ORIGINAL ARTICLE

Magnitude of depression and its determinants among older persons in urban community of Agra

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Citation

Article Cycle

Abstract

Background: With increasing life expectancy people are living longer but they are not necessarily healthier than before. Nearly a quarter (23%) of the overall global burden of death and illness is in people aged over 60, and much of this burden is attributable to long-term illness like non-communicable diseases and mental health problems. **Aims & Objectives**: Aim of the study the magnitude of depression among elderly population of Agra. Objectives To estimate the prevalence of depression in elderly population of Agra. 2. To study the factors associated with depression among elderly population of Agra. **Material and Methods**: This study was conducted among 355 elderly in urban Agra. Data was collected by house to house visit using pre-designed and pre-tested schedule. Geriatric depression scale (GDS-30) was used to assess the burden of depression in study population. **Results:** The mean age of the study participants was 68.05 years. Depression was found in 50.1% among study population and 15.5% had severe depression. Depression was more among the Illiterates, Muslims, financial dependents, those who were suffering from chronic disease/s, encountered a stressor in the last 6 months, less religious, not living with partner or suffered elderly abuse. **Conclusion:** High burden of depression was found among the victims of elderly abuse. Stressful life events and absence of spouse were found to be significant risk factors for depression. To deal with these factors we suggest a link worker Geriatric Age Social Health Agent (G-ASHA) to act as a link between family, community and authorities.

Keywords

Introduction

Being old is inevitable. Development and Innovation in the field of medical technology and improved health care brought about a rise in life expectancy and an obviously older global population with them. By 2025 the number of elderly people is expected to rise to more than 1.2 billion (1). According to census 2011, 8.6% of total Indian population constituted elderly, which is likely to rise to 19% by 2050 (2). An ageing population is contributory to increments in burden of non-communicable and mental diseases. Globally, more than 20% of elderly person suffer from neurological disorders. 6.6% of all disability and

17.4% of Years Lived with Disability are contributed by these disorders (3). Depression is a common psychiatric disorder in elderly as they are unlikely to live independently because of limited mobility, chronic pain and weakness. They usually go through stress due to events such as demise of their spouse and retirement compounded by disability, making them psychologically distressed, physically dependent and isolated. This results in depression and compromised quality of life. There is scarcity of data pertaining to depression in older adults in India, more so, in this part of country. This study is an effort to explore various factors associated with geriatric depression

Aims & Objectives

- To estimate the prevalence of depression in elderly population of Agra.
- To study the factors associated with depression among elderly population of Agra

Material & Methods

This Cross-sectional, community based study was carried out among elderly individuals residing in the urban Agra for 6 months and above. Study was carried out over a duration of one year, from January 2017 to December 2017. Data was collected by first author herself. Statistically valid sample size was drawn, based on reported 36% as the prevalence rate of depression among elderly Indian population of Bengaluru by **Sanjay TV** *et al* **(2014)** (4) The sample size (N) calculation,

N $= 4pq/d^2$

Where,

p = expected prevalence of depression in elderly by previous study

q = 100-p

d = maximum allowable error (relative) which is taken as 15% of p for this study.

Here p= 36; q=64; d=15% of p.

Sample size thus yielded is 316. Adding a figure of 10% to it for incomplete interviews, the total number came out to be 348, which were rounded off to 350. While data collection process, the lane had five more houses with elderly individuals willing to participate in our study so a total of 355 participants aged 60 year or above were included in the current study.

Sampling Technique: Multistage random sampling was used to reach the required sample size. Urban Agra is divided into 90 corporation wards. In first stage, one ward was randomly chosen (Ward No. 74 – Jaipur House). In second stage, three residential colonies from the ward were randomly selected (Teacher's Colony, Pandav Nagar and Saket Colony). All the houses of first and second residential colony were visited, sequentially for the purpose of interview. Sequential visits to all houses of third colony were made until required number of participants were included. Five more individuals willingly participated from the lane from which last participants were taken. In third stage of multistage random sampling, if more than one eligible person existed in the household, then the study participant was selected randomly by lottery method. If no family member was eligible, then the next house was approached. The process was repeated until desired sample size was achieved.

Data was collected in pre-designed and pretested schedule which consisted of socio-demographic questionnaire, GDS-30 to screen for depression in elderly (5) and Kuppuswamy SES (6), to determine the Socio-economic status of the participants.

DEINITIONS:

Older person: Any individual, who had completed 60 years of age was considered as older person.

Elder abuse: A single, or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust which causes harm or distress to an older person.

Working/ not working: For the purpose of this study a working person is defined as a person who is in receipt of an income, whether in cash or kind. All others are recorded as not working.

Continuum of work- Elderly persons working in the same capacity as they were working before turning to 60 years of age were recorded as in continuum of work. Retired individuals were included under 'not in continuum of work', while housewives and shopkeepers who were still looking after their shops were classified as 'in continuum of work'.

Inclusion Criteria:

1. All males and females aged 60 years and above. 2. Resident of urban Agra for more than 6 months period continuously.

Exclusion Criteria:

1. Seriously ill individuals. 2. Those not giving consent/ not willing to participate in study. 3. Non-cooperative or unavailable after 3 consecutive visits at different times. 4. Individuals who encountered an adverse life event in last 1 month.

Ethical Approval details and consent:

Approval was taken from Institutional Ethical Committee of S. N. medical college Agra. Informed written consent was taken from the participants, in their mother tongue.

Data Analysis:

The collected data was transferred on the predesigned classified tables in Microsoft excelsheet and then it was cleaned for missing values and typing errors. After which it was imported in to Statistical package for social sciences (SPSS, version 22) dataset and analysis were run as per suitability with our aim and objectives.

Results

Out of 355 study subjects, 52.7% are males and 47.3% females. Mean age of the study subjects is 68.05 years (being 68.21 for male, and 67.88 for female respondents. The participants, predominantly, are Hindu (84.6%), other castes (58.3%), married (74.1%) and living in joint type of families (63.9%). As far as occupation is concerned, almost all females are in 'not working' category (95.2%), while a majority of males are working (74.9%). Only 14.3% women achieved a level of education equal to graduate or above, and majority (67.3%) are either illiterate or completed their education up to 8th standard. Almost half of the study population falls under the class II of SES (49.9%), and less than a third under category IV and V (31.2%). Out of total, 71.8% are financially independent. Among financially dependent individuals, 93.1% are dependent on their son. 27.0% of individuals have dependents on them, which is more among males (85.4%). Only 39.9% females have physical asset ownership while only 20.3% males are without physical asset ownership.

Almost half (50.1%) of the study population was found to be depressed, out of which, 15.5% of total study population had severe depression.

With increase in age depression increased but it was statistically insignificant. Among the followers of Muslim Religion, significantly more depression (68.1%) was found, as compared to Hindu (47.1%). With a rise in educational status, the percentage of depression fell. Severe depression was highest among illiterates (23.3%) and least among individuals educated up to junior high school level (8.6%). The association between religion and education with depression interpretation was significant. It was observed that, as the socio-economic status declined, the depression increased i.e. 44.6% in class I and II to 58.1% in class IV and V. Among married individuals, 11.4 % were severely depressed, while among others 27.5% were severely depressed. The variation was found to be highly significant statistically. 63.6% of study subjects living alone had depression, in comparison to 45.3% and 52.0% in individuals who lived in nuclear and joint families respectively.

Financially independent elderly had less depression. The difference in occurrence of the depression across the various BMI groups was not found to be significant on statistical analysis. A significant increase in severely depressed individuals was seen as the number of co-morbidities increased. The presence of depression was found to be significantly associated with fatal and life threatening comorbidities like heart diseases and cancer. Significantly high and predominantly severe depression, was found in subjects suffering from non-depressive mental illnesses. 25.6% of the respondents encountered one or more stressor in the last six months. Among these, about three fourths (76.9%) had depression, which is statistically highly significant. Stressor which was experienced most commonly by the study subjects was illness of spouse (59.3%), followed by family conflict (30.8%). Lesser percentage of subjects with self-perception of being religious (49.07%) suffered from depression as compared to those who considered themselves to be non-religious (60.61%). About one fourth (25.9%) of the study participants reported abuse by their family members. More than three-fold depressed individuals were noticed among respondents who had encountered any form of elderly abuse (31.5%) in comparison to those who had not (9.9%). This difference was found to be highly significant statistically. More mild depression was seen in individuals who were still working, but the difference was not significant.

The dependent variable 'depression' was regressed upon the independent variables to find their correlations. Strongest correlation was found with elderly abuse followed by presence of any stressful life event and financial dependence. Age and Religion were also found to be significant with respect to depression. Negative correlation was found with Education closely followed by married marital status. Intrinsic and extrinsic religiosity and Self-perception of being religious were also significantly associated

Discussion

Geriatric depression is a complex disorder with many bio-psychosocial risk factors. There is a need for early recognition, diagnosis, and treatment of depression to prevent its emotional and physical consequences. Prevention and management of geriatric depression begins at home with healthy and respectful family environment with holistic approach. In our study, we applied GDS scale for identification of depression in geriatric population. Out of 355 study participants, we found 178 (50.1%) individuals to be depressed. Various studies using GDS scale have found a variation in prevalence of depression from 32.2% to 75.5% among community dwelling elderly (7,8,9,10,11). This wide variation in prevalence of depression could be largely attributed to cultural variations. Our study reported that 123 (34.6%) participants were mildly depressed, while 55 (15.5%) were severely depressed. Similarly, Sharma K D *et al* (7) and Udayar S E *et al* (10) reported 37% and 38.8% of the study population to be of which, major share was by the people suffering from the mild form of depression. The findings are similar to our study.

The study results show a decrease in depressed individuals with the increase in the level of education. While, percentage of mildly and severely depressed individuals are 38.8% and 23.3% in illiterate/just literate population, it was 21.8% and 15.0% in subjects with a level of education of Graduation or above. Which is in agreement to study by Sanjay T V *et al* (4) in urban locality of Bengaluru which reported less depression in literates (34.2%) than illiterates (41.7%). Sharma K D *et al* (7), in their study in urban area at Belagavi also reported that illiterate individuals had 40.6% depressed subjects, while only 13.5% of literates were depressed.

The present study observed that prevalence of depression almost doubled up in financially dependent (20.1%) individuals when compared to financially independent ones (11.4%). Similar findings were found by Sanjay T V *et al* (4) in urban locality of Bengaluru, Pilania M *et al* (11) and other researchers,(12,13) in Community-Dwelling Elderly in Rural Haryana. Bartwal J *et al* (14), however, found financial dependency was not a significant predictor of depression in elderly population of rural Haldwani. This study observed that among asset owners 45.4% individuals were depressed, while 57.5% depression was found in those who did not own any asset. Sanjay T V *et al* (4) also reported that depression was significantly associated with elderly not holding any assets. The hold on assets in their name found to be a protective factor against depression because assets will provide financial security and sense of mental well-being. The current study reports that the presence of depression was found to be significantly associated with the presence of comorbidities in general. Increase in depression is statistically significant with the presence of Heart Diseases, Cancer and Mental illness (non-depressive mental illnesses). All the studies by Sharma K D *et al* (7) and Mohd. Maroof *et al* (15) found that depression was more prevalent in study subjects with other physical health problem/s, similar to our study. This study reports that there is gradual increase in number of severely depressed individuals is seen as the number of co-morbidities increased. Similar findings were found by Manjubhashini S *et al* (16). The prevalence of Depression was increasing with increase in the number of morbidities. Stressful life events had bad impact on mental health of subjects. Stressful life event which was experienced most commonly by the study subjects was illness of spouse. Similarly, Pilania M *et al* (11), reported when the respondents experienced conflict at home the depression was nearly three times (27.5%) in comparison to those who didn't experience it (9.8%). Likewise, Manjubhashini S *et al* (16), in their study on depression among population above 60 years in Visakhapatnam, stated that the prevalence of Depression was high among those who had stressful life events (71%), then who do not have stressful life events (31%). Only around one-tenth (11.36%) of the married study participants are suffering from severe depression in comparison to 27.5% in unmarried, widowed or separated individuals. Similarly, Pilania M *et al* (11) concluded that more depression was present in unmarried individuals (19.3%) than married individuals (11.7%), Ravindra N R *et al* (13), also found a dip in cases of depression when comparing unmarried (58.2%) to married population (36.1%). Sanjay T V *et al* (14) in urban elderly found similar preponderance of depression in unmarried subjects (39.6%) in comparison to married ones (32.7%). This study noted that about one fourth (25.9%) of the study participants accepted of being abused by their family members. Within these elderly individuals 31.5% of individuals were severely depressed in comparison to only 9.9% among not abused Similar observations were made by Ravindra N R *et al* (13) in older adults of urban Bangalore.

Elderly who experienced abuse were at 4 times higher risk of depression. In Agreement to the present study Anand A (17) reported that around 35% of elderly in Maharashtra had faced any abuse. Zalavadiya, *et al* (12), Govil P and Gupta S (18), Skirbekk and James (19), Sachan S and Kaur S (20), Gupta A A *et al* (21) also found similar findings in context to elder abuse and its role in old age depression. Our study found that, more mild depression was seen in individuals who were still working. Contrary to our findings, Udayar S E *et al* (10) found that with regard to the occupation, working and earning people (38.0%) were less affected by depression compared to the people who were at home or not earning (43.1%). Manjubhashini S *et al* (16) and Sengupta P, Benjamin A I (22) also concluded that prevalence of Depression was significantly high in elderly who were unemployed. This disparity of results may be due to the difference in criteria. According to our criteria, home-makers with no income are also included within "in continuum of work" group as they are having same work profile as they had before turning 60 years old. Moreover, "not in continuum of work" group includes retired persons who are receiving pension. This may lead to inference that it is the economic aspect of occupation rather than the satisfaction derived from doing actual work which may have a protective effect against depression.

Conclusion

Nearly half of the study subjects are found having depression, out of which, one third have severe depression. Depression is noticeably more in individuals who are illiterate, Muslims and financially dependent subjects. Factors related with more depression in older adults are elderly abuse/ neglect, factors affecting physical health i.e. comorbidities (their presence and number) and factors affecting mental health like presence of stressors (mental unrest at home, chronic/fatal disease in spouse or self). Factors related with less depression in older adults are being married, educated and religious. In view of the above findings, we suggest that a grass-root level worker, namely Geriatric Age Social Health Agent (G-ASHA), be appointed to act as a link between family, community and authorities

Limitation of the study

The study is cross-sectional, thus it does not allow cause-effect conclusions. Most cases of morbidity were elicited by self-reporting. There was no screening or confirmation by laboratory tests and follow-up. Qualitative research methods that might lead to more detailed assessment of the factors contributing to presence of depression of the study population were not adopted due to time and resource constraints.

Relevance of the study

Present study provides evidence from community based setting in Agra city of Uttar Pradesh, regarding association of physical, mental, social and spiritual factors with geriatric depression.

Authors Contribution

AS: carried out data collection and statistical analysis, SKS: conceived and designed the study, SKM, RA, VS: drafted and reviewed manuscript critically for technical content and finalized manuscript for publication.

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TABLE 2 PHYSICAL, MENTAL, SOCIAL AND SPIRITUAL DETERMINANTS OF DEPRESSION

Determinants	GDS interpretation			Total	p value
	Normal n (%)	mild depression n (%)	Severe depression n (%)	N (%)	
BMI					
underweight	6 (46.1)	5 (38.5)	2 (15.4)	13 (100)	
Normal BMI	62 (47.0)	46 (34.8)	24 (18.2)	132 (100)	0.773
overweight	78 (53.4)	46 (31.5)	22 (15.1)	146 (100)	
Obese	31 (48.4)	26 (40.6)	7 (10.9)	64 (100)	
No. of Co-morbidities					
0	21 (58.3)	13 (36.1)	2 (5.6)	36 (10.1)	
1	55 (62.5)	27 (30.7)	6 (6.8)	88 (24.8)	
2	52 (52.0)	32 (32.0)	16 (16.0)	100 (28.2)	0.002
3	39 (41.5)	33 (35.1)	22 (23.4)	94 (26.5)	
>=4	10 (27.0)	18 (48.6)	9 (24.3)	37 (7.9)	
Co-morbidities					
Diabetes Mellitus	50 (45.9)	42 (38.5)	17 (15.6)	109 (30.7)	0.552
Hypertension	71 (47.3)	57 (38.0)	22 (14.7)	150 (42.3)	0.525
Heart Disease	8 (23.5)	17 (50.0)	9 (26.5)	34 (9.6)	0.005
Cancer	2 (20.0)	2 (20.0)	6 (60.0)	10 (2.8)	0.000
Arthritis	82 (45.6)	63 (35.0)	35 (19.4)	180 (50.7)	0.080
Visual impairment	73 (48.7)	56 (37.3)	21 (14.0)	150 (42.3)	0.610
Auditory impairment	34 (46.6)	24 (32.9)	15 (20.5)	73 (20.6)	0.407
Mental illness (non dep.)	0 (0.0)	4 (17.4)	19 (82.6)	23 (6.5)	0.000
Harmful use of substance					
No	131 (53.7)	81 (33.2)	32 (13.1)	244 (68.7)	
Yes*	46 (41.4)	42 (37.8)	23 (20.7)	111 (31.3)	
Alcohol	13 (30.9)	16 (38.1)	26 (61.9)	55 (15.5)	0.060
Smoking	15 (31.9)	19 (40.4)	13 (27.7)	47 (13.2)	
Tobacco	30 (38.0)	29 (36.7)	20 (25.3)	79 (22.8)	
Stressor					
No	156 (59.1)	83 (31.4)	25 (9.5)	264 (74.4)	0.000
Yes	21 (23.1)	40 (44.0)	30 (32.9)	91 (25.6)	
Type of Stressful life events* **(N=91):**					
Death of a loved one	5 (5.5)	3 (3.3)	5 (5.5)	13 (14.3)	0.065
Heavy financial/asset losses	2 (2.2)	4 (4.4)	4 (4.4)	10 (11.0)	0.052
Conflict at home	7 (7.7)	10 (11.0)	11 (12.1)	28 (30.8)	0.001
Chronic/fatal physical/ mental illness in spouse	9 (9.9)	29 (31.9)	16 (17.6)	54 (59.3)	0.000
Chronic/physical illness in self	2 (2.2)	3 (3.3)	5 (5.5)	10 (11.0)	0.002
Financial dependence on others					
Absent	140 (55.1)	85 (33.7)	29 (11.4)	254 (100)	0.001
Present	37 (44.8)	38 (35.1)	26 (20.1)	101 (100)	
Asset ownership					
Yes	118 (54.6)	70 (32.4)	28 (13.0)	216 (100)	0.061
No	59 (42.4)	53 (38.1)	27 (19.4)	139 (100)	
In continuum with work?					
Yes	145 (47.4)	115 (37.6)	46 (15.0)	306 (86.2)	0.014
No	32 (65.3)	8 (16.3)	9 (18.4)	49 (13.8)	
Whether victim of elderly abuse					
Yes	20 (21.7)	43 (46.7)	29 (31.5)	92(25.9)	0.000
No	157 (59.7)	80 (30.4)	26 (9.9)	263(74.1)	

Do you consider yourself religious?					
Yes	164 (50.93)	110 (34.16)	48 (14.90)	322 (100)	0.017
No	13 (39.39)	13 (39.39)	7 (21.21)	33 (100)	
Total	177 (49.9)	123 (34.6)	55 (15.5)	355 (100.0)	

TABLE 3 REGRESSION ANALYSIS OF THE DETERMINANTS OF DEPRESSION

Independent variables	β (Beta)	B	SE	p- value
Elderly Abuse	0.664	5.896	6.625	0.000
Presence of stressful life event	0.373	5.429	6.844	0.000
Financial dependence on others	0.160	2.272	7.022	0.009
Age	0.123	0.117	7.060	0.018
Religion- Muslim	0.115	1.613	0.744	0.031
Gender	0.092	1.312	7.083	0.082
Socio economic Status	0.090	0.713	7.085	0.090
Asset ownership	0.076	1.207	7.093	0.155
Working	0.057	1.180	7.102	0.281
Occupation	-0.010	0.025	7.113	0.852
Use of substance	-0.092	-0.014	7.052	0.063
Extrinsic religiosity	-0.125	-0.239	7.058	0.000
Self-perception of being religious	-0.139	-3.393	7.045	0.009
Presence of Financial dependent	-0.142	-0.272	7.042	0.007
Intrinsic religiosity	-0.144	-0.323	7.495	0.006
Marital status- Married	-0.361	-4.247	6.866	0.000
Education	-0.382	-0.628	6.995	0.001