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DEPRESSION IN GERIATRIC POPULATION IN DARJEELING HILLS OF INDIA

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Abstract

Depression is a serious mental condition and a common form of mental illness among people of all ages. Geriatric depression encompasses the psychological, social and physical health of the elderly. The purpose of the present research was to study and determine the prevalence of depression amongst the elderly population of 60 years or more of age in the Darjeeling Hills of India. The 300 older subjects were interviewed using a pre-structured questionnaire comprising the socio-demographic information and a pre-validated 15-item Geriatric Depression Scale (GDS) Short Form developed by Yesavage JA to assess the depression among the elderly. In this study the overall prevalence of depression in the elderly in the study population was 53.67% due to social insecurity, fear, anxiety, feeling of worthlessness and adverse life events among the elderly. The study findings can improve their quality of life by implementing a comprehensive strategy in the community to promote mental health and adding years to their life.

Keywords- Geriatric, Depression, Elderly, Aging, Screening

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Introduction

Aging a universal process has become an important field of specialization in the subject called Gerontology. Gerontology includes in its scope many aspects (viz. biological, psychological, economic and social) of the aging process[1]. Deteriorating health is seen as a major factor for aging which is inevitable. The health factor nowadays cannot be viewed only in biological terms but should also incorporate the psychological health. Rapid improvement in medical sciences and public health has reduced the mortality rate of the graying population but the psychological adjustment related to low self-esteem, no creative use of free time, financial problems, lack of love and respect, independence, social disengagement has disturbed the psychological health of the elderly. The mental disorders leads to depression and is seriously affecting the quality of life of the elderly. Depression is a cumulative manifestation of social, physical and mental factors and are interwoven and interdependent. In typical depressive episodes, the person suffers from lowering of mood, reduction of energy and decrease in activity. Capacity for enjoyment, interest and concentration is reduced. Sleep is usually disturbed and appetite diminished. Depending on the number and severity of symptoms, a depressive episode may be specified as mild, moderate and severe[2].

Mild depressive episode- Two or three of the above symptoms are usually present. The person is usually distressed by these but will probably be able to continue with most activities.

Moderate depressive episodes- Four or more of the above symptoms are usually present and the person is likely to have great difficulty in continuing with ordinary activities.

Severe depressive episode- An episode of depression in which several of the symptoms are marked and distressing, typically loss of self-esteem and ideas of worthlessness or guilt. Suicidal thoughts and acts are common[2].

In India, there has been a steady rise in the share of the elderly population increasing to 8.6 percent in 2011(Census, 2011). As per the projections based on the Census of India(2001), the proportion of the elderly in the population is expected to be 9.2 percent in 2016[3]. The number of elderly population in India is expected to be 179 million by 2031 and 301 million by 2051[4].

Graying or aging of population is the last phase of demographic transition and India's age-sex pyramid has led to the broadening of the apex due to declining mortality rate and increasing longevity at birth.

This has led to an increase in the proportion of the elderly population and an increasing depression risk in older adults.The unprecedented transformation in our socio-economic aspects of living conditions with increase in urbanization, industrialization, migration and growth of individualism amongst the younger ones has led to an increasing neglect of elderly population. According to WHO, factors increasing depression risk in older adults include genetic susceptibility, chronic diseases and disability, pain, frustration with limitations in activities of daily living (ADL), personality traits(dependent, anxious or avoidant), adverse life events (separation, divorce, bereavement, poverty, social isolation) and lack of adequate social support[2]. With age the elderly lose their mental power and become prone to cognitive decline, becomes cranky which results in disengagement and ultimately diagnosed with depression.

The purpose of the study was to assess the prevalence of depression among the elderly population of 60 years and above of Darjeeling hills taking into account the socio-demographic characteristics of the elderly and using GDS-15 scale.

Materials and Methods

A cross-sectional descriptive study was conducted from May to June 2017 in the Darjeeling hills to study about the prevalence of depression among the elderly (60 years and above). The research was carried out in Darjeeling Sadar and Kurseong subdivisions in Darjeeling district and the newly carved Kalimpong district (erstwhile subdivision of Darjeeling district) of West Bengal comprising of 15 areas including rural and urban areas located in the Lesser Himalayas of India. Random sampling was employed and the sample size was 300(150 male and 150 female).

The study was conducted after obtaining an ethical clearance and permission from the administrative authorities of the areas and informed consent was also obtained from the respondents before the information was collected. Elderly above 60 years who were interested to

participate in the study were only included, leaving patients suffering from long period of dementia, deafness and severe mental deterioration. Elicited information was kept confidential and no potential conflicts of interest, financial or otherwise has been disclosed.

Data Collection Procedure

The study was conducted through house-to-house visits selected by random sampling. The 300 older subjects was interviewed in their local language by using a pre- structured questionnaire comprising the socio-demographic information covering a diverse set of parameters including age, sex, marital status, education, economic dependency level, living arrangement and activities of daily living (ADL). The second part comprised of a pre- designed and pre- validated 15 item Geriatric Depression Scale (GDS) which is a self-report scale developed by Yesavage JA. Using GDS-15, scores of 0-4 were considered normal; 5-8 indicated mild depression; 9-11 moderate depression and 12-15 severe depression[5]. The GDS-15(Shorter version of the scale) consists of 15 questions. The participants were asked to respond to 15 questions by answering yes or no on the basis of how they felt over the past week in their life. Each negative answer carried 1 point and thus more the scores were, the more chances of having depression. A score of less than 5 was normal and more than 5 was suggestive of depression. The maximum score one could get was 15 which would indicate severe depression. Based on their scores, the study subjects were categorized:-

Table 1. Range of the Prevalence of Depression

Score	**Category**
0-4 (<5)	Normal
5-15 (>5)	Depression present

Statistical Analysis

The data was analyzed by using SPSS (Statistical Package for Social Sciences) version 19. Frequency distribution tables were calculated for the variables. The chi-square test was used to test relationship between two categorical variables. A p-value of <0.05 was taken as the criteria of significance for all purposes.

Study Variables

Depression was the dependent variable, the independent variable being the socio-demographic characteristics displayed in Table 2. Socio-demographic information was analyzed with the association of depression among the subjects as per the age group.

Table 2. Socio-demographic Characteristics of study subjects (n=300)

Characteristics		**No**	**%**
Age Group	60-69	172	57.3
	70-79	92	30.7
	80 and above	36	12
Sex	Male	150	50
	Female	150	50
Marital Status	Never married	11	3.7
	Married	160	53.3
	Widowed	117	39
	Divorced/Separated	12	4
Educational level	Illiterate	118	39.3
	Primary(I-IV)	54	18
	Upper primary(V-VIII)	57	19
	Secondary(IX-X)	35	11.7
	Higher Secondary(XI-XII)	14	4.7
	Graduation	16	5.3
	P.G. & Professional	6	2
Economic Dependency	Independent	152	50.7
	Dependent	148	49.3
Living Arrangement	Living alone	19	6.3
	Living alone with servant	6	2
	Living with spouse only	43	14.3
	Living with spouse & servant	3	1
	Living with children	100	33.3
	Living with spouse & children	110	36.7
	Others	19	6.3
Perform ADL	Yes	284	94.7
	No	16	5.3

Source: Calculated from fieldwork data

Result

A majority (57.3%) of the subjects were in the age group of 60-69 years (Table 2). Among the 300 elderly studied 161(53.67%) were found to be having depression as per the score by GDS scale. Table 3 shows distribution of GDS-15 scores of the 300 elderly respondents.

Table 3. Prevalence of Depression among the Elderly as per Geriatric Depression scale (n=300)

Depression per GDS score	**No.**	**%**
Absent/Normal(0-4)	139	46.3
Mild(5-8)	97	32.3
Moderate(9-11)	42	14.0
Severe(12-15)	22	7.3

Source: Calculated from fieldwork data

In the present study, the prevalence of depression was found to increase with increasing age. It was 48.3percent in the age group of 60-69 years, while it was 52.2percentin the age group of 70-79 years and it was 83.3percent in the 80 years and above age group (Table 4). The result was found to be statistically significant in the prevalence of depression between the different age groups. It was observed that the prevalence of depression was more in females (58.7%) than in males (48.7%), the difference being around 10percent more in females. The difference in the prevalence of depression and sex was however not statistically significant (Table 4).

The elderly were categorized into never married, married, widowed, and divorced/separated. Divorced and separated were clubbed into one group. It was observed that most of the study participants who were widowed, divorced/separated were suffering from depression. Out of 117 widowed 77 were in depression and out of 12 divorced/ separated 10 were suffering from depression and the result was statistically significant (Table 4).

Among the illiterates 72percent had depression. The number of depression cases was less with higher educational level, as it was 48.1percent of those who had studied primary school level and 45.6percentthose who had studied till upper primary level. The difference was statistically significant (Table 4).

The elderly were divided into two categories based on their financial status: dependent and independent. The depression was more prevalent among the elderly who were economically dependent on others (66.9%). The elderly who were economically dependent were totally dependent on their family members for their livelihood and were not leading an economically productive lives. 40.8percent of the elderly who were economically independent had depression. The elderly who were economically independent were successfully earning their livelihood be it in small form (old age pension, retired govt. employees and widow pension are also included). Among those who were depending totally for their activities of daily living the depression status was 93.75percent, while it was 51.4percentonly in those elderly who could carry out their activities of daily living. The difference was also statistically significant (Table 4).

The depression was high among the subjects who were living with others (79%) and living alone or with servants. It was least among those who were living with their spouse and children (33.7%). The difference in the prevalence of depression between the various groups was statistically significant (Table 4).

In the in-depth interview conducted in Darjeeling hills on the elderly it was found that the prevalence of depression increased as the dependency in the activities of daily living (ADL) increased. Disability is the inability to perform usual daily activities. More basic and at the same time more obligatory activities, such as bathing, dressing, toileting are termed as activities of daily living(ADLs)[6]. 51.4percent of the elderly who were capable of carrying out the activities of daily living independently had depression while it was 93.75percentwho had ADL disability (Table 4).

Table 4. Socio-demographic Characteristics and Depression (n=300)

Variables		**Normal (n=139)**		**Depression present (n=161)**		**x^2**	**p-value**	**Significance**
		No.	**%**	**No.**	**%**			
Age Group	60-69	89	51.7	83	48.3	18.089	p<0.05	S
	70-79	44	47.8	48	52.2			
	80 and above	6	16.7	30	83.3			

Sex	Male	77	51.3	73	48.7	4.215	p<0.05	NS
	Female	62	41.3	88	58.7			
Marital Status	Never married	2	18.2	9	81.8	39.862	p<0.001	S
	Married	95	59.4	65	40.6			
	Widowed	40	34.2	77	65.8			
	Divorced/ Separated	2	16.7	10	83.3			
Educational level	Illiterate	33	28	85	72	42.729	p<0.001	S
	Primary(I-IV)	28	51.9	26	48.1			
	Upper primary(V-VIII)	31	54.4	26	45.6			
	Secondary(IX-X)	17	48.6	18	51.4			
	Higher Secondary(XI-XII)	12	85.7	2	14.3			
	Graduation	13	81.25	3	18.75			
	P.G. & Professional	5	83.3	1	16.7			
Economic Dependency	Independent	90	59.2	62	40.8	23.128	p<0.001	S
	Dependent	49	33.1	99	66.9			
Living Arrangement	Living alone	6	31.6	13	68.4	64.474	p<0.001	S
	Living alone with servant	1	16.7	5	83.3			
	Living with spouse only	16	37.2	27	62.8			
	Living with spouse & servant	3	100	0	0			
	Living with children	36	36	64	64			
	Living with spouse & children	73	66.3	37	33.7			
	Others	4	21	15	79			
Perform ADL	Yes	138	48.6	146	51.4	48.371	p<0.001	S
	No	1	6.25	15	93.75			

S signifies Significant

Source: Calculated from fieldwork data

NS signifies Not Significant

Table 5 lists individual GDS-15 items reported by the elderly. The most commonly endorsed symptom (61.3% of all subjects) was a positive response to the question "Do you often feel helpless?" . 71.3 percent of the elderly's response was negative to the question "Do you feel full of energy?'. The third most commonly endorsed symptom was a positive response to the question "Do you prefer to stay at home rather than going out and doing new things?" was 57.7 percent of all subjects. 57.3 percent of the subjects feel that most people are better off than they are which reflects a feeling of hopelessness and dissatisfaction.

Table 5. Frequency of GDS-H items of the elderly population (n=300)

Depressive Symptoms(GDS-H items)	**YES**	**NO**
1. Are you basically satisfied with life?	242(80.7%)	58(19.3%)
2. Have you dropped many of your activities and interests?	153(51%)	147(49%)
3. Do you feel that your life is empty?	121(40.3%)	179(59.7%)
4. Do you often get bored?	81(27%)	219(73%)
5. Are you in good spirits most of the time?	208(69.3%)	92(30.7%)
6. Are you afraid that something bad is going to happen to you?	25(8.3%)	275(91.7%)
7. Do you feel happy most of the time?	151(50.3%)	149(49.7%)
8. Do you often feel helpless?	184(61.3%)	116(38.7%)
9. Do you prefer to stay at home rather than going out and doing new things?	173(57.7%)	127(42.3%)
10. Do you have more problems with memory than most people?	127(42.3%)	173(57.7%)
11. Do you think it is wonderful to be alive?	286(95.3%)	14(4.7%)
12. Do you feel pretty worthless the way you are?	69(23%)	231(77%)
13. Do you feel full of energy?	86(28.7%)	214(71.3%)
14. Do you feel that your situation is hopeless?	51(17%)	249 (83%)
15. Do you think that most people are better off than you are?	172(57.3%)	128(42.7%)

Source: Calculated from fieldwork data

Discussion

The overall prevalence of depression among the elderly in Darjeeling hills was found to be 53.67 percent. Swarnalatha N revealed the prevalence of depression in Chittoor district of Andhra Pradesh to be 47.0percent[7]. In another study conducted by Vandand A. Kakrani et.al.in the geriatric clinic OPD of Dr. D.Y.Patil Medical College, Pune among the hospital based patient revealed the prevalence of depression was 54percent[8]. Depression is prevalent among older adults: an estimated 15percent to 19 percent of Americans ages 65 and older suffer from depressive symptoms[9].

In the present study, the prevalence of depression was found to increase with increasing age. In the age group of 60-69, 48.3percent was found with depression considerably can be called early onset of depression. Those with early onset depression are more likely than those with late onset depression to have a family history of depression, possibly implying that occurrence of disorder was genetically influenced[10]. Those with early onset depression may also have a higher prevalence of personality disorder or elevated score on personality traits such as neuroticism[11]. The other possible reasons are physical illness, disability to carry one's task, change in social status, decreased self-esteem, loss of spouse and friends, financial crisis, negligence by the family members. After cerebrovascular disease (e.g. stroke, vascular dementia) depression is very common. The prevalence rates of depression in people with heart disease have estimated at approximately 20-25percent[12].

The prevalence of depression in the present study was found to be significantly more in elderly females (58.7%) than in males (48.7%)(Table 4). In another study conducted by Sati P. Sinha et.al. (2013) in Sembakkam village of Kancheepuram district of Tamil Nadu found depression was more common in women (60%) than men (29.3%) and in the widowed (76.9%) compared to married[13]. Ramachandran et.al study observed that depression was significantly more frequent in females than in males[14]. It has been estimated that the 12 month prevalence of depressive disorders is approximately 2% for men and 5% for women among adults aged over 65 years living in the community of New Zealand [12].

It is seen from the present study that the divorced/separated (83.3%) are more affected by depression. Widowed older adults and never married also scored high prevalence of depression in Darjeeling hills. This finding is consistent with the study findings of Sati P.Sinha conducted in Sembakkam village of Tamil Nadu. Loneliness and social isolation can be tracked for the cause of depression among the elderly. Positive social support is associated with lower rates of depression, and has been shown to buffer depression[15]. Bereavement over loss of partner, staying away from loved ones are the major life stressors. Role changesassociated with spouse bereavement e.g. taking on task such as household management, social planning that were earlier done by spouse, may lead to a reduction of activities and an increasein negative self-evaluation particularly among older adults who are less flexible or less open to experience[16]. The elderly who had lost their spouse (65.8%) were suffering from depression because of the detachment of the emotional support which they used to receive. This in turn has affected their psychological health. Also the rate of depression is high among the divorced and separated (83.3%) because the sudden break of a lifelong relationship which becomes unbearable to them leads to stress. The polygamy is prevalent in Darjeeling hills. The second wife is often referred to as 'KanchiBoori'. The husband cohabiting with his wives generally leads one of them to attain a principal position and being the favourite. This gradually leads to condemnation of the other wife instead of having children from the first wife which brings separation between them steering divorce or separation.

Economic resources have a great bearing on the life satisfaction and subjective wellbeing of the aged. The wellbeing is affected by the economic factors too. The financial status of the elderly decides the dependency and independency over the family members. In the present study, it is seen that 68percent of the male and 33percentof the female are independent. A majority of 66.7percent of the females are dependent (Table 2). The association of high degree of depression may be an additional factor due to dependency. Particularly, at this age to attain a satisfactory living standard due to lack of resources or supported by others pushes them to a lowered mood state. In the present study, 66.9percentof the subjects were prone to depression who were economically dependent on others (Table 4). The income level keeps hold of the material satisfaction with respect to the standard of living. Satisfaction implies those who are independent are able to procure materials whether be necessity items or luxury items in everyday life at their will and their financial resources are sufficient to satisfy their wants. The financial independency of the aged leads them to happiness where they feel they are not burden on anyone and can

independently satisfy their needs which shows the result that elderly who are independent are less prone to depression(40.8%)(Table 4).

In the present study, the prevalence of depression was found to be inversely proportional to the literacy status. There was a gradual decrease in the prevalence of depression as the literacy status increased. The difference in the prevalence of depression between the subjects of different educational level was statistically significant (x^2= 42.729, p<0.001) (Table 4).

The elderly in Darjeeling hills who were living with others and living alone had high prevalence of depression. 68.4percent of the elderly who were living alone and 83.3percentwho were alone with servants had depression. The lowest prevalence (33.7%) was found among the subjects who lived with their spouse and children (Table 4). The 2005-2006 National Family Health Survey in India examined living arrangements by household, which is defined by having separate cooking facilities even if older parents and adult children live in adjacent structures. The survey found that four out of five (78%) Indian ages 60 and older lived in the same household with their children, while about 14percentlived with a spouse and 5percent lived alone[17].Those who live alone or only with spouse is due to the social transformation in our way of living. A number of trends may explain these changes in living arrangements. Declining fertility leaving fewer children to look after the elderly, migration for employment that separates families leaving the elderly behind and moreover the role of individualism that have crept in the minds and lives of the younger generation. This has increased the lack of companionship which is associated with loneliness associated with dissatisfaction. Loneliness can increase the risk of heart disease by a third. A million older people in Britain say they are chronically lonely, a figure expected to increase by 600,000 within two decades, and isolation has previously been linked to dementia and early death[18]. Over 1 million (11%) of people aged 65 or over in the UK say they are always or often lonely[19]. According to the article 'Loneliness tied to heart disease' by Chris Symth in The Telegraph on April 12, 2016 it is found that lonely people were 50 percent more likely to die early, a similar risk to smoking and drinking. Also Dr.NicoleValtorta of the University of York analyzed data from 23 studies involving 180,000 people to conclude that lonely people were also more likely to get heart disease or have a stroke[18]. Those who were living with children also had high degree of depression which reflected that loss of spouse as an increased factor of feeling

lonely and insecure. The difference in the prevalence of depression between the subjects in the present study who had different living arrangements was found to be statistically significant(x^2= 64.474; p<0.001).

Inability to carry out one's task (ADL disability) contribute feeling low, negative, psychological problems, loneliness and isolation. This is prevalent much among the patients who are suffering from the most disabling conditions like stroke, musculoskeletal disorder, paralysis and other forms of disability. Differences in ADL prevalence may also stem from differences in the meaning of dependence and the availability of family help[6]. The difference in the prevalence of depression with regards to the activities of daily living (ADL) in Darjeeling hills was found to be statistically significant(x^2= 48.37; p<0.001)

Therefore the common mental health condition in older age are depression, anxiety and dementia. The diagnosis of depression has a prevalence of about 2percent[6]. There is evidence that depression in people with dementia is seriously under recognized and undertreated, in part because of difficulties in relying on self-report in this population as well as symptom overlap[9]. Hence, there is a need of screening for depression among the elderly by health professionals. An education and awareness of geriatric depression in the community, family and health personnel need to be reckoned. Improvement and recovery is possible only with the right diagnosis, treatment and management strategies.

Conclusion

The prevalence of depression in the present study amongst the elderly in Darjeeling hills was found to be 53.67 percent. More geriatric clinics needs to be set up for the proper diagnosis of health of the elderly, including older adults with depression. More research on geriatric care and integrating them with the training programs for the family members and health workers with the aid of governmental and non-governmental organizations may meet the problems of the elderly.

References

[1] Saxena, D.P."Sociology of Aging", Concept Publishing Company, New Delhi, 2006.

[2] World Health Organization (WHO).The World Health Report 2001. Mental Health: New Understanding, New Hope. Geneva, 2001.

[3] Directorate of Census Operations. District Census Handbook, West Bengal. 2011.

[4]Pracheth, R., Mayur, S.S., Chowti, J.V., "Geriatric Depression Scale: A Tool to Assess Depression in Elderly", International Journal of Medical Science and Public Health, vol. 2(1), pp.31-35, 2013.

[5] Sheikh, J.I. and Yesavage, J.A., "Geriatric Depression Scale (GDS): Recent evidence and development of a shorter version", Clinical Gerontologist, vol. 5(1-2), pp.165-173, 1986.

[6] Deeg, D.J.H. "Health and Quality of Life" in H. Mollenkopf and A. Walker (eds.), Quality of Life in Old Age, pp.195-213, Springer, Netherlands, 2007.

[7] Swarnalatha, N. "The Prevalence of Depression among the Rural Elderly in Chittoor District, Andhra Pradesh", Journal of Clinical & Diagnostic, vol. 7(7), pp. 1356-1360, 2013. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3749635/ accessed on 10/10/2018

[8] Kakrani, V.A., Desale, A.V. and Mehta, C.P., "Geriatric Depression Scale (GDS): a Tool for Assessment of Depresssion in Elderly", Journal of Krishna Institute of Medical Sciences University, vol. 4(3), pp. 24-31, 2015. http://www.jkimsu.com/jkimsu-vol4no3/JKIMSU,%20Vol.%204,%20No.%203,%20July-Sept%202015%20Page%2024-31.pdf accessed on 19/10/2018

[9] Cahoon, C.G. "Depression in Older Adults", American Journal of Nursing, vol. 112(11), pp. 22-30, 2012. https://nursing.ceconnection.com/ovidfiles/00000446-201211000-00021.pdf accessedon15/10/2018

[10]Heun, R., Papassotiropoulos, A., Jessen, F., Maier, W. and Breitner, J.C., "A family study of Alzheimer disease and early-and late-onset depression in elderly patients", Arch Gen Psychiatry, vol. 58(2), pp. 190-196, 2001.

[11] Brodaty, H., Luscombe, G., Parker, G., Wilhelm, K., Hickie, I, et.al., "Early and late onset depression in old age: different aetiologies, same phenomenology", J Affect Disord, vol.66(2-3), pp.225-236, 2001.

[12] Best Practice Advocacy Centre (BPAC). "Assessment and management of Depression in Older Adults" New Zealand, 1-16, 2011. https://bpac.org.nz/BPJ/2011/July/docs/bpjse_elderly_depression_2011.pdf accessed on 21/10/2018

[13] Sinha, S.P., Shrivastava, S.R. and Ramasamy, J., "Depression in an Older Adult Rural Population in India", MEDICC Review, vol. 15(4), pp. 41-44, 2013.
http://www.redalyc.org/articulo.oa?id=437542095010 accessed on10/10/2018
[14]Ramachandran, V., Menon Sarada, M. and Arunagiri, S., "Socio-cultural factors in late onset Depression", Indian J Psychiatry, vol. 24(3), pp. 268-73, 1982.
[15] Bazargan, M. and Hanm-Baugh, V.P., "The Relationship Between Chronic Illness and Depression in a Community of Urban Black Elderly Persons", Journal of Gerontology, vol. 50(2), pp. S119-S127,1995.
[16] Fiske, A., Wetherell, J.L. and Gatz, M., "Depression in Older Adults", Annual Review of Clinical Psychology, vol. 5, pp. 363-389, 2009.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2852580/ accessed on 10/10/2018
[17] Today's Research on Aging. "India's Aging Population", Population Reference Bureau, Issue No.25, 2012.
[18] Symth, C. "Loneliness tied to heart disease", The Telegraph, April 12, pp.2, 2016.
[19]Hardy, S. "Depression in the elderly: a growing problem", Practice Nursing, vol. 22(9), pp. 1-5, 2011.
https://www.researchgate.net/publication/215806590_Depression_in_the_elderly accessed on21/11/2018
http://censusindia.gov.in
http://www.censusindia.gov.in/2011census/population_enumeration.html