariate analysis	
	No. (% of n)	No. (% of n)	OR (95% CI)	p-value	OR (95% CI)	p-value
Age group						
60-70 (309)	21 (06.8)	288 (93.2)	1	-	1	-
70-80 (73)	10(13.7)	63 (86.3)	3.810 (1.492- 8.615)	0.167×	1.892 (0.632–4.405)	0.08†
>80 (21)	07 (33.3)	14 (66.7)	5.692 (2.994–19.607)	0.0001†	3.446 (1.222–10.304)	0.032†
Gender						
Male (207)	20 (09.6)	187 (90.3)	1	-	1	0.517×
Female (196)	18 (09.2)	178 (90.8)	1.950 (0.517–1.704)	0.865×	0.950 (0.427–1.109)	
Marital status						
Married (192)	17 (8.8)	175(91.2)	1	-	1	-
Widow/ widower/ Living alone (211)	30 (14.2)	181(85.8)	2.281 (0.943–5.151)	0.093×	2.151 (0.783–5.154)	0.05†
Occupation						
Working (95)	08 (8.4)	87 (91.6)	1	-	1	0.284×
Not Working (308)	39(12.7)	269(87.3)	2.251 (0.983–5.154)	0.26×	2.251 (0.983–5.154)	
Religion						
Hindu (27)	03 (11.1)	24 (88.9)	1	-	1	-
Muslims (371)	43 (11.6)	328 (88.4)	2.559 (0.187–12.987)	0.778×	3.767 (2.542–9.007)	0.275×
Sikhs (3)	01 (33.3)	02 (66.7)	3.745 (0.449–31.25)	0.315×	4.756 (2.532–8.421)	0.584×
Christian (2)	-	02 (100.0)	2.829 (0.477–14.429)	NA	3.195 (2.514–6.254)	-
Caste						
General (170)	24 (14.1)	146 (85.9)	1	-	1	-
OBC (210)	19(9.1)	191(90.9)	3.147 (2.264–7.258)	0.08†	3.614 (1.348–9.709)	0.05†
SC (23)	04 (17.4)	19 (82.6)	4.462 (2.542–9.451)	0.237×	2.267 (2.754–6.224)	0.227×
Socio-economic Status						
I (2)	-	02 (100.0)	1	-	1	
II (35)	02 (5.7)	33 (94.3)	2.141 (0.824–5.347)	0.405×	3.891 (1.941–7.985)	0.273×
III (116)	09 (7.8)	107(92.2)	2.212 (0.831–6.256)	0.12×	1.863 (0.362–4.356)	0.09†
IV (147)	18 (12.2)	129 (87.8)	3.861 (1.922–7.921)	0.782×	2.251 (0.283–5.147)	0.311 ×
V (103)	18 (17.5)	85(82.5)	3.644 (1.396–9.732)	0.033†	4.766 (2.532–9.041)	0.047†

CI - Confidence interval, OR - Odds ratio, NA-Not applicable

† p<0.05, statistically significant., × p>0.05, statistically not significant.

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As there has been graying of population in recent years, we need to consider the number of depressed elderly individuals who would require adequate mental health care. An alarming eight-fold increase was recorded from the period 1955-1984 to 1995-2005 in the number of elderly suffering from depression and this trend was found to be statistically significant[7]. Banerjee I, reported females patients (55.3%) were having higher prevalence of depression in comparison to male patients 44.7% in a tertiary care hospital in contrary to present study reporting lower prevalence in female 9.2% than male 9.7% study subjects [22].

Socio-demographic correlates and depression:

In some studies it was revealed that marriage has been shown to be a protective factor against depression in the elderly[23, 8]. The findings of this study are similar to other studies conducted in health clinics in Malaysia[24]. In a study conducted in 2005 it was revealed that family members who care for their elderly have been found to be a protective factor against depression. It also showed higher risks of depression among unmarried older adults [25]. It is assumed that married people are exposed to lesser stressful experiences throughout their married life and thus decrease the risk of being depressed. Another reason for this could be that unmarried older adults may feel loneliness because of the lack of companionship. Being lonely is a risk factor for depression. Older adults who live alone or in residential homes are susceptible to loneliness [26]. Findings of this study along with other studies conducted in Malaysia have shown low social support as a risk factor for depression[27]. All these findings are almost in consistent with the findings of the current study.

Conclusion

It is concluded that a holistic approach to underlying causes of depression amongst elderly should be undertaken. There is need of strengthening the existing "package" of services for elderly under various initiatives and programs by means of IEC (Information Education & Communication) and BCC (Behavioural Change Communication) especially to bring a social change targeting towards the elderly.

Limitation of the study

The geriatric depression scale is a tool used for screening purposes hence there is a need for further clinical examination and investigation of those elderly who had mild or severe depression.

Relevance of the study:

The study can provide baseline data for researchers for further investigation.

Future scope of the study:

A larger national level study is required to be conducted for detailed data collection.

Author's Contribution:

PKG designed the study, collected the data and drafted manuscript. KM helped in designing the study and revision of the manuscript. SK assisted in manuscript write up. JVS critically revised the manuscript. SKR helped in data analysis and interpretation. All the authors approved the final document.

List of Abbreviations

GDS = Geriatric depression scale
MSW= Medico-social worker
OBC = Other backward caste
SES= Socio-economic Status
SC = Schedule caste
UHTC = Urban Health Training Center
WHO = World Health Organization

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Conflict of interest:

None

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