

A Study on Socio Demographic Characteristics, Morbidity Pattern and Health Seeking Behaviour of Elderly Aged in Rural Area of Puducherry

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ABSTRACT

Background:

Population aging is a global concern and India has a predominant portion of Elder people. The older adults usually have multiple medical conditions and seeking for the individual care. The knowledge about their health issues would help to provide efficient geriatric care to them. The present study aimed to assess the morbidity pattern and study the health-seeking behavior of the elderly people.

Materials and Methods

This study was conducted among 622 elderly people of the rural field practicing PHC areas of Sri Lakshmi Narayana Institute of Medical Sciences by simple random sampling. Descriptive statistics was used to analyse the sociodemographic and morbidity variables.

Results

There were 248 (39.9%) males and 374 (60.1%) females and 60% were young old people. Of them, 61.2% were married and living with their spouse and 38.4% were widows/ widowers. The illiteracy was 62.9% among elders and 24.9% had primary education. Almost 91% of them with the family members and 7.9% were living alone. Nearly, 42.3% and 27.8% of them have old aged and widow pension respectively. The female elderly was more dependent on their family. Their income varies between 1000 – 5000 INR. Health complications were high among unemployed elders and they follow allopathic treatment predominately. Chewing betel nut (36.4%) was the most dominate habit among them followed by smoking (12.1%) and alcohol (12.9%). Almost 83.3% were consuming medicines according to doctor's advice regularly.

Conclusion

The present study showed existence of high morbidity load among elderly and warrant for planning an efficient health care program to take care their health issues..

Keywords:

Elderly, health-seeking behavior, morbidity, rural area, geriatric care

1. Introduction

Life expectancy of human population has increased tremendously in the last century due to improved social welfare measures and advancement in the health care system. This trend has increased the elderly population which gives a new dimension of health problems¹. Elderly or old age consists of ages nearing or surpassing the average life span of human beings and they rapidly form a large chunk of the population². This transformation, known as '*demographic transition*' is accompanied by an epidemiological transition. A concomitant of population ageing is the change in key ratios that expresses the dependency of one form to another. Global ageing affects the economic growth, migration, patterns of work and retirement, family structures, pension and health systems. The size of population age groups also affects the number of hospital beds needed, that relatively cause a large demand for geriatric specialists³. The Indian 'aged population' is currently the second largest in the world. The absolute number of the people aged over 60 in India will increase from 76 million in 2001 to 137 million by 2021. Population ageing entails an increase in share of older persons in the population and is a major global demographic trend which would intensify during the twenty-first century².

Ageing in developed countries have started many decades ago, but it is just taking off in developing countries like India, while it has yet to unfold in the least developed countries. World

population ageing is about to start a phase of acceleration. The gender gap in life expectancy is expected to narrow in the developed countries, but to widen in the developing countries. The fact is well known that population ageing is taking place much more rapidly now in developing countries than it had in developed countries in the past. The '*demographic dependency ratio*' is a simple indicator of the relationship between the population in mostly dependent ages and the population in main working ages. The ratio is generally used as an indicator of the burden of demographic dependency in a population.

Ageing is taking place in the world's adult population and within the older population itself. Globally the proportion of the world's population aged 60 years or above, increased from 8% in 1950 to 12% in 2012. It will increase more rapidly in the next four decades to reach 21% in 2050. The projection of older people has a higher degree of certainty than that of younger age groups, because all the individuals older than 60 years in 2050 depends solely on attrition due to mortality, which entails a much smaller origin of uncertainty than the projection of fertility. The stages and speed of ageing are quite different between the developed and developing countries⁴. Studies done in rural areas of India and Worldwide have shown that morbidity is high among the elderly. Therefore, elderly is one of the most vulnerable and high risk groups in terms of health status in any society. Despite a great deal of development in the field of medicine, in the form of better and more accurate investigations, new therapies and various path breaking discoveries, experts are of the opinion that greatest improvement in health will be brought about by behavioral changes. Health status in general, and morbidity, in particular, are primarily influence by behavioral decisions of individuals or families, besides genetically inherited health endowments and the health environment in which they reside. Thus, illness is not a random event, but one that is systemically related to household and community level factors^{5,6}. Health seeking behaviour is an important criteria of health status of the population. 'Health seeking behavior' is defined as any activity undertaken by individuals who perceive themselves, to have a health problem or to be ill for the purpose of finding an appropriate remedy⁵. This behaviour is a complex phenomenon, particularly in a rural Indian community, and depends on a number of factors like economic dependency on others, attitudinal problems, inaccessibility to health care facilities, loss of independent decision making status and other social problems.

Studies on the patterns and determinants of health seeking behaviour for chronic diseases among elderly can yield information to help in designing comprehensive health care programmes for them. Large gaps still exist in the knowledge about such health seeking behaviour among elderly in rural communities^{7,8,9}. Hence this study is being undertaken to assess the morbidity patterns and determinants of health seeking behaviour for acute and chronic diseases among elderly. This information will help us to plan how to utilize locally available resources for health care effectively and to supplement health programs that are need based and locally acceptable.

2. Materials and Methods

This was a descriptive cross-sectional study conducted among Elderly People in the villages of Rural Puducherry over a period of three months from August 2014 to Oct 2014 (n=629). A house to house survey was made to find out the pattern of morbidity and health seeking behavior among old age people adopting by the previous methods by Anil Jacob Purty²⁸, Ray Karmakar and A Chattopadhyay³⁶. Among the elderly people those who were having some comorbid conditions necessarily did not seek health care intervention. So the health seeking behaviour was

always less among the elderly. Hence the percentage of health seeking behaviour was used for the calculation of sample size with the prevalence of 71.78%. The sample size was calculated based on the formula $4pq/L^2$. The study participants were contacted from 4 randomly selected villages for the study by house to house survey to obtain the calculated sample size from villages Kumarapalayam, Vazhuthavur, Mutrampattu-kodathur and Thethampakkam coming under the kumarapalayam PHC, Sri Lakshmi Narayana Institute of Medical sciences, Puducherry. The elderly people who did not want to give informed consent and unable to response properly due to their illness were excluded from the study.

3. Procedure of the Study

A pilot study was carried out among 25 elderly persons in Manavelly village under kumarapalayam PHC service area using a predesigned and structured questionnaire to assess the utility of research instruments and methods used and incorporate suitable changes if required. The investigator administered questionnaire was applied. Certain structural changes in questions were done based on the pilot study.

Data regarding demographic variables like age, sex, place of residence, marital status, religion, educational qualification, living arrangement, type of family, occupation, income, pensions, dependency status and personal habits were recorded. The pattern of morbidities were recorded and the study participants were also interviewed for their health seeking behaviour such as type of treatment, health care providers, frequency of visit to health care providers, regularity of treatment, accompanying person to health care providers, financial support, person taking care of them in household and regarding improvement of health after the treatment.

4. Analysis of data

The data collected was entered in Microsoft excel spread sheet and was analysed using SPSS software version 15. Frequencies, proportions, mean, standard deviation and chi square test were used for the analysis.

5. Results

The Union Territory of Puducherry has 4 districts namely Puducherry, Karaikal, Mahe and Yanam. The total population of Puducherry Union Territory according to 2011 census is 12,44,164. In the district of Puducherry, the total population is 95,0289. Further, the total number of elderly people living in Puducherry district is 95034, only 30% people lives in rural areas⁴⁹. In the PHC field practicing area total population is 21467 in 8 villages. The total number of elderly in these villages is 1975. Among them randomly 4 villages were chosen with a population of 656 to cover the sample size of 629. The total number of elders participated were 622. Eight persons did not give consent to participate in the study. The rest 26 were not included, as they have died before the onset of the study, as the total census of study was available for 2012 only.

Table 1: Distribution of the study population

Age Group	Gender		Total
	Male	Female	

60-69 (%)	140 (22.5)	232 (37.3)	372 (59.8)
70-79 (%)	77 (12.4)	101 (16.2)	178 (28.6)
≥80 (%)	31 (5)	41 (6.6)	72 (11.6)
Total (%)	248 (39.9)	374 (60.1)	622 (100)

The above table showed that out of 622 study population, 60.1% were females and 39.9% were males (Table.1). Majority of the study population (59.8%) was in the age group of 60-69 years, followed by 28.6% in the age group 70-79 years. The mean age was 68.1 ± 7.7 years.

Table 2 pointed out the marital status in the study population in which 61.2% were married live with their spouse, among the males 89.9% and among females 42.2% were married live with their spouse. More than half in the females (57.5%) were widow.

Table 2: Distribution of the study population by marital status

Marital Status	Male	Female	Total
Married (%)	223 (89.9)	158 (42.2)	381 (61.2)
Widow/ widower (%)	24 (9.7)	215 (57.5)	239 (38.4)
Divorced (%)	0	1 (0.3)	1 (0.2)
Unmarried (%)	1 (0.4)	0	1 (0.2)
Total (%)	248 (100)	374 (100)	622 (100)

Table 3 showed most of the study population (62.9%) was illiterate and 24.9% of them have studied up to primary level of education. Majority of the females (77.3%) were illiterate. Among the males, 41.1% were illiterate and 37.1% of males have studied up to primary level of education.

Table 3: Distribution of the study population by Educational status

Educational status	Male	Female	Total
Illiterate (%)	102 (41.1)	289 (77.3)	391 (62.9)
Primary (%)	92 (37.1)	63 (16.8)	155 (24.9)
Middle (%)	23 (9.3)	13 (3.5)	36 (5.8)
High (%)	28 (11.3)	6 (1.6)	34 (5.4)
Graduate (%)	3 (1.2)	3 (0.8)	6 (1)
Total	248 (100)	374 (100)	622 (100)

Table 4: Distribution of the study population by living arrangement

Living Arrangement	Male	Female	Total
Alone (%)	8 (3.2)	41 (11)	49 (7.9)
Spouse (%)	58 (23.4)	43 (11.5)	101 (16.2)
Children (%)	30 (12.1)	208 (55.6)	238 (38.3)
Spouse & Children (%)	151 (60.9)	76 (20.3)	227 (36.5)
Others (%)	1 (0.4)	6 (1.6)	7 (1.1)

Total	248 (100)	374 (100)	622 (100)
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Above table (Table.4) showed almost 91% of the elders were living along with at least one of their family member. Among the elderly 38.3% were staying with children, 36.5% were staying with both spouse and children and 16.2% along with spouse. Most of the females (55.6%) were staying along with their children whereas more proportion of the males (60.9%) was staying with their spouse and children. Only 7.9% of the study population was staying alone.

Table 5: Distribution of the study population by the type of family

Type of family	Male	Female	Total
Nuclear	179 (72.2)	264 (70.6)	443 (71.2)
Joint	69 (27.8)	110 (29.4)	179 (28.8)
Total	248 (100)	374 (100)	622 (100)

Table 5 showed 71.2% of the study population was living in nuclear family and 28.8% were living in joint family. Almost both males and females were in same proportion in both nuclear and joint family

Table 6: Types of Social Assistance received

Types of Social Assistance received	Male (N=248)	Female (N=374)	Total (N=622)
Old Age Pension (%)	160 (64.5)	103 (27.5)	263 (42.3)
Widow Pension (%)	0	173 (46.3)	173 (27.8)
Retirement Pension (%)	3 (1.2)	4 (1.1)	7 (1.1)
Others (%)	1 (0.4)	2 (0.5)	3 (0.5)
Total	164 (66.1)	282 (75.4)	446 (71.7)

Table 6 showed 71.7% of the elders were getting pensions and among males 64.5% were getting old age pensions whereas among females only 27.5% of them were getting old age pension. Nearly half (46.3%) of the females were getting widow pension. Only 1.1% of the elderly were getting retirement pension.

Table 7: Distribution of the study population by Financial Dependency

Depending Person	Male	Female	Total
Self	136 (54.8)	62 (16.6)	198 (31.8)
Spouse	6 (2.4)	26 (7)	32 (5.1)
Children	106 (42.8)	281 (75.1)	387 (62.2)
Others	0	5 (1.3)	5 (0.8)
Total	248 (100)	374 (100)	622 (100)

Chi square value = 102.993, df = 3, p = 0.000

Table 7 showed that 62.2% of the elderly were dependent on their children and 31.8% were self-dependent. Most of the elderly males (54.8%) were self-dependent whereas majority of the females (75.1%) were dependent on their children. Elders depending on their spouse were 5.1% and 0.8% on their relatives. This association was statistically significant.

Table 8: Distribution of the study population by Dependency status

Status Of Dependency	Male	Female	Total
Fully (%)	72 (29)	232 (62)	304 (48.9)

Partially (%)	63 (25.4)	97 (26)	160 (25.7)
Independent (%)	113 (45.6)	45 (12)	158 (25.4)
Total	248 (100)	374 (100)	622 (100)

Table 8 showed 48.9% of the study population were fully dependent, 25.7% of them were partially dependent and 25.4% of them were Independent. Among females 62% of them were fully dependent whereas 45.6% of males were independent among them.

Tables 9: Distribution of the study population by their working status

Currently working	Male	Female	Total
Yes (%)	135 (54.4)	57 (15.2)	192 (30.9)
No (%)	113 (45.6)	317 (84.8)	430 (69.1)
Total	248 (100)	374 (100)	622 (100)

Table 9 showed that 30.9% of the elders were currently working. Among males, 54.4% of them were currently working whereas among females only 15.2% were working.

Table 10: Reasons for currently not working by the study population

Reason for not currently working	Male	Female	Total
Health problems (%)	66 (58.4)	165 (52)	231 (53.7)
Retired/ too old (%)	42 (37.1)	55 (17.4)	97 (22.6)

Taking care of the family (%)	3 (2.7)	86 (27.1)	89 (20.7)
Others (%)	2 (1.8)	11 (3.5)	13 (3)
Total	113 (100)	317 (100)	430 (100)

The above table (Table. 10) showed that among the currently not working elders, majority of the elders (53.7%) reported that health problem was the main reason for not working. Followed by, 22.6% reported that they were too old to work/ retired and another 20.7% reported that they have to take care of the family members.

Table 11: Distribution of the study population by their monthly income

Income (INR)	Male	Female	Total
1000-5000 (%)	87 (64.4)	55 (96.5)	142 (74)
5001-10000 (%)	41 (30.4)	2 (3.5)	43 (22.4)
10001-15000 (%)	2 (1.5)	0	2 (1.0)
>15000 (%)	5 (3.7)	0	5 (2.6)
Total	135 (100)	57 (100)	192 (100)

Table 11 shows the monthly income of the elders, out of 192 currently working elders 142 (74%) of them were in between the income of INR.1000- INR.5000, followed by 43 (22.4%) in between INR.5001- Rs.10000.

Table 12: Distribution of the study population by Health risk behaviour

Risk behaviour	Male (N=248)	Female (N=374)	Total (N=622)
Smoking (%)	75 (30.2)	0	75 (12.1)

Alcohol (%)	80 (32.3)	0	80 (12.9)
Betel nut chewing (%)	42 (16.9)	185 (49.5)	227 (36.4)
Total	197 (79.4)	185 (49.5)	382 (61.4)

The above table (Table.12) showed that among males 30.2% and 32.3% were having smoking and alcohol consuming habits respectively. Among females 49.5% of them were having betel nut chewing habit.

Table 13: Distribution of the study population by recent acute illness

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Recent illness	Male	Female	Total
Yes (%)	237 (95.6)	358 (95.7)	595 (95.7)
No (%)	11 (4.4)	16 (4.3)	27 (4.3)
Total	248 (100)	374 (100)	622 (100)

square value = 0.009, df = 1, p = 1.000

Table 13 showed that 95.7% of the elderly were suffering from recent acute illness. Males (95.6%) and females (95.7%) were suffering from recent acute illness in equal proportions. This association was not found to be statistically significant.

Table 14: The study population seeking treatment for recent acute illness

Seeking treatment for illness	Male	Female	Total
Yes (%)	210 (88.6)	329 (91.9)	539 (90.6)

No (%)	27 (11.4)	29 (8.1)	56 (9.4)
Total	237 (100)	358 (100)	595 (100)

Chi square value = 1.812, df = 1, p = 0.198

Above table (Table.14) shows that out of 595 suffering from recent acute illness 539 (90.6%) were seeking treatment. Among females, 91.9% had sought treatment whereas among males, 88.6% had sought treatment. This association was not statistically significant.

Table 15: Reasons for not seeking treatment by the study population

Reasons for not seeking treatment	Male	Female	Total
Minor illness (%)	18 (66.7)	14 (48.3)	32 (57.1)
Nobody come with me to health facility (%)	1 (3.7)	5 (17.2)	6 (10.7)
Health facility too far (%)	0	6 (20.7)	6 (10.7)
Routine activity not disturbed (%)	3 (11.1)	2 (6.9)	5 (9)
Others	5 (18.5)	2 (6.9)	7 (12.5)
Total	27 (100)	29 (100)	56 (100)

Table 15 showed the various reasons for not seeking treatment for their recent acute illness, majority of elderly (57.1%) were saying it was a minor illness, followed by 10.7% were saying that nobody comes with them to the health care facility, another 10.7% said that the health facility was too far to go and 9% were saying that their routine activity were not disturbed.

Table 16: Type of treatment availed for recent acute illness

Type of treatment	Male	Female	Total
Allopathy (%)	206 (98.1)	324 (98.5)	530 (98.2)

Homeopathy (%)	1 (0.5)	0	1 (0.2)
Siddha (%)	2 (0.9)	0	2 (0.4)
Native medicine (%)	1 (0.5)	2 (0.6)	3 (0.6)
Self-treatment (%)	0	3 (0.9)	3 (0.6)
Total	210 (100)	329 (100)	539 (100)

Table 16 showed the type of treatment taken by the study population for their recent acute illness. Majority of the elderly (98.2%) sought allopathic type of treatment.

Table 17: Type of health care facility availed for recent acute illness
Chi square value = 7.282, df = 5, p = 0.200

Type of health care facility availed	Male	Female	Total
Govt. hospital (%)	106 (50.5)	139 (42.2)	245 (45.4)
Private hospital (%)	63 (30)	126 (38.3)	189 (35.1)
Private practitioner (%)	33 (15.7)	45 (13.7)	78 (14.4)
Non registered practitioner (%)	7 (3.3)	15 (4.6)	22 (4.1)
Traditional healers (%)	1 (0.5)	1 (0.3)	2 (0.4)
Medical shop (%)	0	3 (0.9)	3 (0.6)
Total	210 (100)	329 (100)	539 (100)

Above table showed that 45.4% of the elderly approached Government health care facility when they were ill, followed by 35.1% and 14.4% to private health care facility and private practitioner respectively. Non-registered practitioner and traditional healers were approached by 4.1% and 0.4% of the elderly respectively. This association was not found to be statistically significant.

Table18: Accompanying persons to health care facility at the time of recent acute illness

Accompanying person to health care facility	Male	Female	Total
No One (%)	97 (46.2)	133 (40.4)	230 (42.7)
Spouse (%)	45 (21.4)	35 (10.6)	80 (14.8)
Son (%)	60 (28.6)	103 (31.3)	163 (30.2)
Daughter (%)	5 (2.4)	27 (8.2)	32 (5.9)
Daughter In Law (%)	0	16 (4.9)	16 (3)
Others (%)	3 (1.4)	15 (4.6)	18 (3.4)
Total	210 (100)	329 (100)	539 (100)

Table 18 showed that majority of the elderly (42.7%) were not accompanied by anyone to the health care facility whereas 30.2% of the elderly by their son, followed by 14.8% and 5.9% of the elderly by their spouse and daughter respectively.

Table 19: Expenditure met for the treatment expenses for recent acute illness

Expenditure met for the treatment expenses	Male	Female	Total
Self (%)	109 (51.9)	89 (27.1)	198 (36.7)
Spouse (%)	13 (6.3)	37 (11.2)	50 (9.3)
Son (%)	82 (39)	157 (47.8)	239 (44.3)
Daughter (%)	3 (1.4)	27 (8.2)	30 (5.6)
Daughter In Law (%)	1 (0.5)	11 (3.3)	12 (2.2)
Others (%)	2 (0.9)	8 (2.4)	10 (1.9)
Total	210 (100)	329 (100)	539 (100)

Table 19 showed that among the elderly with recent acute illness, majority (44.3%) of them had their expenditure met for the treatment by their son, however 36.7% of the elderly met their treatment expenses on their own.

Table 20: Home based care of the elderly during recent acute illness

Person taking care of elders in house	Male	Female	Total
No One (%)	21 (10)	65 (19.8)	86 (16)
Spouse (%)	140 (66.7)	40 (12.2)	180 (33.4)
Son (%)	22 (10.5)	61 (18.5)	83 (15.4)
Daughter (%)	7 (3.3)	49 (14.9)	56 (10.4)
Daughter In Law (%)	19 (9)	107 (32.5)	126 (23.3)
Others (%)	1 (0.5)	7 (2.1)	8 (1.5)
Total	210 (100)	329 (100)	539 (100)

Table 20 showed the distribution of the study population by the persons taking care of them in house when they were ill, 33.4% of them were taken care by their spouse, followed by 23.3% and 15.4% of the elderly by their daughter in law and son respectively. Sixteen percent of the elders were not taken-care by anyone. Among males, most of them (66.7%) were taken-care by their spouse.

Table 21: Satisfaction of the study population after the treatment

Satisfaction of the treatment	Male	Female	Total
Yes (%)	181 (86.2)	270 (82.1)	451 (83.7)
No (%)	29 (13.8)	59 (17.9)	88 (16.3)
Total	210 (100)	329 (100)	539 (100)

Chi square value = 1.596, df = 1, p = 0.233

Table 21 showed that 83.7% of the elderly were satisfied with treatment. Among males 86.2% and among females 82.1% were satisfied by the health care facility approached respectively. This association was not statistically significant.

Table 22: Reasons for not satisfaction of the treatment during recent acute illness

Reasons for not satisfaction of the treatment	Male	Female	Total
No improvement (%)	26 (89.7)	50 (84.7)	76 (86.3)
Drugs were not good (%)	2 (6.9)	5 (8.5)	7 (8)
Doctor didn't check properly (%)	0	3 (5.1)	3 (3.4)
Others (%)	1 (3.4)	1 (1.7)	2 (2.3)
Total	29 (100)	59 (100)	88 (100)

Among the elderly who were not satisfied by the treatment, 86.3% have reported that there was no improvement in their health status (Table.22).

Table 23: Regular intake of medicine for recent acute illness

Regular basis of consuming medicines	Male	Female	Total
Yes (%)	180 (85.7)	269 (81.8)	449 (83.3)
No (%)	30 (14.3)	60 (18.2)	90 (16.7)
Total	210 (100)	329 (100)	539 (100)

Chi square value = 1.439, df = 1, p = 0.239

Above table (Table.23) showed that 83.3% of the elderly people were taking medicine regularly for their acute illness. Among males and females 85.7% and 81.8% were taking medicines regularly. This association was not found to be statistically significant.

Table 24: Reasons for not consuming medicines regularly for recent acute illness

Reasons for not consuming medicines regularly	Male	Female	Total
Whenever ill (%)	13 (43.3)	27 (45)	40 (44.4)
Nobody to give it to me (%)	4 (13.3)	13 (21.6)	17 (18.9)
Not necessary (%)	4 (13.3)	6 (10)	10 (11.1)
Forgot to take (%)	5 (16.8)	4 (6.7)	9 (10)
Others (%)	4 (13.3)	10 (16.7)	14 (15.6)
Total	30 (100)	60 (100)	90 (100)

Among the elderly who were on irregular medications, the major reason (44.4%) for their irregular medications was found to be consumption of medicines at the time of illness but not full course of treatment (Table. 24). Followed by 18.9% were reported that nobody to give them and 11.1% were saying it was not necessary to take. The other reasons reported by 15.6% of the elderly that they were not getting medicines regularly and some of them were not interested.

Table 25: Distribution of chronic illness among the Elderly

Chronic illness	Male	Female	Total
Yes (%)	134 (54)	269 (71.9)	403 (64.8)
No (%)	114 (46)	105 (28.1)	219 (35.2)
Total	248 (100)	374 (100)	622 (100)

Chi square value = 20.93, df = 1, p = 0.000

Table 25 indicated that out of 622 study population 403 (64.8%) were suffering from chronic illness. On comparison with male, female were suffering more from chronic illness, the proportions of male and female suffering from chronic illness were 54% and 71.9% respectively. This association was statistically significant.

Table 26: Morbidity pattern of chronic diseases among the Elderly

Chronic diseases	Total population
Arthritis (%)	195 (31.4)
Hypertension (%)	141 (22.7)
Diabetes mellitus (%)	103 (16.6)
Cataract (%)	96 (15.4)
Bronchial asthma (%)	14 (2.3)
Ischemic heart disease (%)	8 (1.3)
Hyperlipidemia (%)	6 (1)
Anemia (%)	5 (0.8)
Cerebrovascular disease (%)	4 (0.6)
Chronic kidney disease (%)	4 (0.6)
Tuberculosis (%)	4 (0.6)
Peptic ulcer disease (%)	4 (0.6)
Others	24 (3.8)

Table 26 showed the morbidity pattern of chronic diseases among the study population, majority (31.4%) were suffering from Arthritis which was followed by hypertension (22.7%) and diabetes mellitus (16.6%).

Table 27: Treatment seeking behaviour for chronic illness by the Elderly

Seeking Treatment	Male	Female	Total
Yes (%)	108 (80.6)	219 (81.4)	327 (81.1)
No (%)	26 (19.4)	50 (18.6)	76 (18.9)
Total	134 (100)	269 (100)	403 (100)

Chi square value = 0.039, df = 1, p = 0.893

Above table points out that 81.1% of the study population seeking treatment for their chronic illness. The proportion of male and female were almost equal in seeking treatment, i.e. 80.6% and 81.4%. This association was not found to be statistically significant (Table. 27).

Table 28: Reasons for not seeking treatment for chronic illness

Reasons for not seeking treatment	Male	Female	Total
Not interested (%)	7 (26.9)	16 (32)	23 (30.3)
Minor illness (%)	5 (19.2)	18 (36)	23 (30.3)
Financial problems (%)	8 (30.9)	8 (16)	16 (21)
Hospital too far (%)	3 (11.5)	3 (6)	6 (7.9)
Others (%)	3 (11.5)	5 (10)	8 (10.5)
Total	26 (100)	50 (100)	76 (100)

Table 28 showed that 30.3% of the elders who were not taking treatment for chronic illness reported that they were not interested and another 30.3% reported that it was a minor illness. Due to financial constraints 21% were not taking treatment and 7.9% were saying that the hospital was too far to go. The other reasons said by the 10.5% of elders were no use of treatment, nobody to take them to hospital and too old to take treatment.

Table 29: Type of treatment availed for their chronic illness

Type of treatment availed	Male	Female	Total
Allopathic (%)	106 (98.2)	214 (97.7)	320 (97.9)
Siddha (%)	1 (0.9)	2 (0.9)	3 (0.9)
Homeopathy (%)	1 (0.9)	1 (0.5)	2 (0.6)
Native medicine (%)	0	2 (0.9)	2 (0.6)
Total	108 (100)	219 (100)	327 (100)

Table 29 highlighted that most of the elders (97.9%) were getting allopathic type of treatment for their chronic illness. The proportion of male and female was almost equal for those on allopathic treatment.

Table 30: Type of Health care facility availed for chronic illness

Type of health care facility availed	Male	Female	Total
Government Hospital (%)	59 (54.6)	110 (50.2)	169 (51.7)
Private Hospital (%)	38 (35.2)	83 (37.9)	121 (37)
Private Practitioner (%)	11 (10.2)	23 (10.5)	34 (10.4)
Others (%)	0	3 (1.4)	3 (0.9)
Total	108 (100)	219 (100)	327 (100)

Chi square value = 2.380, df = 3, p = 0.496

Among the elderly with chronic illness taking treatment, 51.7% of the elders were utilizing Government health care facilities which includes Government hospital, PHC and sub-centers (Table.30). Followed by this, 37% utilizing private hospitals and 10.4% approached private practitioners respectively. This association was not found to be statistically significant.

Table 31: Frequency of visits to the health care facility for chronic illness

Visits to the health care facility	Male	Female	Total
Whenever needed (%)	48 (44.4)	78 (35.6)	126 (38.5)
>1 visit per month (%)	13 (12)	26 (11.9)	39 (12)
1 visit per month (%)	37 (34.3)	88 (40.2)	125 (38.2)

1 visit per 3 months (%)	3 (2.8)	12 (5.5)	15 (4.6)
1 visit per 6 months (%)	6 (5.6)	11 (5)	17 (5.2)
1 visit per year (%)	1 (0.9)	0	1 (0.3)
No visit (%)	0	4 (1.8)	4 (1.2)
Total	108 (100)	219 (100)	327 (100)

Table 31 showed that about 38.5% of the elderly those who were suffering from chronic illness had visited the health care facilities whenever they needed to take treatment, the elders visiting once in a month were 38.2% and 12% were visiting more than once in a month.

Table 32: Regularity of consuming medicines for chronic illness

Regularity of consuming medicines	Male	Female	Total
Yes (%)	92 (85.2)	177 (80.8)	269 (82.3)
No (%)	16 (14.8)	42 (19.2)	58 (17.7)
Total	108 (100)	219 (100)	327 (100)

Chi square value = 0.944, df = 1, p = 0.360

The above table showed that among the elders with chronic illness on treatment, 82.3% of them consuming medicines regularly (Table. 32). Among males 85.2% and of females 80.8% were taking medicines regularly. This association was not statistically significant.

Table 33: Reasons for not taking medicines regularly for chronic illness

Reasons for not taking medicines regularly	Male	Female	Total
Not necessary to take (%)	8 (50)	20 (47.6)	28 (48.3)
Whenever needed (%)	0	9 (21.5)	9 (15.5)
Not interested (%)	4 (25)	3 (7.1)	7 (12.1)
Non availability of medicine in nearby store (%)	1 (6.3)	4 (9.6)	5 (8.6)
Medicines are expensive (%)	2 (12.5)	3 (7.1)	5 (8.6)
Others (%)	1 (6.2)	3 (7.1)	4 (6.9)
Total	16 (100)	42 (100)	58 (100)

(Figures in parentheses indicate column percentage)

Table 33 showed the various reasons for not taking the medicines regularly by the study population for their chronic illness, 48.3% of them were saying that it was not necessary to take medicines regularly, followed by 15.5% were saying that only when needed they will take and 12.1% were not interested to take.

Table 34: Regularity of medicine consuming behaviour by their educational status in chronic illness

Educational status	Regular basis of taking medicines		Total
	Yes	No	
Illiterate (%)	167 (81.9)	37 (18.1)	204 (100)
Literate (%)	102 (82.9)	21 (17.1)	123 (100)
Total	269 (82.3)	58 (17.7)	327 (100)

Chi square value = 0.60, df = 1, p = 0.882

Among the illiterate elderly with chronic illness, 81.9% of them were on regular medications whereas literate elderly were 82.9% (Table. 34). This association was not found to be statistically significant.

Table 35: Type of health care facility availed for chronic illness by their educational status

Educational status	Type of health care facility		Total
	Govt. facility	Private facility	
Illiterate (%)	107 (52.5)	97 (47.5)	204 (100)
Literate (%)	62 (50.4)	61 (49.6)	123 (100)
Total	169 (51.7)	158 (48.3)	327 (100)

Chi square value = 0.128, df = 1, p = 0.733

The above table (Table. 35) showed that out of 327 elderly taking treatment for chronic illness, 52.5% of the illiterates were utilizing government health care facility whereas literates were only 50.4%. The private health care facility was utilized by literates and illiterates were 49.6% and 47.5% respectively. This association was not statistically significant.

Table 36: Regularity of medicine consuming behaviour by their educational status in recent acute illness

Educational status	Regular basis of taking medicines		Total
	Yes	No	
Illiterate (%)	273 (79.8)	69 (20.2)	342 (100)
Literate (%)	176 (89.3)	21 (10.7)	197 (100)
Total	449 (83.3)	90 (16.7)	539 (100)

Chi square value = 8.137, df = 1, p = 0.004

The above table (Table. 36) shows that among the elders who were seeking treatment for acute illness, 89.3% of the literates were taking medicines according to the doctor's advice regularly whereas illiterates 79.8% of them only taking medicines regularly. This association was statistically significant.

Table 37: Type of health care facility availed for recent acute illness by their educational status

Educational status	Type of health care facility		Total
	Govt. facility	Private facility	
Illiterate (%)	156 (45.6)	186 (54.4)	342 (100)
Literate (%)	89 (45.2)	108 (54.8)	197 (100)
Total	245 (45.5)	294 (54.5)	539 (100)

Chi square value = 0.010, df = 1, p = 0.929

The above table (Table. 37) showed that among illiterates 45.6% of them utilizing government health care facility and 54.4% utilizing private health care facility. Almost same proportion of literate elderly also utilized both health care facilities. This association was not statistically significant.

6. Discussion

The present study was conducted to find out the pattern of morbidity, health seeking behaviour, status of care takers and expenditure met for health needs of the elderly people in rural population. A total of 622 elderly people were interviewed from 4 villages under the service area of Rural Health Training Centre of Sri Lakshmi Narayana Institute of Medical Sciences at Kumarapalayam, Rural Puducherry District. Most of the elderly in the study population are in “young old” ie, 60%, another 29% in ‘Old old’ and the “oldest old” is 12%. This proportion is similar to census 2011 of Puducherry⁴⁹ district as well as a study conducted by Narapureddy B et al³⁰ and Karmakar PR et al³⁶ which projected as 59.6% and 60% young old.

While some of the elderly were able to exactly remember their age and year of birth, majority of them were unable to exactly tell their age, even with probing with any significant antecedent history such as before or after Indian Independence, age at menarche (among elderly women), age at marriage, age at first child birth or age of the first born child. However, with such indepth analysis it was difficult to ascertain the age of the elderly as there is no objective way to cross verify the age. It is to be noted that some who remembered their age were born in urban Puducherry under French rule, have their birth certificate.

In this study the gender distribution is favouring females (60.1%) compared to males (39.9%) which are almost similar to a study conducted by Moe S et al³². The Sex Ratio in Puducherry is 1037 i.e. for each 1000 male, which is above national average of 940 as per census 2011⁴⁹. In 2001, the sex ratio of female was 1001 per 1000 males in Puducherry.

In the current study, 61.2% of the elderly were married which is similar to studies by Narapureddy B et al³⁰ and Muralidhar MK et al⁴². Majority of the men (89.9%) are still married, whereas, only 42.2% of women are currently married. 57.5% of the elderly women are already widowed which is higher than 38% a study by Muralidhar MK et al⁴². Overall, 38% of them are either widow or widower. This is probably due to men marry women who are having a huge (4-10 years) age difference in India and further the increased difference in life expectancy among women in India. 36% of the elderly are living with their spouse and children which is lesser than 46.9% a study by Madhu T et al⁵¹ and another though widowed or widower, 38% still live with their children which is higher than 31% a study by Madhu T et al⁵¹. However, 3% of elderly men and 11% of elderly women are living alone as destitute which is similar to studies by Narapureddy B et al³⁰ and Madhu T et al⁵¹. These people are mainly dependent on social welfare measures offered by the Government.

Among the elderly interviewed, 60% of them had given positive history regarding current usage of risky health behaviour such as smoking, alcohol and betel nut chewing. However, in gender difference exists. None of the elderly women either smoke tobacco or consume alcohol currently. However, 30.2% and 32.3% of elderly men use tobacco and consume alcohol, respectively which is similar to Bourne PA et al⁵². Remarkably, 49.5% of elderly women currently have the habit of betel nut chewing. When the elderly people were interviewed regarding any recent acute illness in the past 3 months, 595 (95.7%) of the 622, gave a positive history. Further, there was no significant gender difference in the prevalence of acute recent illness (95.6% vs 95.7%). On the contrary, it was lower at 89.2% and 84.2% in studies conducted by Swami HM et al²³ and

Kumari RSS et al¹⁵ and also the acute morbidity among the elderly was more in females. Most of the elderly people (90%) were seeking treatment for their recent illness which is slightly higher than 85.5% a study conducted by Shailendra Kumar B Hegde⁵ and 98% of them were getting treatment from allopathic type of treatment which is higher than 92.4% a study conducted by Shailendra Kumar B Hegde. There was no gender difference in seeking health care intervention during acute illness.

In the study population, 56 out of 595 elderly did not seek treatment for their recent illness. The major reason (57%) being “it was only a minor illness”. However, among elderly women other major reasons (37%) were that either there was no one to accompany them to visit the health facility or that the health Facility is too far for them to approach on their own. This clearly indicates that accessibility to health care facilities is an important aspect while we plan for improving affordable health care to the elderly citizens of our country. Among the elderly who had availed some health facilities for their recent illness, 98.2% allopathic services which is higher than a study conducted by Shailendra Kumar B Hegde⁵. This is due to the fact that allopathic facilities are widely distributed even in these rural areas of Puducherry.

Among the elderly people who had recent illness and consulted, 45% of the elderly people have approached Government health care facilities like Primary Health Centre, Govt Hospitals, etc which is slightly higher to 42.5% by report on the studies of elderly in selected states of India, 2011⁵⁰ and 35% visited Private Hospitals and nursing Homes rather than consulting individual Private practitioner (14.4%). In a study conducted by Indirani et al, the percentage of elderly availing Govt facilities were at 36.7%, which is lower than the current study. Among those getting treatment, 84% of the elderly people were satisfied but when the age increases the satisfaction was declined.

This study has found out that the prevalence of chronic illness among the elderly was 64.8% and it was similar to 64.4% a study conducted by Kumari RSS et al¹⁵ in Kerala. In an Urban Colony in Chandigarh the prevalence of one or more chronic illness was 73.3%, which is higher than rural average in the current study. Among the persons with morbidity, the prevalence of various types of arthritis was 31.4% which is lesser than 38.8% a study conducted by Katta A et al²⁹. However, in Thiruvananthapuram Kerala, the prevalence of arthritis is high at 58-73%. This could be due to the increased life expectancy of elderly in Kerala compared to Puducherry. Hypertension was 22.7% which is almost similar to 24.5% a study conducted by Sharma S et al⁸. Diabetes mellitus was 16.6% which was almost similar to 16.4% and 17.3% studies conducted by Ladha A et al³⁹ and Sharma S et al⁸. This shows that there is not much of urban-rural difference among the elderly. The other reason could be that Puducherry is predominantly urban (70%) and the rural areas are urbanised, further most of the rural persons are employed in urban industrial establishments and shops. The prevalence of cataract at the time of study was 15% as many were underwent IOL surgery which is similar to 13.2% and 18.5% studies conducted by Katta A et al²⁹ and Swami HM et al²³.

The expenditure for the treatment of the illness of the elderly people was met by their children in 59% of the study population which is higher than 46.7% by the Report on the Status of Elderly in Select States of India, 2011⁵⁰. The study also found out that 33% of the elderly population was getting physical care from their spouse.

7. Conclusion

The prevalence of high morbidity load among the studied elderly deserved for the need to provide specialized healthcare systems. Among them elder females is more vulnerable group for need of the helps. The policy makers should emphasize the special support and medical fraternity while planning the geriatric care. Further, the study showed that elderly living in rural areas are the most vulnerable group in their healthcare-seeking behavior. To facilitate, this policy makers must focus more on rural elderly and their beliefs which prevent them from seeking healthcare.

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Conflict Of Interest

The authors declare no conflict of interest.

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