International Journal of Community Medicine and Public Health
Desai GS et al. Int J Community Med Public Health. 2023 Sep;10(9):3238-3244
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20232684

Original Research Article

Health profiling of elderly in Gujarat: evidences from longitudinal ageing study in India

Gayatri S. Desai, Koustav Ghosh*

Department of Statistics, Population Research Centre (PRC), Vadodara, Gujarat, India

Received: 02 June 2023
Revised: 03 August 2023
Accepted: 04 August 2023

***Correspondence:**
Koustav Ghosh,
E-mail: koustav.ghosh-prc@msubaroda.ac.in

ABSTRACT

Background: Considering the burden of different health related disorders amongst the elderly, the present study aims to examine the health profile and the factors associated with various health issues among the elderly in Gujarat.
Methods: The current study has used the Longitudinal Ageing Study in India (LASI) Wave-1 data. The chi-square test and logistic regression model have been used to establish the association between the study variables and factors associated with the chronic diseases among elderly in Gujarat.
Results: The prevalence of chronic diseases among elderly in Gujarat is 51.3 percent. Hypertension was the highest prevalent disease suffered by nearly one-fourth (24.3%) of the elderly people covered under the study followed by prevalence of chronic bone/joint diseases (15.7%) and diabetes (12.4%). The present study showed that the risk of occurrence of chronic diseases increases along with the age. Consumption of alcohol increases the risk of chronic morbidities. On the other hand, education, work status and physical activity play significant role in reducing the prevalence of chronic diseases.
Conclusions: The study highlights the prevalence of different health related disorders amongst the elderly in Gujarat. In addition to this, the study tries to identify the critical factors associated with health issues of elderly. The findings from the study can also help in strengthening the scope of National level preventive and health care programme for the elderly population in Gujarat.

Keywords: Chronic diseases, Diabetes, Elderly population, Hypertension, Prevalence

INTRODUCTION

Improved standard of living of aging population is one of the biggest social changes and aged population will be more by 2050 in the developing countries. Health in the earlier age of life is associated with the health at older age. For example, detection and appropriate treatment of diseases in early age reduces the risk of aggravation of diseases in the later stages of life.[1]

Some research studies in India have talked about critical health and social problems amongst the elderly. However, some had small sample sizes and were limited to only urban areas, while others with larger samples were clinic based. [2-5]

In a review of studies related to prevalence of various mental disorders and associated factors at community level it has been noted that as per an estimate of World Health Organization mental and behavioural disorders account for about 12 percent of the global burden of diseases. Moreover, in India the burden of such disorders ranged from 9.5 to 102 per 1000 population.[6] Apart from this, cognitive impairment is found to be significantly and directly affecting the quality of life of Indian elderly.[7]

On the bases of Longitudinal Ageing Study of India (LASI) Ministry of Health reported that one out of five aged has mental health issue. It is also reported that almost 75 percent of them have suffered from chronic diseases.

Considering the burden of different health related disorders amongst the elderly in India, it is of interest and relevance from policy perspective to examine the status of health disorders amongst elderly population in Gujarat. Understanding of the factors associated with health issues of elderly is equally important. The study aims to develop health profile of elderly population and also find out the factors associated with various health issues among the elderly population in Gujarat.

METHODS

Data source and sample selection

The current study is based on the secondary data which was extracted from the LASI Wave-1. LASI is a nationally representative survey carried out across 35 states and Union Territories (UTs) of India (except Sikkim) from April 2017 to December 2018. The LASI is India's first and the world's largest study that provides reliable national-level estimates of social and economic well-being and health outcomes for eligible older adults and their spouses irrespective of their age. Out of 35 States/UTs we have selected Gujarat for our analysis and a total of 2341 sample has been used for the final analysis.

Variables

Outcome variable

The study used 'prevalence of chronic diseases' as the dependent variable. There is a question asked in the LASI survey "Has any health professional ever diagnosed you with chronic conditions or diseases?" To measure the prevalence of chronic disease, we reconstructed a dichotomous variable ('1' and '0') from the set of chronic condition variables; where '1' is considered as "elderly suffering from at least one chronic disease" and '0' is considered as "elderly not suffering".

Explanatory variables

A set of background variables of households along with factors associated with elderly chronic diseases have been employed in this study, such as 1) sex of the respondents: male and female; 2) Age group :45–59, 60–74 and 75 years and above; 3) Education level: no schooling, primary, middle, secondary and higher and above; 4) Marital status: currently married and widowed/divorced/separated/others; 5) Religion: Hindu, Muslim, Christian and others; 6) Social group: scheduled tribes, scheduled castes, other backward classes and none of the above; 7) Living arrangements: living alone, living with spouse and/or others, living with spouseand children, living with children and others, and living with others only; 8) Work status: Currently working, worked in past but currently not working, and never worked; 9) Place of residence: rural and urban; 10) Physical activity: daily or more than once a week, weekly once or sometimes in a month, and hardly ever or never; 11) Ever smoked or used smokeless tobacco: yes, and no; 12) Ever consumed any alcoholic beverages: yes, and no.

Statistical analysis

The study has used descriptive statistics and bivariate analysis to find out the preliminary results. To understand the association between the selected variables, chi-square test has been applied. Finally, we have used the logistic regression model to establish the factors associated with the prevalence of chronic diseases among elderly in Gujarat.

RESULTS

Status of prevalence of various chronic diseases among elderly population in Gujarat

The prevalence of chronic diseases in Gujarat among elderly is 51.3 percent. As it is evident from Figure 1, among the various chronic morbidities, hypertension was the highest prevalent disease suffered by nearly one-fourth (24.3%) of the elderly people covered under the study followed by prevalence of chronic bone/joint diseases (15.7%) and diabetes (12.4%). On the other hand, lowest prevalence was found in case of morbidities such as chronic lung diseases andstroke (<2%).

Moreover, among the chronic diseases, the prevalence of hypertension is the highest among bothmales (19.7%) and females (27.6%) in Gujarat. prevalence of diabetes among males and females is 13 percent and 12 percent respectively. On the other hand, prevalence of chronic bone/joint diseases is highly prevalent among females (18.2%) as compared to males (12.3%).

Background characteristics of the study population

Looking to the distribution of sample under the study, as shown in Table 1, the percentage of female respondents was higher, most were aged between 45 to 59 years, majority were from rural areas and more than three-fourth of the total were currently married. As regards the religious background, a large majority of the respondents were Hindus; a relatively higher percentage were from OBC category. Moreover, as high as 44% of the study population reported to have had no schooling and about one-fourth had received <5 years of school education; majority of the respondents were leaving with spouse and children. Regarding the work status, a little more than half of the individuals were currently working; while about 59% of the respondents reported that they were engaged in vigorous activities hardly ever or never; about

8% were engaged in such activities, weekly or some times in a month. A relatively higher proportion of the respondents denied having ever smoked or used smokeless tobacco and a large majority of the individuals denied having ever consumed any alcoholic beverages.

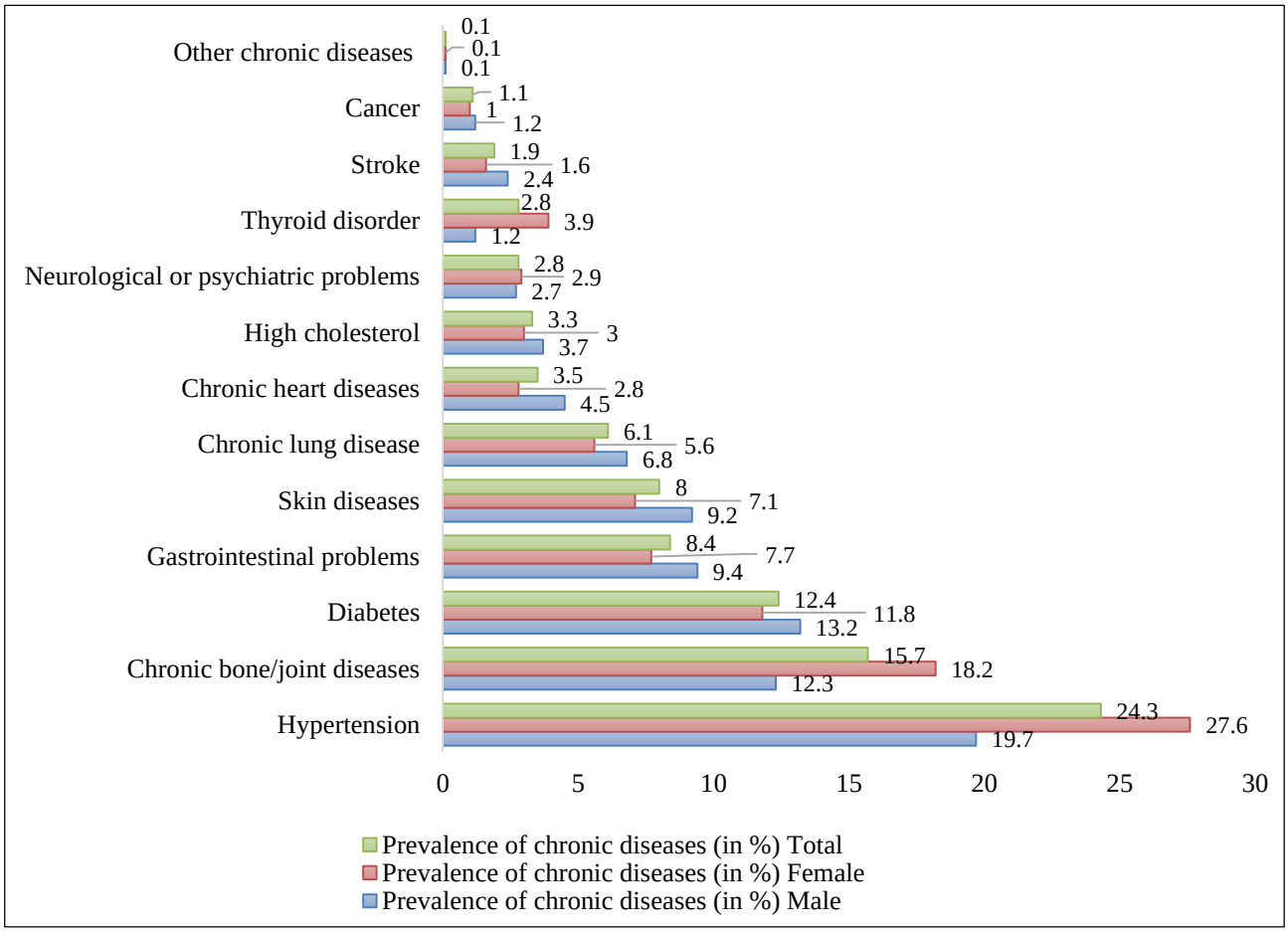

Figure 1: Prevalence of morbidities (chronic diseases) among elderly in Gujarat, LASI 2017–18.

Prevalence of chronic diseases among the elderly people by the selected background characteristics

In Gujarat, a little more than half of the population reported to be suffering from at least one of the chronic diseases. Looking to the prevalence of at least one of such morbid conditions among the studied group by their background characteristics (Table 1), it can be seen that half of the males and a little more than half (52.1%) of the females said that they had at least one such disease. The prevalence was relatively less (44.4%) among those who were relatively younger i.e. 45-59 years of age; it was higher among those who belonged to urban areas; no difference was observed in terms of the marital status of the respondents. The non-Hindus reported relatively higher prevalence (59.1%) as compared to their counterpart; it was highest (60%) among those who belonged to the "others" caste category; it was reported to be the highest (60.8%) among those who had schooling of 10 years and above. Moreover, the prevalence of such morbid condition was the lowest (42.1%) among the individuals who were "living with others only". Looking to the working status, it was interesting to find that prevalence was the lowest (38.2%) among those who were currently working; it was also the lowest among the individuals who engage in rigorous activity, daily or more than once a week. As regards smoking and consumption of alcoholic beverages, the prevalence was relatively lower among those who had ever smoked (47.3%) or used smokeless tobacco as well as among those who had ever consumed any alcoholic beverages (47.3%).

Factors associated with chronic diseases among elderly

In order to study the factors associated with such morbidities, logistic regression analysis was carried out, the findings of the same are presented below (Table 2). As it can be seen from the table, some of the studied variables were found to be statistically significant and hence can be said to be associated with occurrence of at least one of the chronic diseases among the elderly people in Gujarat. As regards the age, the risk of chronic disease is 1.41 times, 1.65 times and 1.59 times more likely among the respondents aged 60-69 years, 70-79 years and 80 and above years respectively, as compared to the relatively younger age people (45-59). Looking to the caste category, those belonging to ST category are less likely (OR: 0.41; CI: 0.3 to 0.58) to contract chronic

diseases as compared to the SC category of people. Interestingly, those who have studied up to 5 years and those who have completed 10 or more years of schooling are 1.27 times and 1.40 times more likely respectively to suffer from chronic morbidities, as compared to those who had no schooling. Furthermore, the working status was found to be significantly associated with having some chronic morbidity. Hence, currently working people have 0.61 times lower risk and those who are currently not working but had worked in the past had 1.36 times higher risk of chronic diseases, as compared to individuals who have never worked. Similarly, people who have hardly ever or never engaged in rigorous activities have 1.21 times higher chances as compared to those who engage in such activities daily or more than once a week. Finally, regarding consumption of alcoholic beverages, those who do not consume alcoholic beverages have 0.76 times lower risk of contracting any chronic disease as against those who do consume such drinks.

Table 1: Prevalence of chronic diseases (at least one) among elderly by background characteristic in Gujarat, LASI 2017–18.

Background characteristics		Sample[a] N (%)	Prevalence[b] N (%)	Chi square p value
Sex of respondent	Male	989 (42.2)	489 (50.1)	0.142
	Female	1352 (57.8)	710 (52.1)	
Age at last birthday (years)	45-59	1350 (57.7)	603 (44.4)	0
	60-69	669 (28.6)	387 (57)	
	70-79	244 (10.4)	158 (65.9)	
	80 and above	78 (3.3)	51 (63)	
Place of residence	Rural	1404 (60)	667 (47.4)	0
	Urban	937 (40)	532 (56.6)	
Current marital status	Currently married	1811 (77.4)	910 (51.1)	0.083
	Widowed/Divorced	530 (22.6)	289 (51.8)	
Religious group	Hindu	2050 (87.6)	1030 (50.3)	0.012
	Non-Hindu	291 (12.4)	169 (59.1)	
Caste category	SC	283 (12.1)	161 (55.2)	0
	ST	386 (16.5)	121 (31.7)	
	OBC	1032 (44.1)	552 (53.5)	
	Others	640 (27.3)	365 (60.1)	
Education	No schooling	1003 (42.8)	490 (47.6)	0.003
	Less than 5 years	559 (23.9)	305 (54.6)	
	5-9 years	433 (18.5)	204 (47)	
	10 years and above	346 (14.8)	200 (60.8)	
Living arrangements	Living alone	60 (2.6)	34 (52.3)	0.025
	Living with spouse and/or others	394 (16.8)	204 (51.3)	
	living with spouse and children	1416 (60.5)	706 (51.1)	
	Living with children and others	393 (16.8)	224 (53.6)	
	Living with others only	78 (3.3)	31 (42.1)	
Working status	Never worked	310 (13.2)	182 (62.3)	0
	Currently working	1238 (52.9)	488 (38.2)	
	Not working, but worked in the past	793 (33.9)	529 (65.8)	
Engage in vigorous activities	Daily or more than once a week	758 (33.3)	303 (39.2)	0
	Weekly or sometimes in a month	178 (7.8)	83 (46.1)	
	Hardly ever or never	1337 (58.8)	782 (58.6)	
Ever smoked or used smokeless tobacco	Yes	966 (42.5)	473 (47.3)	0.047
	No	1307 (57.5)	695 (53.9)	
Ever consumed any alcoholic beverages	Yes	318 (14)	158 (47)	0.513
	No	1955 (86)	1010 (52.1)	
Gujarat		2273 (100)	1168 (51.3)	NA

N number, % Percentage; [a]Column percentage Distribution of study sample; [b]Prevalence of chronic diseases: Row percentage. Chi-square test: $p < .05$ Significance; $p > 0.05$ Not significant.

Table 2: Logistic regression estimates: factors associated with chronic diseases (at least one) among elderly in Gujarat, LASI 2017–18.

Background Characteristics	Odds ratio	Std. error	z	P>z	[95% Conf. interval]
Sex of respondent					
Male (Ref.)					
Female	1.04	0.13	0.3	0.766	[0.81 to 1.34]
Age at last birthday					
45-59 years (Ref.)					
60-59 years	1.41	0.15	3.22	0.001**	[1.15 to 1.74]
70-79 years	1.65	0.27	3.01	0.003**	[1.2 to 2.28]
80 and above year	1.59	0.43	1.7	0.090*	[0.94 to 2.71]
Place of residence					
Rural (Ref.)					
Urban	1.02	0.11	0.19	0.848	[0.84 to 1.26]
Current marital status					
Currently married (Ref.)					
Widowed/divorced etc.	0.9	0.11	-0.88	0.381	[0.72 to 1.14]
Religious group					
Hindu (Ref.)					
Non-Hindu	1.2	0.17	1.28	0.202	[0.91 to 1.58]
Caste category					
SC (Ref.)					
ST	0.41	0.07	-5.17	0.000***	[0.3 to 0.58]
OBC	0.88	0.13	-0.92	0.357	[0.66 to 1.17]
Others	0.88	0.14	-0.83	0.407	[0.65 to 1.2]
Education					
No schooling (Ref.)					
Less than 5 years	1.27	0.15	1.98	0.048**	[1.01 to 1.6]
5-9 years	0.95	0.13	-0.35	0.73	[0.74 to 1.25]
10 years and above	1.4	0.22	2.12	0.034**	[1.03 to 1.91]
Working status					
Never worked (Ref.)					
Currently working	0.61	0.1	-3.16	0.002**	[0.46 to 0.83]
Not working, but worked in the past	1.36	0.21	2.05	0.041**	[1.02 to 1.84]
Engage in vigorous activities					
Daily or more than once a week (Ref.)					
Weekly or sometimes in a month	1.13	0.2	0.67	0.504	[0.8 to 1.6]
Hardly ever or never	1.21	0.14	1.67	0.096*	[0.97 to 1.52]
Ever smoked or used smokeless tobacco					
Yes (Ref.)					
No	1.11	0.12	0.98	0.326	[0.9 to 1.39]
Ever consumed any alcoholic beverages					
Yes (Ref.)					
No	0.76	0.11	-1.87	0.061*	[0.57 to 1.02]
Constant	1.25	0.32	0.84	0.4	[0.75 to 2.08]
N	2341				

Ref. =Reference Category. P= Significance; P< 0.1*, P< 0.05**, P< 0.001***.

DISCUSSION

The finding from the present study that the risk of occurrence of chronic diseases increases along with the age is supported by certain other studies. According to a nationally representative cross-sectional study, older adults aged 80 years and above had three times more chances of suffering from a chronic disease than 50-54 years old adults.[8] Another study noted the prevalence of multi-morbidity to be positively associated with age.[9] Similarly, being in age groups 60-69, 70-79 and 80 and above was found to be associated with having at least one morbidity.[10]

Moreover, the findings regarding caste status are also supported by other studies. OBC caste category was reported to be associated with having multimorbidity.[10] Again, scheduled tribes and non-caste members were found to be having the highest odds of hypertension as against the privileged upper caste members.[11]

Present study findings on association of educational attainment with chronic disease is supported by several other studies. The prevalence of multimorbidity was inversely associated with educational attainment; the relative risk ratio (RRR) was higher among higher educated older adults as compared to uneducated older adults; presence of multimorbidity was associated with having no schooling and primary level of schooling.[9,12,10]

Consistent with the present finding of association between work status and chronic morbidity, a study highlighted that the risk of elevated blood pressure levels was significantly higher among the men who were highly educated-unemployed and who were married-unemployed.[13] Moreover, highlighting the linkages of physical activity with chronic disease a study by Milton et al showed physical activity to be consistently associated with a reduced risk of all-cause mortality, cardiovascular disease (CVD), diabetes and also several types of cancer.[14]

Similarly, the association between consumption of alcoholic beverages and chronic diseases showed by the present study is supported by a previous study which found that alcohol consumption was significantly associated with having chronic illness.[8]

The present study has some limitations. Firstly, chronic conditions that were assessed in this study were based on the self-reporting of respondents hence possibility of recall bias should be accounted for. Secondly, the study has taken only chronic diseases to assess the health status of elderly population in Gujarat; other morbid conditions have not been included for the analysis. Furthermore, nutrition status and dietary pattern were not considered in the present study which may play an important role on health status of a population.

CONCLUSION

The study highlights the prevalence of different health related disorders amongst the elderly in Gujarat. In addition to this, the study tried to identify the critical factors associated with health issues of elderly. The finding from the present study that the risk of occurrence of chronic diseases increases along with the age, highlights the need for making the existing health programmes more sensitive to the health needs of the elderly. Moreover, consumption of alcohol increases the risk of chronic morbidities which calls for incorporating stringent measures to discourage such habits. On the other hand, other factors that play significant role in reducing the prevalence of chronic diseases, as highlighted by the study, are education, work status and physical activity. Hence programmatic measures for reduction of chronic diseases should also consider measures for improving educational level and encouraging work participation in physical activity among elderly. The findings from the study can also help in strengthening the scope of National level preventive and health care programme for the elderly population in Gujarat.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not applicable

REFERENCES

1. WHO. World Health Day–toolkit for organizers, 2012. Available at: http://www.who.int/world.health.day/2012/toolkit/background/en/index.html. Accessed 20 January 2023.
2. Pandve HT, Deshmukh P. Health survey among elderly population residing in an urban slum of Pune city. J Indian Acad Geriatr. 2010;6(1):5-8.
3. Bhatia SP, Swami HM, Thakur JS, Bhatia V. A study of health problems and loneliness among the elderly in Chandigarh. Ind J Comm Med. 2007;32(4):255-8.
4. Prakash R, Choudhary SK, Singh US. A study of morbidity pattern among geriatric population in an urban area of Udaipur Rajasthan. Ind J Comm Med. 2004;29(1):35.
5. Lena A, Ashok K, Padma M, Kamath V, Kamath A. Health and social problems of the elderly: A cross-sectional study in Udupi Taluk, Karnataka. Ind J Comm Med: Publ Ind Associ Prevent Soci Med. 2009;34(2):131.
6. Reddy VE. Mental health issues and challenges in India: A review. IJSSME. 2019;3(2).
7. Singh P, Govil D, Kumar V, Kumar J. Cognitive impairment and quality of life among elderly in India. App Res Quality Life. 2017;12:963-79.
8. Singh PK, Singh L, Dubey R, Singh S, Mehrotra R. Socioeconomic determinants of chronic health diseases among older Indian adults: a nationally representative cross-sectional multilevel study. BMJ open. 2019;9(9):e028426.
9. Sharma P, Maurya P. Gender differences in the prevalence and pattern of disease combination of chronic multimorbidity among Indian elderly. Age Internat. 2022;47(2):265-83.
10. Talukdar B, Himanshu H, Bedanga TH. Prevalence of multimorbidity (chronic NCDS) and associated determinants among elderly in India. Demogr India. 2017:69-76.
11. Uddin J, Acharya S, Valles J, Baker EH, Keith VM. Caste differences in hypertension among women in India: diminishing health returns to socioeconomic status for lower caste groups. J Raci Ethn Heal Disparit. 2020;7:987-95.
12. Chauhan S, Patel R, Kumar S. Prevalence, factors and inequalities in chronic disease multimorbidity

among older adults in India: analysis of cross-sectional data from the nationally representative Longitudinal Aging Study in India (LASI). BMJ open. 2022;12(3):e053953.
13. Shekhar C, Shil A. Linkages between occupation and elevated blood pressure among men in India: a cross-sectional study. Inter J Pub Heal. 2020;65:835-46.
14. Milton K, Macniven R, Bauman A. Review of the epidemiological evidence for physical activity and health from low-and middle-income countries. Glob Pub Heal. 2014;9(4):369-81.

Cite this article as: Desai GS, Ghosh K. Health profiling of elderly in Gujarat: evidences from longitudinal ageing study in India. Int J Community Med Public Health 2023;10:3238-44.