Morbidity Pattern and Its Determinants in Urban Field Practice Area of VIMS, Bellary - A Cross-Sectional Study

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ABSTRACT

BACKGROUND

India is doubly burdened with communicable and non-communicable diseases (NCD). Knowledge regarding morbidity profile is important for timely intervention so as to improve the quality of life. For effective health strategies, it is important to know the disease burden of a community. As for the effective preventive strategies, it's important to know the information regarding disease burden and changing trends of diseases in the locality. Hence this study was done to find the morbidity pattern of urban population in Bellary district, Karnataka.

METHODS

A cross sectional study was carried out in Millerpet, urban health training centre (UHTC), Bellary, Karnataka. The respective UHTC covers 69195 populations, which has eight wards. Simple random sampling technique was adopted to select the ward. The study was carried out in the selected ward and the study duration was for a period of 3 months. Based on the estimated sample size, 416 houses were selected using random number method. Statistical package for social sciences (SPSS) software version 26 was used for analysing data. Descriptive statistics were used to describe socio demographic and morbidity conditions.

RESULTS

The most common morbidity among 416 houses were found to be diabetes (22.8 %) followed by hypertension (20 %) and musculoskeletal problems (9 %). Majority of the houses were of nuclear type and the most common age group was 31 - 60 (91.8 %) years followed by 13 - 30 years (80.8 %). 167 (40.1 %) houses had at least one morbidity and 451 (41.4) subjects had at least one morbidity. Socio-demographic variables like age group, family size, monthly income, occupation of head of the family and type of the family were found to be statistically significant.

CONCLUSIONS

The study revealed that non communicable are the most common diseases present and there is a need to further evaluate the factors responsible so that preventive measures can be taken at the earliest so as to improve the quality of life.

KEYWORDS

Morbidity Pattern, Urban, Bellary

BACKGROUND

Morbidity is defined as any deviation from the state of normal physical and mental well-being. India is one of the many developing countries, which have high levels of morbidity.[1] Morbidity rates are one of the important indicators of the health status of a population along with mortality and life expectancy at birth. There has been a general decrease in mortality leading to significant gains in life expectancy.[2,3] India is doubly burdened with communicable and non-communicable diseases. Of the total disease burden in India, communicable and nutritional diseases accounted to 33 % in 2016. There is a corresponding increase in the contribution of non-communicable diseases which was around 55 % in 2016. The proportion of total disease burden in Karnataka is 34.1 %. The proportion of total disease burden from communicable, and nutritional diseases is 25.1 % and from NCDs is 62 %.[4]

Life expectancy at birth for males and females will increase by 10 years and 11 years respectively from 2006 - 2051 as per "Morbidity and health care" schedule of NSSO 60th round survey and the proportion of elderly are expected to increase at a rapid pace than younger population because of slow decline rate. Moreover, the shifting trend of diseases from communicable to non-communicable side posing a dual threat in India will also add to the burden of morbidity.[5]

Population ageing is escorted by the "epidemiological transition" – a shift in the patterns of morbidity and the causes of mortality. India, in the associated epidemiological transition, is facing a dual burden of communicable and non-communicable diseases where nutrition and other life style factors play important roles. With the share of older cohorts increasing relative to that of younger cohorts, infectious and nutritional disorders are replaced by chronic, degenerative and mental illnesses as the leading causes of morbidity and mortality. Many disabling and chronic illnesses such as heart ailments, diabetes, stroke, hearing and visual impairments, dementia as well as the effects of trauma among older people are incurable and require long term care.[5]

The overall burden of communicable diseases has declined. This burden is still very significant. More importantly, the share of communicable diseases has not been entirely replaced by chronic NCDs. In addition, it has demonstrated the heavier burden of communicable diseases, which is as high as 30 % of the total. Therefore, India's current stage of epidemiological transition can be characterized by low mortality, high morbidity, and by the double burden of communicable and non-communicable diseases.[6]

Urbanization is emerging as the most challenging and serious concern faced by our country today. Between 1995-1996 and 2004, the crude morbidity rate increased by more than 60 % and 90 % respectively, among rural and urban population. In both rural and urban areas, the rise in morbidity level has been common across demographic and social spectrum among females, males, social groups, monthly per capita expenditure (MPCE) classes, and so on.[6]

In the developing world, there is a faster rate of epidemiological transition, which is affecting poor, vulnerable and disadvantaged population. Nearly 80 % of the current burden of NCDs like cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases occurred in low- and middle-income countries, accounting for 90 % of premature (< 60 % years) deaths.[7,8]

Improving health around the world today is an important social objective, which has obvious direct payoffs in terms of longer and better lives for millions. There is also a growing consensus that improving health can have equally large indirect payoffs through accelerating economic growth.[5] There is a huge out of pocket expenditure which causes extra burden to low socioeconomic families, resulting in not approaching to the health care facility on time. Inaccessibility, no proper information regarding healthcare services, unaffordability might be some of the reasons for delayed health care resulting in morbidity.

Describing health in terms of mortality is misleading as mortality indicators do not reveal regarding the burden of illness in a community. The living conditions and the quality of life cannot be improved with lack of basic facilities. Moreover, this has to start from the household level to prevent infection and morbidity. There is lack of knowledge and poor attitude among the people as to acknowledge that house plays an important role in addition to the public health institutions for controlling the diseases in the community. Hence there is a need to understand the various problems like medical and social aspects to find out the solutions that are being faced by the people in the urban area.

There is a need to form policies and programmes and also to have effective management of these formulated activities. This may further provide information regarding morbidity in a greater detail. Hence this study was intended to find out the relationship of various determinants affecting the morbidity pattern of urban population in Bellary district, Karnataka.

METHODS

A cross sectional study was carried out in Millerpet, Urban field practice area of VIMS, Bellary, Karnataka. The respective UHTC covers 69195 populations, which has eight wards. The study was carried out in the selected ward and the study duration was for a period of 3 months from January 2021 to March 2021. IEC No. No. VIMS / STD / PG / IEC / 23 / 2021. Data was collected by house-to-house survey in the study area. The head of the family was interviewed, and necessary data was gathered. Locked houses were revisited once, and if it remained locked such houses were not taken into consideration. The pre-designed and pre-tested questionnaire consisted of that mentioned in the study tool. For the data collection, a written consent was obtained from the interviewee in the local language (Kannada) after explaining the purpose and objectives of the study. Ethical approval was obtained by institutional ethics committee before the start of the study.

Inclusion Criteria
All the houses in the selected ward.

Exclusion Criteria
Houses not willing to participate.
Houses locked at the time of the study.

Study Subject
House is considered as a study unit. All the people residing in the house irrespective of gender and age in the field practice area for a minimum of 6 months were considered as study subjects.

Study Tool
A pre-designed, pre-tested and semi structured questionnaire was used to collect data. This includes socio-demographic profile like age group, family size, monthly income, type of family, education and occupation of the head of family.

Morbidity was assessed by taking history, reviewing past medical records and medicines taken by the study participant.

Sample Size
The sample size was calculated using the formula: $4pq/I2$
Where P is the prevalence of morbidity = 19.4 1 and q is (100 - p) and l is the allowable error (20 % of P = 3.88)

$(N) = 4\,pq/I^2$
= 4X 19.4 X 80.6 / 15.05
= 6254.56 / 15.05
= 416.
The total sample size was taken to be 416.

Sampling Technique
Simple random sampling technique.
1. Millerpet, UPHC has a total population of 69195. It is further subdivided into smaller administrative units called ward. There are 8 wards.
2. Simple random sampling technique adopted to select the ward.
3. Based on the sample size, random number method used to select the houses.

Statistical Analysis
Data collected were entered into Microsoft Excel spreadsheet and analysed using SPSS software. The data was presented in proportion. Chi square test was used to find the association between socio-demographic variables and morbidity. P < 0.05 was considered significant.

RESULTS

A total of 416 houses and 1087 people were included in the survey. Majority (91.8 %) belonged to the age group 31 - 60 years followed by 13 - 30 years (80.8 %) (Graph 1).

Graph 1. Distribution of Age Groups
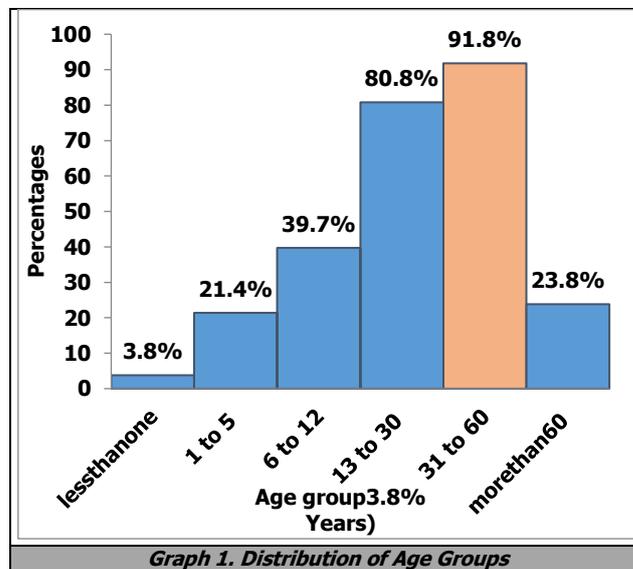
| | Morbidities | | |
	Present	Absent	Total
Houses	167 (40.1)	249 (59.9)	416
Subjects	451 (41.4)	636 (58.5)	1087

Table 1. Distribution Based on Morbidities

Table 1 describes the distribution based on morbidities, out of the 416 houses, 167 (40.1 %) houses had at least one morbidity and 451 (41.4) subjects had reported to have at least one morbidity at the time of the survey (Table 1).

Diseases	% of Houses	% of Subjects
DM (Diabetes mellitus)	95 (22.8)	105 (5.6)
HTN (Hypertension)	83 (20)	94 (5)
MSP (Musculoskeletal problems)	33 (9)	42 (2.2)
Fever > 7 days	12 (2.8)	13 (0.6)
Eye problems	11 (2.6)	11 (0.5)
Dengue	7 (1.7)	11 (0.5)
CVD	5 (1.2)	5 (0.3)
COPD	3 (0.7)	3 (0.2)

Table 2. Distribution Based on Morbidity Pattern

Table 2 describes the distribution based on morbidity pattern. It was observed that out of 416 houses surveyed, 95 (22.8 %) houses and 105 (5.6 %) subjects had diabetes and 83 (20 %) houses and 94 (5 %) subjects had hypertension followed by musculoskeletal problems contributing to 33 (9 %) houses and 42 (2.2 %) subjects. (Table 2)

Variables		Morbidity Present	Total	P Value
Age group (years)				
< 1 year		7 (1.5)	16 (2.5)	
1 – 5 years		32 (7.09)	89 (13.9)	
6 -12 years		57 (12.6)	165 (25.9)	< 0.001
13 – 30 years		132 (29.2)	336 (52.8)	
31 – 60 years		158 (35)	382 (60.1)	
> 60 years		65 (14.4)	99 (15.5)	
Total		**451**	**1087**	
Family size	1 - 4	75 (44.9)	239 (57.4)	
	5 - 8	86 (51.4)	163 (39.1)	< 0.001
	➢ 8	6 (3.5)	14 (3.3)	
	Total	**167**	**416**	

Table 3. Association between Sociodemographic Variables and Morbidity

*indicates significant statistical association

Table 3 shows the socio-demographic variables like age group, family size and their association with morbidity. It was observed that the most common age group to have at least one morbidity were between 31 - 60 years and > 60

years and it was found to be statistically significant (P < 0.05). And the most common family size composed of 5 - 8 members and was found to be statistically significant.

Variables	Morbidity Present	Total	P Value
Education HOF			
Illiterate	42 (25.1)	91 (21.8)	
Primary school	17 (10.1)	49 (11.7)	
Middle school	28 (16.7)	53 (12.7)	
High school	43 (25.7)	125 (30)	0.09
Diploma	2 6(15.5)	68 (16.3)	
Graduate	5 (2.9)	20 (4.8)	
Professional	6 (3.5)	10 (2.4)	
Total	**167**	**416**	
Monthly income	< 10000	47 (28.1)	135 (32.4)	
	10001 - 20000	83 (49.7)	194 (46.6)	
	20001 - 30000	15 (3.6)	51 (12.2)	< 0.01*
	> 30001	22 (13.1)	36 (8.6)	
	Total	**167**	**416**	
Table 4. Association between Sociodemographic Variables and Morbidity			

*indicates significant statistical association

Variables	Morbidity Present	Total	P Value
Occupation (HOF)			
Professional	4 (2.3)	20 (4.8)	
Skilled	27 (16.1)	66 (15.8)	
Semiskilled	55 (32.9)	159 (38.2)	< 0.001*
Unskilled	36 (21.5)	96 (23.1)	
Unemployed	45 (26.9)	75 (18)	
Total	**167**	**416**	
Type of family	Nuclear	105 (62.8)	309 (74.2)	
	Joint	43 (25.7)	74 (17.7)	< 0.01*
	3 generation	19 (11.3)	33 (8)	
	Total	**167**	**416**	
Table 5. Association between Sociodemographic Variables and Morbidity			

* indicates significant statistical association

Table 4 shows the socio-demographic variables like education of the head of the family and monthly income and their association with morbidity. Out of 167 houses that were surveyed to have at least one morbidity, the education level of the head of the family were found to be high school making up to 43 (25.7 %) followed by illiterate which was about 42 (25.1 %). Education of the head of the family was not found to be statistically significant meaning there is no association between the education level and the morbidity.

Majority of the houses had monthly income between 10001 - 20000 83 (49.7 %) and followed by < 10000 47 (28.1 %) and monthly income was statistically significant. People residing in the houses having low monthly income were reported to have at least one morbidity. Table 5 shows the socio-demographic variables like occupation of the head of the family and type of family and their association with morbidity.

In majority of the houses, the most common occupation of the head of the family was semiskilled type 55 (32.9 %) and followed by unemployment 45 (26.9 %). This was found to be statistically significant. Morbidity was found to be low in the subjects whose occupation was professional or skilled type. When it comes to the type of family, nuclear type was the commonest one which was about 105 (62.8 %) followed by joint family 43 (25.7 %). This was also found to be statistically significant.

Socio-demographic variables like age group, family size, monthly income, occupation of HOF and type of the family were found to be statistically significant. Out of 167 houses having at least one morbidity, 83 (49.7 %) of the houses had monthly income between 10001 - 20000 and 47 (28.1

%) had monthly income of 10000, in most of the houses the occupation of the head of the family was semiskilled followed by unemployment and 105 (62.8) were of nuclear type of family followed by joint family and these were statistically significant. (Table 3, 4 & 5).

DISCUSSION

The present study was conducted with the objective of finding out the morbidity pattern and its determinants in urban field practice area of VIMS, Bellary. The study showed that the study subject had morbidity of 41.4 % at the time of the survey. The most common age group present in the study was between 31 - 60 years contributing to 158 (35 %) followed by 13 - 30 years 132 (29.2 %). Study conducted by Niranjan G V et al.[1] in south India found that 50.6 % belonged to the age group between 15 - 45 years followed by 45 - 60 years contributing to 16 % and 13 % were above 60 years. This might be due to the higher proportion of population present in this group.

Present study showed that non communicable diseases were the most common type of morbidity, most common being diabetes (5.6 %) followed by hypertension (5 %). Study conducted by Krishnaswamy in Kerala found that diabetes and hypertension were the most common morbidity present in urban areas of Kerala,[9] which was similar to the present study. In a study conducted by Niranjan G V et al.[1] in south India found that hypertension (8.5 %) was the most common morbidity followed by diabetes (8.1 %). This could due to the high prevalence of hypertension and diabetes in urban areas.

In a study done by Gopalkrishnan et al.[2] in rural Tamilnadu, showed that about 9.7 % of the patient's reported with NCDs which included osteoarthritis, cataract, hypertension, other cardiovascular diseases, diabetes and chronic respiratory diseases such as asthma and chronic obstructive pulmonary diseases. Whereas in our study most common morbidity was found to be diabetes, hypertension followed by musculoskeletal problems.

In the present study, 41.4 % subjects had at least one morbidity at the time of the survey. In a study conducted by Niranjan G V et al.[1] in south India found that 19.4 % subjects had at least one morbidity at the time of the survey. A study done at Tripura.[10] found that the most common type of morbidity to be acute respiratory infections (31.01 %), followed by musculoskeletal disorders (17.78 %) with NCDs such as diabetes mellitus and hypertension contributing to 13.70 % of all morbidities. In our study though musculoskeletal problems were among the common problems, the most common were diabetes mellitus and hypertension which if put together was around 10.6 %.

In the present study 62.8 % houses were nuclear type of family. In a similar study done at Tripura found that 68.3 % belonged to nuclear type of family which is similar to the present study. A study done by Niranjan G V et al.[1] in south India found that the most common education level was high school which was around 29.85 % and followed by illiterate (14.55 %) and was found to be statistically significant and in our study the high school was the most common

education level making up to 25.7 % followed by illiterate (25.1 %) but was not found to be statistically significant. And similarly, regarding the type of occupation it was found that unemployment (54.60 %) was the most common and this was followed by unskilled (19.40 %).

Whereas in our study, semiskilled (32.9 %) was the most common type followed by unemployment (26.9 %) and was found to be statistically significant.

CONCLUSIONS

The present study showed that prevalence of non-communicable diseases such as diabetes, hypertension and musculoskeletal problems was high and was more common in the age group of 31 - 60 years and above 60 years and in low monthly income families and this could be due to lack of awareness, poor occupational conditions, and sedentary lifestyle. In our study 41.4 % subjects had at least one morbidity at the time of the survey. This gives us a better understanding of the changing trends in morbidity patterns that are prevalent in the urban area, highlighting that there is a need for specific health services for the health problems. There is a need for developing focused healthcare interventions and awareness in the people to address these problems and improve the quality of life.

Limitations of the Study
The limitations of the study were that the morbidity profile was elicited based on the questionnaire and field investigations and the subject's medical records without any clinical examination or further confirming by lab investigations. So, this could lead to underestimation or chances of missed cases.

Strengths of the Study
The strength of the study is that it was a community-based study and was carried out in the urban area of Bellary city, which will help to specify the needs and necessity of health services that can be availed which will further improve the standards of living, also improve the preventive as well as curative aspects of the health and utilization of the health services and schemes to the maximum by the community.

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