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Lifestyle associated morbidity among geriatric populationurban and rural comparison

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ABSTRACT

Background: The proportion of people aged over 60 years is growing faster than any other age group in almost every country which can be attributed to longer life expectancy, declining birth rates, expansion of healthcare services in quality and quantity. An individual's choice of behaviour may be either health promoting or detrimental to health. Health is both a consequence of an individual's lifestyle and a factor determining it but it cannot be isolated from other aspects of life. With the above background, this study was planned to report and compare lifestyle and prevalence of lifestyle associated morbidities among geriatric population of rural and urban areas in district Bareilly (UP).

Methods: The present descriptive cross sectional study was conducted over a period of one year amongst families registered with UHTC and RHTC of SRMS IMS, Bareilly. All persons willing to participate aged 60 years or more were interviewed in the presence of one family member.

Results: A total of 525 elderly, 263 rural and 262 urban, were surveyed. The mean age of elderly residing in the rural and urban areas are 66.21±5.97 and 67.30±5.89 respectively, eldest being 96 years old rural subject. Lifestyle of rural elderlies was healthier compared to urban subjects. 12.5% rural elderly had no apparent disease against only 7.5% urban elderly.

Conclusions: Overall consumption of salt and oil consumed per person per day was found to be higher amongst the elderly residing in the urban area as compared to those in the rural area. Most of the elderly of rural area (77.57%) as well as urban area (59.92%) fall in Zone-1 i.e. with an audit score below 7. Proportion of current tobacco users and ever tobacco users were higher in the rural area (40.68% and 46.76% respectively). The proportion of subjects who were apparently healthy was higher in rural area (46.77%) than urban area (39.69%).

Keywords: Lifestyle, Geriatric, Non-communicable diseases, Lifestyle diseases, Rural-urban comparision, WHO steps instrument

INTRODUCTION

The proportion of people aged over 60 years is growing faster than any other age group in almost every country which can be attributed to longer life expectancy, declining birth rates, expansion of healthcare services in quality and quantity. Population ageing not only tells a success story of public health policies and of socioeconomic development, but also poses challenges on the society to adapt, in order to maximize the health and functional capacity of older people as well as their social participation and security.

The term "Lifestyle" was originally used by Austrian psychologist Alfred Adler (1870-1937). It is used to denote "the way people live", reflecting a whole range of social values, attitudes and activities. It is composed of cultural and behaviour patterns and lifelong personal habits (smoking, alcoholism, etc.) that have developed through processes of socialisation. Lifestyles are learnt through social interactions with parents, peer groups, friends and siblings and through school and mass media.^{2,3}

An individual's choice of behaviour may be either health promoting or detrimental to health. While an individual may change a specific type of behaviour, it is less easy to change his or her reference group, and its influence always remains very important. Health is both a consequence of an individual's lifestyle and a factor determining it but it cannot be isolated from other aspects of life.⁴

In terms of attributable deaths, the leading behavioural and physiological risk factors globally are raised blood pressure (to which 13% of global deaths are attributed), followed by tobacco use (9%), raised blood glucose (6%), physical inactivity (6%) and being overweight or obese (5%).⁵

Objective

With the above background, this study was planned to report and compare lifestyle and prevalence of lifestyle associated morbidities among geriatric population of rural and urban areas in district Bareilly (UP).

METHODS

The present descriptive cross sectional study was conducted over a period of one year i.e. from 1st May 2013 to 30th April 2014 amongst families registered with the Urban Health Training Centre (UHTC), Rampur Garden, Bareilly and the Rural Health Training Centre (RHTC), Dhaura-Tanda, Bareilly, to find out the morbidity associated with lifestyle among geriatric population.

All persons willing to participate aged 60 years or more as on 1st May 2013 of either sex who were permanent resident of the household for atleast past one year, belonging to the families residing in the field practice areas of UHTC and RHTC were included in the study.

The prevalence of diabetes amongst elderly aged 60 years or more was found to be 18.8% in a study conducted by Singh et al. ¹⁰ Based on these figures taking an allowable error of 5%, a sample size of 258 was calculated applying the standard formula and 260 elderlies each, were surveyed from both rural as well as urban areas making a total sample size of 520.

An instrument for the survey was developed after reviewing the available literature comprising of three sections collecting general demographic information about the study subjects which included name, age, gender, religion, marital status, educational status, work status over past 12 months, number of persons living permanently in their household, standard of living index (SLI) for socio-economic status, lifestyle information including dietary habits, physical activity, tobacco and alcohol consumption and information regarding morbidities present in the elderly subjects.

A pilot study was conducted initially on 50 subjects at UHTC, Rampur Garden, Bareilly to see the feasibility of the study and for validation of the study tool. Difficulties in data collection and ambiguities in the questionnaire were resolved and modifications were done in the study instrument as indicated by the pilot study.

The urban and rural areas was selected randomly from the areas served by urban and rural health training centre under Department of Community Medicine, SRMS IMS using lottery method. Complete household-wise lists of inhabitants of the area were generated and all the elderly aged 60 years and above meeting the inclusion criteria and not falling in exclusion criteria were surveyed till the desired sample size was achieved. House to house visits were made and face-to-face interview in the presence of one family member, preferably care-taker of the elderly or close relative was conducted.

Data were entered using Microsoft Excel 2010 and statistical analysis was done using IBM SPSS v 20.0.0. Categorical variables were analysed using proportions and percentages. Association between categorical variables was established by Chi square and odds ratio (OR) with 95% confidence intervals (CI) where applicable. Continuous variables were summarized by mean and standard deviation (SD), and association tested by parametric tests.

RESULTS

A cross sectional study entitled "Lifestyle associated morbidity among geriatric population—urban and rural comparison" is conducted in the rural and urban areas of district Bareilly including a total of 525 elderly. The observations are as follows:

Table 1 shows the distribution of elderly according to the area surveyed. Equal number of elderly were interviewed from rural as well as urban area for the purpose of comparison.

Table 2 shows that majority (84%) of the geriatric subjects are in the age group 60–70 years followed by 71–80 years (13.33%). Proportion of elderly in higher age groups is significantly lower. The eldest geriatric subject is 96 years old female from Miyanpur village. The mean age of elderly residing in the rural and urban areas are 66.21±5.97 and 67.30±5.89 respectively. On applying student's t-test, the p-value obtained is 0.0357 (t=2.1057, df=523, standard error of difference=0.518).

Table 1: Distribution of study subjects according to place of living.

Area	Name of village/ Urban area	Population	Elderly	Families visited	Elderly interviewed
Rural	Miyanpur	992	58	32	46
	Ishapur	2364	163	106	147
	Parsunagla	1226	80	49	70
	Total			186	263
Urban	Faltoonganj	5495	308	191	262
	Total			191	262

Table 2: Distribution of study subjects according to age and gender.

Age	Rural				Urban			
	Female	Male	Total	Percentage (%)	Female	Male	Total	Percentage (%)
60-70	112	116	228	86.7	117	96	213	81.3
71-80	11	16	27	10.3	24	19	43	16.4
81+	6	2	8	3.0	4	2	6	2.3
Total	129	134	263	100.0	145	117	262	100.0

Table 3: Distribution of study subjects according to socio-demographic characters.

		RURAL			URBAN				
		Frequency	Percentage (%)	Frequency	Percentage (%)				
		N = 263		N = 262					
	Currently married	197	74.9	150	57.3				
Marital	Never married	1	0.4	0	0				
status	Separated	5	1.9	0	0				
	Widowed	60	22.8	112	42.7				
Religion	Hindu	142	54	262	100				
Kengion	Muslim	121	46	0	0				
SES	Low	49	18.6	16	6.1				
(SLI)	Medium	186	70.7	106	40.5				
(SLI)	High	28	10.6	140	53.4				
	No formal schooling	92	35	76	29				
	Below Primary	87	33.1	73	27.9				
Education	Primary	53	20.2	63	24				
Education	Middle school	15	5.7	27	10.3				
	High school	10	3.8	17	6.5				
	Intermediate	6	2.3	6	2.3				
	Retired	1	0.4	6	2.3				
	Dependent	35	13.3	62	23.7				
	Housewife	98	37.3	76	29				
Occupation	Labourer	42	16	91	34.7				
	Landless Agri. Laborer	64	24.3	0	0				
	Owner Cultivator	15	5.7	0	0				
	Business	8	3	27	10.3				

Table 3 shows socio-demographic characters of the study population. Proportion of subjects married and living with their spouse in the rural area (74.9%) is higher than Urban area (57.3%). Proportion of those geriatric subjects who had lost their spouse, in the urban area (42.7%) is much higher than the rural area (22.8%). The religion of approximately half of the study subjects was Hindu in rural area while in urban area all the subjects belonged to

Hindu religion only. Socio-economic status (SES) is assessed using standard of living index (SLI). In the Rural area, most of the elderly belonged to medium SES (70.7%) while in the urban area, most of them belonged to high (53.4%) followed by medium SES (40.5%). With slight variation in proportions, the pattern of educational status is more or less same in the rural and urban areas. Maximum number of elderly had not received any formal

schooling (32%) and the proportion decreased as the educational level increased. Occupation of majority of subjects in the rural area was housewives followed by

landless agricultural labourers, other labourers and others whereas in the urban area it was other labourers followed by housewives, dependents and businessmen.

Table 4: Distribution of study subjects based on lifestyle parameters.

Lifestyle parameters		Rural	Rural			Urban			P value		
		N		%		N		%		r value	
	≤6.0	18		6.84		2		0.76			
Calt assessment	6.0-10.0	59		22.43		131		50.00			
Salt consumed daily (gms)	10.0-15.0	62		23.57		86		32.82	,	_	
uany (gms)	>15.0	124		47.15		43		16.41			
	Mean±SD	8.88±3	3.21			11.42	<u>-</u> 4.44			< 0.0001	
	≤10	17		6.5		6		2.3			
	10–20	85		32.3		114		43.5			
Oil consumed	20–30	66		25.1		107		40.8		_	
daily (gms)	30–40	36		13.7		24		9.2			
	>40	59		22.4		11		4.2			
	Mean±SD	20.97±	<u>-</u> 6.75			22.81	<u>+</u> 7.90			0.0043	
Alcohol	≤6	204		77.57		157		59.92	,	0.00023	
consumption	7-15	34		12.92		59		22.52	,		
(AUDIT	16-19	14		5.33		29		11.07	1		
score)	≥20	11		4.18		17		6.49			
	Current users	107		40.68		83		31.68	}		
Tobacco use	Past users	16		6.08		17		6.49			
1 obacco use	Ever users	123		46.76		100		38.17	1	0.0462	
	Never users	140		53.24		162		61.83		0.0462	
		Occupational		Leisur	Leisure-time		Occupational		re-time		
Dhygiaal		N	%	N	%	N	%	N	%		
Physical activity	Sedentary	6	2.3	19	7.22	36	13.7	47	17.94		
activity	Moderate	134	51.0	244	92.78	119	45.4	215	82.06		
	Vigorous	123	46.8	-	-	107	40.8	-	-		
Mean no. of fruits*		2.2±0.	69			2.45±0	0.74			0.0452	
days	vegetables	7±0				7±0				-	
Mean no. of	Fruits	0.6±1.				0.5±1.				0.0439	
servings	Vegetables	2.11±0).41			2.21±0	0.48			0.0102	
in a day	Combined	2.62±1	1.24			2.85±	1.43			0.0495	
Consumed <5 servings of fruit+veg per day		N		%		N		%			
		245	ed in the ca	93.16		230		87.79)	0.0361	

^{*} Those who did not consume fruit were not included in the calculation

Table 5: Distribution of study subjects according to Morbidities present.

Morbidity*	Rural		Urban	
Morbialty.	Frequency	Percentage (%)	Frequency	Percentage (%)
Obesity	77	29.28	84	32.06
Hypertension	97	36.88	113	43.13
Diabetes mellitus	63	23.95	72	27.48
Arthritis	65	24.71	76	29.01
COPD	34	12.93	40	15.27
GERD	44	16.73	58	22.14
IBS	8	3.04	11	4.20
No Apparent Disease	33	12.55	20	7.63

^{*}Multiple responses

Table 4 compares lifestyle parameters amongst rural and urban subjects. It is evident that consumption of salt per person per day is higher amongst those residing in the urban area (11.42±4.44) as compared to those residing in the rural area (8.88±3.21) and the average amount of oil consumed per person per day is also higher in the Urban area (22.81±7.90) than the rural area (20.97±6.75). The significance of difference in means of the two populations statistically significant.

Most of the elderly of Rural area (77.57%) as well as Urban area (59.92%) fall in Zone –1 with an AUDIT score below 7. Proportion of the study subjects decreased as the AUDIT score increased. Proportion of current users of tobacco and those who have ever used tobacco is higher in the rural area (40.68% and 46.76% respectively) as compared to the Urban area (31.68% and 38.17% respectively). Proportion of those elderly who used to smoke but have quit smoking and those who never smoked at all is higher in the urban area (6.49% and 61.83% respectively) as compared to the rural area (6.08% and 53.24% respectively).

The proportion of elderly involved in sedentary occupational physical activity is higher in the urban area (13.7%) than the rural area (2.3%). The proportions of elderly involved in occupation with moderate as well as vigorous physical activity are higher in the rural area (51.0% and 46.8% respectively) as compared to the urban area (45.4% and 40.8% respectively). The proportion of elderly involved in sedentary leisure-time physical activity is higher in the urban area (17.94%) than the rural area (7.22%). The proportions of elderly involved in leisure-time activity with moderate physical activity are higher in the rural area (92.78%) as compared to the urban area (82.06%).

Number of days fruits were consumed were higher in urban area (2.45 ± 0.74) as compared to rural area (2.2 ± 0.69) whereas the number of servings consumed on a given day were higher in rural area (0.6 ± 1.18) as compared to urban area (0.5 ± 1.09) . Those who were consuming adequate amount of fruits and vegetables i.e. more than five combined servings of both, were higher in urban area (12.21%) as compared to rural area (6.84%).

Table 5 demonstrates the prevalence of non-communicable diseases in the elderly population of the areas surveyed. It is evident that prevalence of all the lifestyle associated morbidities was higher among urban subjects and obesity, hypertension and diabetes were the commonest morbidities encountered in both the areas.

DISCUSSION

A community based cross sectional study entitled "Lifestyle associated morbidity among geriatric population—urban and rural comparison" was conducted in the rural and urban areas of district Bareilly including a total of 525 elderly.

In the present study, the total subjects surveyed are 263 from Rural and 262 from urban area. Out of these 129 (49.05%) were females and 134 (50.95%) were males in the rural area whereas 145 (55.34%) were females and 117 (44.66%) were males in the urban area. It is in accordance with the WHO Multi-centric study done to establish epidemiological data on health problems in elderly in which rural area had females and males proportions of 55.6% and 44.4% respectively and urban area had females and males proportions of 51.3% and 48.7% respectively.¹¹

The overall mean age in males and females was 67.11±5.35 and 66.38±6.4 years respectively with combined average of 66.76±5.92 years. The mean age of rural population was 66.21±5.97 years, and that of urban population was 67.30±5.89 years. Among the population studied, the oldest geriatric subject was 96 years old female from Miyanpur village. This too was similar to the WHO Multicentric study in elderly in which also mean age of males was found to be greater than mean age of females. Of the total population surveyed, 84% were in 60-70 years of age group followed by 13.33% in 71-80 years of age group while the remaining 2.67% were above 80 years of age. The trend was similar to that found in the WHO Multicentric study in elderly and study by Khokhar et al. 8.11

Marital status shows that the highest proportion of subjects in the rural area (74.9%) and urban area (57.3%) are married and living with their spouse followed by widowed subjects (22.8% and 42.7% respectively). In the rural area, there was one subject who was unmarried and few subjects (1.9%) who were married but living separated from their spouse. No such subjects were encountered in the urban area. It was contrary to the findings of WHO Multi-centric study in elderly in which percentage of those currently married was higher in urban areas (72.7%) than in rural areas (68.2%). It is also similar to findings of Lena et al, Karnataka who reported 47.4% married and 43.7% widowed elderly subjects. 9.11

Religion of maximum subjects was Hindu (76.95%) followed by Muslims (23.05%). In the rural area, majority of elderly (54%) belonged to the Hindu religion and the urban area comprised of Hindus only. It is similar to study done by Barua et al who also reported maximum elderly subjects as Hindus (80%).⁷

Socio-economic status was ascertained using standard of living index (SLI). In the rural area, most of the elderly had medium SLI (70.7%) followed by low SLI (18.6%) and high SLI (10.6%) while in the urban area, most of them had high SLI (53.4%) followed by medium SLI (40.5%) and low SLI (6.1%). The urban distribution was similar to the findings of the study done by Sanjay et al, Bengaluru who also reported higher proportion of elderly having high SLI followed by medium SLI. The rural distribution was contradictory to the findings of Ajit et al,

Bengaluru who reported highest proportion having High SLI followed by medium and low SLI. 12,13

Educational status revealed that the highest proportion of study subjects had not received any formal schooling (32%) and the percentage decreased as the educational status increased with minimum percentage (2.29%) attaining education upto or above Intermediate. This trend was similar to that reported by Ajit et al, Bengaluru and Lena et al, Karnataka except that latter had lower percentage of elderly who had not received any formal schooling. 9,13

Occupational status of highest proportion of study subjects were housewives or home-makers (33.14%) followed by labourers involved in work other than agriculture (25.33%), followed by dependents (18.48%), landless agricultural labourers (12.19%), businessmen (6.67%), owner cultivators (2.86%) and retired people (1.33%). This trend was similar to that reported by Ajit et al (2014), Bengaluru. 13 In the rural area, the proportion of agricultural laborers is higher (24.3% Rural, 0.0% Urban) whereas in urban area, the proportion of other laborers is higher $(16.0\%_{Rural}, 34.7\%_{Urban})$. The proportion of dependents (13.3% Rural, 23.7% Urban) and businessmen $(3.0\%_{Rural}, 10.3\%_{Urban})$ are higher in the urban area while the proportion of housewives (37.3%_{Rural}, 29.0%_{Urban}) and people involved in agriculture (31.0% Rural, 0.0% Urhan) are higher in the rural area.

Daily consumption of salt was found to be more in rural area as compared to urban area. In the rural area, most of the subjects (47.15%) consumed >15 gms salt per day while in the urban area salt consumption was in the range of 6–10gms per day by half of the subjects (50%). In the rural area, proportion of subjects increased as the amount of salt consumed daily increased while in the urban area proportion of subjects reduced as the amount of salt consumed daily increased. This was in accordance with National Institute of Nutrition which states that Indians consume 5-30 grams salt per day and 40% of the Indian population consume more than 10 gms per day.¹⁶

Daily consumption of oil was found to be higher in urban area (22.81±7.90) as compared to rural area (20.97±6.75). Highest proportion of elderly were found to be consuming oil in the range of 10-20gms/day in rural (43.5%) as well as urban (32.3%) areas followed by 20-30gms/day (40.8% and 25.1% respectively). The findings are comparable to the National Nutrition Monitoring Bureau's Report on diet and nutritional status of elderly which states that elderly males consumed 13±14 gms and females consumed 11±16 gms oils per day. This was also in accordance with National Institute of Nutrition which says amongst elderly, daily intake of oil must not exceed 20 gms per day. ^{16,17}

In our study, World Health Organization's Alcohol Use Disorder Identification Test (AUDIT) was used to assess harmful alcohol use in the study subjects. Majority of the study subjects in rural as well as urban areas (77.57% and 59.92% respectively) had an AUDIT score below 7 indicating normal healthy consumption of alcohol. Proportion of the study subjects decreased as the AUDIT score increased. Medium level of alcohol problem or hazardous drinking was observed in 12.92% rural and 22.52% urban elderly. High level of alcohol problem or harmful drinking was seen in 5.33% rural and 11.07% urban elderly. Alcohol dependence was seen in 4.18% rural and 6.49% urban elderly. The above results are slightly inconsistent with those of Dhupdale et al, Goa, who reported heavy drinkers into hazardous (76.2%) harmful (14.3%) and alcohol dependents (9.5%) against the hazardous (56.19%) harmful (26.62%) and alcohol dependents (16.19%) found in the present study. 19

In the present study, proportion of current users and ever users of tobacco is higher in rural area (40.68% and 46.76% respectively) as compared to urban area (31.68% and 38.17% respectively) while the proportion of those elderly who used to smoke but have quit smoking and those who never smoked at all is higher in urban area (6.49% and 61.83% respectively) as compared to rural area (6.08% and 53.24% respectively). The findings of the current study are inconsistent with those of Kokhar et al, Delhi who reported current users of smoked and smokeless tobacco use as 15.6% and 12.5% respectively, ex-users 5.5% and 4.7% respectively and non-users 78.9% and 82.2% respectively. In the WHO Multicentric study to establish epidemiological data on health problems in elderly 25.8% and 21.0% of elderly subject were tobacco users in the rural and urban areas respectively. The proportion of current smokers in rural population (19.7%) was higher than that of urban area (15.3%). According to Global Adult Tobacco Survey (GATS)-Fact Sheet India, in rural and urban areas, current tobacco users are 38.4% and 25.3% respectively, current users of smoked products are 15.1% and 11.2% respectively, current users of smokeless tobacco are 29.3% and 17.7% respectively and the mean age of initiation of tobacco use was 17.8 years.8,11,20

The proportion of elderly involved in sedentary occupational activity is higher in the urban area (13.7%) than the rural area (2.3%). The proportions of elderly involved in occupations with moderate and vigorous physical activities were higher in the rural area (51.0% and 46.8% respectively) compared to the urban area (45.4% and 40.8% respectively). The proportion of elderly involved in sedentary leisure-time activity is higher in the urban area (17.94%) than the rural area (7.22%) while the proportions of those elderly involved in moderate leisure-time activity are higher in the rural area (92.78%) as compared to the urban area (82.06%). Observations of this study are similar to NCD risk-factor survey conducted in Bangladesh which showed that overall 27% of the survey population fell into low physical activity category, 20.2% fell in to moderate physical activity category and 52.8% fell in to high physical activity category but are contrary to the findings

of Deepa M et al. (2011) who reported more than 50% and 35% of the urban and rural residents respectively had a sedentary lifestyle while 7.4% and 25.4% of the urban and rural residents respectively were involved in vigorous physical activity. ^{14,18}

In the present study, it was found that proportion of elderly not eating fruits at all is higher in the rural area (77.6%) as compared to the urban area (69.8%).

Deepa et al reported that proportion of subjects who never consumed fruits in the last week were 24% in urban and 41% in rural area. 14 In a week, mean number of days people consuming fruits was 2.2 in rural and 2.45 in urban areas while vegetables were consumed on all the seven days in a week. Mean number of servings of fruits consumed per day were 0.6±1.18 and 0.5±1.09, of vegetables were 2.11±0.41 and 2.21±0.48 and of both combined were 2.62±1.24 and 2.85±1.43 in rural and urban areas respectively. Proportion of elderly consuming less than five combined servings of fruits and vegetables per day was 93.16% in rural and 87.79% in urban areas. The above findings are similar to non-communicable disease risk factor survey, Integrated Disease Surveillance Project (IDSP) carried out by National Institute of Medical Statistics, New Delhi, where in a week, mean number of days people consumed vegetables for about 4-7 days and fruits for about 2-3 days. Urban respondents were better in this regard than their rural counterparts. The mean number of servings consumed per day of fruits were 0.6 and 0.7, of vegetables were 1.5 and 1.7 and of both combined were 2.2 and 2.5 in rural and urban areas respectively. Proportion of people consuming less than five combined servings of fruits and vegetables per day was 89.1% in rural and 87.7% in urban areas. 15

Amongst the lifestyle morbidities studied, prevalence of obesity in rural and urban areas respectively were found to be 29.28% and 32.06%. Prevalence of obesity in the current study was midway between those reported by Mahfouz et al, Egypt and Khanam et al, Bangladesh who reported prevalence of obesity to be 62% and 11% respectively.^{21,22} Prevalence of hypertension in rural and urban areas respectively was found to be 36.88% and 43.13% which was in accordance with the study of Prakash et al Udaipur, who reported it to be 48%.²³ The prevalence of diabetes mellitus in rural and urban areas respectively were found to be 23.95% and 27.48% which was slightly more than study of Singh et al Delhi, who had reported diabetes among elderly to be 18.8%.¹⁰ Prevalence of arthritis in rural and urban areas respectively was found to be 24.71% and 29.01% which was similar to that of Srivastava et al, Agra, who reported it to be 22.2%.6 The prevalence of chronic obstructive pulmonary disease in rural and urban areas respectively were found to be 12.93% and 15.27% which was higher than as seen in the study by van Durme et al, Rotterdam, who reported 8.11%. 24 Prevalence of gastroesophageal reflux disease in rural and urban areas respectively were found to be 16.73% and 22.14% which was in accordance

with that seen in the study by Kumar et al Bihar, who reported 16.4% elderly above 60 years had GERD.²⁵ The prevalence of inflammatory bowel disease in rural and urban areas respectively were found to be 3.04% and 4.2%.

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