Study of depression risk in geriatric population of urban area of Pune, India

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Abstract: *Introduction:* As age advances there is increased morbidity and functional loss. A variety of depressive factors and occurrence of varying life events, greatly impact on one's psychological status, making the elderly more prone to depression. Decreased care & attention, economic dependence and unorganised geriatric health services are adding to the morbidity. *Objective:* To study the prevalence of depression risk in the elderly population aged 65 yrs and above and identify various risk factors. *Material & Methods:* Study design: Cross sectional study. Study area: Urban field practice area of SKNMC & GH. Sample size and sampling technique: with 95 % confidence interval & 5 % alpha sample size was calculated to be 374 by using Epi info software version 7.1.2.0. Stratified Simple random sampling technique used. Study tool: Sociodemographic profile recorded & depression was assessed with geriatric depression scale15. GCP and ethical guidelines followed as advised for human studies. *Results and conclusion:* The prevalence of depression risk in the study population was 20% (Females =26%, males=15%). Depression risk was seen statistically significantly associated with increasing age, female gender, absence of spouse support, economic dependence and type of family.

Keywords: Geriatric, depression, morbidity.

Introduction

The twenty-first century is often called the age of ageing. Since 1950, the proportion of the world's population aged 60 years and over has changed from one in thirteen to one in ten, with some developing countries ageing faster than developed countries. It is projected that by the year 2050 this figure will increase to one of five and by 2150 it will be one out of three[1].

The populations of 60 years and above in India were only 5.60% in 1951 which has climbed to 7.4% in 2001 and 8.25 % in 2011 [2]. In 1980, United Nations recommended 60 years as the age of transition to the elderly segment of the population [3]. According to current census 2011 elderly in India has crossed the 100 million mark in absolute numbers [4]. The life expectancy has gone up from 32.45 years among males and 31.66 years among females in 1951 to 67 and 69 years currently for males and females respectively [5].

It means that now elderly Indians are living longer. These demographic changes are being reflected in the age-pyramids. The factors responsible for the alteration in the population pyramid in India have been due to following factors. Lowering of mortality and fertility rates and considerably increased life expectancy, along with the advanced technology for diagnosis of diseases, better and very effective chemotherapeutic drugs, and improved knowledge about preventive and curative health care. Availability of health services to larger segment of population through public and private agencies and improved health care delivery system, improved standards of living & better nutrition has all additional positive roles to play. India has thus acquired the label of "an ageing nation" [6].

Paradoxically, there are problems that arise and overshadow the joys of longevity and affect the social, economic and physical well being of individual, families and the societies in which they live. Elderly people are highly prone to psychological morbidities. As age advances there is increased physical morbidities and functional loss. This is compounded by varied life experiences like

breakdown of the family support system, decreased care & attention and economic dependence. Urbanization, nuclearisation of family, migration and career oriented families are making care of the elderly neglected to a large extent. This greatly impacts on the psychological status of the elderly making them prone to depression. Keeping in view of all these facts, it was decided to conduct a study in the elderly population in the urban field practice area of a Medical College & General Hospital in Pune with the objective of finding the prevalence of depression risk in the elderly population aged 65 yrs and above and identify risk factors if any.

Material and Methods

After obtaining institutional ethical committee approval, a cross sectional study was planned in the urban field practice area of a medical college in Pune. The inclusion criteria for study subjects were all the persons of 65 years of age and above who were permanent residents of the area. The voter's card was used to verify age and their residence status in the area.

After explaining the purpose of the study clearly a written voluntary consent was taken from all the subjects who willingly participated in the study. The total 65 and above elderly residing in the study area were 1707 which formed 4.7% of the adult electoral population. Males of age 65 and above were 956 (56%) and females of age 65 and above were 751 (44 %) of the total elderly of 65 and above in the study area. Sample size of 374 was calculated assuming prevalence of 42% [7] with alpha error of 5% & confidence level of 95%.Stratified random sampling method was used to conduct the study. Stratification was done on the basis of gender and proportionate representation of males and females of 65 and above is done in the study sample from the sampling frame of 65 and above elderly obtained from voters list.

Thus 210 males and 164 females were included in the study. The selection of the subjects was done using lottery method. Geriatric depression scale (GDS) has been widely used for screening of depression among the elderly population across the world. It has various short versions which also have been of proven value for the geriatric population. One such version is made up of 15 questions and has shown good results as the

original version of GDS. This geriatric depression scale 15 (GDS-15) [8] has the sensitivity of 93% and specificity of 65% was used for screening purpose to identify elderly with depression risk. As per the GDS 15 criteria score from 5 to 8 indicate mild risk, 9 to 11 indicate moderate risk and 12 to 15 indicate severe risk for depression in the elderly population. GDS score below 4 indicate no risk for depression. The present study was carried out from January 2012 to July 2013.

The sampled subjects were approached in their respective houses. The investigator himself paid house to house visits and interviewed all the 374 study subjects. Interview of every study subject was done in their houses during morning hrs.10.00am to 12.30pm & evening hrs 05.00pm to 07.30pm. All those who were identified at risk were given counselling & referred for further treatment with the psychiatrist at outpatient clinic at urban health training centre. Subject compliance was monitored. Morbidity was expressed in percentage & Chi square test was used as a test of significance. P value of 0.05 and less was considered as statistically significant. Epi info software version 7.1.2.0 was used for sample size calculations and statistical analysis.

Results

In the present study total 374 subjects participated & were interviewed. Out of this 210 were males and 164 were females. The ratio of female to male elderly was 1:1.28.

The age of the study subjects was 65 years & above. In all 73 (20%) persons were found to have risk of depression with females (26%) outnumbering males (15%) assessed by GDS 15. Among those found to be positive for risk of depression 63(17%) had mild risk, 9(2%) had moderate risk. Only one elderly was found to be at severe risk of depression among all the screened study subjects.

Table 1 shows that the study variables increasing age, female gender, type of family & absence of spouse support & economic dependence were statistically significantly associated with risk of depression.

Table-1: Association of socio-demographic variables & depression (N=374)					
Risk Factors	**Depression risk frequency (n=73)**	**Df**	**Chi Square Value**	**P Value**	**Interpretation**
Age 65-70 71-75 76-80 80 +	27(12.6%) 22 (21.7%) 19(76%) 5 (71%)	3	73.71	<0.0001	Highly Significant
Gender Male Female	31 (%) 42(%)	1	6.225	0.013	Significant
Spouse Support Absent Present	51(26%) 22 (15%)	1	39.02	<0.0001	Highly Significant
Family Type Nuclear 3-Generation** Joint**	47 (71.2 %) 3 (1.8%) 23 (16.8%)	1	132.36	<0.0001	Highly Significant
Economic Dependence Yes No	67 (36.42%) 6 (9.40%)	1	13.69	<0.0001	Highly Significant
Literacy Status Illiterate Literate	51(18.21%) 22 (23.40%)	1	0.899	0.343	Not significant
** rows are combined to form non nuclear families for analysis					

Table-2: Multiple Logistic Regression Model Showing Association of Socio-Demographic Variables & Depression Variables in the Equation									
	Risk factors	**B**	**S.E.**	**Wald**	**Df**	**Sig.**	**Odds ratio**	**95% C.I. for odds ratio**	
								Lower	**Upper**
Step 1[a]	gender(1)	1.596	.452	12.478	1	.000	4.933	2.035	11.960
	Literacy status(1)	-1.488	.576	6.684	1	.010	.226	.073	.698
	Spouse support(1)	1.887	.449	17.652	1	.000	6.602	2.737	15.924
	Economic dependence(1)	2.151	.643	11.192	1	.001	8.593	2.437	30.301
	Family type			54.444	2	.000			
	Family type(1)	2.760	.466	35.057	1	.000	15.807	6.339	39.418
	Family type(2)	-2.290	.740	9.576	1	.002	.101	.024	.432
	age(1)	-2.917	.625	21.779	1	.000	.054	.016	.184
	Constant	-1.706	.902	3.580	1	.058	.182		
a. Variable(s) entered on step 1: gender, literacy status, spouse support, economic dependence, family type, age.									

Table 2 shows further advanced analysis by application of multiple logistic regression model. It was found that female gender, economic dependence, nuclear family type & absence of spouse support were significantly associated with the risk of depression in the elderly population. Age was not found to be significantly associated with the depression risk in multiple regression model. The literacy level of elderly did not show significant association with the depression risk in both the types of analysis

Discussion

For this study it was decided to include elderly of 65 & above as the study subjects. The rationale for choosing a higher age in the study was based on the following reasons. India is a fast progressive economy with better & improved socio economic conditions. Better heath care facilities and innovative technologies have resulted in increased longevity in India.

More & more elderly are seen actively contributing to various fields of works at and around age of 60. WHO also has recommended to all countries in TRS no. 853 about raising the age limit of retirement to 65 [9]. This has been already reflected in many schemes & policies of Govt. of India e.g. income tax & travel, telephone concessions, insurance schemes etc, wherein the age limit for eligibility for the scheme is 65 and above.

The prevalence of depression risk was 20% in our study population. About one in five elderly study subjects showing risk of depression is a cause of concern. Our results are comparable with another study done in year 2014 in Pune [10]. The present study shows most of the elderly were found to be having risk of milder form of depression which is many times not revealed and neglected by themselves as being part of aging. There is usually huge ignorance about depression in elderly on the part of the family members. Family physicians also show a great extent of unawareness about this issue of mild depression. World health organization aptly says this as masked depression [11].

In this study mild depression contributed to 86% of the total depression at risk patients. This is particularly important as milder forms are

reversible and easily manageable. Thus the present study clearly brought out the importance of screening for depression risk. Other studies also show similar results [10, 12].

In the present study increasing age was found to be statistically significantly associated with depression risk [10, 12]. But on further analysis with multiple logistic regression model age was not found to be significantly associated with depression risk. In our study female gender was found to be statistically significantly associated with depression risk ($x2=6.22$., d.f=1, P=0.013), Females in old age are more prone to depression due to their secondary social status, familial ignorance, and loss of spouse support. Other studies also show similar results [10, 12].

In our study economic dependence on the family was found to be statistically significantly associated with depression risk ($x2= 13.69$, d.f=1, P=0.000), other studies also show similar results [10]. Counselling regarding issues like health insurance and life insurance, importance of budgeting, part time jobs, vocational rehabilitation can be discussed with the elderly and their families. Absence of spouse support were seen to significantly associated with the depression status in this study ($x2=39.2$, d.f=1, P =0.001).Thus the other family members need s to counselled regarding the importance of economic, social and psychological support to the geriatric members in their family. Other studies also show similar results [10, 12-13].

In the present study type of family was seen to significantly associated with the depression risk ($x2= 132.36$, d.f=1, P=0.000).Other studies also show similar results [10, 12-13]. Support of the family in the older age is important aspect. Elderly living with their spouse, children and grandchildren feel more comfortable. From the results and observations made from the study it becomes clear that geriatric psychiatric health care is the imminent need of the time. Physicians at primary care level should be trained for diagnosis and treatment of depression in elderly. Depression screening is of paramount importance.

One of the limitations of the study was that interviews for screening of depression were done in the respective houses of the elderly in the presence of other family members. It was not possible to maintain privacy in many of these interviews. This could result in bias for answering and hence in the results of the study.

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