

Morbidity prevalence: An inter community analysis with special reference to Kannur districts in Kerala

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Abstract

Background/Objectives: The specific objectives of the study are (1) to examine the morbidity pattern; its determinants and how socio-economic factors are affecting morbidity in the urban area, (2) to identify the extent of inter community differences in morbidity prevalence.

Methods/Statistical analysis: The study is based on primary data and secondary data. The primary data were collected through a structured schedule and samples are drawn by employing simple random sampling method.

Findings: Religion has a significant influence on health condition of the people and morbidity among various religions is different. Chronic and acute illness was high among Christian communities. The joint family system is widely followed by christans. This is one of the reasons for higher morbidity among christans. While analyzing gender wise morbidity prevalence, the prevalence rate of acute illness is high among Males (323.35) and the prevalence rate of chronic illness is high among Females (395.2). The influence of sanitation and water supply to morbidity prevalence is less in the study area.

Improvements/Applications: Municipality and panchayath level institutions in every district should provide medical insurance to the people especially for the Christian community. Also provide better medical facilities to the people and improve the working condition of the public health care centers.

Keywords: Religion, morbidity, determining factors, acute illness, chronic illness

1. Introduction

India is the seventh largest country in terms of geographical area, second most populated and twelfth largest economy in the world. The decadal growth rate is 17.6 percent and average literacy is 74.04 percent as per 2011 census. Despite the higher growth rate, the problem of malnutrition, anemia and iodine deficiency are common among childrens in India over the years [1]. A healthy population is the fundamental asset of every growing especially country like India. Good health is increasingly being recognized as important contribution to productivity and economic growth. The World Health Organization takes an inclusive approach by defining health as a state of complete physical, social, and mental well-being. This definition suggests that health relates to one's ability to deal with everyday activities and to being a fully functioning human being-physically, socially and emotionally. In this sense, health is a resource for every life and highly valuable asset for a nation. It is a positive concept emphasizing social and personal resources as well as physical capacities [2].

The determinants of health mainly include the social and economic environment, the physical environment and the person's individual characteristics and behavior. Morbidity is also determined by other factors such as per capita income of the people, life expectancy and health care facilities. When income of the people increases, people have high health status which leads to low morbidity. It shows that every year the income of the people is increasing and morbidity shows decreasing trend. Life expectancy and morbidity are negatively related. That is, when life expectancy of the people increases, then mortality decreases. In 1991, Kerala life expectancy was 71.7 and it increased to 73.4 in 2011 [3]. The health care facilities and morbidity are negatively correlated [4]. When healthcare facilities are increasing, morbidity will decrease. But kerala exhibits a paradoxical situation where higher morbidity rate together with higher life expectancy [5, 6].

The problem of morbidity is a major threat to health scenario of the state, the 52nd Round of NSSO (1995-96) has found that the combines morbidity rate acute and chronic ailments for Kerala was 118 per 1000 for rural and 88 per 1000 for urban, which was higher than the national rate of 55 per 1000 for rural and 54 per 1000 for urban India. The

intensity of morbidity varies from region to region and also from communities to community due to certain socio-economic and environmental factors. Cancer in all form is causing about 12% of death throughout the world. The contribution of Kerala towards this account seems to be very high. In 2004 the Regional Cancer Centre at Thiruvanthapuram alone treated 10255 patients for different leading sites of Cancer [7]. Cancer in lungs, Oral Cavity, Leukemia is common among males. Besides females, Breast, Thyroid and Cervix are the leading sites of Cancer. Recently Kerala also witnessed as an epitome of many communicable illness mainly dengue fever leptospirosis, acute diarrhea diseases, acute respiratory infection, Chickenpox, Measles, Enteric fever etc. The availability of safe drinking water and proper sanitation facility play a very important role in reducing load of communicable illness. The recent statistics available reveals that only 42.8% of the urban and 16.9% of the rural households in Kerala had access the safe drinking water. Similarly in the sanitation side also the performance of Kerala has been not sound since 26.6% of the rural and 10.2% of urban households have no latrine facility [8] lack of safe drinking water and sanitation facility are responsible for a great extend hike in communicable illness in Kerala, especially in the hot summer season. Kerala has also been identifying as the state with highest percentage of noninfectious illness reported both from rural and urban India. The major reason for this hikes in non-infectious for chronic illness in Kerala is the surge of aged population, which has been estimated at 13.52% of total population in 2004 as against 10.9% in 1999. Ageing is an important stage is succumbed to many illness and most of them are chronic in nature which requires treatment for long period. The fast-food habits of the people coupled with lack of exercise among the people also accounts for the hike in chronic illness in Kerala.

Kerala is the favourable land for all religions. Major religions in kerala are Hindu, Muslim and Christan. Morbidity among religion is varying in kerala due to differences in belief, customs, family systems, practices, medicine and foods habit and occupational structure. Several Christan communities in kerala refuse to consult doctor when they are ill. At the same time Muslim communities express unwillingness to take vaccination against chronic acute illness. Kerala is a well known state for health sector development. But at same time a growing number of keralites fall in prey to life style related diseases and illness at a much younger age than ever before. The paradox of high morbidity and low mortality, which results in the crucial social problem of ageing. People are now facing the problem of high morbidity both from communicable and non-communicable illness. The health care system in Kerala has undergone substantial changes over the last three or four decades. Infant, child and maternal mortality rates have been much lower and life expectancy at birth has been much higher than the national average. Kerala is one of the few regions in the developing world that has exhibited remarkable progress [9]. Besides, higher stage of social and human development in general, higher morbidity rate which fading out development. The present study is an example of an effectual attempt to examine the socio economic and environmental factors affecting morbidity and study analyse the extent and intensity of morbidity problem among different communities.

2. Methodology

The study is based on primary data and secondary data. The primary data were collected from urban households of Thalassery Municipality at Kannur district in kerala. Thalassery municipality is located in Kannur district. It has a geological area of 23.98 sq. km. Total population of Thalassery according to the 2011 census was 92,558, making it Kerala's 8th largest city in population. Out of the total population Hindus make up 51 percentage of the population, Muslims 46 percentage and the balance includes Christians, Buddhists and Sikhs. The primary data was collected through a structured schedule and sample selection based on simply random sampling method. Total Sample size of 60 households was selected. Out of 60, 20 each from Hindu, Muslim and Christian households were selected randomly. Community wise and gender wise morbidity prevalence rate was calculated.

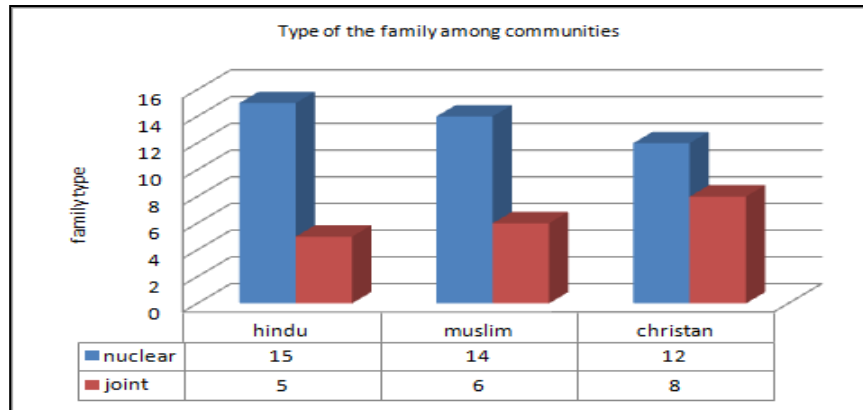
3. Results and Discussions

The morbidity pattern among the communities is related to several factors, such as social, economic and environmental conditions. The study made an attempt to determine the socio-economic and environmental factors effecting morbidity and understand the intensity of illness among the communities. The collected data is coded and classified on the basis of the family type, availability of sanitation facilities, water supply, communicable illness; chronic illness etc. using various statistical tools and the result thus obtained are discussed below.

3.1. Type of the family among communities

A family is said to be society’s smallest unit, its nucleus, and family life is more private and intimate than public life [10]. Commonly there are three types of family, namely, nuclear, single parent family and extended family or joint family. The type of the family was different among three religious communities. The number of nuclear family is comparatively higher among Hindu’s and the number of joint family is higher in Christian community. Figure 1 shows classification of households on the basis of family type.

Figure 1. Type of the family



Source: Field data 2015

Out of the total 60 households 68.3% of them belong to Nuclear family. Out of this 75% families were Hindu’s, 70% families were Muslims and 60% families are Christians. 31.7% belongs to Joint family. Among them 25% were Hindu’s, 30% were Muslims and 40% were Christians. Among these communities, the Koolie or casual workers were high in Muslim community that is 95.1% and lower in Hindu community (76.2%). The Govt. job is higher among Hindus 16.7%. And the private employees are higher among Christian families.

3.2. Sanitary toilet facilities among communities

Sanitary facilities are essential to prevent diseases. Sanitary facilities include toilet, bathroom and clean environment. In the case of sanitary toilet facilities, Christian’s stands better compared to Hindus and Muslims in the study area. Table 1 shows sanitary toilet facilities of Hindu, Muslim and Christian households.

Table 1. Sanitary toilet facilities of households

Type of latrine	Hindus	Muslims	Christians	Total
Service	0(0)	0(0)	1(5)	1(1.66)
Septic	15(75)	14(70)	17(85)	46(63.33)
No latrine	5(25)	6(30)	2(10)	13(35)

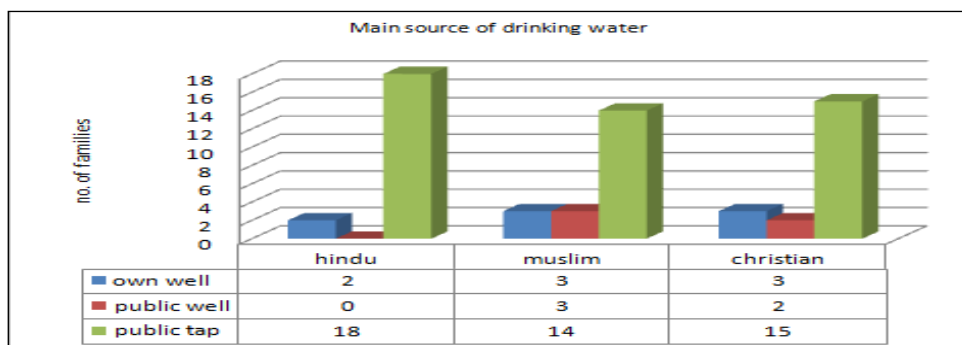
Source: Field data 2015

In the Christian community, 90% of the families had the sanitary toilet facilities. Among them 5% are using service latrine and 85% are using Septic latrine and about 10% of Christian families have no latrine. Among Muslim community only 70% families had the proper septic toilet facilities and 30% of families had no such latrine facilities. Hindu community shows that about 75% of families had septic latrine facilities and 25% of families had no such latrine facilities. So the table concluded that the Christian families had better sanitary toilet facilities as compared to Hindus and Muslims.

3.3. Source of drinking water

Sources of drinking water include household connections, public standpipes, protected dug wells, rainwater collection, boreholes, and protected springs. People in the study area have depending mainly on public tap, private well and public well for drinking water.

Figure 2. Main source of drinking water



Source: Field data 2015

The figure 2 shows that 10% of the Hindu community had own well facilities and 90% of them depend on public tap. In the case of Muslims 15% of the community had own well and 15% of them are depending on public well and the remaining 70% of them depending public tap facilities. In the case of Christian families 15% of family had own well and 10% of them depending on public well and the remaining 75% of families have depend public tap. The data reveals that most of the families in the municipality area depend on public tap for drinking water.

3.4. Sanitary toilet facilities and illness

Constructing toilets associated with home is common in kerala. Open defecation is considerably low, which will help the people to prevent diseases. The Communicable illness and chronic illness were high among those families who had sanitary toilet facilities. Table 2 reveals the relationship between sanitary toilet facilities and illness.

Table 2. Sanitary Toilet Facilities and Illness

Sanitary toilet facility	Communicable illness			Total	Chronic illness			Total
	Hindu	Muslim	Christian		Hindu	Muslim	Christian	
Yes	7(46.7)	5(83.3)	15(83.3)	27(45)	14(93.3)	3(50)	17(94.4)	54(56.7)
No	4(80)	10(71.4)	2(100)	16(26.7)	4(80)	14(100)	1(50)	19(31.7)
Total	11(55)	15(75)	17(85)	43(71.7)	18(90)	17(85)	18(90)	53(88.3)

Source: survey data 2015

Note: Figures in the bracket shows percentage.

Acute and chronic illnesses were high among those who had proper sanitary toilet facilities. That is out of the total sample of Hindu population about 46.7% of household suffering communicable illness and 93.3% household suffering chronic illness. In the case of Muslim households about 83.3% of household suffering communicable illness and 50% of them is suffering from chronic illness with proper sanitary toilet facility. Christians on the other hand about 83.3% are suffering communicable illness with proper sanitary toilet facility and 94.4% are suffering chronic illness with proper sanitary toilet facility. So the table reveals that there is an indirect relationship between sanitary toilet facility and illness. The household with proper sanitation facilities has also been subjected to acute and chronic illnesses. Therefore the role of sanitation facilities in preventing such illnesses is limited in kerala.

3.5. Source of drinking water and illness

Kerala gives much attention in providing safe drinking water. This has been facilitated through implementing water supply schemes. Access to water is not a concern for kerala [11]. A large share of population in kerala relay on taped drinking water. In study area, the situation is not different. Most of the Hindu, Muslim, and Christian families depend public tap facilities for drinking water. At the same time both communicable and chronic illness was high among the families who depends upon public tap facilities.

Table 3. Source of drinking water and illness

Source of drinking water	Communicable illness			Total	Chronic illness			Total
	Hindu	Muslim	Christian		Hindu	Muslim	Christian	
Own well	1(50)	3(100)	3(100)	7(11.7)	2(100)	2(66.7)	3(100)	7(11.7)
Public well	0(0)	2(66.7)	2(100)	4(6.7)	0(0)	1(33.3)	1(50)	2(3.3)
Public tap	10(55.6)	10(71.4)	12(80)	32(53.3)	16(88.9)	14(100)	14(93.3)	44(73.3)
Total	11(55)	15(75)	17(85)	71.7(43)	18(90)	17(85)	18(90)	53(88.3)

Source: Survey data 2015

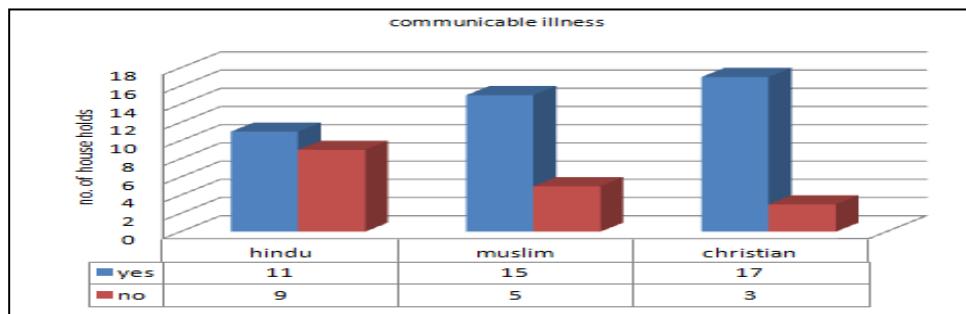
Note: Figures in the bracket shows percentage

The table 3 reveals that there is relation between source of drinking water and communicable illness. The people having own well within the premises, and those who depends on public well and public tap are suffering from both communicable and chronic illness. Majority Muslim and Christian households have own well compared to Hindu households are suffering from communicable illness. The same trend can be seen in the case of chronic illness. Households from Hindu and Christian community and majority of households from the Muslim community are suffering from chronic illness.

3.6. Acute/communicable illness of three communities

Communicable diseases spread from one person to another or from an animal to a person. The spread often happens via airborne viruses or bacteria, but also through blood or other body fluid. Major communicable illnesses are the Hepatitis, HIV/AIDS, Influenza, Malaria, Polio, Tuberculosis, etc. The details regarding communicable illness among the sample respondents are shown in the figure 3.

Figure 3. Communicable illness of three communities



From the total household, 71.7% of households were facing the problem of communicable illness. And the remaining 28.3% have no illness. In the Muslim community 75% of people were facing the problem of communicable illness and 15% of households have no illness. But in the case of Christians about 85% of households suffer from the problem of communicable illness and 15% of them have no illness. The communicable illness is very low among Hindu households.

3.7. Gender wise classification of acute illness prevalence

The morbidity prevalence among the genders is different. The formula for calculating morbidity prevalence among genders is follows.

$$\begin{aligned} \text{Morbidity among male} &= \frac{\text{No. of male person}}{\text{Total no. of male population}} \times 1000 \\ &= 54/167 \times 1000 \\ &= 323.35 \end{aligned}$$

The prevalence rate of communicable illness among male population is 323.35.

$$\begin{aligned} \text{Morbidity among female} &= \frac{\text{No. of ailing female persons}}{\text{Total no. of female population}} \times 1000 \\ &= 50/167 \times 1000 \\ &= 299.40 \end{aligned}$$

The prevalence rate of communicable illness among female population is 299.40.

By analyzing gender wise prevalence rate of communicable illness, it is higher among male population (323.35) than male population in the study area.

3.8. Community wise classification of acute illness Prevalence

The morbidity prevalence among the three communities is different. Calculations of morbidity prevalence among communities are given below

$$\begin{aligned} \text{Morbidity among Hindus} &= (\text{Total morbid person among Hindus})/(\text{Total no. of population}) \times 1000 \\ &= 22/103 \times 1000 \\ &= 213.6 \end{aligned}$$

The prevalence rate of communicable illness among Hindu population is 213.6.

$$\begin{aligned} \text{Morbidity among Muslim} &= (\text{Total morbid person among Muslims})/(\text{Total no. of population}) \times 1000 \\ &= (36)/111 \times 1000 \\ &= 324.3 \end{aligned}$$

The prevalence rate of communicable illness among Muslim population is 324.3

$$\begin{aligned} \text{Morbidity among Christians} &= (\text{Total morbid person among Christians})/(\text{Total no. of population}) \times 1000 \\ &= (42)/120 \times 1000 \\ &= 350 \end{aligned}$$

The prevalence rate of communicable illness among Christian population is 350.

The calculation of morbidity prevalence among different communities shows the prevalence rate of communicable illness is higher in Christian (350) community followed by Muslim (324.3) and Hindus (213.6).

3.9. Chronic illness of three Communities

Chronic illness is a long-lasting condition that can be controlled but not cured. The major chronic illnesses are Allergy, Asthma, Breast Cancer, Diabetes, Epilepsy, Heart diseases etc. Details regarding chronic illness among the sample despondence are given below

Table 4. Chronic illness of sample respondent

Chronic illness	Hindu	Muslim	Christian	Total
Yes	18(90)	17(85)	18(90)	53(88.3)
No	2(10)	3(15)	2(10)	7(11.7)

Source: Field data 2015

Note: Figures in the bracket shows percentage

Table 4 shows that 90% of Hindu and Christian families facing the problem of chronic illness and remaining 10% have no diseases. In the case of Muslims 85% are facing chronic illness and remaining 15% having no illness. Here we can conclude that the chronic illness is high among Muslims and Christians.

3.10. Gender wise classification of chronic illness Prevalence

Based on gender the morbidity prevalence is different among the people. The formula for calculating morbidity prevalence of gender is follows.

$$\text{Morbidity among male} = (\text{No. of ailing male person}) / (\text{Total no. of male population}) \times 1000$$

$$= \frac{46}{167} \times 1000$$

$$= 275.45$$

The prevalence rate of chronic illness among male population is 275.45.

$$\begin{aligned} \text{Morbidity among female} &= (\text{No. of ailing female person}) / (\text{Total no. of female population}) \times 1000 \\ &= (66) / 167 \times 1000 \end{aligned}$$

$$= 395.2$$

The prevalence rate of chronic illness among female population is 395.2.

By analyzing gender wise morbidity prevalence of chronic illness, it is higher among female population (395.2) than male population (275.45) in the study area.

3.11. Community wise classification of chronic illness Prevalence

Calculations of morbidity prevalence among communities are given below.

$$\begin{aligned} \text{Morbidity among Hindus} &= (\text{Total no. of morbid person among Hindus}) / (\text{Total no. of population}) \times 1000 \\ &= 31/103 \times 1000 \\ &= 300.97 \end{aligned}$$

The prevalence rate of chronic illness among Hindu population is 300.97.

$$\begin{aligned} \text{Morbidity among Muslims} &= (\text{Total no. of morbid person among Muslims}) / (\text{total No. of population}) \times 1000 \\ &= 35/111 \times 1000 \\ &= 315.3 \end{aligned}$$

The prevalence rate of chronic illness among Muslim population is 315.3.

$$\begin{aligned} \text{Morbidity among Christians} &= (\text{Total morbid person among Christians}) / (\text{Total no. of population}) \times 1000 \\ &= 47/120 \times 1000 \\ &= 391.7 \end{aligned}$$

The prevalence rate of chronic illness among Christian population is 391.7.

The above calculations of morbidity prevalence among different communities shows the morbidity prevalence is higher in Christian (391.7) community.

4. Conclusion

Religious difference in morbidity is visible in Kerala. Acute and chronic illness was high among those households who have better sanitary toilet and own well for drinking water. Therefore the source of drinking water and sanitary toilet facilities do not contribute much on morbidity prevalence. By analyzing the chronic illness prevalence, in Christian community total chronic illness prevalence rate is 391.7, in Muslim community the chronic illness prevalence rate is 315.3, and in Hindu community it is 300.97. Both chronic and acute illness was high in Christian communities. The joint family system was seen higher in Christian community than Muslim and Hindu and population is also high in Christian households. This is one of the reasons behind the increased morbidity among Christians. The joint families are traditional and they strictly follow customs and beliefs. There is a wide variation of disease between Hindu, Muslim and Christian communities and gender wise morbidity is seems to be different. Religion has a significant impact on morbidity prevalence and is one of the determinant factors of morbidity. Municipality and panchayath level institutions in every district should provide medical insurance to the people. Government must provide better medical facilities and improve the working condition of the public healthcare centers to meet health requirements of people.

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The Publication fee is defrayed by Indian Society for Education and Environment (www.iseeadyar.org)

Cite this article as:

P.T. Jasna, P. Maneesh. Morbidity prevalence: An inter community analysis with special reference to Kannur districts in Kerala. *Indian Journal of Economics and Development*. Vol 3 (10), October 2015.