REVIEW ARTICLE

Geriatric Healthcare Issues: A Public Health Perspective

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ABSTRACT

Introduction: Globally, life expectancy is continuously rising. As a result of it, various healthcare issues have arisen among the elderly population bringing forth unique challenges to the healthcare system.

Aims and objectives: The aims and objectives of this review article were to explore the various health issues among the geriatric population in terms of physical, mental, psychosocial, and economic domains.

Materials and methods: An extensive search of all materials related to the topic was done for 6 months (January to June 2018) in PubMed, WHO website, and Google Scholar search engines. Overall, 50 articles focusing on the different aspects of the health of the elderly, published in the period 1999 to 2017 were selected and analyzed.

Results: The elderly tend to have multiple morbidities including a history of falls. Mental health illnesses and psychosocial issues were common among the elderly. Poor health-seeking behavior and healthcare utilization were also common among the elderly.

Conclusion: The healthcare-related issues of the elderly are multifaceted viz medical, psychosocial, financial, etc. A multipronged approach is needed to tackle the health problems of the elderly.

Keywords: Geriatric health services, Mental health, Morbidity, Public health.

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Introduction

Globally, life expectancy is continuously rising. The population aged >65 years is expected to rise from the current level of 1 out of 11 persons in 2019 to 1 person out of 6 people by the year 2050. The proportion of persons aged 65 years and above are bound to be more than the number of children in 2018 for the first time in history. At the global level, the population of age 80 years or above is expected to become three times the present level of 143 million in the year 2019 to about 426 million in the year 2050. In the South East Asian Region (SEAR) of the World Health Organization (WHO), the percentage contribution of older people has increased by only 2% in 35 years (from 6% in 1975 to around 8% in 2010) will increase by twice the proportion in the next 15 years (to around 12% in 2025). The total elderly population has increased to 242 million during 2015 in countries of SEAR of WHO.² Even in India, the elderly population shows an increasing trend. It is expected that it will increase from 8% in 2015 to 19% in 2050. Toward the end of the 21st century, it will constitute 34% of the total population. We are moving toward a society of more elderly people than younger ones.³

World Health Organization defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity and the ability to lead a socially and economically productive life. World Health Organization has declared 2020–2030 as a decade of healthy aging. All stakeholders like governments, civil society, international agencies, academia, and the private sectors should be involved in collaborative work for ensuring better living conditions for elderly people. World Health Organization has also stated that it is the need of the health systems in countries to be transformed in a manner that will help to meet the needs of the elderly to ensure access to the evidence-based interventions that can help to prevent care dependency later in life.

The morbidities occurring in old age bring forth unique health challenges. Some of the chronic conditions seen in old ages may cause a reduction in the quality of life. For example, arthritis in old

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age causes joint pain leading to decreased mobility and hence reduced quality of life. Elderly people also have aspirations for wellbeing and respect regardless of the presence or not of decline in their physical and mental functions.

The aims and objectives of this review article were to narrate various health issues among elderly people in terms of physical, mental, psychosocial, and economic domains.

MATERIALS AND METHODS

An extensive search of all materials related to the topic was done using the keywords viz elderly, morbidity, healthcare, mental health for 6 months (January to June 2018) in PubMed, WHO website, and Google Scholar search engines. Relevant documents, reports, and original research articles focusing on the different aspects of the health of the elderly, published in the period 1999–2017 were included in this narrative review. Overall, 82 articles were identified on the topic including original research articles, technical reports, etc. Among these, 17 articles were excluded as they did not fit the scope of this review, and 15 were excluded as full-length articles were not available for review. Thus, a total of 50 articles (40 original

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articles and 10 technical reports, and others) were selected based upon the suitability of the current review objectives and analyzed. These identified technical reports and other forms of research articles were then re-grouped into different sections namely morbidity and mortality, mental health, social and economic issues, awareness, and health-seeking behavior among elderly people.

RESULTS

Morbidity and Mortality among Elderly People

The report on the status of elderly people stated that in India, the main cause of mortality among the elderly was cardiovascular disorders. About one-third of deaths among the elderly were due to cardiovascular disorders. About 10% of deaths were due to diseases of the respiratory systems. Tuberculosis and other infections were also causing 10% of deaths. About 6% of deaths in the elderly population were attributed to cancers.⁸

In West Bengal, it was reported that malnutrition was seen among 29.4% of the elderly. Also, it was stated that 60.4% of elderly residing in rural areas were found to have a risk of malnutrition and it was seen more among elderly females.⁹

The risk of developing obesity as well as its complications were found to be more among middle- and higher-income group of elderly people since their lifestyle was sedentary and they had less physical activities. ¹⁰ Obesity was found among 34% of males and 40.3% of females among elderly persons attending the Geriatric Clinic in a hospital-based study in Delhi. ¹¹

Chronic illnesses were more commonly seen among the elderly population in India and non-communicable diseases like cardiovascular, metabolic, and degenerative disorders, as well as communicable diseases, were on the rise. The leading cause of death among the elderly was cardiovascular disease. Also, chronic bronchitis, anemia, high blood pressure, chest pain, kidney problems, digestive disorders, vision problems, diabetes, rheumatism, and depression were found to be common among elderly people.¹²

In Chandigarh, a study on the prevalence of osteoarthritis in the elderly in rural and urban areas, a significant difference was observed between the two groups. The low prevalence of osteoarthritis in rural elderly was attributed to differences in their lifestyle since rural elderly were more mobile and less obese compared to urban elderly and have better social interactions. 13 In one of the studies, it was reported that anemia (51%), cataracts (54%), hypertension (26%), arthritis (56%), and chronic bronchitis (6%) were the main illnesses. 14 In another study, it was reported that the most common morbidity among the elderly was pain in the joints and joint stiffness, followed by dental and chewing problems, diminished visual acuity mainly due to cataract and refractive errors, and difficulty in hearing. It was also found that 61% of the people chewed tobacco, 33.3% of males were smokers and 28.7% regularly consumed alcohol.¹⁵ The prevalence of functional disability was reported as 46.84% among elderly people in Tamil Nadu in a study done in rural areas. It was found that visual impairment was the most common defect followed by hearing impairment. The functional disability was associated with economic dependence with females being more affected. The most self-reported morbidity was hypertension followed by type II diabetes and arthritis. 16 In rural areas of Haryana, in a study, it was reported that anemia was the most common morbidity, followed by dental problems, joint pain, cataract, hypertension, senile deafness, acid peptic disease, COPD, and diabetes and that females had significantly higher rates of anemia, joint pains, and acid peptic disease.¹⁷ In a study conducted in Odisha, 57% of the elderly had multi-morbidity and the common diseases were arthritis followed by respiratory problems, hypertension, and cataract.¹⁸ In a similar study in Karnataka, 25.3% were found to be suffering from 3 morbidities and 12.5% had 5 or more morbidities.¹⁹ It was found in a study conducted in Manipur, that major morbidity was decreased vision (46.1%), hypertension (41.9%), and diabetes mellitus (20.9%), along with other diseases like respiratory disorders, osteoporosis, hypothyroidism, and cataract.²⁰ In a study conducted in India, it was found that the most common co-morbidity was arthritis. Also, anemia, hypertension, depression, cataract, and ischemic heart disease were commonly seen among the elderly population.²¹

It was found that 93.77% of the inmates of a geriatric home reported one or more health-related complaints and malnutrition was also seen among the elderly inmates. Loss of teeth, joint pain, impaired vision, weakness, and insomnia were found as other common health ailments.²² In a study conducted among the elderly population, it was reported that the commonest cause of the illness was hypertension (83.6%) followed by arthritis (78%) and diabetes (76%). About 38.6% of the aged were having cataracts.²³ In another study, it was reported that type of family, exercise, dietary habit, addiction habits like smoking and tobacco chewing, socioeconomic status, alcohol consumption were found associated with morbidity.²⁴ In a cohort study done in South Korea, it was reported that hypertension, arthritis, and diabetes mellitus were the common diseases and osteoporosis and arthritis were the common prevalent diseases in women. The associated factors for the morbidities were found as gender, employment, household income, alcohol intake, self-assessed health status, and worries about health.25

Falls were common among the elderly. About 28–35% of aged 65 years and above experienced history falls and this increased to 32–42% among elderly over 70 years. ²⁶ In rural areas of Haryana, it was reported that the prevalence of falls in the past 12 months was 36.6% The prevalence among women was 40.6% among men was 31.5%. Low socioeconomic status, the urgency of micturition, knee pain, visual impairment, hearing impairment, functional disability, and depression were significantly associated with falls. ²⁷ In a study in Andhra Pradesh, it was found that the history of recurrent falls was found higher in elderly people with bilateral cataracts. ²⁸ In a study among the elderly in North India, the prevalence of falls was found to be 28.7% and it was found that slippery floors, use of multiple medications, hearing loss, and presence of depression were the independent risk factors with falls. ²⁹

Mental Health among Elderly People

A study among elderly people found that psychiatric illnesses were present in 43% of the study participants with females having a higher proportion (51%) compared to males (21%). The most common psychiatric illness was depression (53%) followed by dementia (21.6%). A study conducted in Goa found that access to mental health services in the medical sector was limited among the elderly, and, thus, more care and support were provided informally, and in the family, and the elderly felt the need to decrease their dependence upon the family and felt anxious about discussing their health problems with their family. ³¹

In another study about 33.9% of the geriatric population was above the threshold for mental illness based on the GHQ-12

questionnaire and that females had a higher prevalence of the mental disorder, with the most common psychiatric disorder being depression and generalized anxiety.³² One study which intended to study the political interest to extend the age of retirement showed that generalized anxiety disorders were commonly found among the early retirees.³³ Loneliness was the most important concern of the elderly along with livelihood, housing, recreation, and entertainment according to a study done in Surat, Gujarat.³⁴ Suicidal tendencies were common among the elderly. The feeling of burden, decline in freedom of action, and self-determination were seen among the elderly population.³⁵ The common mechanisms for suicide involved were firearms (28%), hanging (24%), and selfpoisoning (21%). Specific illnesses associated with suicide included congestive heart failure, chronic obstructive lung disease, seizure disorder, urinary incontinence, anxiety disorders, depression, psychotic disorders, bipolar disorder, moderate pain, and severe pain. Treatment for multiple illnesses was strongly related to a higher risk of suicide and almost half the patients who committed suicide had visited a physician in the preceding week, according to a 9-year study in Ontario, Canada.³⁶ In a study of predictors of suicides, it was observed that family conflict, serious physical illness, loneliness, and both major and minor depressions were associated with suicide in those above 75 years of age, while economic problems predicted suicide in the younger but not in the elderly.³⁷

Psychosocial and Economic Issues among Elderly People

Dissatisfaction was reported by more than half of elderly women in a study done in rural areas and 16% of them were not satisfied with their life.³⁸ However, in a study done in Jammu & Kashmir, northern India, it was reported that 68.2% of the elderly enjoyed a good quality of life, while those having fair or poor quality were <15%. The study also showed that the most common morbidity was anemia, followed by dental problems and joint pains. 39 In another study done in Meerut in northern India, it was reported that 69.5% were enjoying their leisure time at home, 55.1% were having a sad attitude toward their lives, 46.3% were not aware of and 96% had never utilized any geriatric welfare service.⁴⁰ In contrast, 95.5% reported that their day-to-day activities were affected due to old age. Feeling neglected by family members was reported by 39.7% of study participants and feeling of a burden to their family by 34.7%. Feeling not happy with life was reported by 48.4% of elderly study participants. Among the basic needs, medicine, followed by clothing and food were unmet among 10.6, 5.5, and 4.2% of the elderly, respectively.⁴¹

Mistreatment was seen toward the elderly. Various abuses like verbal abuse, financial abuse, physical abuse, and neglect were reported among the elderly. Women experienced more verbal abuse and physical abuse than men. The prominent perpetrators who were responsible for abuses toward the elderly were adult children, daughters-in-law, spouses, and sons-in-law. Depression and less satisfaction with life were found more among those mistreated elderly population. If were found more among those mistreated elderly population. In another study, some form of abuse was experienced by about 11% of elderly people. The abuse was more experienced by women compared to men among elderly people. Physical abuse and verbal abuse were experienced by 4 and 10%, respectively, among the elderly study participants. It was also evident that education, with schooling at least eight years or more, had shown a significant protective relation to all types of abuses. It was also

Elderly people were financially dependent on others or having limited income in the form of pension. They could not bear any catastrophic expenditure toward healthcare. It was reported that some catastrophic health expenditure was incurred by about 15.8% of study participants. It was found that more than half of the burden of catastrophic health expenditure was experienced by people belonging to lower-income quartile. They avoided healthcare needs due to a shortage of money. Hegarding economic costs, it was reported that the public costs of providing long-term care were estimated to be relatively modest as a proportion of GDP (of the order of 1 or 2% or less). But, a limitation that the majority of the care provided informally was not reflected in their reported figures was also mentioned in the study.

Awareness and Health-seeking Behavior of Elderly People

In north India, it was found that two-third were seeking treatment for their health problems. Among older persons not seeking treatment for their medical condition, the reason was that most considered these morbidities as an age-related phenomenon and many perceived that the health services were too far.⁴⁶ In the analysis for need-standardized healthcare utilization in India, it was found that the need for healthcare utilization among the elderly was pro-poor. The actual healthcare utilization was concentrated among richer sections of the population. Also, income had a very strong role in such a way that the distribution of healthcare was shifted away from the poor elderly, and that impact of income on utilization in states with higher per capita incomes have higher elderly healthcare utilization. 47 The association between healthcare among the elderly and their literacy showed that people with poor health literacy had high healthcare costs. Inadequate health literacy was an independent risk factor for hospital admission among elderly managed care enrollees, even after demographics, socioeconomic status, health behavior, chronic diseases were adjusted for. 48 Also, it was found that public health facilities were utilized by 89% in rural areas and private health facilities by 86.3% in urban areas among the elderly study participants. 49

Conclusion

The health issues of the elderly are of varied types like medical, psychosocial, financial, etc. A multipronged approach is needed to tackle the health problems of the elderly with inter-sectoral coordination between various sectors viz health; social welfare; legal; urban and rural development; transport, etc. A communitybased geriatric healthcare program should be initiated and integrated with the primary healthcare services. Healthcare workers and volunteers can be sensitized and trained in handling issues specific to the elderly population. Emphasis should be given not only on medical aspects of health but also psychosocial, economic, and other determinants of health. Promotion of "Healthy Ageing" needs to be advocated. Improving the awareness about different disease conditions and steps which can be taken to prevent it, knowledge about the importance of good nutrition and balanced diet, and physical exercise has to be inculcated from early adulthood. It is equally important to create an enabling environment for the elderly to have a positive mindset and feeling of well-being with the help of meditation, prayer, yoga, and other strategies for motivation.



REFERENCES

- United Nations, Department of Economic and Social Affairs, Population Division. World population prospects Highlights, 2019 Highlights. Available from: https://population.un.org/wpp/ Publications/Files/WPP2019. [Last accessed on 22nd September 2019].
- United Nations, Department of Economic and Social Affairs, Population Division. World population prospects Highlights, 2019 revision Highlights. Available from: https://population.un.org/wpp/ Publications/Files/WPP2019_Highlights.pdf [Last accessed on 22nd September 2019].
- Shreemoyee Patra, ed. Caring for Our Elders: Early Responses. India Ageing Report. United Nations Population Fund (UNFPA). 2007.
- World Health Organization. About World Health Organization. Constitution. Available at: http://www.who.int/governance/eb/constitution/en/. [Last accessed 22nd September 2019].
- WHO, Ageing and Life Course. Available from: https://www.who.int/ ageing/en [Last accessed 22nd September 2019].
- WHO, Long-term-care systems. Available from: https://www.who.int/ageing/long-term-care/en. [Last accessed 22ndSeptember 2019].
- PHC Team. 6 Special Healthcare Needs of Seniors. Available from: https://www.pasadenahealthcenter.com/2018/06/08/6-special-healthcare-needs-seniors. [Last accessed 22nd September 2019].
- Situation Analysis Of The Elderly in India. Available from: http://mospi. nic.in/sites/default/files/publication_reports/ElderlyinIndia_2016. pdf. [Last accessed on 22nd September].
- Lahiri S, Biswas A, Santra S, Lahiri SK. Assessment of nutritional status among elderly population in the rural areas of West Bengal, India. Int J Med Sci Public Health 2015;4(4):569–572. DOI: 10.5455/ijmsph.2015.20 122014117Available from: https://www.bibliomed.org/?mno=176188 [Last accessed on 22nd September 2019].
- Aging AN. Nutrition and immune function. J Nutr Health Aging 2004;8(1):2–6. Available from: https://www.ncbi.nlm.nih.gov/ pubmed/14730362 [Last accessed on 22nd September 2019].
- 11. Singh P, Kapil U, Dey AB. Prevalence of overweight and obesity amongst elderly patients attending a geriatric clinic in tertiary care hospital in Delhi, India. Indian J Med Sci 2004;58(4):163–164. Available from: https://tspace.library.utoronto.ca/bitstream/1807/2475/1/ms04028.pdf. [Last accessed on 22nd September 2019].
- ElderlyinIndia_2016.pdf [Internet]. [cited 2019 Jun 05]. Available from: http://mospi.nic.in/sites/default/files/publication_reports/ ElderlyinIndia_2016.pdf [Last accessed on 22nd September 2019].
- Sharma MK, Swami HM, Bhatia V, Verma A, Bhatia SP, Kaur G. An epidemiological study of correlates of osteo-arthritis in geriatric population of UT Chandigarh. Indian J Commun Med 2007;32(1):77. Available from: http://www.ijcm.org.in/article.asp?issn=0970-0218;year=2007;volume=32;issue=1;spage=77;epage=78;aulast=S harma [Last accessed on 22nd September 2019].
- 14. Borde A, Kinge A, Bawa M, Pagar V. A cross sectional study to assess the modifiable risk factors and morbidity profile of elderly people in a village in tribal part of Maharashtra. Int J Community Med Public Health 2017;4(10):3830–3834. DOI: 10.18203/2394-6040. ijcmph20174259Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/1925/1510 [Last accessed on 22nd September 2019].
- Purty AJ, Bazroy J, Kar M, Vasudevan K, Zacharia P, Panda P. Morbidity pattern among the elderly population in the rural area of Tamil Nadu, India. Turkish J Med Sci 2006;36(1):45–50. Available from: http:// journals.tubitak.gov.tr/medical/issues/sag-06-36-1/sag-36-1-7-0505-14.pdf. [Last accessed on 22nd September 2019].
- Sowmiya K, Kumar PG, Nagarani N. A study on prevalence and correlates of functional disability among the elderly in rural Tamilnadu. Int J Med Res 2015;3(04):430–435. Available from: http:// medresearch.in/index.php/IJMRR/article/view/281 [Last accessed on 22nd September 2019].
- 17. Gupta E, Thakur A, Dixit S. Morbidity pattern and health seeking behaviour of the geriatric population in a rural area of district

- Faridabad, Haryana: a cross-sectional study. Int J Community Med Public Health 2019;6(3):1096–1101. DOI: 10.18203/2394-6040. ijcmph20190592Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/4061 [Last accessed on 22nd September 2019].
- Banjare P, Pradhan J. Socio-economic inequalities in the prevalence of multi-morbidity among the rural elderly in Bargarh District of Odisha (India). PLoS ONE 2014;9(6):e97832. Available from: https:// journals.plos.org/plosone/article?id=10.1371/journal.pone.0097832 [Last accessed on 22nd September 2019].
- Hameed S, Kumar N, Naik PM, Sachidananda K, Prasanna KS. Morbidity pattern among the elderly population in a rural area of Dakshina Kannada, Karnataka–a cross sectional study. Ntl J Community Med 2015;6(2):89–92. Available from: https://www.ijcmph.com/index.php/ ijcmph/article/view/2046 [Last accessed on 22nd September 2019].
- Panmei NT, Family Care for Older People in India: A Study in Tamenglong District, Manipur (Doctoral dissertation, TISS Guwahati Campus). Available from: http://dspace.tiss.edu/jspui/ bitstream/1/11697/1/Ningthouliu%20T.%20Panmei.pdf [Last accessed on 22nd September 2019].
- Mathur A, Contemporary Issues in the Health of the Elderly.2014 October;9:38-43 Available from: https://www.researchgate.net/publication/265075963_Contemporary_Issues_in_the_Health_of_the_Elderly [Last accessed on 22nd September 2019].
- Banker K, Prajapati B, Kedia G. Study of health profile of residents of geriatric home in Ahmedabad district. Ntl J Commun Med 2011;2(3):378–382. Available from: file:///C:/Users/DDHS/ Downloads/2-3_378-382%20(1).pdf [Last accessed on 22nd September 2019].
- Chandwani H, Jivarajani P, Jivarajani H. Health and social problems of geriatric population in an urban setting of Gujarat, India. Internet J Health 2009;9(2):10–5580. Available from: https://print.ispub.com/ api/0/ispub-article/13193 [Last accessed on 22nd September 2019].
- Kaur G, Bansal R, Anand T, Kumar A, Singh J. Morbidity profile of noncommunicable diseases among elderly in a city in North India. Clin Epidemiol Global Health 2019;7(1):29–34. DOI: 10.1016/j. cegh.2017.12.004Available from: https://cegh.net/article/S2213-3984(17)30113-6/pdf [Last accessed on 22nd September 2019].
- 25. Woo EK, Han C, Jo SA, Park MK, Kim S, Kim E, et al. Morbidity and related factors among elderly people in South Korea: results from the Ansan Geriatric (AGE) cohort study. BMC Public Health 2007;7(1):10. DOI: 10.1186/1471-2458-7-10Available from: https://www.ncbi.nlm.nih.gov/pubmed/17241463 [Last accessed on 22nd September 2019].
- World Health Organization, "Global report on falls prevention in older age," 2007, http://www.who.int/ageing/publications/Falls_ prevention7March.pdf.
- 27. Sirohi A, Kaur R, Goswami AK, Mani K, Nongkynrih B, Gupta SK. A study of falls among elderly persons in a rural area of Haryana. Indian J Public Health 2017;61:99–104.
- Krishnaiah S, Ramanathan RV. Impact of blindness due to cataract in elderly fallers: findings from a cross-sectional study in Andhra Pradesh, South India. BMC Res Notes 2018;11(1):773. DOI: 10.1186/ s13104-018-3883-7.
- 29. Jindal HA, Duggal M, Jamir L, Sharma D, Kankaria A, Rohilla L, et al. Mental health and environmental factors associated with falls in the elderly in North India: a naturalistic community study. Asian J Psychia 2019;39:17–21. DOI: 10.1016/j.ajp.2018.11.013.
- Akbar S, Tiwari SC, Tripathi RK, Pandey NM, Kumar A. Prevalence of psychiatric illness among residents of old age homes in Northern India. J Neuro Rural Pract 2018;9(2):193. DOI: 10.4103/jnrp. jnrp_340_17Available from: https://www.ncbi.nlm.nih.gov/pmc/ articles/PMC5912023/ [Last accessed on 22nd September 2019].
- Patel V, Prince M. Ageing and mental health in a developing country: who cares? Qualitative studies from Goa, India. Psychol Med 2001;31(1):29–38. DOI: 10.1017/S0033291799003098Available from: https://www.ncbi.nlm.nih.gov/pubmed/11200957 [Last accessed on 22nd September 2019].
- 32. Nair SS, Raghunath P, Nair SS. Prevalence of psychiatric disorders among the rural geriatric population: a pilot study in Karnataka, India. Cent

- Asian J Glob Health 2015;4(1). DOI: 10.5195/CAJGH.2015.138Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5661194/ [Last accessed on 22nd September 2019].
- 33. Buxton JW, Singleton N, Melzer D. The mental health of early retirees: national interview survey in Britain. Soc Psychiatry Psychiatr Epidemiol 2005;40(2):99–105. DOI: 10.1007/s00127-005-0866-5Available from: https://www.ncbi.nlm.nih.gov/pubmed/15685400 [Last accessed on 22nd September 2019].
- Naresh J, Pawar AB, Bansal RK. Main life concerns of elderly in urban slums of Surat City, South Gujarat, India. Ntl J Commun Med 2012;3(3):538–540. Available from: http://njcmindia.org/uploads/3-3_538-540.pdf [Last accessed on 22nd September 2019].
- Kjølseth I, Ekeberg, Steihaug S. Why suicide? Elderly people who committed suicide and their experience of life in the period before their death. Int Psychogeriatr 2010;22(2):209–218. DOI: 10.1017/ S1041610209990949Available from: https://www.ncbi.nlm.nih.gov/ pubmed/19747423. [Last accessed on 22nd September 2019].
- Juurlink DN, Herrmann N, Szalai JP, Kopp A, Redelmeier DA. Medical illness and the risk of suicide in the elderly. Archiv Int Med 2004;164(11):1179–1184. DOI: 10.1001/archinte.164.11.1179Available from: https://www.ncbi.nlm.nih.gov/pubmed/15197042 [Last accessed on 22nd September 2019].
- 37. Waern M, Rubenowitz E, Wilhelmson K. Predictors of suicide in the old elderly. Gerontology 2003;49(5):328–334. DOI: 10.1159/000071715Available from: https://www.ncbi.nlm.nih.gov/pubmed/12920354 [Last accessed on 22nd September 2019].
- 38. Joseph LP. Problems of rural elderly women in Kerala: a social work concern. J Develop Pract 2017;3:14–19 Available from: http://journals.dbuniversity.ac.in/ojs/index.php/jdp/article/view/304 [Last accessed on 22nd September 2019].
- Qadri S, Ahluwalia S, Ganai A, Shalender B, Wani F, Bashir H. An epidemiological study on quality of life among rural elderly population of nothern India. Int J Med Sci Public Health 2013;2(3):514. Available from: https://pdfs.semanticscholar.org/054a/4e5da6be27d 348ed3f42fc331b9fe66a67e3.pdf [Last accessed on 22nd September 2019]
- 40. Goel PK, Garg SK, Singh JV, Bhatnagar M, Chopra H, Bajpai SK. Unmet needs of the elderly in a rural population of Meerut. Indian J Community Med 2003;28(4):165–166. Available from: http://medind.nic.in/iaj/t03/i4/iajt03i4p165.pdf [Last accessed on 22nd September 2010]
- 41. Srivastava AK, Kandpal SD. Social problems and basic unmet need of the elderly: A cross sectional study in rural field practice area of medical college, Dehradun. Indian J Commun Health 2013;25(3):221–225. Available from: https://www.semanticscholar.org/paper/SOCIAL-

- PROBLEMS-AND-BASIC-UNMET-NEED-OF-THE-A-CROSS-Srivastava Kandpal/5a4ca5a020ca537c0b62d579b4d955198d13a4e3 [Last accessed on 22nd September 2019].
- 42. Chokkanathan S, Lee AE. Elder mistreatment in urban India: a community based study. J Elder Abuse Neglect 2006;17(2):45–61. Available from: https://www.ncbi.nlm.nih.gov/pubmed/16611611 [Last accessed on 22nd September 2019].
- Skirbekk V, James KS. Abuse against elderly in India–The role of education. BMC Public Health 2014;14(1):336. DOI: 10.1186/1471-2458-14-336Available from: https://bmcpublichealth. biomedcentral.com/articles/10.1186/1471-2458-14-336 [Last accessed on 22nd September 2019].
- 44. Pandey P, Singh SK. Catastrophic health expenditure among geriatric population of Lucknow district, India. J Geriat Men Health 2017;4(1):42. DOI: 10.4103/jgmh.jgmh_40_16Available from: http://www.jgmh.org/article.asp?issn=2348 9995;year=2017;volume=4;issue=1;spag e=42;epage=47;aulast=Pandey [Last accessed on 22nd September 2019].
- Jacobzone S, Ageing and Care for Frail Elderly Persons: An Overview of International Perspectives", OECD Labour Market and Social Policy Occasional Papers. 1999;38. Available from: https://doi. org/10.1787/313777154147. [Last accessed on 22nd September 2019].
- 46. Sharma D, Mazta SR, Parashar A. Morbidity pattern and health-seeking behavior of aged population residing in Shimla Hills of North India: a cross-sectional study. J Family Med Prim Care 2013;2(2):188. DOI: 10.4103/2249-4863.117421Available from: http://www.jfmpc.com/article.asp?issn=2249 4863;year=2013;volume=2;issue=2;spage=188;epage=193;aulast=Sharma [Last accessed on 22nd September 2019].
- Joe W, Rudra S, Subramanian SV. Horizontal inequity in elderly health care utilization: evidence from India. J Korean Med Sci 2015;30(Suppl 2):S155–S166. DOI: 10.3346/jkms.2015.30.S2.S155Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4659869/ [Last accessed on 22nd September 2019].
- Baker DW, Gazmararian JA, Williams MV, Scott T, Parker RM, Green D, et al. Functional health literacy and the risk of hospital admission among medicare managed care enrollees. Am J Public Health 2002;92(8):1278–1283. DOI: 10.2105/AJPH.92.8.1278Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447230/ [Last accessed on 22nd September 2019].
- Akila GV, Arvind BA. A comparative study on health profile and health seeking behaviour of the elderly in urban and rural areas of Bangalore, Karnataka. Indian J Pub Health Res Develop 2019;10(9):396–401. DOI: 10.5958/0976-5506.2019.02459.8.

