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Original Research Article

Physical, mental health versus socio-economic status of elderly citizens of suburbs of Kamrup (metro) district of Assam, India

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ABSTRACT

Background: Population ageing has insightful social, economic, and political consequences. Ageing in general is often associated with poor health, lack of independence, social declination, isolation, and loneliness. The elderly people face many problems due to factors such as limited or no income, intergenerational conflict, and even face abuse by family members. This study delves into to assess the socio-economic status, the physical and mental health conditions and to determine the association of socio-economic status with physical and mental health problems, among elderly citizens in the semi- urban areas of Kamrup (Metro), Assam, India.
Methods: Total 250 elderly were included in the study. The primary data have been collected through personal interview from the respondents who had visited the health camps. Statistical analysis was done using SPSS 25.
Results: Out of 250 elderly, 69.6% were female, majority (91.2%) were found to be Hindus, 68.67% were married. 46.53% of the respondents had attended primary school and 66.53% were unemployed. 87% elderly suffered from chronic illness. Cognitive Impairment was absent in majority of the elderly people (91%) whereas depressive symptoms were present in 11% respondents. 19.3% respondents had moderate nutritional risk. The association between nutritional risks and age was statistically significant. The association between nutritional risks and caste and educational level were also found to be statistically significant.
Conclusion: The status of physical and mental health of this group of people has a significant relationship with the socio-economic status.

Keywords: Elderly citizen, Socio-economic status, Physical health, Mental health, Nutritional risk

INTRODUCTION

According to the 'India Ageing Report 2023' report prepared by the United Nations Population Fund (UNFPA) and the International Institute for Population Sciences (IIPS), India's elderly population is predicted to double to 20.8% by 2050, with the number reaching 36% by the end of the century. In 2022 (as of July 1), the population over the age of 60 years will be 149 million, comprising around 10.5% of the country's population. The rise in the number of this segment poses a challenging task for the government as well as the society in ensuring the healthy aging and quality of life of the elderly. It has been observed that simple longevity is no longer enough to guarantee the happiness of an elderly person, and it also necessary to provide means such as social support, adequate and timely health care, attention, etc.

So that such individuals can pass these years in a satisfactory manner. Further, mentioning the condition of the elderly, the report said that more than 40% are in the poorest one fifth of the population. The poverty level of these older people will affect their quality of life and

availability of health care services. Understanding the profile of this group of people will help to design appropriate policies and actions to improve health and quality of life.

Scenario of Assam

In Assam, it is estimated that there are 19% of the total population in the age group of 10-19 years, 55% within 20 to 59 years; while 8% is 60 years and above (Census population projection 2019 report). The life expectancy at 60 years of age is 16.5 and 17.6 for males and females, respectively (2014-2018). In Assam, 77.0% of elderly females and 42.0% elderly males living in rural areas are economically fully dependent on others.

Whereas in urban areas, 65% of elderly females and 24% elderly males are economically fully dependent on others. The old age dependency ratio is 11.0 in 2011; which is 10.9 for males and 11.1 for females, 11.0 in rural and 11.0 in urban areas. The illness (any deviation from the state of physical and mental well-being) perception among the elderly is reported as 38% for men and 41% for women, which are above the national average of 31% for both.

Population ageing has insightful social, economic, and political consequences. Ageing in general is often associated with poor health, lack of independence, social declination, isolation, and loneliness. The elderly people face many problems due to factors such as limited or no income, disdain by family/society, intergenerational conflict, and even face abuse by family members, reliance on their respective families for physical support, and the extent of availability of family care and social support systems.

Resultantly majority of older people are confined to remain marginalized, isolated, and neglected as well. Another significant observation was found that imbalances and deficiencies of nutrients are particularly prevalent among the elderly, resulting in increased risk of illness and impaired outcome, as well as reduced quality of life.

This study was undertaken to assess the nutritional risk, and to determine its association with physical and mental health problems, among elderly in the semi-urban areas of Kamrup (Metro), Assam. Main objectives are to assess the socio-economic status of the elderly citizens. To know the status of physical and mental health of the elderly citizens.

To evaluate the association between the socio-economic status and the status of physical and mental health of the elderly citizens. To assess the status of nutritional risk of elderly citizens. To evaluate the association of socio-demographic variable with nutritional risks of the elderly citizens.

METHODS

Study type

A cross-sectional study was undertaken in and around the suburbs of Guwahati city of Kamrup Metropolitan, Assam. Even though primarily focus was on elderly persons aged 60 years and over but a few respondents whose ages were above 55 years of age were also considered for the study.

Study duration

Study period was from December, 2023 and January 2024.

Research design

This study is based on descriptive research design.

Data sources

Both Primary and Secondary data sources have been employed by this study.

Primary data: The primary data have been collected through personal interview. Data have been collected from the respondents who had attended the health camps during the period of study.

Secondary data: Secondary data have been collected from reviewing some relevant books, journals, as well as reviewed the reports of National health systems resource centre (NHSRC), World health organization (WHO), Age well foundation valid sources of internet.

Research instrument

Research instrument used is a structured schedule. The schedule is consisting of three parts: Demographic variable, variables measuring socio economic status and variables measuring physical and mental health status of elderly citizens.

Sample technique

Quota sampling, 25 respondents each were taken from 10 locations.

Sample size

The size of the samples was of 250 elderly citizens.

Statistical analysis

Data were analysed by using SPSS Version 25.0. Chi-square test was used for analysis of categorical variables.

Extent of the study

In and around the suburbs of Guwahati city of Kamrup Metropolitan, Assam. The places from where data were collected: Mathgharia Bamunimaidam, Govardhan, Ghoramara, Tatimara, Bonda, Fatasil Ambari, Birubari, Jahazghat and Bishnupur.

Theoretical framework

Measurement of socio-economic status

The socio-economic status (SES) is an important determinant of health, nutritional status, mortality, and morbidity of an individual. SES also influences the accessibility, affordability, acceptability, and actual utilization of available health facilities. Modified Kuppuswamy scale has been used to measure the socio-economic status. The scale includes the education, occupation, living arrangement, working status and income per month from all sources.

Measurement of health-related behaviour

Two different measures of health-related behaviour were used. First, we coded the variables of health-related behaviour dichotomously. Smoking and drinking were answerable by "Yes" or "No," according to whether a respondent smoked at the moment.

Then, to test the cumulative effect, the variables of smoking and drinking were re-encoded using multi-categorical measure, according to the time dimension. Smoking was classified as "Smoking (always)", "Not previously but presently smoking", "Has quitted smoking" and "Never". Similarly, drinking was classified into "Drinking (always)", "Not previously but presently smoking", "Has quitted smoking" and "Never".

Functional disability

For clinical data, questions included self-reported chronic illness (diagnosed and on treatment), functional disability (self-reported based on the Barthel Index).

Cognitive impairment

The five cognitive tests (5-Cog) were developed as a screening instrument to detect cognitive decline among older adults. The 5-Cog is a group assessment tool for cognitive functions, which consists of five subtests (attention, memory, visuospatial, language, and reasoning).

Depressive symptoms

Depressive symptoms were identifying on the guidelines issued by the National Institute of Mental Health, USA on "What are the signs and symptoms of depression?" If a respondent has been experiencing some of the standard signs and symptoms, most of the day, nearly every day, for at least 2 weeks, then the respondent has been identifying as depressive person.

Measurement of nutritional risk

Nutrition is a basic need of life and thus plays an important role in health promotion and disease prevention. Nutritional intake and its controlling mechanisms (e.g, appetite, satiety) are highly complex physiological processes. A systematic and standardized approach to identifying this condition is needed, and that is where nutritional screening tools play an important role.

One of the nutritional risk screening tools used most often in hospitals worldwide is the NRS-2002. The NRS-2002 was developed by Jens Kondrup et al, Rasmussen et al, Hamberg et al, Stanga et al and is meant to be a generic tool in the hospital setting-that is, useful in detecting most of the patients who would benefit from nutritional therapy.

RESULTS

The demographic characteristics of the elderly is summarized in Table 1. Out of 250 elderly 39.2% belonged to the age group of 60-69 years, 38.0% belonged to 70 years and above age group. 173 (69.6%) of the respondents were females and 30.4% of elderly were males. 55.6% were Bengali, 34.8% elderly's mother tongue were Assamese.

Majority (91.2%) were found to be Hindus, 5.22% were Christians and 3.21% were Muslims. With respect to caste 33.5% belonged to schedule caste and 54.2% belonged to General Caste category. Majority (91.93%) lived with their family and only 8.06% lived alone.

The study revealed that 68.67% elderly were married and 31.32% were single, widowed or divorced. Maximum elderly, 46.53% were studied up to primary level, 14.29% were having secondary education and 37.14% were having no formal education. 14.91% earned less than INR 5000 per month, 50.81% earned in between INR 5000 to INR 10000 per month and 34.27% earned more than INR 10000 per month.

Table 2 shows the physical and mental health status of the elderly respondents. The percentage of respondents with chronic illness (87%) was significantly higher than the respondents with no chronic illness (13%). The self-reported chronic illnesses present were diabetes mellitus (23.29%), hypertension (65.06%), Arthritis/ Osteoporosis (11.7%), bronchial asthma (3.21%), stomach ailments (8.84%), Hypothyroidism (8.08%) cancer (1%).

Only (12.8%) of the respondents had difficulty in one or more of the physical activities based on the Barthel Index and it has been found that 22.1% of the respondents

belonging to above 70 years of age had slight to moderate dependency in case of functional disability. Based on the Five Cognitive Tests (The 5-Cog), Cognitive Impairment was absent in majority of the elderly people (91%) whereas depressive symptoms were present in 11% respondents.

Table 1: Socio-economic profile of the elderly citizens (n=250).

Profile of the respondents	N	%
Age (in years)		
Below 60	57	22.8
60-70	98	39.2
70 above	95	38.0
Gender		
Male	76	30.4
Female	173	69.6
Mother tongue		
Assamese	87	34.8
Bengali	138	55.6
Other	24	9.6
Caste		
Schedule Caste	83	33.5
Schedule Tribe	23	0.09
General	135	54.2
OBC/MOBC	8	0.03
Religion		
Hinduism	227	91.2
Muslim	8	3.21
Christian	13	5.22
Other	1	0.40
Marital status		
Married	171	68.67
Not married (single/divorced/ widowed)	78	31.32
Living arrangement		
With family	228	91.93
Alone	19	8.06
Working status		
Employed	9	3.63
Retired	45	18.15
Unemployed	165	66.53
Petty Business	17	6.85
Domestic Help	5	2.02
Self Employed	7	2.82
Education level		
No formal education	91	37.14
Primary education	114	46.53
Secondary education	35	14.29
Tertiary education	5	2.04
Household income per month		
Less than INR 5000	37	14.91
INR 5000- INR 10000	126	50.81
INR 10000 and above	85	34.27

Table 2: Physical and mental health status of the elderly citizens (n=250).

Profile of the respondents	N	%
Physical health status		
Chronic illness		
Absent	32	13
Present	215	87
Functional disability		
Absent	217	87
Present	32	13
Mental health status		
Depressive symptoms		
Absent	221	89
Present	27	11
Cognitive impairment		
Absent	226	91
Present	22	09

Table 3: Nutritional risk of elderly citizens.

Profile of respondents	N	%
Nutritional risk		
Low risk (0-1)	201	80.7
Moderate risk (2 & above)	48	19.3

Table 3 exhibits the nutritional risks among the elderly respondents. About four-fifth of the respondents (80.7%) had low nutritional risk. However, 19.3% had moderate nutritional risk.

Table 4 exhibits the association between nutritional risks and age was statistically significant (p=0.004). The association between nutritional risks and mother tongue (p=0.042), caste (p=0.001) and educational level (p=0.003) were also found to be statistically significant. However, there was no significant association between nutritional risks and gender, religion, marital status, living arrangement, working status, and household income per month.

Table 5 shows that there was a significant association between nutritional risk and chronic illness (P value=0.030) but there was no significant association between nutritional risks and functional disability status (p=0.052). Table 5 also shows that there was no association between depressive symptoms and nutritional risks among the elderly respondents. Even no significant association was found between cognitive impairment and nutritional risks.

Table 6 exhibits the association ship between Socio-economic variables with physical and mental health status of elderly citizens. It has been observed that age of the elderly citizens has a significant relationship with functional disability, depressive symptoms, and cognitive impairment. Similarly significant relationship has been found between gender, educational level, and chronic illness. It has also been observed a significant relationship between marital status and depressive symptoms.

Table 4: Association of socio-economic variable with nutritional risks of the elderly citizens (n=250).

Profile of the respondent	Nutritional risk (0 - 1)	Nutritional risk (2 & above)	P value
	N (%)	N (%)	
Age (in years)			
Below 60	51 (89.5)	6 (10.6)	0.004**
60-70	81 (83.5)	16 (16.5)	
70 above	69 (72.6)	26 (27.4)	
Gender			
Male	62 (82)	13 (18)	0.940
Female	139 (80)	34 (20)	
Mother tongue			
Assamese	78 (89.7)	9 (11.3)	0.042**
Bengali	102 (73.9)	36 (26.1)	
Other	21 (87.5)	3 (12.5)	
Caste			
Schedule Caste	57 (68.7)	26 (31.3)	0.001**
Schedule Tribe	20 (90.9)	2 (9.1)	
General	115 (85.2)	19 (14.8)	
OBC/MOBC	8 (100.0)	0 (0.0)	
Religion			
Hinduism	181 (79.7)	45 (20.3)	0.224
Muslim	8 (100)	0 (0.0)	
Christian	10 (83.3)	2 (16.7)	
Other	1 (100)	0 (0.0)	
Marital status			
Married	136 (79.5)	35 (20.5)	0.901
Not married (single/divorced/widowed)	65 (83.3)	13 (16.7)	
Living arrangement			
With family	184 (81.0)	44 (19.0)	0.846
Alone	15 (79.0)	4 (21.0)	
Working status			
Employed	32 (84.4)	6 (15.8)	0.051
Retired	38 (84.4)	7 (15.6)	
Unemployed	131 (79.4)	34 (20.6)	
Education level			
No formal education	66 (72.5)	25 (27.5)	0.003**
Primary education	97 (85.1)	16 (14.9)	
Secondary education	30 (85.7)	5 (14.3)	
Tertiary education	5 (100)	0 (0.0)	
Household income per month			
Less than INR 5000	24 (64.9)	13 (35.1)	0.894
INR 5000- INR 10000	101 (80.2)	25 (19.8)	
INR 10000 and above	75 (88.2)	10 (11.8)	

**p<0.01 significant using Pearson Chi square test.

Table 5: Association of nutritional risks with physical and mental health status of elderly citizens (n=250).

Profile of the respondent	Nutritional risk (0 - 1)	Nutritional risk (2 & above)	P value
	N (%)	N (%)	
Physical health status			
Chronic Illness			
Absent	20 (62.5)	12 (37.5)	0.030*
Present	180 (83.7)	35 (16.3)	
Functional disability			

Continued.

Profile of the respondent	Nutritional risk (0 - 1)	Nutritional risk (2 & above)	P value
	N (%)	N (%)	
Absent	179 (82.5)	38 (17.5)	0.052
Present	22 (68.8)	10 (31.2)	
Mental health status			
Depressive symptoms			
Absent	178 (80.5)	43 (19.5)	0.465
Present	22 (81.5)	5 (18.5)	
Cognitive impairment			
Absent	182 (80.5)	44 (19.5)	0.792
Present	18 (81.8)	4 (18.2)	

*p<0.05 significant using Pearson Chi square test.

Table 6. Association of socio-economic variables with physical and mental health status of elderly citizens (n=250).

Socio- economic variable	Chronic illness	Functional disability	Depressive symptoms	Cognitive impairment
	P value			
Age	0.076	0.000**	0.003**	0.000**
Gender	0.019*	0.361	0.174	0.901
Mother tongue	0.106	0.977	0.174	0.612
Caste	0.063	0.059	0.085	0.312
religion	0.092	0.083	0.244	0.159
Marital status	0.431	0.677	0.000**	0.660
Living arrangement	0.442	0.405	0.060	0.391
Working status	0.056	0.877	0.565	0.947
Education level	0.001**	0.578	0.624	0.753
Household income per month	0.266	0.694	0.197	0.854

**p<0.01 significant using Pearson Chi square test.

DISCUSSION

The demographic characteristics of the elderly is summarized in Table 1. Out of 250 elderly 62% belonged to the age group of up to 69 years, 38.0% belonged to 70 years and above age group. 173 (69.6%) of the respondents were females and 30.4% of elderly were males. Similar demographic patterns have been exhibited by the findings of Madhukumar Suwarna et al, in their study conducted in Miraj, Maharashtra where 64.5% belonged to the age group of 60-69 years, 28.2% belonged to 70-79 years age group and 7.2% belonged to >80 years age group. The present study found the distribution of respondents according to the mother tongue as 55.6% were Bengali, 34.8% elderly's mother tongue were Assamese and majority (91.2%) were found to be Hindus, 5.22% were Christians and 3.21% were Muslims.

This can be compared to the findings of Hakmaosa et al, where they have found that majority (82.8%) of the respondents were found to be Hindus, 9.2% were Muslims and 7.9% were Christians et al, Rajan et al, Kumar et al in their study have found that 2.4% of the elderly living alone, more were women (3.49%) than men (1.42%). It was also seen in our results that majority (91.93%) lived with their family and only 8.06% lived alone and also it was found that 68.67% elderly were married and 31.32% were single, widowed or divorced. According to the National statistical office report 40.5% were Literate through formal schooling which is reflected in our study too where it was found that maximum elderly (46.53%) were studied up to primary level, 14.29% were having secondary education and 37.14% were having no formal education. Regarding the employment and financial status 11.69% have their earning from petty business, domestic help and by self-employment. The Age well Foundation's report on financial status of older people in India, the percentage of respondents who claimed to be earning their income mainly from businesses/professions was 10.5%. It is also could be seen in the case of monthly income of the elderly people.

The present study revealed that 14.91% earned less than INR 5000 per month, 50.81% earned in between INR 5000 to INR 10000 per month and 34.27% earned more than INR 10000 per month and Agewell foundation's report also showed that almost 1/4th elderly respondents (24.77% respondents-19.46% older men and 29.95% older women) said that their monthly income lies between INR 5000 - INR 10000. 16.3% older persons said that their monthly income was below INR 5000 and 17.6% elderly respondents claimed that they have no or negligible monthly income.

Table 2 shows the physical and mental health status of the elderly respondents. The percentage of respondents with chronic illness (87%) was significantly higher than the respondents with no chronic illness (13%). The self-reported chronic illnesses present were diabetes mellitus (23.29%), hypertension (65.06%), Arthritis/ Osteoporosis (11.7%), bronchial asthma (3.21%), stomach ailments (8.84%), Hypothyroidism (8.08%) cancer (1%).

Sherina et al in their study have found that the disease profile of the elderly people of Selangor, Malaysia as the percentage of respondents with no chronic illness (50.7%) was only slightly higher than the respondents with chronic illness (49.3%). The self-reported chronic illnesses present were diabetes mellitus (18.0%), hypertension (29.3%), ischaemic heart disease (11.7%), bronchial asthma (4.0%), gout (4.0%), arthritis (0.7%), breast cancer (0.3%), colon cancer (0.3%), kidney problems (1.3%), hypotension (0.3%), hernia (0.3%), liver cirrhosis (0.3%) and chronic pancreatitis (0.3%). In our study only (12.8%) of the respondents had difficulty in one or more of the physical activities based on the Barthel index and it has been found that 22.1% of the respondents belonging to above 70 years of age had slight to moderate dependency in case of functional disability.

Based on the five cognitive tests (5-Cog), cognitive impairment was absent in majority of the elderly people (91%) whereas depressive symptoms were present in 11% respondents. And in the same study done by Sherina et al have found majority (76.7%) of the respondents had difficulty in one or more of the physical activities based on the Barthel Index. Based on the GDS-30, 6.3% of the respondents had depressive symptoms, and based on the ECAQ, 8.3% of the respondents had cognitive impairment.

Table 3 exhibits the nutritional risks among the elderly respondents. Chen et al mentioned that malnutrition in the elderly is a multi-dimensional concept encompassing physical and psychological elements. It is precipitated by loss, dependency, loneliness, and chronic illness, and potentially impacts morbidity, mortality, and quality of life. A similar study was conducted to profile nutritional risk factors in a population of community-dwelling older adults in Kolkata, India by Majumder et al, where they have applied the short version of the mini nutritional assessment–short form (MNA-SF) questionnaire among 500 participants (65 to 75 years) 263 males and 237 females. The prevalence of under nutrition was 8.8% in females and 4.9% in males; a risk of under nutrition was found in 24.5% females and 17.5% males. On the other hand, the present has exhibited that about four-fifth of the respondents (80.7%) had low nutritional risk. However, 19.3% had moderate nutritional risk.

Table 4 exhibits the association between nutritional risks and socio-economic variables. Under-nutrition and poor diets have been reported to be prevalent among the elderly, especially those in developing countries. Suzana, Dixon & Earland in their study have found that the early identification of those at greatest risk is essential to allow possible interventions to improve nutritional status, restore immune function, reduce the risk of illnesses and thus reduce care costs. Khan J et, Chattopadhyay A et al, Shaw S et al had shown that the association of nutritional health and aging has been linked with biological, psychological, sociological and environmental factors. In our study it has been found that the association between nutritional risks and age was statistically significant ($p = 0.004$). The association between nutritional risks and mother tongue ($p=0.042$), caste ($p=0.001$) and educational level ($p=0.003$) were also found to be statistically significant.

However, there was no significant association between nutritional risks and gender, religion, marital status, living arrangement, working status, and household income per month. Whereas the study done by Sherina et al have found that the marital status was significantly associated with nutritional risks ($p=0.00$) and presence of chronic illness among the elderly respondents ($p=0.000$). The same case happened in the present study where (refer Table 5) there was a significant association between nutritional risk and chronic illness (p value=0.030) but there was no significant association between nutritional risks and functional disability status ($p=0.052$). Table 5 also shows that there was no association between depressive symptoms and nutritional risks among the elderly respondents. Even no significant association was found between cognitive impairment and nutritional risks.

Table 6 exhibits the association ship between Socio-economic variables with physical and mental health status of elderly citizens. It has been observed that age of the elderly citizens has a significant relationship with functional disability, depressive symptoms and cognitive impairment. Similarly significant relationship has been found between gender, educational level and chronic illness. It has also been observed a significant relationship between marital status and depressive symptoms. This finding was also supported by a study by Ahn et al, Kim et al, which found that elderly with poor nutritional state had high levels of depression.

Another study conducted by Muhammad and Meher et al have showed that the overall prevalence of late life depression (LLD) and cognitive impairment were 8.7% and 13.7 % respectively. Among older individuals who have rated their health status as poor were 2.59 times more likely to suffer from LLD as compared to their counterparts. Similarly, older adults who were depressed had higher odds of cognitive impairment compared to their counterparts.

Some of the other observations were: 18.95% of respondents were underweight whereas 19.35% of respondents were found to be overweight. Ananthesh BG et al while doing a cross-sectional study to assess malnutrition among elderly population residing in urban

and rural areas of a district in Karnataka, India have found that 14.7% of the elderly respondents were underweight and 22.5% were overweight.

The present study reported that 83.9% of the respondents have never consumed cigarettes and 89.6% of the respondents have never consumed alcohol. Similar findings were seen in the study done by Muhammad T et al Govindu M et al, Srivastava S et al, about 16.5 of older adults in rural areas consumed tobacco compared to 11.7% in urban areas alcohol consumption was high among rural residents (7.9%) than urban counterparts (6.7%). Small percentages (3.61%) of the respondents have reported domestic abuse in the form of verbal and physical abuses. While studying 'Problems of the Aged People in India', Kapur had found that the aged people in India experienced various types of problems. These were social, economic, psychological, health, crime and violence, abuse, and other miscellaneous problems.

CONCLUSION

Ageing is just a part of the life cycle and no human being can escape from that phase. Ageing and the elderly people have experienced a progressive physiological cycle leading to the decline of biological functions and of the body's ability to adapt to metabolic stress. These changes can be observed from the elderly people as physical (changes in physical health) and psychological (changes in mental health) status over time.

The status of physical and mental health of this group of people has a significant relationship with the socioeconomic status and many demographic variables. So, it should be the duty and responsibility of government and other non-government organisations (NGO) to provide economic supports, special mental satisfaction program, improve recreational facilities and adjustment training for aged persons in the society so that they can lead a healthy and meaningful life.

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