Original Research Article

A Cross-Sectional Study to Assess Depression and Its Associated Factors among Elderly People

Debajani Sahoo

Assistant Professor of Nursing (Mental Health Nursing), VISWASS, College of Nursing, Bhubaneswar, Odisha

ABSTRACT

Globally, the population is ageing rapidly. Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double, from 12% to 22%, in numbers it is from 900 million (2015) to 2 billion in 2050. Most commonly dementia and depression affect approximately 5% and 7% respectively to this age group. Mental health problems are under-identified by health-care professionals and older people themselves, and the stigma surrounding these conditions makes people reluctant to seek help. Aspire of this study was to assess the prevalence of depression and its associated factors in terms of their vigour of influence as depression on elderly in Odisha. An internationally validated semi-structured questionnaire Geriatric Depression Scale (GDS) - Short form with a structured questionnaire was administered to 300 elderly residing in Ganjam district of Odisha. Based on this cross sectional descriptive survey approximately 58 % of elderly people were depressed. And among the depressed 37 % of elderly were under suggestive depression and 21 % were under indicative depression as per the GDS. Some of the most influencing factors were increasing age, female gender, no formal education, unemployment, low Per capita income, living in rented house, widow / widower group, elderly living in extended family, those were staying alone, those faced vital events within 2-5 years, suffering from physical illnesses, neuro-psychiatric illnesses, habit of using cigarette and those were using addictive substances since 6-9 years.

Key Words: Depression, Elderly, Associated-factors (Physical, Mental, Social)

INTRODUCTION

"Ageing is a developmental issue. Healthy older persons are a resource for their families, their communities and their economy."

        Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. [1] So from this it can be drawn that mental health is an integral part for healthy life. And Mental health is defined as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" [2] Mental health and well-being are as significant in elderly as at any other time of life. Mental and neurological disorders among elderly comprise 6.6% of the total disability (DALYs) for this age group. About 15% of elderly aged 60 and over suffer from a mental disorder. [3] Worldwide, the 60-plus population constitutes about 11.5 percent of the total population of 7 billion. Near 2050, this proportion is projected to increase to about 22 percent. In developed countries, the proportion of the elderly will increase from 22.4 percent in 2012 to 31.9 percent in 2050. This proportion is approximate to more than double in less developed countries with an increase from 9.9 percent in 2012 to 20.2 percent in 2050. In Asia as a whole, the proportion of the elderly is expected to increase from 10.5

percent to 22.4 percent during 2012–2050. The share of population over the age of 60 is projected to increase from 8 percent in 2015 to 19 percent in 2050. By the end of the century, the elderly will constitute almost 34 percent of the total population in the country. India has significant interregional and interstate demographic diversity based on the stage of demographic transition, variations in the onset and speed of fertility transition. For instance, the southern states are the front runners in population ageing along with Himachal Pradesh, Maharashtra, Odisha and Punjab. [4] It is expected that the number of elderly with mental and behavioural health problems will nearly quadruple, from 4 million in 1970 to 15 million in 2030. Among all depression, adversely affect physical health and ability to function, especially in elderly. Some late-life problems that can result in depression and anxiety comprise adjusting with physical health problems, caring for a spouse with mental or physical disability, death of loved ones, and managing conflict with family members. Addressing to this problem and treating can strengthen mental health conditions results in decreased emotional suffering, improved physical health, lessened disability, and a better quality of life for older adults and their families. [5] According to the Centres for Disease Control and Prevention (CDC), depression affects about 1%-5% of the general elderly population, 13.5% in elderly who require home healthcare, and 11.5% in older hospital patients. Elderly were at risk of misdiagnosis and be deficient in treatment because some of their symptoms can take off normal age-related issues. Symptoms can also be mistakenly familiar to other illnesses, medications, or late life changes. Elderly patients might also be hesitant to talk about their feelings or fail to understand that physical symptoms can be a sign of depression. For elderly people living independently, isolation can make it difficult to reach out for help. At all times, there was a risk of suicide with major

depressive disorder. Latest data showed that (2015), the second highest suicide rate in the United States (19.4) occurred in people 85 years or older. The highest rate (19.6) was among adults between 45 and 64 years of age. [6] The total mental morbidity rate among elderly was as high as 612/1000 population. Depression was found as the commonest illness, the rate being 522/1000 population (101 cases out of 112 were diagnosed as cases of depression). Women had a higher rate of depression-704/1000 population. [7] One in every four among India's elderly population is depressed. [8] Suicide is often a tragic side-effect of depression. The suicide rate among those ages 65 and older is higher than in any other age group. The rate was 14.3 deaths per 100,000 in 2007 and among 85 and older it is twice the national average; in males 75 and older it is 36 per 100,000. Depression in the elderly leads to poorer health, slower recovery and increased death rates from other illnesses, increased suicides, more physical pain, higher health care costs and lower quality of life. Convincing an elder to seek treatment for depression can be tricky but it can improve their quality of life by identifying the prevalence rate and its associated factors. [9] Depression is the most common psychiatric disorder among the elderly, so Majority of depressive disorders remains undiagnosed and untreated because of a wrong belief that it is a part of ageing and a social stigma. India is the second-most populous country in the world in terms of elderly population > 60 years of age, depression in the elderly is not yet perceived as an important health problem in the country. Few community-based studies have been conducted in India so far to identify this as an issue of elderly healthy life, their rights for health, to increase the awareness and to reduce the stigma related to elderly depression among the general population. Hence, this study was conducted to assess the prevalence of depression in the elderly and to recognize the major risk associate factors for

depression in the elderly population in Ganjam, Odisha.

OBJECTIVES

- To assess the prevalence of depression among elderly
- To find out the factors associated with depression among elderly
- To find out the association between depression in elderly with their selected demographic variables.

MATERIALS AND METHODS

Research design and approach

A cross sectional descriptive Survey research design with Quantitative approach was used to assess depression and its associated factors among elderly people.

Setting

The setting for the present study was different communities of Ganjam district, Odisha

Population

The populations for this study were elderly people of age 60 years and above.

Sample and sampling technique

The sample comprised of elderly people above 60 yrs of age residing in different communities of Ganjam, Odisha selected with convenience sampling technique.

Sample size

The sample size for the current study was 300 elderly people residing in different communities of Ganjam, Odisha. According to thumb rule, the descriptive study needs at least 200 subjects. The only thing which the researchers have to keep in mind is to choose the largest sample possible because sample error is inversely proportional to sample size. So the sample size was taken 300 elderly people to get higher accuracy rate in the findings.

Methods of data collection

The tools used for the present study were;

- Structured questionnaire for demographic data,
- Internationally standardized Geriatric depression scale - short form (15 questionnaires) to assess presence of depression in elderly people residing in the community and

- Checklists to assess the associated factors for depression in elderly.

Description of the tools

Section – A:

It contains fourteen questionnaires related to demographic characteristics of elderly people.

Section – B:

Internationally standardized structured geriatric depression scale (short form), containing fifteen questions of yes / no type, which was prepared by J. A. Yasavage in 1982, accepted in public domain, was used to assess the presence of depression in elderly.

Section – C:

A structured checklist was prepared on following 3 different parts consisting of 17 points of interrogative questions of yes / no type;

- Part – 1   : Assessment Physical factors associated in depression in elderly
- Part – 2   : Assessment Mental factors associated in depression in elderly
- Part – 3   : Assessment Social factors associated in depression in elderly

Validity of the tool

The content validity of the tool was established through consultation with guide and experts in the field of psychiatry and psychiatric nursing and Bio-statistics. Their suggestions and opinions were taken to modify the tool.

Reliability of the tool

To establish reliability, The Pilot study was carried out, the tool was administered to 30 participants (10%), other than the study sample of the main study area, after approval of the concerned authority of that area and informed consent from the participants. The split half method was used and the score was calculated by using correlation coefficient formula for estimation of reliability of the prepared checklist. **(r = 0.7)**

Data collection procedure

Permission was obtained from the sarpanch of these communities. The list of total elderly people was collected from

sarpanch office, from which 300 elderly people were selected through convenient sampling technique. Self-introduction was given to them and purpose of the study questionnaire was explained to them before collecting the data. An informed consent was taken from all participants. The data was collected from them.

STATISTICAL ANALYSIS

Collected data were tabulated, organized, analyzed and interpreted using descriptive and inferential statistics, chi-square test. Analysis and interpretation was done as per the objectives of the study. The data analysis was done on these following steps, first the data were organized in the master sheet followed by personal data were analyzed in terms of frequencies and percentages and finally the association between depression with other variables was determined by using Chi-square test.

RESULTS

Table No. -1: Description of demographic characteristics of elderly people   N=300

Demographic characteristics		Frequency	Percentage (%)
Age in years	60 – 70	195	65
	71 – 80	74	24.67
	81 – 90	27	9
	≥ 91	4	1.33
Gender	Male	171	57
	Female	129	43
	3rd Gender	0	0
Education	No Formal Education	49	16.33
	Primary	93	31
	High School	70	23.33
	Higher Secondary	28	9.33
	Graduation And Above	60	20
Occupation	Employed	6	2
	Business Man	6	2
	Labourer	14	4.67
	House Wife	121	40.33
	Retired	142	47.33
	Unemployed	11	3.67
Per-Capita Income	≤ 1000	71	23.33
	1001 – 3000	34	11.33
	3001 – 5000	40	13.33
	≥ 5001	155	51.67
House	Own	230	76.67
	Rented	70	23.33
Marital Status	Married	227	75.67
	Unmarried	5	1.67
	Widow	68	22.67
	Divorced	0	0
Type of Family	Nuclear	220	73.33
	Joint	72	24
	Extended	8	2.67
Staying With	Family Members	225	75
	Spouse	64	21.33
	Staying Alone	11	3.67
Vital Events (Death)	≤ 1year	8	2.67
	2 – 5 Years	27	9
	6 – 9 Years	20	6.67
	≥ 10 Years	245	81.67
Physical Illness	No Illness	50	16.67
	Hypertension	153	51
	Diabetes	77	25.67
	Joint Problem	113	37.67
	Cataract	38	12.67
	Gastritis	72	24
	Other	40	13.33
Neuropsychiatric Illness	No Problem	282	94
	Parkinsonism	5	1.67
	Alzheimer Disease	0	0
	Dementia	6	2
	Delirium	1	0.33
	Other	6	2

Table 1 to be continued…			
Substance Use	Nothing	172	57.33
	Alcohol	9	3
	Cigarette	16	5.33
	Tobacco	111	37
	Ganja (cannabis)	2	0.67
	Other	0	0
Duration of Substance Use	Never	170	56.67
	≤1 Year	0	0
	2 – 5 Years	5	1.67
	6 – 9 Years	6	2
	≥ 10 Years	117	39
	Some Times	2	0.67

Findings of table no.1 revealed that highest percentage, 65 % of elderly people were in the age group 60 – 70 years, the percentage of male was high i.e. 57%, where as highest percentage, 31% of elderly people were qualified up to primary standard, 47.33% of elderly people were retired, 51.67% of elderly people were belongs to more than Rs. 5000 PCI of family, 76.67% of elderly people were lived in their own house, 75.67 % of elderly people were married, 73.33%of elderly were lived in nuclear family, 75% of elderly people were staying with their family members, 81.67% of elderly faced vital events i.e. death occurred in the family within ≥ 10 years of duration, 51% of elderly people were suffered with hypertension, 94% of elderly people were not suffered with any neuropsychiatric illness, 57.33% of elderly people were not using any addictive substances, 56.67% of elderly people were never using any substances.
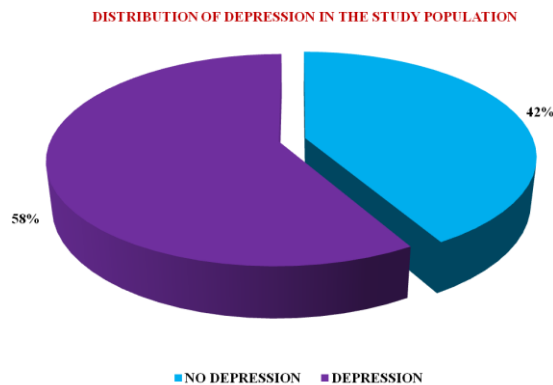

Figure 1: Prevalence of depression among the elderly people (N = 300)

Result of figure no. 1 explained the prevalence of depression among the elderly people according to Geriatric Depression Scale - short form i.e. highest percentage, 58 % of elderly people were suffering from depression.
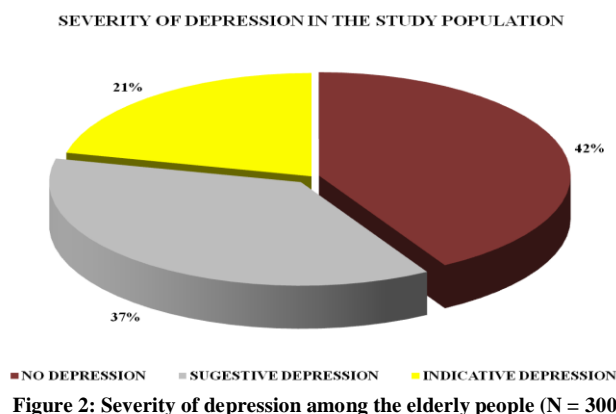

Figure 2: Severity of depression among the elderly people (N = 300)

Figure no. 2 revealed that out of the total study sample 42 percentages of elderly people were not suffering from depression whereas 37 percentages of elderly had suggestive depression and 21 percentages had indicative depression, as per the score obtained from geriatric depression scale – short form.

Table No. 2: Description of the elderly people in view of presence of depression   N=300

Demographic characteristics	Elderly people without depression		Elderly people with depression	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Age group in Years				
60 – 70	96	49.23	99	50.77
71 – 80	26	35.14	48	64.86
81 – 90	3	11.11	24	88.89
≥ 91	0	0	4	100
Gender				
Male	83	48.54	88	51.46
Female	42	32.56	87	67.44
3rd. Gender	0	0	0	0
Educational Qualification				
No formal education	12	24.49	37	75.51
Primary	34	36.56	59	63.44
High school	32	45.71	38	54.29
Higher secondary	16	57.14	12	42.86
Graduation & above	33	55	27	45
Occupation				
Employed	5	83.33	1	16.67
Business man	4	66.67	2	33.33
Labourer	4	28.57	10	71.43
House wife	38	31.4	8	68.6
Retired	73	51.41	69	48.59
Unemployed	1	9.09	10	90.91
Per Capita Income per month (PCI)				
≤ 1000	23	32.39	48	67.61
1001 – 3000	5	14.71	29	85.29
3001 – 5000	13	32.5	27	67.5
≥ 5001	84	54.19	71	45.81
House				
Own	108	46.96	122	53.04
Rented	17	24.29	53	75.71
Marital Status				
Married	108	47.58	119	52.42
Unmarried	2	40	3	60
Widow / widower	15	22.06	53	77.94
Divorced	0	0	0	0
Type of Family				
Nuclear	94	42.73	126	57.27
Joint	29	40.78	43	59.72
Extended	2	25	6	75
Staying with				
Family members	89	39.56	136	60.44
Only with spouse	34	53.12	30	46.88
Staying alone	2	18.18	9	81.82
Vital Events				
≤ 1 year	3	37.50	5	62.5
2 – 5 years	5	18.52	22	81.48
6 – 9 years	6	30.00	14	70
≥ 10 years	111	45.31	134	54.69
Physical Illness				
No illness	39	78	11	22
Hypertension	56	36.60	97	63.4
Diabetes	29	37.66	48	62.34
Joint problem	34	30.09	79	69.91
Cataract	8	21.05	30	78.94
Gastritis	30	41.67	42	58.33
Other	7	17.5	33	82.5
Neuropsychiatric Illness				
No problem	123	43.62	159	56.38
Parkinsonism	0	0	5	100
Alzheimer disease	0	0	0	0
Dementia	0	0	6	100

Table 2 to be continued…			
Delirium	0	0	1	100
Other	0	0	6	100
Substance Use			
Nothing	85	49.42	87	50.58
Alcohol	4	44.44	5	55.56
Cigarette	4	25	12	75
Tobacco	35	31.53	76	68.47
Ganja (cannabis)	1	50	1	50
Other	0	0	0	0
Duration of substance Use			
Never	84	49.41	86	50.59
≤1 year	0	0	0	0
2 – 5 years	1	20	4	80
6 – 9 years	1	16.67	5	83.33
≥ 10 years	38	32.48	79	67.52
Some times	1	50	1	50

Table No. 3: Distribution of the associated factors as per their depth of influence for depression in elderly people

Name of the associated factors	Frequency out of total sample (300)	Frequency out of depressed elderly (175)	Percentage (%)
Physical Factors			
Activities of Daily Living	46	36	20.57%
Loss of Vision	89	68	38.85%
Hearing problem	89	78	44.57%
Chewing problem	106	79	45.14%
Difficulties in Speech	12	11	6.29%
Difficulties Motion	61	58	33.14%
Sleep disturbances	105	77	44%
Weakness	151	127	72.57%
Mental factors			
Memory Impairment	76	70	40.00%
Less Life Satisfaction	119	99	56.57%
Lack of Orientation	19	18	10.29%
Intellect Disturbances	154	123	70.29%
Lack of Interest	158	119	68.00%
Social Factors			
Negligence Within Family	28	26	14.86%
Monetary Dependency	103	87	49.71%
Less Chance for Decision Making (Family Matters)	87	78	44.57%
Getting Less Importance in Society	17	68	38.86%

(Note: For each factor N = 175)

Description of the elderly people in view of presence of depression (table no. 2) depicted that all the elderly people (100%) of the age group ≥ 91 years were found depressed and the percentage of depression was increased with increase of age, highest 67.44 % of female elderly, 75.51 % elderly with no formal education, 90.91 % of unemployed elderly, 85.29 % of elderly from Rs. 1001 – 3000 PCI per month, 75.71 % of elderly living in rented house, 77.94 % of widow / widower elderly, 75 % of elderly living in extended family, 81.82 % of elderly those are staying alone, 81.48 % of elderly those face vital events within 2 – 5 years in their family, **least** percentages (22 %) of elderly having no physical illness, all (100 %)the elderly with different neuropsychiatric illnesses, highest 75 % of elderly using cigarette and 83.33 % of elderly with history of using substances since 6 – 9 years were found depressed.

The data of table no. 3 revealed the depth of influence of associated factors for depression in elderly people. It was shown that among the selected physical factors, weakness has highest influence i.e. by 72.57% where as from mental factors, intellect disturbances by 70.29 % and from social factors, monetary dependency influenced by 49.71 percentages for depression in elderly people.

To find out association of depression with selected demographic variables of elderly people, hypothesis was formulated.

H$_0$: There is no significant association exist between depression and selected demographic variables.

H$_1$: There is significant association exist between depression and selected demographic variables.

Table No. 4: Association of depression with selected demographic variables

Name of demographic variables	Degree of freedom -df	Chi-Square value	Table value(p)	Remarks
Age	3	13.13	7.82	Significant
Gender	2	7.72	5.99	Significant
Education	4	9.92	9.49	Significant
Occupation	5	19.87	11.07	Significant
Per-Capita Income	3	24.06	7.82	Highly Significant
House	1	11.35	3.84	Significant
Marital Status	3	9.54	7.82	Significant
Type Of Family	2	1.06	5.99	Not Significant
Staying With	2	6.35	5.99	Significant
Vital Events (Death)	3	8.42	7.82	Significant
Neuropsychiatric Problems	5	13.02	11.07	Significant
Duration of Substance Use	5	10.81	11.07	Not Significant

Table No. 5: Exposure of elderly to the Associated Factor's result on depression

Name of the associated factors	Odds ratio (OR)	Exposure to Associated Factor's result on depression as per OR value	Confidence interval (CI) at 95%	Significant status of OR on the basis of CI at 95% level value
Physical Factors				
Activities of Daily Living	0.34	Decrease	0.16, 0.71	Statistically significant
Loss of Vision	0.32	Decrease	0.18, 0.56	Statistically significant
Hearing problem	0.12	Decrease	0.06, 0.24	Statistically significant
Chewing problem	0.33	Decrease	0.20, 0.56	Statistically significant
Difficulties in Speech	0.12	Decrease	0.02, 0.94	Statistically significant
Difficulties Motion	0.05	Decrease	0.02, 0.16	Statistically significant
Sleep disturbances	0.37	Decrease	0.22, 0.62	Statistically significant
Weakness	0.09	Decrease	0.05, 0.16	Statistically significant
Mental factors				
Memory Impairment	0.08	Decrease	0.03, 0.18	Statistically significant
Less Life Satisfaction	0.15	Decrease	0.08, 0.26	Statistically significant
Lack of Orientation	0.07	Decrease	0.01, 0.53	Statistically significant
Intellect Disturbances	0.14	Decrease	0.08, 0.23	Statistically significant
Lack of Interest	0.21	Decrease	0.13, 0.35	Statistically significant
Social Factors				
Negligence Within Family	0.09	Decrease	0.02, 0.40	Statistically significant
Monetary Dependency	0.15	Decrease	0.08, 0.27	Statistically significant
Less Chance for Decision Making (Family Matters)	0.10	Decrease	0.05, 0.20	Statistically significant
Getting Less Importance in Society	0.09	Decrease	0.04, 0.21	Statistically significant

Chi-square revealed that, there was significant association exist between depression in the elderly with age, gender, education, occupation, house, marital status, staying with, vital events (death), and neuropsychiatric problems and highly statistical significant association exist with per-capita income, whereas no statistical significance association exist with type of family and duration of substance use, at p = 0.05.

Hence the null hypothesis was rejected and the research hypothesis was accepted for the variables, age, gender, education, occupation, per-capita income, house, marital status, staying with, vital events (death) and neuropsychiatric problems, where as the null hypothesis was accepted for type of family and duration of substance use.

This table no. 5 explains the exposure of elderly to the Associated Factor's result on depression. Here the result of odds ratio for each selected associated factors i.e. selected physical factors, mental factors and social factors is less than one (1) i.e. here OR < 1 so the exposure to these factors will decrease the risk of depression in elderly. And as the 95 % of confidence interval (CI) for the OR of each selected associated factors not includes one (1) that means OR is statistically

significant for each selected associated factors.

Confidence interval:

In the current study the mean ($\bar{X}$) score of depression among elderly of Ganjam, Odisha was 6.81, the standard deviation (SD) was 3.74, the standard error (SE) was 0.22 and the confidence interval (CI) at 95 % is 6.38, 7.24 that means the researcher was 95 % confident that the depression score among elderly of Ganjam, Odisha is in between 6.38 and 7.24.

DISCUSSION

The score on prevalence of depression among the elderly people according to Geriatric Depression Scale - short form depicted that 58 % of elderly people were suffering from depression among those whereas 37 percentages of elderly had suggestive depression and 21 percentages had indicative depression. This is supported by a study conducted by TV Sanjay et al, 2014, on Prevalence and factors influencing depression among elderly living in the urban poor locality of Bengaluru city shows that 36 % of elderly were depressed and among those 58.3% are in moderate and 41.7 % are in severe depression. [10]

In the study elderly people in view of presence of depression revealed that all the elderly people (100%) of the age group ≥ 91 years were found depressed and the percentage of depression was increased with increase of age, highest 67.44 % of female elderly, 75.51 % elderly with no formal education, 90.91 % of unemployed elderly, 85.29 % of elderly from Rs. 1001 – 3000 PCI per month, 75.71 % of elderly living in rented house, 77.94 % of widow / widower elderly, 75 % of elderly living in extended family, 81.82 % of elderly those are staying alone, 81.48 % of elderly those face vital events within 2-5 years in their family, least percentages (22%) of elderly having no physical illness, all (100%) the elderly with different neuropsychiatric illnesses, highest 75 % of elderly using cigarette and 83.33 %

of elderly with history of using substances since 6-9 years were found depressed. This is supported by a study conducted by Swarnalatha N, 2013, on the prevalence of depression among the rural elderly in Chittoor district, Andhra Pradesh shows that he prevalence of depression was 47% and is high (54.3%) among the elderly who are aged 80 years and above, females (56.5%), illiterates (59.0%), those who are below the poverty line (86.1%), those who lives alone (87.3%), those who are economically partially dependent (63.3%) and those depend totally (100.0%) for the activities of daily living. [11]

The depth of influence of associated factors for depression in elderly people shown that among the selected physical factors, weakness has highest influence i.e. by 72.57% where as from mental factors, intellect disturbances by 70.29 % and from social factors, monetary dependency influenced by 49.71 percentages for depression in elderly people. This is supported by a study conducted by Vijay C Nalpe et al, 2014, on geriatric depression infield practice area of urban health centre, Latur - a cross sectional study reveals that 58% of elderly had depression, among those 61% felt that they are neglected by family and another 35% had no role in decision making in family, 48% had lost their spouse while, 81% had some type of co-morbidities. [12]

Chi-square revealed that, there was significant association exist between depression in the elderly with age, gender, education, occupation, house, marital status, staying with, vital events (death), and neuropsychiatric problems and highly statistical significant association exist with per-capita income, whereas no statistical significance association exist with type of family and duration of substance use, at p = 0.05. This is supported by a study conducted by Shankar Radhakrishnan et al, 2012, on prevalence of depression among geriatric population in a rural area in Tamilnadu shows that, age, sex, education, monthly

income, spouse living status, history of chronic ailments and smoking showed a statistically significant association with depression in elderly. [13]

CONCLUSION

Overall, prevalence of depression among 300 elderly in Ganjam district, Odisha was found 58%, among those 37 % had suggestive depression and 21 % had indicative depression, as per geriatric depression scale - short form. In view of presence of depression highest 100% of elderly of the age group ≥ 91 years, 67.44 % of female, 75.51 % elderly with no formal education, 90.91 % of unemployed elderly, 85.29 % of elderly from Rs. 1001-3000 PCI per month, 75.71 % of elderly living in rented house, 77.94 % of widow / widower elderly, 75 % of elderly living in extended family, 81.82 % of elderly those are staying alone, 81.48 % of elderly those face vital events within 2-5 years in their family, least percentages (22 %) of elderly having no physical illness, all (100 %) the elderly with different neuropsychiatric illnesses, highest 75 % of elderly using cigarette and 83.33 % of elderly with history of using substances since 6-9 years were found depressed. The mean ($\bar{X}$) score of depression among elderly of Ganjam, Odisha was 6.81, the standard deviation (SD) was 3.74, the standard error (SE) was 0.22 and the confidence interval (CI) at 95 % is 6.38, 7.24 that means the researcher was 95 % confident that the depression score among elderly of Ganjam, Odisha is in between 6.38 and 7.24. The depth of influence of associated factors for depression in elderly people shown that highest, weakness (72.57%), intellect disturbances (70.29 %) and, monetary dependency influenced by 49.71 percentages. As per the OR value the exposure to the associated factors will decrease the risk of depression in elderly which is proved as statistically significant at 95 % confidence interval.

Strength
- This survey comprising of a large sample

- It covers so many factors associated with depression

Limitation
- This study only measured the presence of depressive symptoms on the basis of GDS-short form.
- The tool was used to assess only some selected factors associated with depression in the elderly people with depression.

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