Morbidity profile of a rural and an urban population in South India

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ABSTRACT

Background: Morbidity rate is one of the indicators of health status of the population along with life expectancy and mortality rates. As very few information is available on morbidity pattern among the population, this study was planned. **Objective:** The objective of the study was to study the morbidity pattern in a rural and urban population of our field practice area. **Materials and Methods:** It is a cross-sectional study done from February 2017 to October 2017. The study was done by doing house to house survey in 3 villages and 2 localities in urban area of our field practice area using a semi-structured questionnaire. **Results:** Of the total population 1833, 804 were urban and 1029 were from rural. 922 were male and 911 were female population. Overall, there were about 8.5% of people reported with hypertension, 8.1% with diabetes, 1.9% with heart problems, 0.9% with musculoskeletal problems with slightly higher proportion of people having hypertension and diabetes among urban population, as well as male population which was found to be statistically significant. Musculoskeletal problems were slightly high among females compared to male population. Although the study was not done in large population, it was found that at any point in time at least 19.4% of the surveyed population had any morbidity with higher proportions of people having noncommunicable diseases (NCDs) such as hypertension, diabetes, heart problems, eye problems, and others. **Conclusion:** It is more important to focus on providing services for these diseases than acute illness. It is also necessary to take up preventive program and interventions for these NCDs on a regular basis in this area.

KEY WORDS: Morbidity Profile; Urban; Rural; Pattern; Hypertension; Area

INTRODUCTION

Morbidity can be 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] In absolute terms, the infectious diseases are still highly prevalent in all sections of the society while the proportion of noncommunicable diseases (NCDs) in the morbidity profile has been increasing. As per the WHO estimates, NCD accounted for 53 % of all deaths in the age group of 30–59 years, and it is projected to be higher in the years to come.[2] According to NFHS-4, the prevalence of diabetes, as reported by respondents, is 2 % among both men and women age 15–49 years. About 2 % had asthma, goiter or any other thyroid disorder was 2%, 1% had heart disease, and <1% reported cancer. All these prevalence had rural-urban variation as well as male-female differences. It is seen that the estimated prevalence of diabetes is 7% with higher proportions among urban (9.8%) over rural (5.7%).[3,4] Overall, the prevalence of hypertension in India is 29.8%.[5]

Infections and parasitic diseases (67,619), respiratory infections (25,556), diarrheal diseases (22,005), and childhood diseases (14,463) are major contributors to the burden of CDs. Among the NCDs, cardiovascular diseases (26,932) and neuropsychiatric

disorders (22,944) account for the large disease burden. Falls (10,898) and road traffic accidents (7204) contribute to the largest disability burden among injuries.[2] About 42 million people in India suffer from thyroid diseases.[6]

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.[7,8] While there are various studies and data on mortality and expectancy of life, there are not many studies on estimates of morbidity rates in the population. A condition of low morbidity should indicate that the health status is better. However, this need not be true as low morbidity can occur from an actual reduction in the incidence of illness or due to underreporting also.[7]

As very little information is available about the disease profile of different population groups in India,[7] and periodic change in morbidity pattern in the population, present study was planned with the objective to study the morbidity pattern of the rural and urban population in our field practice area, so that our services and health education activities can be planned according to the needs of the population.

MATERIALS AND METHODS

A community-based cross-sectional study was conducted among people living in a defined rural area and an urban area which is the field practice area of a medical college in Bengaluru. The study was conducted from February 2017 to October 2017. The study population included all the members

Table 1: Distribution of study population based on Sociodemographic characteristics

Characteristics	Place of residence		Total (*n*=1833)	Chi-square	*P*
	Urban (*n*=804)	Rural (*n*=1029)			
Age (Year)				10.617	0.060
<5	46 (5.72)	63 (6.12)	109 (5.95)		
5–9	62 (7.71)	79 (7.68)	141 (7.69)		
10–14	48 (5.97)	72 (7.00)	120 (6.55)		
15–44	419 (52.11)	508 (49.37)	927 (50.57)		
45–59	143 (17.79)	152 (14.77)	295 (16.09)		
≥60	86 (10.70)	155 (15.06)	241 (13.15)		
Sex					
Male	408 (50.75)	514 (49.95)	922 (50.30)	0.114	0.736
Female	396 (49.25)	515 (50.05)	911 (49.70)		
Education *					
Illiterate	117 (14.55)	217 (21.09)	334 (18.22)	26.236	<0.001
Primary school	95 (11.82)	95 (9.23)	190 (10.37)		
Middle school	102 (12.69)	160 (15.55)	262 (14.29)		
High school	240 (29.85)	257 (24.98)	497 (27.11)		
Post high school	99 (12.31)	122 (11.86)	221 (12.06)		
Graduate	99 (12.31)	109 (10.59)	208 (11.35)		
Professional	21 (2.61)	15 (1.46)	36 (1.96)		
Not applicable (<5)	31 (3.86)	54 (5.25)	85 (4.64)		
Occupational status*					
Clerical/Shop owner/Business/Farmer	23 (2.86)	256 (24.88)	279 (15.22)	291.00	<0.001
Professionals	52 (6.47)	8 (0.78)	60 (3.27)		
Semi professionals	10 (1.24)	4 (0.39)	14 (0.76)		
Skilled workers	108 (13.43)	51 (4.96)	159 (8.67)		
Semi-skilled workers	16 (1.99)	18 (1.75)	34 (1.85)		
Un-skilled workers	156 (19.40)	70 (6.80)	226 (12.33)		
Un-employed	439 (54.60)	622 (60.45)	1061 (57.8)		
Religion*					
Hindu	677 (84.2)	919 (89.3)	1596 (87.07)	10.506	0.005
Muslim	93 (11.6)	82 (8.0)	175 (9.55)		
Christian	34 (4.2)	28 (2.7)	62 (3.38)		

*P<0.05

Table 2: Morbidity pattern among the study population

Morbidity	Frequency n=1833** (%)
Hypertension	156 (8.5)
Diabetes	148 (8.1)
Musculoskeletal problems	35 (1.9)
Heart problems	16 (0.9)
Respiratory problems	17 (0.9)
Ophthalmic problems	11 (0.6)
Thyroid	9 (0.5)
Skin problems	7 (0.4)
Cancer	2 (0.1)
Others	38 (2.1)
No morbidity	1477 (80.6)

****Multiple morbidities

Table 3: Comorbid status among diseased population

Morbidities	Place of residence		Total (%)
	Urban (%)	Rural (%)	
One morbidity	140 (71)	129 (81.14)	269 (75.56)
More than one morbidity	57 (29)	30 (18.86)	87 (24.44)
Total	197 (100)	159 (100)	356 (100)

$\chi^2 - 30.965, P<0.001$

of the household visited during the study period. Of the total population of 28,300 (28 villages in rural field practice area) and 36,000 (urban field practice area), 3 villages from a rural area and 2 localities of urban area were selected from our field practice area. A total of 1833 people, about 1029 people from rural area and 804 people from urban area were included in the study.

A semi-structured questionnaire was used to collect the information by doing house to house survey. All the houses in the selected villages and area were visited. After explaining the purpose of the study, all those who were willing to participate were included in the study. Information was collected from the responsible member present in the household after obtaining informed consent. Locked houses were revisited once, and if it remained locked, such houses were not taken into consideration. The questionnaire consisted of questions related to sociodemographic information of the participants and history of any morbidity. The questionnaire was administered by trained health workers. Ethical approval was obtained by Institutional Ethics Committee before the start of the study.

Statistical Analysis

Data collected were entered into Microsoft Excel spreadsheet and analyzed using open epi info. The data were presented in percentages and proportions. Chi-square test/fishers exact test was used to find the association between the place of

residence and demographics. Two independent sample *t*-test was used to find the statistically significant difference in the age for diabetes and hypertension. $P < 0.05$ was considered statistically significant.

RESULTS

A total of 1833 people were included in the survey, of which 804 were from urban and 1029 from rural area. Out of the total population, 50.3% were male and 49.7% were female. Majority (50.6%) belonged to the age group 15–45 years followed by 45–60 years (16%) and 13% were above 60 years of age. 87% of the population belonged to Hindu religion; 57% of them had completed 8 years and above of schooling. It was observed that there was difference in education status, occupation and religion of urban and rural study population which was statistically significant ($P < 0.05$) [Table 1].

In this study, it was found that about 19.4% of the population had reported of having at least one morbidity at the time of the survey. Table 2 shows the morbidity pattern of the study population. It was observed that most common morbidity among the study population was hypertension (8.5%) followed by diabetes (8.1%). Musculoskeletal problems ($\approx$2%), heart problems (0.9%), and respiratory problems (0.9%) were among the other common morbidity found in the population [Table 2].

It was found that the mean age of people with hypertension is around 33 years (Standard deviation (SD)–18.5) and that of diabetics is 46.3 years (SD – 20.3). The difference in the age distribution of diabetic and nondiabetic subjects was found to be statistically significant ($t = 8.896$, $P < 0.001$). Majority of those who had any ailment was having single morbidity (74.4%) than those having comorbidities [Table 3]. Most common comorbidity was hypertension with diabetes.

Table 4 shows the association of common morbidity with the place of residence. It was found that the proportion of the study population having hypertension and diabetes was higher in urban as compared to the rural population. Moreover, this difference was found to be statistically significant ($P < 0.001$). It was observed that hypertension (9.7%), diabetes (8.8%), and heart problems (1%) were high among male compared to female population (7.4%, 7.5%, and 0.8%, respectively) while musculoskeletal symptoms were high among female (2.3%) than male (1.5%) population. However, the difference was not statistically significant.

DISCUSSION

The present study was conducted with the main objective of finding the morbidity pattern present in a geographically defined urban and a rural population. The study showed

Table 4: Association of morbidity and place of residence

Morbidity	Urban (%) (*n*=804)	Rural (%) (*n*=1029)	Chisquare	*P* Value
Hypertension	104 (12.1)	52 (5.1)	36.011	<0.001
Diabetic	89 (11.1)	60 (5.8)	16.587	<0.001
Musculoskeletal	15 (1.9)	20 (1.9)	0.015	0.904
Heart problem	10 (1.2)	6 (0.6)	2.227	0.204

Total percentage will not add up to 100% as only common morbidity have been shown

that around 19.4% of the study population had morbidity at the time of survey. The proportion of urban population having morbidity was higher (24%) as compared to rural (14%). Most common reported morbidity was hypertension, followed by diabetes, respiratory problems, and heart problems with higher proportions in urban and male population. This is because; the prevalence of hypertension and diabetes in India is high in urban as well as male population.

In a study done by Gopalkrishna *et al.* which was a screening camp based study done in rural Tamil Nadu, showed that about 9.7 % of the patients reported with NCDs which included osteoarthritis, cataract, hypertension, and other cardiovascular diseases, diabetes, and chronic respiratory diseases such as asthma and chronic obstructive pulmonary diseases.[7] In our study major morbidity found was hypertension (8.5%) and diabetes (8.1%).

In another study done in Kerala, it was found that estimated point prevalence of overall morbidity was 84 per thousand population, while we found that 19.4% of the population had some morbidity at the time of the survey. The same study revealed that diabetes, high blood pressure was among the common morbidity which was similar to our study.[1] Our study showed a higher proportion of the urban population having hypertension, diabetes, and other noncommunicable diseases. Similar difference was observed by Krishnaswamy. where diabetes and blood pressure problem was found to be more prevalent in urban areas of Kerala.[1]

A study done at Tripura found the most common type of morbidity to be acute respiratory infections (31.10%), followed by musculoskeletal disorders (17.78%), with NCDs such as diabetes mellitus and hypertension catering 13.70% of all morbidities. In our study, though respiratory problems and musculoskeletal problems were among the common problems; the most common were hypertension and diabetes. Similar to their study our study also showed that majority of those who had an ailment were having single morbidity (74.7%) than those having comorbidities.[9] Unlike our study, a study done by Mane *et al.* in a tertiary care hospital of Tamil Nadu revealed musculoskeletal disorders to be the most common morbidity followed by gastrointestinal and skin disorders.[10]

Our study was done in a small sample and was chosen out of convenience. Hence, it cannot be generalized to the population. However, the main strength of this study is that it's a community-based study done on whole population and complete enumeration of the selected village and localities.

CONCLUSION

In the present study, it was found that about 19.4% of the population had any ailment at the time of the survey and most common morbidity were hypertension, diabetes, heart problems, and respiratory problem. It was also found that majority of these ailments were high among urban and male population. This gives us a better understanding of the changing morbidity patterns prevailing locally and, in turn, will help us to provide specific health services for these health problems and in devising focused health educational intervention in our field practice area.

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