

## **Morbidity Pattern of Tribes in Kerala**

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**Abstract:** Tribes are the aboriginal inhabitants of our country who have been living in alife based on the natural environment and have cultural patterns congenial to their physical and social environment. They are the poorest; most marginalized, oppressed, and deprived people in the country. India has the second largest tribal population in the world after Africa( Richard Scaria et.al 2013).Though Kerala has achieved outstanding progress in human development its health status presents a picture of low overall mortality co-existing with considerable morbidity, mostly caused by diseases linked to underdevelopment, poverty and diseases of affluence.(Panickar and Soman 1999). Continuous reports from newspapers show that tribes in Kerala underwent serious health issues. Recent change in land use pattern and land alienation has adversely affected their traditional livelihood leading to food insecurity (Rajasenan et.al 2013). Poverty, lack of cleanliness, infrastructure inadequacy, coupled with various health problems add fuel to fire.

**Keywords:** Malnutrition, Anemia, Sickle cell anemia

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### **I. Introduction**

Tribes are the aboriginal inhabitants of our country who have been living in alife based on the natural environment and have cultural patterns congenial to their physical and social environment. They are the poorest; most marginalized, oppressed, and deprived people in the country. India has the second largest tribal population in the world after Africa( Richard Scaria et.al 2013).Though Kerala has achieved outstanding progress in human development its health status presents a picture of low overall mortality co-existing with considerable morbidity, mostly caused by diseases linked to underdevelopment, poverty and diseases of affluence.(Panickar and Soman 1999). Reports show that tribes in Kerala underwent serious health issues. Recent change in land use pattern and land alienation has adversely affected their traditional livelihood leading to food insecurity (Rajasenan et al 2013). Poverty, lack of cleanliness, infrastructure inadequacy, coupled with various health problems add fuel to fire.

Studies' including health indicators in rural Kerala shows that the lowest social class including the tribes have highest death and birth rates (Kannan et.al 1991).But in reality there exists differences in the health status of tribes and non tribes in Kerala.Kerala enjoys a unique position in the health map of India and its health indicators are at par with the Western world have the lowest infant mortality and maternal mortality rate with the highest life expectancy coupled with high morbidity and Human Development Report 2005 adduces increase in life expectancy as one of the reasons for high levels of morbidity in Kerala. (Economic review 2011).But conditions of tribes in Kerala are distressing. They are caught in the vicious circle of poverty coupled with malnutrition, morbidity and mortality. A study conducted on the basis of Multidimensional poverty index by( Richard Scaria et al 2013) in Attapady Palakkad among Irular,Mudugar and Kurumbar tribes show that Majority of tribes lies in the category of severe poverty i.e., tribes in Attappady are affected in more than 50% deprivation indicators.More over pregnant women and lactating mothers were found to be suffering from chronic malnutrition and anemia leading to high infant mortality rates (DrIqbal et al 2013).

The livelihood options of the tribes are predominantly primitive in nature (Throat, 2009) with minimal dependence on other means of employment. Communities like Kattunaikas still depend upon forest for hunting, whereas others work as agricultural or non- agricultural laborers (Wayanad Initiative,2006).Studies conducted by (Rajasenan et. al 2013) on 9 prominent tribal communities of Kerala from Wayanad ,Idukki and Palakkad shows that health status of tribal population is not robust as they are very much below the state average in terms of most of the health indicators of morbidity, mortality, infant mortality and other demographic features. This is because of their peculiar habits like drinking and use of tobacco (Kannan et. al, 1991). Health pattern is inferred by compiling their perception of own health situation as well as data regarding the stage of visiting medical practitioner, stage of ill- health, loss of work-days due to illness and their ill health practices such as

consumption of alcohol and tobacco. (Rajasenan et al 2013). Though the tribes constitute only a little above one percent of the total population, there is an “over representation” of tribes in the state’s Below Poverty Line (BPL) category with 44.3 percent as per the NSSO (2004-05). The situation of massive poverty amongst the tribes always leads to ill health conditions and immense difficulty in recovering from the ill-health poverty snare (Rajasenan and Bijith George Abraham 2013).

Study conducted by (Manikandan 2015) among tribes in Attapady of Palakkad district in Kerala shows that continuous infant mortality rate in Attapady leads to Genocide, Ethnocide or even Cultureocide of tribes. Census report from 1951 to 2011 shows that there was continuous decline of tribal communities in Attapady of Palakkad district. Increasing number of tribe community from 1991-2001 is 2893 where as it becomes 506 tribes for the period of 2001-2011 tribal population. Among the three tribes in Attapady, Kurumbar community comes first in the district followed by Mudugar community and Irular community. Rosario report (2013) shows that during the period of 1996 death rate reported due to poverty was 25 where as it increases to 32 during the period of 1999. This declining trend of under 5 years children would adversely affected their population rate and infant mortality is still continuing among the tribes in Kerala. Due to malnutrition, anemia and lack of proper caring among the tribemother of Paniya community, infant mortality was also reported in Batheri of Wayanad district (2013).

According to the study conducted by ICDS (2013) in Attapady Palakkad shows that all children in Attapady panchayath have suffered from micro nutritional deficiencies. Prevalence of underweight is higher among mothers and children. Study conducted by District medical office in Attapady shows that ninety one per cent of pregnant women in the district are severely anaemic. According to ( Dr.Sulaiman Medical officer Attapady 2013) poverty along with lack of cleanliness, tobacco consumption, alcoholic consumption are the major reasons behind the increasing morbidity and mortality rates among tribes of Attapady, Palakkad in Kerala.

A study conducted by (DrEqbal et.al 2013) among tribes of Attapady pointed out that conditions of pregnant women and lactating mothers were so dangerous they found to be suffering from chronic malnutrition and anemia. The mothers who had premature delivery gave a history of raised blood pressure (pregnancy induced hypertension) and anemia. Maternal malnutrition, anemia, pregnancy induced hypertension, Indoor air pollution; alcoholism and Malabsorption are major reasons for premature delivery and anemia among tribes in Attapady. The pregnant women don’t get quality protein through their diet. Supplementary nutrition through anganwadiis not received by these women. As they said that they are not aware about such food is distributed by anganwadi. These women gave history of frequent confinement and multiple abortions both of which can lead to depleted iron store in the body. The dietary change from ragi, to rice has leads to iron deficiency among these women. The medical records of mother of the Intra Utrine Growth Retardation infants who died showed that many had hypertension. The only fuel they use is wood, cow dung cakes and grass. This can lead to indoor air pollution which can lead to intra utrine growth retardation. Alcoholism among female can also lead to intrauterine growth retardation babies. Due to over rampant male alcoholism money to be spent on food is directed to buy alcohol. Children in Attapady were not responding to energy dense diet as it can lead to malabsorbtion.

All these studies emphasis the poor health condition of tribal’s. In the context we try unravel the health issues relating to the tribal’s of Kerala especially the nature and pattern of tribe morbidity.

## **II. Methodology**

Study is based on primary data through multi stage proportionate random sampling method. The three –tier sample stage is based on the population proportion of the tribe communities in the three tribes predominated districts of Wayanad, Idukki and Palakkad. Survey data shows that nature and pattern of diseases shows certain similarities and dissimilarities in three districts under study. For the sake of our convenience diseases in the districts are classified as Communicable diseases, Permanent illness, genetic disorder diseases and other illness.

**Table 1: Communicable diseases among tribes of Wayanad, Idukki and Palakkad district**

Wayanad Tribes	Fever	Wouging Cough	Cold	Fever, cough, cold & headache	Tuberculosis	Diarrheal diseases	Hepatitis-A	Measles	Total			
Adiyas	30 (66.7)	1 (2.2)	0	4(8.9)	3(6.7)	3(6.7)	2(4.4)	2(4.4)	45(100)			
Kattunaikyans	38 (50)	1(1.3)	0	9(12.0)	10(13.2)	18(23.6)	0	0	76(100)			
Paniyas	13 (56.5)	0	1 (4.3)	5(21.8)	0	4(17.4)	0	0	23(100)			
Kurichyar	6(75)	1(12.5)	1 (12.5)	0	0	0	0	0	8(100)			
Uralikurumas	11 (78.7)	0	0	0	1(7.1)	1(7.1)	1(7.1)	0	14(100)			
Idukki Tribes	Fever	Wouging cough	Cold	Fever, cough Cold, headache	Tuber-Culosis	Diarrhea I Diseases	Typhoid	Measels	Fever & shivering	Jaundin ce	Pneum onia	Total
Mannans	25 (30.9)	14 (17.3)	5 (6.2)	1 (1.2)	0(0)	29(35.8)	1 (1.2)	0	2(2.5)	3(3.7)	1 (1.2)	81 (100)
Muthuvans	31 (36.9)	9(10.7)	7 (8.3)	3 (3.6)	2(2.4)	16(19.0)	3 (3.6)	2(2.4)	4(4.8)	3(3.6)	4 (4.8)	84 (100)
Malayarayans	7 (41.2)	7(41.2)	1 (5.9)	0	0	0	0	0	0	0	2 (11.7)	17 (100)
Palakkad Tribes	Fever	Wouging cough	Cold	Tuberculosis	Diarrheal diseases	Typhoid	Dengue fever	Fever & cold	Pneumonia	Total		
Irular	1 (13.6)	2(2)	4(3.6)	9(8.2)	38(34.5)	1(0.9)	4(3.6)	33(30)	4(3.6)	110(100)		
Mudugar	1(3.8)	0	0	2(7.7)	10(38.5)	0	4(15.4)	9(34.6)	0	26(100)		

Source: Computed from survey data (2013)

Survey data from Wayanad district shows that highest percent of Communicable diseases are affected by Kattunaikyan community in Wayanad followed by Muthuvan community and Mannan community in Idukki district, Irular and Mudugar community in Palakkad district. Lowest percent of it is reported by Kurichyar community in Wayanad district and Malayarayan community in Idukki district.

But the intensity of these diseases is different in each tribe community, which depends upon the availability of related factors. Availability of water and sanitation facility are the major threat faces by Kattunaikyan community in Wayanad district, Mannan and Muthuvan community in Idukki district depending upon Neerurava for availability of water and pits as their toilets. And they need to travel long distance to collect the water for their domestic consumption. Condition of Irular community and Mudugar community are not as different as they need to travel to collect water from a common pipe. And some of them are sharing their toilets and are using pit for the same. But living conditions are better and spreads of communicable diseases are lowest among Kurichyar community in Wayanad district and Malayarayan community in Idukki district. More over educational information regarding health and living conditions among these tribes are very much higher than other tribe communities. Although lack of water availability is a major problem among the Malayarayan community some of them are equipped with better water and sanitation facilities. All these factors are favorably affected to least spread of communicable diseases among Kurichyar and Malayarayan community.

**Table 2: Permanent illness among tribes of Wayanad, Idukki and Palakkad district**

Wayanad Tribes	Rheumatoid Arthritis	Asthma	Phyces	Heart disorder	Blind by Birth	Blood pressure	Diabetes	Total				
Adiyas	18 (38.3)	12 (25.5)	4 (8.5)	6 (12.8)	2 (4.3)	5 (10.6)	0(0)	47 (100)				
Kattunaikyans	14(35.9)	18 (46.2)	3 (7.7)	2(5.1)	2(5.1)	0(0)	0(0)	39 (100)				
Paniyas	8(38.1)	3(14.3)	6 (28.6)	2(9.5)	0(0)	2(9.5)	0	21 (100)				
Kurichyars	4(26.7)	0(0)	0(0)	4(26.7)	0(0)	5(33.3)	2(13.3)	15 (100)				
Uralikurumas	10(47.6)	1(4.8)	4 (19.04)	4(19.04)	0(0)	2(9.5)	0(0)	21 (100)				
Idukki Tribes	Rheumatoid Arthritis	Asthma	Phyces	Heart disorder	Blind by birth	Blood pressure	Mental illness	Deaf & dump	Deaf	Loss of eye sight	Esnophelia	Total
Manns	8 (15.7)	4 (15.7)	4 (7.8)	4 (7.8)	0 (0.0)	11(21.6)	2(3.9)	3(5.9)	3(5.9)	6(11.8)	2(3.9)	51(100)
Muthuvans	16 (23.6)	15 (22)	5 (7.3)	9 (13.2)	4 (5.9)	11 (16.2)	3(4.4)	1(1.5)	1(1.5)	3(4.4)	0(0.0)	68(100)
Malayarayans	1 (7.7)	0 (0)	0 (0)	1 (7.7)	0	5 (38.5)	1(7.7)	0(0)	0(0)	0(0)	5(38.5)	13(100)
Palakkad Tribes	Rheumatoid Arthritis	Asthma	Phyces	Heart disorder	Blood pressure	Diabetes	Mental Illness	Deaf	Loss of eye sight	Ley on bed	Handicaped	Total
Irular	10(11.6)	27 (31.4)	0(0)	11(12.8)	20(23.3)	1(1.2)	7(8.1)	2(2.3)	5(5.8)	1(1.2)	2(2.3)	86(100)
Mudugar	4(22.2)	6(33.3)	1(5.5)	0(0)	19(5.6)	5(27.8)	1(5.6)	0	0	0	0	18(100)

Source: Computed from survey data (2013)

Highest percent of permanent illness are reported by Adiyas followed by Kattunaikyans, Paniyas, Uralikurumars and Kurichyar in Wayanad district. In the Idukki district highest percent of the same illness were reported by Muthuvans followed by Mannans and Malayarayans. And in the Palakkad both Irular community and Mudugar community reported that same. Rheumatoid Arthritis, Asthma, Phycs or Epilepsy, Heart disorder, Blood pressure are common illness which are reported in three districts. Rheumatoid Arthritis which is related to pains of joints and bone are reported highest percent among the tribes in Wayanad followed by Idukki and Palakkad districts. Asthma is reported highest by Kattunaikyan community followed by Mudugar community, Irular community, Muthuvan community and Mannan community. It is reported lowest by Uralikurumar community and not reported by Kurichyar community and Malayarayan community. Heart disorders, blood pressure and diabetics are highest reported by Kurichyars, whereas Phycs or Epilepsy is reported highest by Paniyas in Wayanad district. But Idukki district and Palakkad district also witnessed other diseases such as Mental illness, deaf, deaf and dumb, loss of eye sight and blind by birth. But blood pressure and esnophelia are reported highest by Malayarayan community, along with this Mannan community also reported blood pressure, deaf and dumb, loss of eye sight in the Idukki district. But handicapped and ley on bed disability are reported in Palakkad district only.

Another notable disease reported among tribes in Wayanad and Palakkad district is Genetic disorder diseases. Sickle cell anemia is one of the genetic disorder diseases reported during the period. Unfortunately details in primary data are not sufficient to explain sickle cell anemia. So reliable report from Thirunelligramapanchayath is used for the study.

#### Distribution of Genetic disordediseases: Sickle cell anemia

Tribe	Percent
Adiya	57.1
Kattunaikyan	19.6
Paniya	3.6
Kurichyar	1.8
Uralikurumar	17.9
Total	100

Source: Computed From Thirunelligramapanchayath Report 2013

In the Wayanad district 57.1 percent of sickle cell anemia is reported from Adiyas, 19.6 percent is reported by Kattunaikyan, 17.9 percent is reported from Uralikurumars. 3.6 percent by Paniya, whereas only 1.8 percent is reported by Kurichyar tribe.

A survey conducted by Sickle Cell Disease project in Attapady by Dr. Prabhudas, Nodal officer for Health Services in Attappady and Deputy District Medical Officer said that sickle Cell Disease Project in Attappady found out over 20 per cent of the 33,120-strong tribal population is affected by the dreaded genetic disorder of sickle cell anemia. The latest survey conducted in June 2013 by the Agali Community Health Centre and the five Public Health Centres found 1,253 tribals affected by sickle cell anemia. Out of this 96 are acute cases. He said that at least 20 per cent of the tribal population is under the grip of this genetic disorder.

Dog bite and accident are other diseases which were reported in Wayanad district during the survey period and former was reported by Adiyas and Kurichyars and latter was reported by Kurichyar tribe. Varieties of diseases are reported in Idukki district include diseases like Appendicitis, diseases of urinary system which are reported highest percent by Muthuvan community. Skin diseases, Piles and diseases of kidney are other types of ailment most affected by Malayarayan community. Diseases of urinary system, bone related diseases, eye related diseases, vomiting, snakebite is reported by Irular community and bone related diseases are common for both Irular and Mudugar community in the Palakkad district. Some tribes in Palakkad of both Irular and Mudugar community reported more than one illness for the same person during the survey period. Bone related diseases is common in both community together with other diseases reported are allergy cough, asthma and, back pain.

To identify reasons of the morbidity pattern it is essential to include socio economic character of tribes in study area. A study conducted in socio-economic problems of tribal communities in Udayagiri Panchayath of Kannur district (K.V.Pavithran and Biju Abraham 2005) reported that it can be effectively addressed only by providing necessary infrastructure and educational facilities, adequate source of livelihood, healthcare and other basic facilities.

Available information from survey data shows that reasons for the spread of communicable diseases are common in Wayanad, Idukki and Palakkad district in Kerala. Living conditions of tribes including housing and environment conditions, lack of sanitation and water availability, lower calorie intake leading to malnutrition, absence of proper educational and health care facilities are major factors which are responsible for the spread of communicable diseases in these areas. As far as tribes are concerned a good percent of tribe

communities are not completed even primary school education. More than 40 percent of the tribal communities in Attapady viz Irulas, Mudugar, and Kurumbars still remain illiterate (SwaminathanVelluva 2004).

To tackle more information regarding intensity of diseases it is essential to link age structure and morbidity among the tribes. From the survey data it is clear that permanent illnesses are reported highest under the age group of 61-75 and 46-60 years. Viz Permanent illnesses are reported from 46-75 years. Situation is not true in the case of sickle-cell anemia, although disease is permanent but it is regarded as Genetic disorder diseases. Due to permanent illness no tribe in any district has covered the age above 75 years. And it is reported highest in Wayanad 100 Percent illness is reported under the age group of 61-75 years and 74.4 percent under the age group of 46-60 years. Followed by Idukki 82.9 percent under the age group of 61-75 percent and 74.2 percent under the age group of 46-60 years. Permanent illness reported in Palakkad district is 96percent under the age group of 61-75 years and 46.2 percent reported under the age group of 46-60 years.

But situation of communicable diseases is different as it is most affected by children up to 15 years of age in Wayanad, Idukki and Palakkad districts.

Wayanad	Communicable diseases	Non-communicable diseases(Permanent & other illness)	Total
Up to 15 years	156(84.78)	28(15.22)	184(100)
16-30 years	6(26)	17(74)	23(100)
31-45 years	3(8.83)	31(91.17)	34(100)
46-60 years	1(1.47)	67(98.53)	68(100)
61-75 years	0(0)	3(100)	3(100)
<b>Idukki</b>			
Up to 15 years	175(86.21)	28(13.79)	203(100)
16-30 years	2(10)	18(90)	20(100)
31-45 years	5(8.63)	53(91.37)	58(100)
46-60 years	0(0)	46(100)	46(100)
61-75 years	0(0)	29(100)	29(100)
<b>Palakkad</b>			
Upto 15 years	124(90.51)	13(9.49)	137(100)
16-30 years	3(14.28)	18(85.72)	21(100)
31-45 years	6(14.28)	36(8.72)	21(100)
46-60 years	2(4)	48(96)	50(100)
61-75 years	1(4)	24(96)	25(100)

**Source:** Computed from survey data 2013

And intensity of it is highest in Palakkad followed by Idukki and Wayanad districts. Another factor which can be related to morbidity is lower calorie and iron consumption leading to malnutrition and anemia. Lack of cleanliness coupled with malnutrition and anemia increases intensity of communicable diseases in three districts. As highest percent of it is reported under calorie intakers ranges between 500 -1000Kcalories in three districts and in terms of low calorie range communicable diseases is reported highest in Idukki district followed by Palakkad and Wayanad. Gender wise classification shows that communicable diseases are most affected by females rather than males tribes in the society. Discrimination among them leads to lack of sufficient food intake leading to malnutrition and anemia. Their family atmosphere will favorably affect to males as they are regarded as the main source of income earners.

#### Mean Daily Calorie intake of Tribes

Tribe	Male(Average Calorie)	Female Average Calorie
<b>Wayanad</b>	<b>1423</b>	<b>1274</b>
Adiyas	1416	1268
Kattunaikyans	1284	1179
Paniyas	1392	1198
Kurichyar	1809	1689
Uralikurumar	1426	1275
<b>Idukki</b>	<b>1533</b>	<b>1348</b>
Mannans	1465	1334

Muthuvans	1507	1299
Malayarayans	1725	1562
<b>Palakkad</b>	<b>1422</b>	<b>1245</b>
Irular	1401	1237
Mudugar	1515	1287

Source: Computed from survey data 2013

It is evident from the table that there exists wide disparities among average calorie intake of male and female tribes in three district. Due to the peculiarity of their food consumption both gender may not get the required calorie. But intensity of lowest calorie consumption is highest for female tribes compared to their male counterpart. Female tribes in Kattunaikyan Community reported lowest average calorie consumption and highest calorie consumption is reported by females in Kurichyar tribes.

Food expenditure of the tribe family can also be connected to morbidity in tribal areas. Land alienation problem adversely affected nutritional status of tribes in Wayanad, Idukki and Palakkad district. Nature and dimension of land alienation patterns vary in these districts (.D.Rajasen and Nikitha P.M 2013) pointed out that family wise land alienation is severe in Palakkad, area wise land alienation in Idukki and non-tribal migration in search of land for agriculture activities and plantation purpose were the main reason in Wayanad district. Food intake and its quality determine levels of nutritional attainment. Food habits of the tribes are different from those of other people. They cultivate their land based on their food habits .This help them for maintaining health and nutritional security. Recent changes in land alienation have resulted in reduced food consumption among tribes both quantitatively and qualitatively. The conversion of tribes from owners of land into agricultural workers with wage rate below subsistence level has made the situation shocking with high levels of morbidity and mortality (D.Rajasen and Nikitha P.M 2013).High levels of infant mortality and nutrition linked disability among pregnant women in Attapady during the period of 2013 are classic issues that occurred from poverty, landlessness and neglect. Majority of tribes in the district are agricultural laborers and it is stricken that their monthly food expenditure in the Wayanaddistrict, 89.3 percent of tribes' household food expenditure is reported as less than Rs500, only 2.7 percent of Kurichyar community's monthly food expenditure ranges between Rs500-Rs1000, remaining 8percent of Kurichyar community spent monthly food expenditure ranges between Rs1000-Rs1500. In the Idukki district 52 percent of tribes' food expenditure is reported as less than Rs 500, 36 percent of tribe households food expenditure ranges between Rs500-Rs1000 and remaining 12 percent of Malayarayan community's food expenditure ranges between Rs1000-Rs1500. In the Palakkad district 97.3 percent of tribes' food expenditure is less than Rs500, only 2.7 percent of Irular tribes monthly food expenditure ranges between Rs500-Rs 1000

Except Kurichyar community in Wayanad and Malayarayar community in Idukki district rest of tribe community consume less than Rs500 for monthly food expenditure and they spend major portion of their monthly expenses to medical and other expenditure that also include alcohol and tobacco consumption.

### III. Conclusion

There are some similarities and dissimilarities among nature and pattern of tribe morbidity prevailing in three districts and the reasons for the occurrence of these diseases are common. The dominant disease group comprises respiratory infection, diarrheal disorders, skin infections, malnutrition and anemia and degenerative diseases like diabetes, hypertension, and heart diseases has also begun to surface among tribes in Kerala. And evidence seems to suggest that incidence of morbidity is not declining among them. From the above analysis study can be concluded that the co-existence of the diseases of poverty with the diseases of affluence is the picture characterizing the morbidity profile of tribes in Kerala.

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