JournalofCardiovascularDiseaseResearch

ISSN:0975-3583,0976-2833 VOL12,ISSUE05,2021

Morbidity Pattern and Health Seeking Behaviour of Geriatric Population in A Rural Area OfGurugram-A Cross Sectional Community Based Study

Girdhar S[1],Deswal BS[2],Anand BK[3], Ray S[4],Marwah MPS[5], Chauhan A[6]

[1]Dr. ShubhamGirdhar, Assistant Professor, Dept of Community Medicine, AFSMS & RC, Dhauj, Faridabad-121004, Haryana, India
[2]Dr. Balbir Singh Deswal, Medical Superintendent & Professor, Dept of Community Medicine , WCMS & R, Gurwar, Jhajjar-124103, Haryana, India
[3]Dr. Bhupinder Kaur Anand, Professor & Head, Dept of Community Medicine, AFSMS& RC, Dhauj, Faridabad-121004, Haryana, India
[4]Dr. Shalini Ray, Assistant Professor, Dept of Community Medicine, FMHS, SGT University, Gurugram -122505,Haryana, India
[5]Dr. Manvinder Pal Singh Marwah, Senior Medical Officer & Senior Advisor (Aerospace Medicine) Air Force Station, Chandigarh-160003, India
[6]Dr. Ashish Chauhan, Senior Consultant, Department of Cardiology, Sarvodaya Hospital, Faridabad-121006, Haryana, India

First Author: Dr. ShubhamGirdhar
Corresponding Author: Dr. Ashish Chauhan

Abstract:

Background & Objectives: Population aging is a global phenomenon in India, the size of the elderly population is growing fast so many older adults have facing multiple medical conditions, elderly health problems and health seeking behaviourisprerequisite for proving comprehensive geriatric care to them. Hence, this study is an attempt to explore the morbidity profile and health seeking behaviour of the geriatric population of a rural area of Gurugram, Haryana. **Materials and Methods:** The cross sectional study was conducted in the Department of Community Medicine, SGT University, Gurugram, Haryana. After took the ethical clearance, the study has been carried out 260 population and data was collected from considered area, in a period of one year. In this study included elderly aged 60 years (both male and female) and residing in the study area more than six months followed by two stage random sampling technique using PPS (Probability Proportional to Size) was adopted for the present study, **Simple Random Sampling and identification of number of households from each village using PPS.** The interview was carried out by clinical examination; elicit the health seeking behaviour of study subject's information regarding perception of illness. **In our study, data record on the basis of** Blood pressure, blood sugar, distant vision, hearing loss, diagnosis of diseases was done on the basis of clinical presentation and previously diagnosed or treated cases. **Results:** After data collection, the information was entered in Microsoft Excel 2010 spreadsheet and coding and tabulation was done. Further analysis was carried out using the Statistical Software Epi Info 7 provided by the CDC, Atlanta, United States of America. Various statistical tests like proportions and chi square tests were applied. A significant p value was considered when it was less than 0.05 and it was considered highly significant when p value was less than or equal 0.01.

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Conclusion: We were concluded that prevalence of morbidity among elderly was found in higher in female gender, higher age group were found to be significantly associated with morbidity in the studypopulation.

Keywords: Geriatric population, Morbidity profile, Health seeking behaviour.

1. INTRODUCTION

Concept of ageing has been defined in recent times as a progressive, generalized impairment of function resulting in loss of adaptive response to stress and in a growing risk of age related disease, the loss of adaptability giving rise to increased frailty and the probability of death. Ageing is a matter of concern for the health sector of any country. With increase in age, occurs an exponential increase in the prevalence of morbidity. This demographic increase in elderly age group demands for provision of specialised healthcare. Elderly face various health as well as social issues, such as abuse, loneliness, lack of social security and minimal access to healthcare. Geriatric care comprises of a multifaceted approach incorporating health sector, social sector and legal sector. To address various rising issues, the United Nations General Assembly hosted the first World Assembly on Ageing in 1982, which formulated the "*Vienna International Plan of Action on Ageing*." It proposed an urgent call for specific action on issues such as nutrition and health, housing and sanitation, family and environment, protection of the elderly consumers, secure income, education and employment, social welfare and finally the collection &subsequent analysis of research data. The rising geriatric population in India and their increasing requirement of healthcare facilities demand more information be generated on their medical problems and health seeking behaviour. This information can be the basis of any meaningful plan of action to improve the quality of life of the elderly. Understanding health seeking behaviouramongelderly especially in rural areas of India would help to initiate strategies at primary level to promote healthy ageing. At present limited information is available about the nature and extent of problems of elderly residing in rural area of this part of the country. Hence, this study is an attempt to explore the morbidity profile and health seeking behaviour of the geriatric population of a rural area of Gurugram,Haryana.

Aim and Objectives: To study the morbidity pattern and assess the health seeking behaviour among the geriatric population in a rural area of Gurugram Haryana.

2. MATERIALS AND METHOD

The cross sectional study was conducted in Rural Field Practice Area of the Department of Community Medicine, Faculty of Medical & Health Sciences, SGT University, Gurugram, Haryana. The data collection was done over a period of one year from 1 June 2017 to 31 May 2018. Elderly aged 60 years or above residing in the study area. All the elderly (both male and female) of the selected villages aged 60 years or above, residing for more than six months who gave consent was included in the study. As perthe review of literature, the prevalence rate of morbidity among the elderly (60 years or above) was considered as 60 % for the current study.[1,2,3] Sample size was calculated with a 95% confidence interval and 10% allowable error using the formula: $n = \frac{1.96*1.96*p*q}{L^2}$

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***Daniel W. Wayne; Biostatistics, Basic Concepts and Methodology for the Health Sciences; Ninth Edition; p-192.Published by Wiley India Pvt. Ltd, Delhi.** Where, n = sample size**,** p = prevalence of morbidity among elderly, q = 1 – p = 1-0.60 = 0.40 = 40%**,** L = allowable error (10% of p) = 6%. Substituting the above values in formula

Sampling Technique:

$$n = \frac{1.96 * 1.96 * 60*40}{36}$$

= 256 (rounded off to 260)

Two stage random sampling technique using PPS (Probability Proportional to Size) was adopted for the present study. **Stage I: Selection of Villages using Simple Random Sampling.** All the six villages under the Rural Field Practice Area of the Department of Community Medicine were initially listed. As per census 2011, the total number of households and the population of the six villages are 2373 households and 13141 populations respectively. For feasibility, it was decided to enrol 3 villages for the study i.e. about 50 % from the total villages. **Stage II: Identification of number of households from each village using PPS.** A complete list of households of these three villages were obtained and serially numbered, out of which 260 houses were selected by population proportional to size (PPS) sampling method which was expected to give minimum sample size of 260 elderly subjects for the present study. Sampling interval

$$\text{Total noof households tobeselected} = \frac{980}{260} = 3.76 = 4 \text{ (approx) Households}$$

All the households were listed and first household was selected by using PPS method in the first village. Then second household was selected by adding the sampling interval i.e 4 to the first household. If the next household was found to be locked, then household adjacent to it was taken. Health workers, local staff and Gram Panchayat members were informed and they had motivated the families to participate in the study along with the scope of future interventions. The interview was carried out in the families by door to door visits in theselected villages. Prior to interview, purpose of the study was explained to the subjects so as to get full cooperation from them and a written informed consent was obtained. All the elderly subjects fulfilling the inclusion criteria were included from each house which was visited. A pre designed and pre tested semi-structured interview schedule containing following information was used: clinical examination section included the general physical, body mass index and systemic examination. Weight was recorded for each person, using standardized weighing machine, Height was measured with stapediometer and body mass index (BMI) was calculated using the formula, weight in kilograms/height in meters squared, WHO classification of BMI wasused.

W.H.O. International Classification For Adult BMI cut off	
Under Weight	< 18.5 kg/m^2
Normal	18.5 kg/m^2 to 24.99 kg/m^2
Overweight	25 kg/m^2 to 29.99 kg/m^2

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Obese	≥30 kg/m^2

Blood pressure was measured by auscultatory method, Diabetes was assessed on the basis of previously diagnosed, or current use of medications or in a patient with a random plasma glucose ≥200 mg/dl was considered as a diabetic, Distant Vision was checked using Snellen's chart and near vision was checked using Jaeger's chart, Hearing loss was assessed by Whisper test. Diagnosis of diseases was done on the basis of clinical presentation and previously diagnosed or treatedcases.

Ethical considerations: The approval of the Institutional Ethical Committee of Faculty of Medicine & health Sciences, SGT University was obtained before conducting the study. At the beginning of the interview written consent was taken from the study participants. Assurance regarding the confidentiality of the information was ensured. Persons requiring institutional health care as suggested by history and/ or clinical examination were referred to SGT Hospital, Gurugram as and when necessary.

3. DATA ANALYSIS & RESULTS:

After data collection, the information was entered in Microsoft Excel 2010 spreadsheet and coding and tabulation was done. Further analysis was carried out using the Statistical Software Epi Info 7 provided by the CDC, Atlanta, United States of America. Various statistical tests like proportions and chi square tests were applied. A significant p valuewasconsidered when it was less than 0.05 and it was considered highly significant when p value was less than or equal 0.01.

A total of 260 elderly subjects were selected for this study and were assessed for the morbidity pattern and health seeking behaviour by using a pre-designed, pre-tested, semi - structured schedule.

Socio-demographic profile of study population:

Table 1: Distribution of study subjects according to their age (N=260)

AGE GROUP (YEARS)	**Male**	**Female**	**Total**
60-69	52 (43.69)	81 (57.44)	133(51.15)
70-79	43 (36.13)	53 (37.58)	96 (36.92)
80 & above	24 (20.16)	7 (4.96)	31 (11.92)
Total	119 (45.76)	141 (54.23)	260 (100)

Table 1 shows the age distribution of study participants. Majority 51.15% of the study subjects were found in the 60-69 years age group, followed by 36.92% in 70-79 years age and remaining 11.92% between 80 years and above age group. About 57.44% of females and 43.69% males belonged to the age group of 60-69years.

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Fig: 1 Distribution of Study Subjects according to their Age

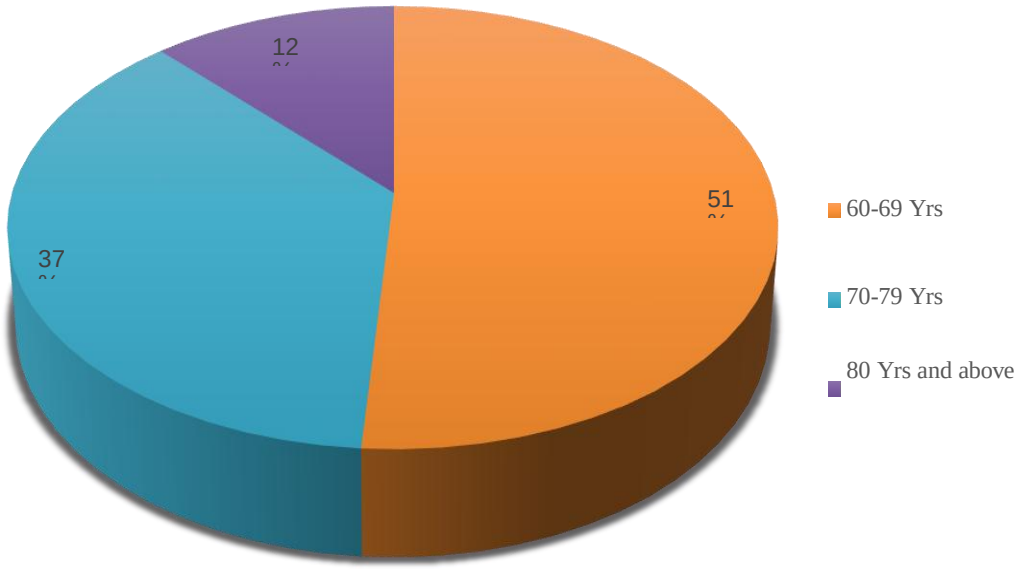

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Table 02: Distribution of study participants according to Body mass index			
Body Mass Index	Male	Female	Total
Underweight (< 18.5 kg/m^2)	07 (5.88%)	14 (9.92%)	21 (8.07%)
Normal (18.5 kg/m^2 to 24.99 kg/m^2)	47 (39.49%)	62 (43.97%)	109 (41.92%)
Overweight (25 kg/m^2 to 29.99 kg/m^2)	59 (49.57%)	60 (42.55%)	119 (45.76%)
Obese (≥30 kg/m^2)	6 (5.04%)	5 (3.54%)	11 (04.23%)
Total	119	141	260

Fig: 2 Distribution of study participants according to Body Mass Index

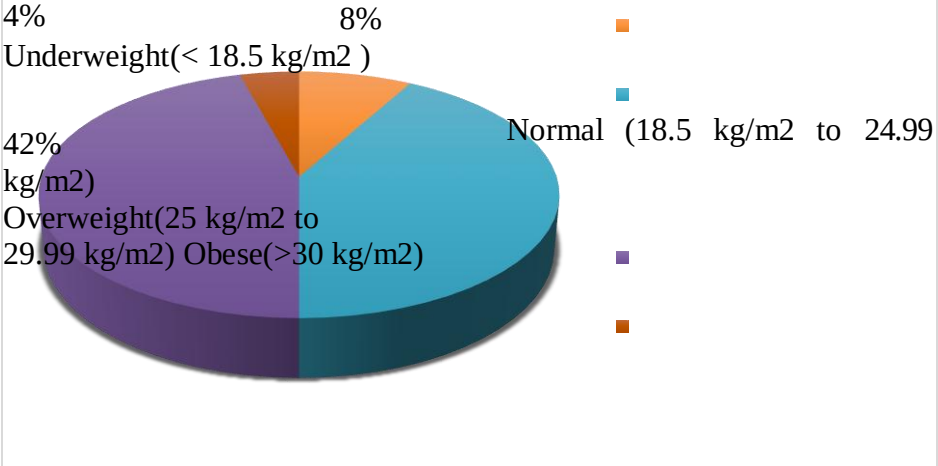

Table 2 and fig 2, shows the distribution of study participants as per body mass index. 45.76.% elderly were overweight and 4.23% subjects were obese. Around 43.97% females were having normal BMI and 9.92% of them were underweight which was more in comparison to males.

Table 03: Distribution of study participants according to morbidity prevalence.			
Morbidity	Male (n=119)	Female (n=141)	Total (N=260)
Present	108 (90.75)	138 (97.87)	246 (94.61)
Absent	11 (7.0)	3 (2.72)	14 (5.38)

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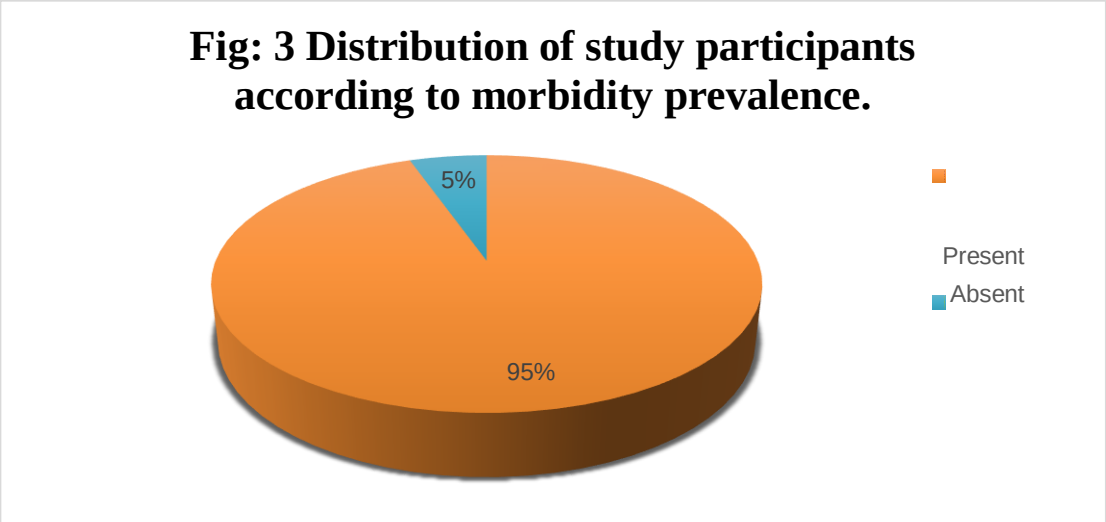

Table 3 and fig 3, shows Distribution of study participants according to prevalence of morbidity. Among the 260 study subjects 246 (94.61%) reported at least one morbidity while 14 (5.38%) elderly did not have any morbidity. The presence of morbidity was assessed by clinical examination and record review.

Table 04: Distribution of morbidities among study participants (Includes previously diagnosed cases and new cases diagnosed during examination)

	Male (N=119)	Female (N=141)	Total (%)
Dental Problems	**83 (69.74)**	**109 (77.30)**	**192 (73.84)**
Eye Problems	**79 (66.38)**	**85 (60.28)**	**164 (63.07)**
Malnutrition	**72 (60.5)**	**79 (56.02)**	**151 (58.07)**
Musculoskeletal problems	**57 (47.89)**	**85 (60.28)**	**142 (54.61)**
Cardiovascular Problems	**65 (54.62)**	**51 (36.17)**	**116 (44.61)**
Gastrointestinal Problems	**39 (32.77)**	**44 (31.28)**	**83 (31.92)**
Respiratory Problems	**33 (27.73)**	**29 (20.56)**	**62 (23.84)**
Endocrine disorder (DM)	**36 (30.25)**	**12 (8.51)**	**48 (18.46)**
Genitourinary Problems	**26 (21.84)**	**21 (14.89)**	**47 (18.06)**
ENT Problem (Hearing Loss)	**19 (15.96)**	**23 (16.31)**	**42 (16.50)**
Anaemia	**10 (8.4)**	**22 (15.6)**	**32 (12.30)**
Skin Problems	**9 (7.56)**	**9 (6.38)**	**18 (6.92)**
Accidents	**5 (4.20)**	**6 (4.25)**	**11 (4.23)**

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CNS Disorders including Psychiatric illnesses	**5 (4.20)**	**1 (0.70)**	**6 (2.31)**

Fig: 4 Distribution of morbidities among study participants (Includes previously diagnosed cases and new cases diagnosed duringexamination)

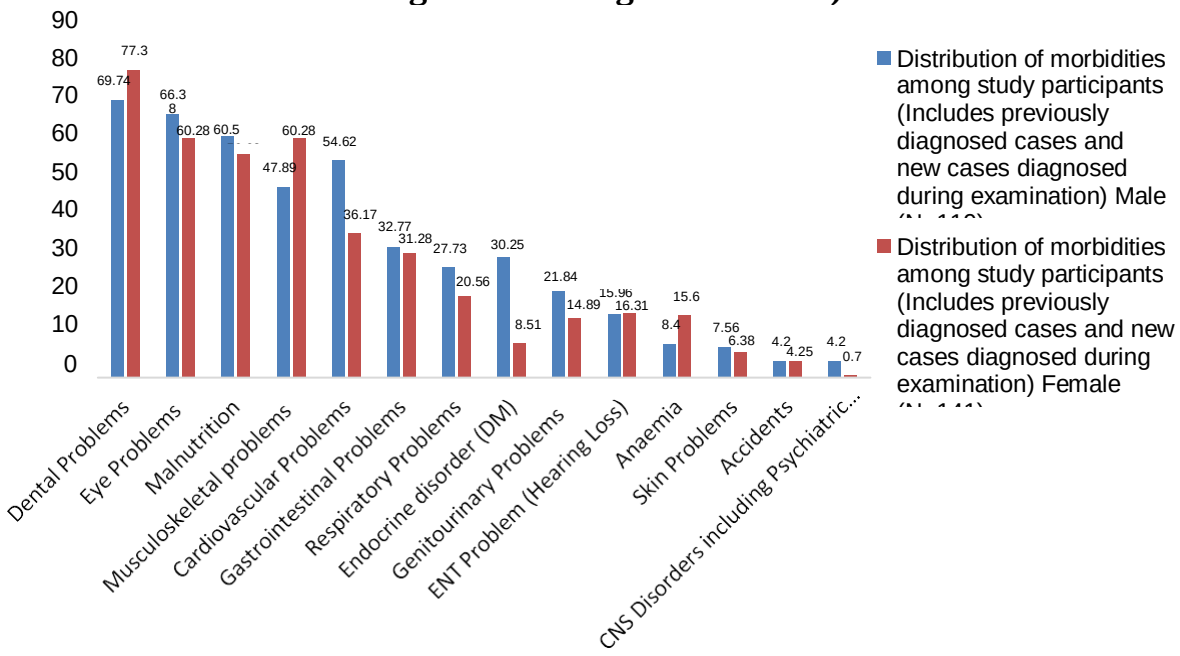

Table 4 and fig 4 shows the distribution of health problems among study participants (Includes previously diagnosed cases and new cases diagnosed during examination). Most common morbidities reported by elderly were the dental problems (73.84%) followed by ocular disorders (63.07%). Malnourished subjects including the underweight, overweight and obese were 58.07%. Around 54.61% subjects had some musculoskeletal disorder. Cardiovascular disorders including hypertension was seen in 44.61% of the participants. Complaints of Gastrointestinal system was reported by 31.92% of the subjects. 23.84% elderly were found to have respiratory problems. Endocrine Disorders including Diabetes Mellitus were prevalent in 18.46% study participants. Genitourinary problems were observed in 18.06% subjects while 16.50% individuals had ear disorders including hearing loss. In present study 12.3% elderly were found anaemic while around 7% had skin problems. Accidental injuries were reported by 4.23% subjects. Nervous system disorders including the psychiatric disorders were observed in 2.31subjects.

Table 05. Distribution of elderly by number of morbidities

Number of morbidity	**Number**	**Percentage (%)**
0	**14**	**5.38**
1	**25**	**9.61**

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2	**29**	**11.15**
3	**77**	**29.61**
>3	**115**	**44.23**
Total	**260**	**100**

Fig: 5 Distribution of elderly by number of morbidities

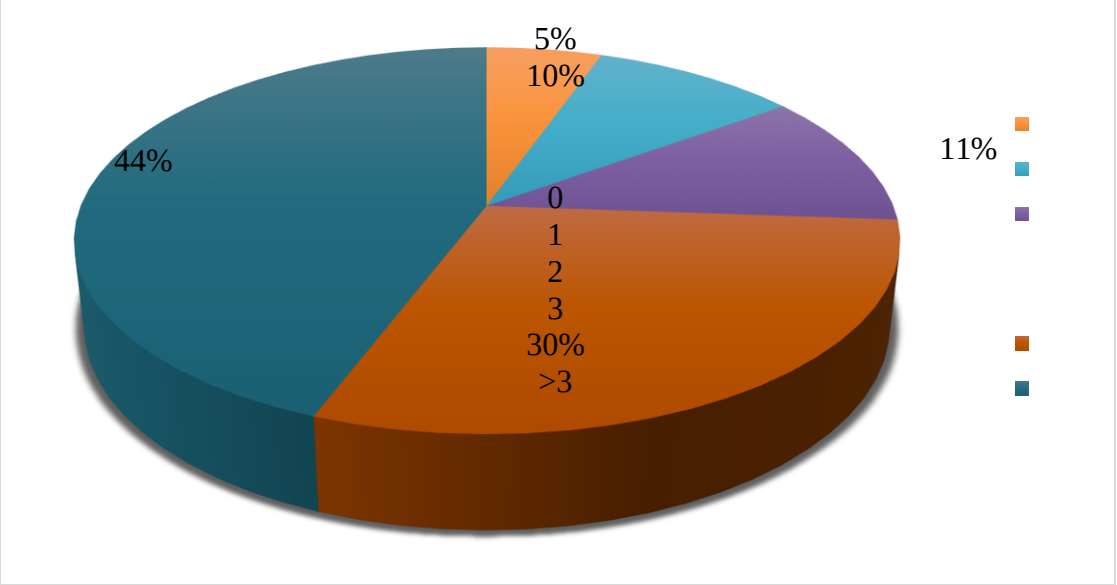

Table 5 and fig 5 shows the distribution of elderly by number of morbidities. About 44.23% study participants had more than three morbidities while 9.61% had only one morbidity. 5.38% subjects had no morbidity.

Table 06. Age wise Distribution of elderly according to frequency of morbidity

Age Group	Zero	One	Two	Three	>Three	Total
60-69 years	14 (10.52%)	25 (18.79%)	29 (21.8%)	60(45.11%)	5 (3.75%)	133
70-79 years	0	0	0	15(15.62%)	81(84.37%)	96
80years orabove	0	0	0	2(6.45%)	29(93.54%)	31
Total	14	25	29	77	115	260

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Table no 6 shows Age wise Distribution of elderly according to frequency of morbidity. Around 10.52% subjects reported no morbidity at all and all of them belonged to age group of 60-69 yrs. 84.37 % subjects in 70-79 years group and 93.54% subjects in 80 years or above group had three or moremorbidities.

Morbidity and Gender:

Table 07: Association between Morbidity and Gender

Gender	Morbidity present	Morbidity absent	Total
Male	108 (90.75%)	11 (7.00%)	119
Female	138 (97.87%)	3 (2.12%)	141
Total	246	14	260
X^2 = 5.09,df =1 , p =0.024			

Table 7 shows the association between gender and morbidity. The prevalence of morbidity was found to be higher (97.87%) among females as compared to 90.75% in males. This difference was found to be statistically significant (p <0.001) showing elderly female are more prone to diseases as compared to malecounterparts.

Morbidity and Age Group:

Table 08: Association between Morbidity and Age Group

Age Group	Morbidity present	Morbidity absent	Total
60-69 yrs	119 (89.47%)	14 (10.52%)	133
70-79 yrs	96 (100%)	0	96
80 yrs and above	31 (100%)	0	31
Total	246	14	260
X^2 =14.13,df =2 , p =0.0009 (corrected)			

Table 8 shows the association between age and morbidity. The prevalence of morbidity was 100% among 70-79 years age group and 80 years and above group, while it was 89.47% in 60-69 years age group. This difference was found to be statistically significant (p <0.001).

Table 09. Association between frequency of morbidity and Age Group

Age Group	One	Two	Three	>Three	Total
60-69 years	25 (21.0%)	29	60(50.42%)	5 (4.20%)	119

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		(24.3%)			
70-79 years	0	0	15(15.62%)	81(84.37%)	96
80 years or above	0	0	2(6.45%)	29(93.54%)	31
Total	25	29	77	115	246
X^2 = 174.86, df =6 , p <0.0001					

Table 9 shows association between frequency of morbidity and Age Group. With increase in age, the number of morbidities were found to be increased. This difference was found to be statistically significant (p< 0.001)

Morbidity and MaritalStatus:

Table 10: Association between Morbidity and Marital Status

Gender	Morbidity present	Morbidity absent	Total
Married	150 (92.59%)	12 (7.40%)	162
Unmarried/ Divorced/ Seperated/ widowed	96 (97.95%)	2 (2.04%)	98
Total	246	14	260
X^2 = 2.48,df =1 , p =0.1153			

Table 10 shows the association between marital status and morbidity. The prevalence of morbidity was found to be higher among unmarried/divorced/separated study participants i.e97.95% as compared to those married i.e92.59%. This difference was not found to be statistically significant(p=0.11).

Morbidity and Education Status:

Table 11: Association between Morbidity and Education Status

Gender	Morbidity present	Morbidity absent	Total
Illiterate	184(98.39%)	3(1.60%)	187
Litearete	62(84.93%)	11(15.06%)	73
Total	246	14	260
X^2 = 16.13,df = 1 , p <0.001			

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Table 11 shows the association between education level and morbidity. The prevalence of morbidity was more in illiterate subjects (98.39%) as compared to literate subjects (84.93%) This difference was found to be statistically significant (p <0.001)

Morbidity and Socioeconomic Status:

Table 12.Association between Socioeconomic status and Morbidity

Socio-Economic Class	Morbidity present	Morbidity Absent	Total
Upper	02(50%)	02(50%)	4
Upper middle	21(95.45%)	1(4.54%)	22
Lower middle	120(93.75%)	8(6.25%)	128
Upper Lower	92(97.87%)	2(2.12%)	94
Lower	11(91.66%)	1(8.33%)	12
Total	246	14	260

X^2 =18.01,df= 4, p =0.0012

Table 12 shows the association between socioeconomic status and morbidity. The prevalence of morbidity was found to be highest among subjects belonging to upper lower socioeconomic status. The prevalence was lowest among those belonging to upper socioeconomic status. The difference in prevalence of morbidity among various socioeconomic status was found to be statistically significant (p<0.001)

Health Seeking Behaviour:

Table 13. Distribution of the subjects according to the system of treatment preference

Type of health facility	Number	Percentage
Government Hospital	138	53.07%
Private hospital	69	26.53%
AYUSH	22	8.46%
Quacks	14	5.38%
Home remedies	13	5.00%
No Treatment	4	1.53%

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Fig: 6 Distribution of the subjects according to the system of treatment preference

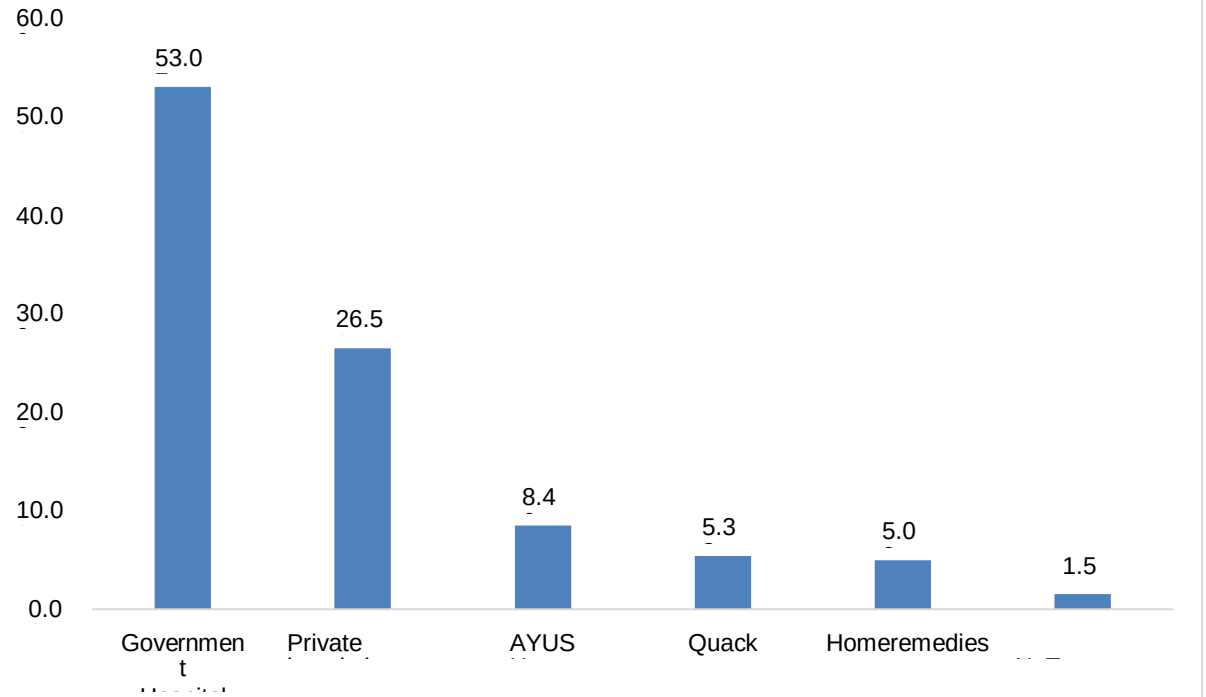

Table 13 and fig 7 shows distribution of the subjects according to the system of treatment preference. Majority 53.07% sought treatment by visiting Government hospital followed by 26.53% opting for private hospital. About 8.46% relied on AYUSH system of medicine. Other 10% preferred either quacks or on home remedies. Around 1.53% subjects did not opt fortreatment.

Table 14: Distribution of elderly according to treatment compliance

Compliance	Male	Female	Total
Yes	79(67.52%)	112(80.57%)	191(74.61%)
No	38(32.47%)	27(19.42%)	65 (25.39%)
Total	117	139	256

X^2 =5.05, p =0.02

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Fig: 7 Distribution of elderly according to treatment compliance

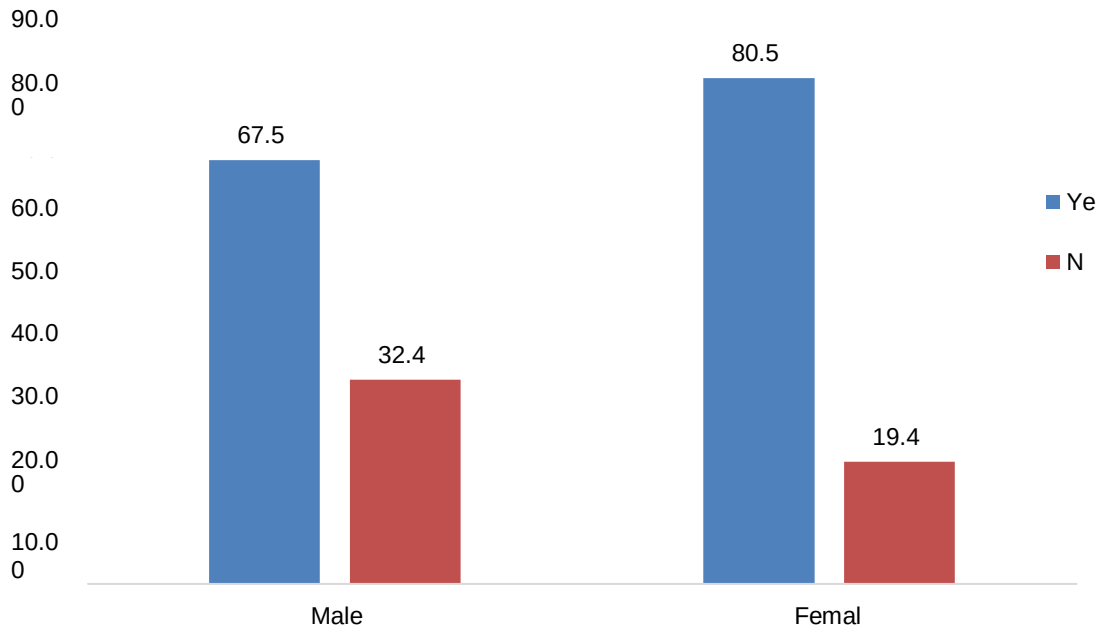

Table 14 and fig 8 shows distribution of elderly according to treatment compliance. Almost two third of the subjects (74.61%) were maintaining treatment compliance. Females were complying better to the treatment (80.57%) as compared to males (67.52%). This difference in treatment compliance between gender was found to be statistically significant(p=0.02).

Table 15: Various reasons cited for non complianceoftreatment

Reasons	Number (N=65)	Percentage
Does not feel to take medicine regularly	24	36.92%
Forget fullness in taking drugs	18	27.27%
Lack of money	21	31.81%
Unavailability of drugs in govt. hospital	12	18.18%
Lack of relief	13	4.54%

* Multiple Response

Table 15 shows various reasons cited for non complianceof treatment. About 36.92% subjects did not feel the need of taking medicine regularly while 31.81% reported financial constraints while only 4.54% were non compliant due to lack ofrelief.

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Table 16: Various reasons cited for not taking treatment for illness		
Reasons	Number	Percentage
Financial Reasons	168	64.61%
Old age Disease	98	37.69%
Considers it to be minor illness	82	31.53%
Place of required treatment is far away	74	28.46%

Fig: 8 Variousreasonscited for not taking treatment for illness

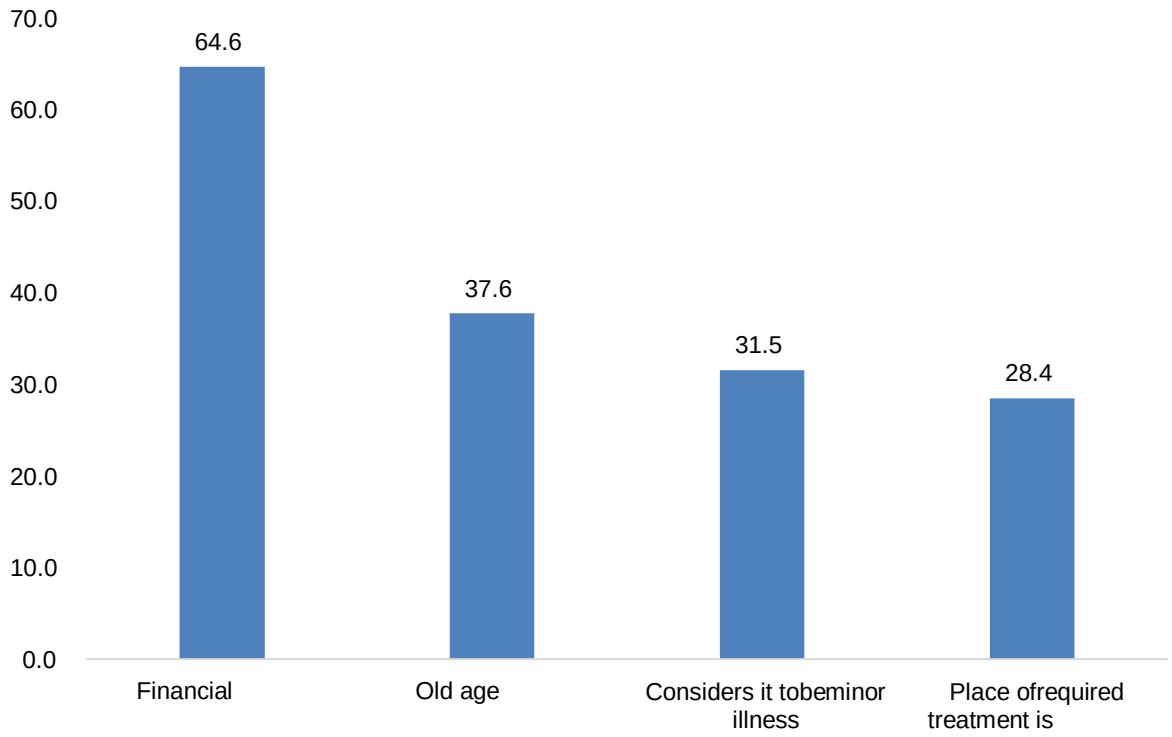

Table 16 and fig 8 shows the various reasons cited by study participants for not taking treatment for illness. The different reasons for not taking treatment as cited by study participants were financial reasons 64.61%, considering illness as normal old age disease 37.69%,consider it to be a minor illness 31.53% and 28.46% felt the place of treatment required far away.

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Table 17 : Various reasons of dissatisfaction with government healthcare facilities		
Reasons	Number (N=162)	Percentage
Have to wait a long	137	84.56%
Doctors donot interact well	52	32.09%
Not getting Medicines	49	30.24%
Health Facility far away	36	22.22%

Fig: 9 Variousreasons of dissatisfaction with government healthcare facilities

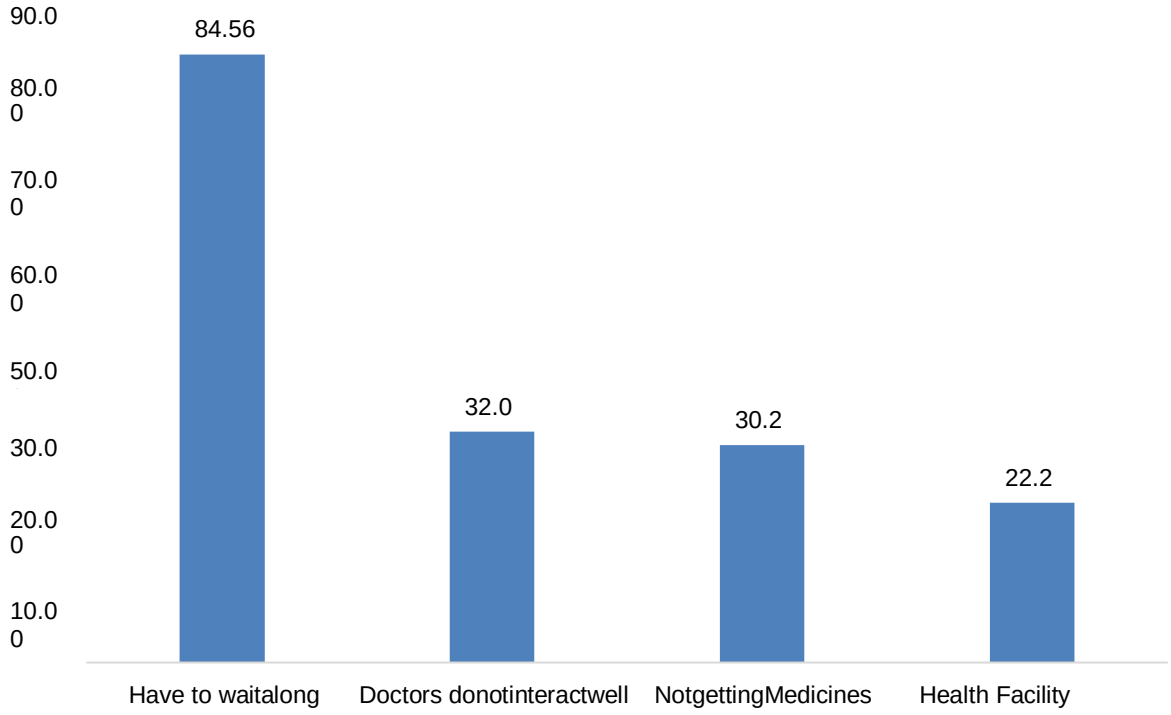

Table 17 and fig 9 shows various reasons for dissatisfaction with government healthcare facilities. Majority of elderly cited long waiting period (84.56%) as the main reason while 32.09% were not satisfied with the doctor's interaction and 22.22% cited far distance of health facility as the concern. Addressing these issues is necessary to improve the health seeking behaviouramongelderly.

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Table 18 : Knowledge regarding special services provided by the Government for Elderly among study subjects

Knowledge	Male (119)	Female (141)	Total (260)
Old Age Pension	94(78.99%)	123(87.23%)	217 (83.46%)
Separate Registration Counter	15(12.60%)	13(9.21%)	28 (10.76%)
Geriatric OPD Services	10(8.40%)	05(3.54%)	15 (5.76%)
Total	119	141	260

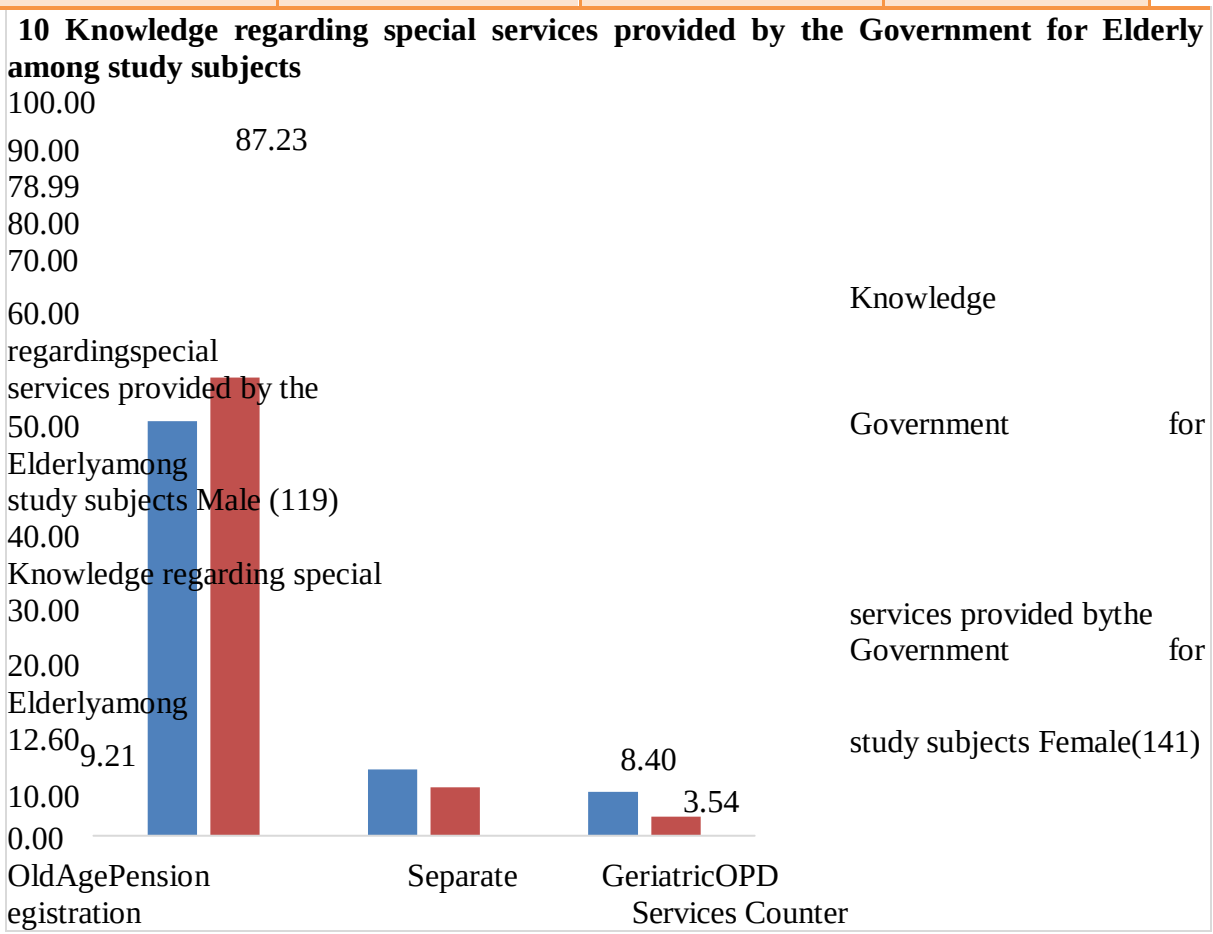

Table 18 and fig 10 shows knowledge about special services provided by the Government for Elderly among study subjects. Majority of elderly were aware of the old age pension (83.46%) as most of them were the beneficiaries of the same. But only 5.76% subjects were aware of the geriatric OPD services in various hospitals. Similarly very few i.e. 10.76% elderly were aware about availability of special registration counter for them at the hospitals.

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4. DISCUSSION ANDCONCLUSION:

A total of 260 elderly subjects were involved in the study, out of which 119 were males and 141 were females. In present study, most of the elderly subjects (51.15%) constituted the age group of 60-69 years, followed by 70-79 years (36.92%) and remaining (11.92%) were in the age group of 80 years and above. About 54.23% study participants were females in comparison to 45.76% males. Similar distribution was reported by Sharma D et al[4]in their community based study done in Shimla, the females had a higher share (51%) than males (49%) in the study population. Lena A et al[5] observed in their study 72.3% elderly were in age group of 60-69 years, 24.8% belonged to 70-79 years and rest 2.8% were in age group of 80 years or above. The age- gender distribution of elderly in the present study was found to besimilar to other studies conducted in rural India. Anthropometric measurementswereconducted for all subjects and BMI was calculated and classified according to WHO criteria. In present study 8.07 % subjects were underweight, 45.76 % elderly were overweight and 4.23% subjects were obese. Similar findings were observed by Bhatt R[6]in a community based study conducted in Ahemdabad, Gujarat where 9.6% subjects were underweight, 21.6% overweight and 3.7% obese. Thomas V[7] also concluded in their study that around 9.3% subjects were underweight, 22.7% were overweight and 3.7% were obese.. The disparity in the proportion of overweight subjects in different studies may be attributed to the different cut off values considered inassessment.

In the present study out of 260 study subjects 246 (94.61%) reported at least one morbidity while 14 (5.38%) elderly did not have any morbidity. These findings are concordant with various studies done previously. Chakraborty et al[8] observed in their study carried out in rural West Bengal that 92.5% study subjects had one or more chronic conditions. Similar conclusions were made by Joshi et al[9]in their assessment in the study done in North India where prevalence of morbidity among elderly was 88.9%. Parry SH et al[10]also reported high prevalence of morbidity (89%) among rural elderly population of Kashmir. In a study concluded in rural Varanasi, R Shankar et al[1] observed that prevalence of one or more health problems among the elderly was88.8%.

In the present study, most common morbidities reported by elderly were the dental problems (73.84%) including missing teeth and chewing problems which was similar to the findings of Khokharet al[11]ina study conducted among elderly in Delhi. In a similar study byPurty et al 42.1% of the elderly reported to have chewingproblems.

In present study, prevalence of eye diseases among elderly was 63.07% which was similar to the study carried out by Prakash et al[12]in Udaipur, Rajasthan in which 70% study participants have various eye diseases. But it was observed by Rakesh K et al[13]in a study carried out in rural area of Perambalur, TamilNadu that prevalence of eye problems was less ie. 39.9% which might be due to availability of better healthcare services in their study area. Malnourished subjects including the underweight, overweight and obese were 58.07%. Around 54.61% subjects had some musculoskeletol disorder. Goswamiet al[14] observed in a study conducted in rural area of Faridabad, Haryana that more than half of the elderly (53%) reported to have musculoskeletal problems. Similar findings were reported by Sharma D et al[4] in their community based study done in Shimla and MunshiY[15]in their study conducted in Kashmir with a prevalence of 55% and 44.7% respectively.

Cardiovascular problems were seen in 44.61% of the participants. Most common disease was hypertension with a prevalence of 41.15%. Similar findings were reported by

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Ashok T etal[16] and Bhatia et al[35]in their studies as prevalence of hypertension was 44.3% and 41.6% respectively. Various studies also concluded less prevalence of hypertension as 11.3% and 25.9% by Shankar et al[1] and Purty et al[17]in their respective study population. This fluctuation might be due to different dietary habits and life style. Complaints of Gastrointestinal system was reported among 31.92% of the subjects which was similar to the observations by Srinivasan et al[18] and Piramanayagam A etal.[19]

In present study 23.84% elderly were found to have respiratory problems. The results were similar to the studies conducted by Mohapatraet al[20] in Odisha (26.4%) and Shankar et al[1] in Varanasi. Goswamiet al[14] also showed a 20% prevalence of respiratory diseases among the study population of rural area of Faridabad, Haryana.

Endocrine Disorders including Diabetes Mellitus were prevalent in 18.46% study participants. Diabetes was present in 17.69% subjects. Mundada V et al[21] found a prevalence of 13.92% diabetics in the study population of Aurangabad, Maharashtra. A very high prevalence of diabetes mellitus was observed by Bharatiet al[22], Mohapatraet al[20] and Srinivasan et al[18] as 43%, 35% and 32.3% respectively in their studies. Genitourinary problems were observed in 18.06% study participants which was similar to the findings of Srinivasan et al[18] while in the studies conducted by Purty et al[17], Agarwal et al[23] a low prevalence of 5.6% and 4.6% was reported respectively.

In the present study, 16.50% individuals had ear disorders including hearing loss. The results were in accordance to the study carried out by Purty et al[17] which showed a prevalence of 14.3% and Bhatt et al[6] which reported a prevalence of 18%. Mundada V et al[21] observed a higher prevalence of 24.5% among the study subjects.

In the present study 12.3% elderly were found to be anaemic. Similar findings were reported by Ashok T et al[16] and Piramanayagam A et al[19] as prevalence of anaemiaamong the study participants was 10.8% and 17.8% respectively. Purtyet al[17] and Agarwal et al[23] reported a very high prevalence of 52.5% and 62.5% in their respective studies. This variationmight be there due to usage of different diagnostic criteria in various studies or due to some nutritional deficiency in studypopulation.

Around 6.92% study participants in the present study reported skin problems. Mohapatraetal[20] and Srinivasan et al[18] reported a higher prevalence of skin diseases as 12.8% and 13.4% respectively while Mundada V et al[21] and Shankar et al[1]found a lower prevalence of 3.52% and 1.7% in their respective studies. In current study nervous system disorders including the psychiatric disorders were observed in 2.31 % study participants. A similar study conducted by Swami et al[24] among the elderly population of Chandigarh found the prevalence to be 4.4% and Shankar et al[1]in Varanasi concluded that nervous disorders were prevalent in 1.3% subjects. The present study shows that 44.23% study participants had more than three morbidities while 29.61% had three morbidities. Only 5.38% subjects had no morbidity at all. Similar findings were observed in various studies. Singh JP et al[25]carried out a study in Central India and reported that most of the elderly (74%) had more than three morbidity, 23.5% suffered from two morbidity and 1.25% subjects were having one morbidity. Khan et al[26] concluded in a study among elderly in Aligarh that 44.9% study participants had three or moremorbidity.

Morbidity and Age: On assessment of age wise distribution of elderly according to frequency of morbidity it was found that around 10.52% subjects reported no morbidity at all and all of them belonged to age group of 60-69 yrswhile 84.37 % subjects in 70-79 yrsgroup and 93.54% subjects in 80 yrs or above group had three or more morbidities. It was concluded that frequency of morbidity was found to be increased with increasing age.

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Similar findings were observed by Karmakar P etal[27] and Shankar etal[1] in their respectivestudies.

Morbidity and Gender: In present study the prevalence of morbidity was found to be higher (97.87%) among females as compared to 90.75% in males. This difference was found to be statistically significant ($p < 0.05$). Similar findings were observed in a study carried out by Joshi etal[9]in North India it was observed that prevalence of morbidity was higher in females however it was statistically insignificant. A study conducted by Suwarnaet al[28]also concluded that females had high morbidity prevalence as compared to males which was statisticallysignificant.

Morbidity and Marital Status: The prevalence of morbidity was found to be higher among unmarried/divorced/separated study participants i.e 97.95% as compared to those married i.e 92.59%. This difference was found to be statistically insignificant. A similar conclusion was made by Srivastava et al[30] in their study in Lucknow. However SuwarnaMet al[29]reportedthat prevalence of morbidity was higher in unmarried as compared to married study participants.

Morbidity and Literacy Status: The prevalence of morbidity was more in illiterate subjects (98.39%) as compared to literate subjects (84.93%) This difference was found to be statistically significant ($p < 0.001$). Joshi et al[76] observed in their study that low literacy rate was associated with higher prevalence of morbidity among subjects while Rakesh et al[13]found that there was no association literacy level and presence of morbidity.

Morbidity and Socioeconomic Status: The prevalence of morbidity was found to be highest among subjects belonging to upper lower socioeconomic status. The prevalence was lowest among those belonging to upper socioeconomic status. The difference in prevalence of morbidity among various socioeconomic status was found to be statistically significant ($p < 0.001$)

Health Seeking Behaviour: Majority 53.07% sought treatment for health problems by visiting Government hospital followed by 26.53% opting for private hospital. About 8.46% relied on AYUSH system of medicine. Other 10% preferred either quacks or on home remedies. Only 1.53% subjects did not opt for treatment. Similar findings were observed in a study conducted by Sharma D et al[4] in rural area of Shimla. In contrast, a study carried out by Goswamiet al[14] in a rural area of Faridabad, Haryana, reported that 60% elderly preffered going to a private practicioner and only 21% subjects sought treatment from government hospitals. In a study conducted by Karmakar P et al[27] in a rural West Bengal, it was revealed that 41.02% of the elderly went to private practitioners while 35.89% went to quacks. Only 13.88% subjects utilized government healthcare services. Similarly in a study carried out in rural area of Ambala, Haryana, it was observed by Syed Q et al[31] that most of the respondents (52.7%) sought treatment from unqualified doctors and only 2.5 % were availing treatment from government hospitals. In the present study the significant higher utilization of government health facilities might be due to the reason that various reputed government hospitals are located in the study area which are easily accessible from the nearby villages. Almost two third of the subjects (74.61%) were maintaining treatment compliance in present study. Females were complying better to the treatment (80.57%) as compared to males (67.52%). Different findings were observed in other studies. In a study conducted by Hedge S et al[32] in AnekalTaluka, Southern India, almost 90% subjects were treatment complianed while Sharma S et al[33] reported that only 39% study subjects were maintaining the treatmentcompliancein their study at Chandigarh. In present study 36.92% subjects did not feel the need of taking medicine regularly which was the main reason for non compliance of treatment regime while 31.81% reported financial constraints while only 4.54% were non

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compliant due to lack of relief. Similar findings were observed by Hedge S et al[32]in their study which revealed 88.9% subjects thought there is no need to take drugs regularly while 44.44% had financial constraints and 11.11% cited non availability of drugs as main reason. Sharma S et al[33] also concluded that most common reason for non compliance was patient's perception of no need of regular medication (26%). 24% cited non availability of medicines and 19% respondents were reasoning financial burden as the main reason of non compliance. In current study the different reasons for not taking treatment as cited by study participants were financial reasons 64.61%, considering illness as normal old age disease 37.69%,consider it to be a minor illness 31.53% and 28.46% felt the place of treatment required far away. HegdeSetal[32] found that main reason for the refusal to take treatment was boredom of taking medicines daily (37.5%) followed by 25% subjects considering the illness as a minor one and 12.5% were alright with their disease as it was not causing any trouble to them. In another study conducted by Anandet al[34]in Bangalore revealed mild nature of illness as the most common reason of not taking treatment (29.8%) followed by lack of money (26.6%) and far location of the healthcentre (16.2%). Regarding knowledge about special services provided by the Government for elderly, in current study it was found that majority of the elderly were aware of the old age pension (83.46%) as most of them were the beneficiaries of the same. But only 5.76% subjects were aware of the geriatric OPD services in various hospitals. Only 10.76% of the subjects were aware of the separate registration counter for the elderly to meet thedoctor.

Thus, from the present study it was concluded that prevalence of morbidity among elderly was found to be similar as compared to other studies. The female gender, higher age group, higher literacy status and socioeconomic status, were found to be significantly associated with morbidity in the study population.

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