International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor (2018): 7.426

Pattern of Diseases in Rural Odisha: A Geographical Analysis

Ranajit Bera[1], Ramya Ranjan Behera[2], Pritirekha Daspattanayak[3]

[1, 2] Research Scholar, Ravenshaw University, Cuttack, India

[3]Professor, Ravenshaw University, Cuttack, India

Abstract: ***Disease being one of the major indicators of health status is basically of two types i.e. acute and chronic disease. The present study examines the spatial patterns of diseases in rural Odisha taking into consideration the 30 districts in Odisha using three rounds of Annual Health Survey data as prevalence of diseases in Odisha is high as compared the other states of India. Odisha a member of 'BIMARUO' states is also now included in Empowered Action Group (EAG) states. Spatial pattern of diseases has been studied using some indicators like acute diseases (Diarrhoea, ARI and Fever) and chronic diseases (Diabetes, Hypertension, Tuberculosis, Asthma and Arthritis). For better interpretation some statistical methods are also used like: Co-efficient of Variance, Z scores and Composite index etc. Life style of the people influences the pattern of chronic disease. Level of education is the most important component controlling the regional variation of the diseases.***

Keywords: Acute Diseases, Chronic Diseases, Empowered Action Group.

1. Introduction

Disease is one of the vital components of health status. It is a disorder of structure or function in a human, animal or plant, especially one that produce specific symptoms or that affects a specific location and is not simply a direct result of physical injury. On the basis of duration, diseases are of two types; acute diseases and chronic diseases. Acute disease is of short term nature and chronic disease is a long term issue.

There is a pressing need for the improvement of health conditions in developing parts of the world. Weak health care infrastructures facilities make difficulties for reducing the burden of diseases in developing countries.

Traditional epidemics like Plague, Smallpox, Cholera and Malaria which were continuously posing threats to the people but due to development of some major inventions in the world the prevalence of the above diseases some-how ceased to a major extent which contributed for reduction in mortality rates and increase in life expectancy at birth. In recent years several new types of communicable infectious diseases like HIV, Hepatitis etc. have cropped up, and as a result the burden of the disease has increased in the present arena.

Communicable diseases still a major concern of morbidity in India. Efforts have been made for the control of such diseases through the organisation of national programmes for major diseases like smallpox, tuberculosis, malaria, leprosy, AIDS, etc. The National Malaria Eradication Programme (NMEP) and the BCG vaccination programme were started in 1948. For controlling the high incidence of tuberculosis, National Tuberculosis programme was launched in 1958 and a large number of BCG teams were established. In recent times AIDS Prevention programmes are also adopted.

Odisha remains as one of the least urbanised states in India as well as one of the poorest states of India, which constitutes only 17 percent of population living in urban areas as per 2011 census. According to Odisha Economic Survey, 2014-15 it is found that around 32.59 percent population faced below poverty line. It also constitutes very high per cent of scheduled castes which is around 17 percent of population and scheduled tribes which is around 23 percent of population as compared to other states. Sex ratio is 978 females per 1000 males which is comparatively in better situation than the other states in the country.

Besides, Odisha also presents a unique case for studying disease pattern in rural area. As per Annual Health Survey Report, 2012-13 the status of prevalence of disease is very high e.g. about 10147 persons per 100,000 population suffering from any type of acute illness and 9417 persons per 100,000 population suffering from any kind of chronic illness.

Keeping the above facts in mind, the broad objective of the study is to examine the level of diseases in rural Odisha. To be more specific, the study intends

1) To examine the trends of diseases in rural Odisha.
2) To study the spatial pattern of diseases in rural area of the state of Odisha.

2. Study Area

The study intends to examine the spatial pattern of diseases in rural areas across districts of Odisha. Geographically, the study area is located between 17° 49'N to 22° 34'N latitudes and from 81° 29'E to 87° 29'E longitudes in the eastern coast of India. According to 2011 census of India, the total population of Odisha is 41,947,358 of which 21,201,678 (50.54 percent) are males and 20,745,680 (49.46 percent) are females and the sex ratio is 978 females per 1000 males. Odisha is one of the backward states of India. The Government of India (GOI), prepared a list of eight states which are very poor in respect of demographic as well as the socioeconomic indicators, called as Empowered Action

Licensed Under Creative Commons Attribution CC BY

Group (EAG) states and Odisha is one of the member states of this group.

3. Data Base

The present study is primarily based on data drawn from secondary source. In India there are some secondary sources of data on health – Annual Health survey (AHS), National Family and Health Survey (NFHS) and National Sample Survey Office (NSSO). Three rounds of AHS data are used for this study. In India, first AHS was conducted in 2010-11, followed by the second and third in 2011-12 and 2012-13 respectively.

4. Methodology

The levels of illness have been measured in terms of level of diseases like chronic diseases and acute diseases. As many as eight indicators were selected for the measuring the levels of illness. For conducting the present study standard score technique (Z score) was employed to know about the status of diseases in rural area of each districts in the state of Odisha.

The indicators selected are:
X_1 Rate of diarrhoea/ dysentery (person per 1, 00,000)
X_2Rate of acute respiratory infection (person per 1, 00,000)
X_3Rate of fever (All Types) (person per 1, 00,000)
X_4 Rate of diabetes (person per 1, 00,000)
X_5 Rate of hypertension (person per 1, 00,000)
X_6 Rate of tuberculosis (person per 1, 00,000)
X_7 Rate of asthma (person per 1, 00,000)
X_8 Rate of arthritis (person per 1, 00,000)

Standard score technique has been applied for measuring the relative score of various indicators of illness in thirty districts of Odisha. The following technique has been employed

$$Zi = \frac{Xi - \bar{X}}{SD}$$

Where,
Zi= Standard score for the i^{th}observation.
Xi = Original value of the observation.
$\bar{X}$ = Mean for all the values of Xi
SD = Standard Deviation of Xi

Further, the result of standard scores obtained for different indicators have been aggregated by Composite standard Score (C.S.S) so that the regional disparities in the levels of illness of the districts may be obtained on a common scale. The Composite Standard Score is algebraically articulated as

$$C.S.S = \frac{\sum Zij}{N}$$

Where, Zij indicates 'Z' score of an indicator 'j' in district 'i' and 'N' refers to numbers of indicators.

All the results have arranged in ascending order for interpretation. The positive values have been relating to the district's score show high level diseases and conversely negative value indicates low level diseases.

Correlation technique has been used to analyze the factors affecting the variations of level of diseases across districts. For this technique some indicators also have been selected. These indicators are:
X_9 Percentage of using tap water
X_{10} Percentage of using well water
X_{11} Percentage of using hand pump
X_{12}Percentage of using of other sources of drinking water
X_{13}Percentage of using sanitation
X_{14}Percentage of male literacy
X_{15} Percentage of female literacy

5. Trends of Diseases in Odisha

Odisha does not occupy a good position in terms of health conditions in India. The state is lagging behind many statistics; it ranks first among the EAG (Empowered Action Group) states of the country as per as prevalence of disability, major and minor injury and also diabetes etc. as per AHS-III data (Annual Health Survey, Census of India 2012-13).
Diarrhoea or Dysentery was reported at a rate of 836, 592 and 762 per lakh population in 2010-11, 2011-12 and 2012-13 respectively.

In 2012-13, the prevalence rate of respiratory diseases was 1134 per lakh population in Odisha; rural rate (1160 per lakh) was higher than the urban rate (1001 per lakh). The rate of ARI morbidity rate was 964 per lakh population and 1252 per lakh population in the year 2010-11 and 2011-12 respectively. For the present study all types of fever are included collectively. The prevalence rate of fever was 6266 per lakh population in Odisha in 2012-13. The rate of prevalence of fever was high in rural areas and low in urban areas.

The situation of diabetes in Odisha is alarming. The prevalence of diabetes is showing an increasing trend. 604,741 and 1047 persons per lakh population were affected from diabetes in 2010-11, 2011-12 and 2012-13 respectively but there is a stark difference between the rural and urban areas which may be related to the different nature of life style in the urban and rural areas.

Table 1: Trends in Levels of Diseases in Odisha, 2010-13

Major Diseases	2010-11			2011-12			2012-13		
	PERSON			PERSON			PERSON		
	T	R	U	T	R	U	T	R	U
Acute Illnesses									
Diarrhoea/Dysentery	836	900	511	592	630	399	762	821	457
Acute Respiratory Infection (ARI)	964	1027	638	1252	1348	757	1134	1160	1001
Fever (All Types)	6689	6990	5141	6403	6542	5684	6266	6573	4670
Chronic Illnesses									

Licensed Under Creative Commons Attribution CC BY

Diabetes	604	405	1622	741	516	1904	1047	733	2676
Hypertension	1185	980	2239	1373	1160	2477	1776	1541	2993
Tuberculosis (TB)	139	148	92	178	187	130	185	193	141
Asthma	535	530	563	650	644	683	720	705	798
Arthritis	258	251	294	628	665	441	1886	2029	1141

Source: Annual Health Survey-III, 2012-13,Office of the Registrar General & Census Commissioner, India

The rate of hypertension is also high in Odisha which has been increasing overtime. The rate of hypertension was 1185, 1373 and 1776 per lakh population in year 2010-11, 2011-12 and 2012-13 respectively. Higher rate of hypertension is found in urban area than the rural areas which may be attributed to the lifestyle, working condition, living condition, food habit etc.

Prevalence of tuberculosis is low in Odisha. In 2012-13, the rate of TB was 184 persons per lakh population. In rural areas 193 per lakh population suffered from TB whereas 141 per lakh population in urban areas suffered from TB.

Asthma is one of the important causes of morbidity. It is a common long-term provocative disease of the airways of the lungs. The rate of asthma was 535 per lakh population in 2010-11 and 650, 720 per lakh population in 2011-12 and 2012-13 respectively. In 2010-11, the rate of arthritis as a disease was 258 per lakh population which increased to 1886 persons per lakh population in 2012-13 which was a massive change. The rate of arthritis has been seen more prevalent in rural areas than the urban area.

Among of all diseases, the prevalence of fever is very high but the rate is declining. Overall the rates of lifestyle diseases or chronic diseases are increasing overtime.

6. Spatial Patterns of Diseases in Rural Odisha

Spatial inequality in Odisha has been observed by many indicators of health and well-being (Das, 2013). A greater disparity has been observed within Odisha in terms of socio-economic conditions and health status. There are variations in diseases across the spatial units of state. As per AHS III data, Odisha has highest rate of level of diseases among the AHS states (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttrakhand). The prevalence of diseases is estimated by many indicators but here we take into account the acute and chronic diseases. Acute disease includes diarrhoea, acute respiratory infection and fever (all types). Chronic disease includes diabetes, hypertension, tuberculosis, asthma and arthritis etc.

For a better interpretation of pattern of diseases, it is of utmost importance to first regionalise Odisha. National Sample Survey Organization (NSSO) of India identified three agro-climatic regions of Odisha; Southern, Northern and Coastal. Southern region includes eight districts namely Kandhamal, Baudh, Nuapada, Kalahandi, Rayagada and Nabarangpur, Koraput and Malkangiri. Northern region consists of Bargarh, Jharsuguda, Sambalpur, Debagarh, Sundargarh, Kendujhar, Mayurbhanj, Dhenkanal, Anugul, Sonapur, and Balangir districts. Coastal region includes eleven districts; these are Balaswar, Bhadrak, Kendrapara, Jagatshingpur, Cuttack, Jajapur, Nayagarh, Khorda, Puri, Ganjam and Gagapati

Table-2 reveals the overall condition of the acute diseases. There is a great variation among the districts. Prevalence of acute diseases is highest in Debagarh district and lowest in Anugul district.

Table 2: Standard Score of Indicators for Patterns of Acute Diseases, 2012-13

Districts	X_1	X_2	X_3	Composite Value	Composite mean standard score
Anugul	0.21	-0.60	-0.26	-0.65	-0.22
Koraput	0.93	0.12	1.41	2.45	0.82
Rayagada	0.56	0.03	1.88	2.47	0.82
Nabarangapur	1.11	0.06	1.43	2.61	0.87
Nuapada	0.32	0.39	2.00	2.71	0.90
Sonapur	0.76	0.52	1.47	2.76	0.92
Kalahandi	0.25	0.06	2.67	2.98	0.99
Sundargarh	1.60	0.20	2.11	3.92	1.31
Jagatsinghapur	0.92	0.60	2.41	3.93	1.31
Cuttack	0.79	0.38	2.77	3.94	1.31
Gajapati	1.49	0.37	2.15	4.01	1.34
Kandhamal	1.03	0.59	2.83	4.45	1.48
Balangir	1.48	0.34	2.88	4.70	1.57
Ganjam	1.12	2.80	0.86	4.78	1.59
Baudh	0.56	2.12	2.51	5.20	1.73
Kendrapara	2.84	0.08	2.38	5.31	1.77
Mayurbhanj	2.57	0.06	2.76	5.38	1.79
Puri	1.51	2.79	1.40	5.70	1.90
Bargarh	2.32	0.96	2.42	5.70	1.90
Khordha	1.19	1.65	3.07	5.92	1.97
Malkangiri	0.81	0.65	4.52	5.97	1.99
Baleshwar	1.76	0.14	4.12	6.02	2.01
Sambalpur	2.14	0.55	3.49	6.18	2.06
Kendujhar	2.73	0.15	3.56	6.44	2.15
Jharsuguda	2.48	2.70	1.57	6.74	2.25
Nayagarh	1.89	0.89	4.25	7.03	2.34
Dhenkanal	3.22	0.29	3.57	7.08	2.36
Bhadrak	2.14	3.63	2.30	8.08	2.69
Jajapur	4.26	0.18	3.97	8.41	2.80
Debagarh	3.63	0.12	4.68	8.44	2.81

Source: Computed by authors from Annual Health Survey-III, 2012-13,Office of the Registrar General & Census Commissioner, India

Table 3: Standard Score of Indicators for Patterns of Chronic Diseases, 2012-13

Districts	X_4	X_5	X_6	X_7	X_8	Composite Value	Composite mean standard score
Anugul	0.59	-0.69	-0.87	-0.52	0.12	-1.38	-0.28
Kendujhar	0.75	0.69	0.80	0.21	0.15	2.59	0.52
Malkangiri	0.31	0.20	1.52	0.23	0.94	3.20	0.64
Rayagada	0.56	0.71	2.22	0.22	0.34	4.05	0.81
Baleshwar	1.03	0.94	1.23	0.34	0.55	4.09	0.82
Nuapada	0.45	0.46	2.75	0.21	0.97	4.84	0.97

Licensed Under Creative Commons Attribution CC BY

Koraput	0.64	0.44	2.83	0.36	0.78	5.04	1.01
Nabarangapur	0.29	1.01	2.47	0.25	1.03	5.05	1.01
Mayurbhanj	1.06	0.65	3.05	0.58	1.00	6.35	1.27
Kalahandi	0.82	1.27	3.25	0.52	0.77	6.63	1.33
Sonapur	0.91	1.11	1.85	0.38	2.42	6.66	1.33
Baudh	0.72	0.82	2.17	0.69	2.65	7.05	1.41
Sambalpur	1.21	0.82	3.00	0.51	1.81	7.35	1.47
Sundargarh	1.16	1.54	4.14	0.18	0.55	7.57	1.51
Kendrapara	2.26	1.41	1.91	0.88	1.14	7.60	1.52
Debagarh	1.03	1.17	2.68	1.01	2.47	8.36	1.67
Kandhamal	0.99	1.16	4.39	0.99	0.90	8.43	1.69
Bargarh	1.61	0.89	2.48	0.57	3.28	8.83	1.77
Balangir	1.17	1.56	3.70	0.49	1.97	8.88	1.78
Bhadrak	1.88	2.56	2.83	1.12	2.10	10.49	2.10
Ganjam	1.80	1.54	3.71	0.59	3.17	10.81	2.16
Jajapur	2.70	2.97	3.65	0.80	1.68	11.81	2.36
Gajapati	1.55	2.24	5.41	0.54	2.37	12.12	2.42
Jharsuguda	1.73	3.04	4.17	0.51	3.02	12.47	2.49
Dhenkanal	2.21	2.62	3.77	0.27	4.09	12.96	2.59
Cuttack	3.39	2.89	2.28	2.48	2.01	13.04	2.61
Nayagarh	2.64	2.98	3.21	2.77	2.71	14.30	2.86
Jagatsinghapur	4.22	3.02	2.63	3.06	1.39	14.32	2.86
Puri	2.77	3.44	2.83	3.61	2.08	14.73	2.95
Khordha	3.30	3.29	3.64	3.26	2.84	16.33	3.27

Source: Computed by authors from Annual Health Survey-III, 2012-13,Office of the Registrar General & Census Commissioner, India

Chronic diseases are long term diseases. The study takes into account five chronic diseases: diabetes, hypertension, tuberculosis, asthma, arthritis etc. These five diseases mainly depend on lifestyle of the people or in one word one can say these are the lifestyle diseases.

Table-3 reveals the overall condition of the chronic diseases. There is a great variation among the districts. Lowest level of chronic diseases is found in Anugul district (-0.28) whereas highest level is found in Khordha district (3.27). High level of chronic diseases has been seen in the coastal districts of the state of Odisha. Khordha is the most developed district in Odisha where India's number one smart city Bhubaneswar is situated and the prevalence of chronic diseases is highest in this district. Southern and northern districts have been comparatively on a lower scale of prevalence of chronic diseases.

Table-4 indicates that overall spatial pattern of all diseases including both acute and chronic diseases. Both acute and chronic diseases are included and one composite score has been calculated for a better interpretation. There was a great variation on the spatial patterns of diseases. In this case Anugul (-0.25) is lowest whereas Khordha (2.78) is highest in terms of prevalence of diseases. On the basis of the table a choropleth map is prepared to show the spatial patterns of diseases. By classifying the districts on the basis of magnitude of disease, the composite score is divided into the following 3 classes: low (below 1.00), medium (1.00-1.75) and high (above 1.75).

Table 4: Standard Score of Indicators for Patterns of Diseases, 2012-13

Districts	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	Composite Value	Composite mean standard score
Anugul	0.21	-0.60	-0.26	0.59	-0.69	-0.87	-0.52	0.12	-2.03	-0.25
Rayagada	0.56	0.03	1.88	0.56	0.71	2.22	0.22	0.34	6.52	0.81
Koraput	0.93	0.12	1.41	0.64	0.44	2.83	0.36	0.78	7.49	0.94
Nuapada	0.32	0.39	2.00	0.45	0.46	2.75	0.21	0.97	7.54	0.94
Nabarangapur	1.11	0.06	1.43	0.29	1.01	2.47	0.25	1.03	7.65	0.96
Kendujhar	2.73	0.15	3.56	0.75	0.69	0.80	0.21	0.15	9.03	1.13
Malkangiri	0.81	0.65	4.52	0.31	0.20	1.52	0.23	0.94	9.17	1.15
Sonapur	0.76	0.52	1.47	0.91	1.11	1.85	0.38	2.42	9.42	1.18
Kalahandi	0.25	0.06	2.67	0.82	1.27	3.25	0.52	0.77	9.60	1.20
Baleshwar	1.76	0.14	4.12	1.03	0.94	1.23	0.34	0.55	10.10	1.26
Sundargarh	1.60	0.20	2.11	1.16	1.54	4.14	0.18	0.55	11.49	1.44
Mayurbhanj	2.57	0.06	2.75	1.06	0.65	3.05	0.58	1.00	11.72	1.47
Baudh	0.56	2.12	2.51	0.72	0.82	2.17	0.69	2.65	12.25	1.53
Kandhamal	1.03	0.58	2.83	0.99	1.16	4.39	0.99	0.90	12.88	1.61
Kendrapara	2.84	0.08	2.38	2.26	1.41	1.91	0.88	1.14	12.90	1.61
Sambalpur	2.14	0.55	3.49	1.21	0.82	3.00	0.51	1.81	13.53	1.69
Balangir	1.48	0.34	2.88	1.17	1.56	3.70	0.49	1.97	13.58	1.70
Bargarh	2.32	0.96	2.42	1.61	0.89	2.48	0.57	3.28	14.53	1.82
Ganjam	1.12	2.80	0.86	1.80	1.54	3.71	0.59	3.17	15.59	1.95
Gajapati	1.49	0.37	2.15	1.55	2.24	5.41	0.54	2.37	16.14	2.02
Debagarh	3.63	0.12	4.68	1.03	1.17	2.68	1.01	2.47	16.79	2.10
Cuttack	0.79	0.38	2.77	3.39	2.89	2.28	2.48	2.01	16.98	2.12
Jagatsinghapur	0.92	0.60	2.41	4.22	3.02	2.63	3.06	1.39	18.24	2.28
Bhadrak	2.14	3.63	2.30	1.88	2.56	2.83	1.12	2.10	18.56	2.32
Jharsuguda	2.48	2.70	1.57	1.73	3.04	4.17	0.51	3.02	19.21	2.40
Dhenkanal	3.22	0.29	3.57	2.21	2.62	3.77	0.27	4.09	20.03	2.50
Jajapur	4.26	0.18	3.97	2.70	2.97	3.65	0.80	1.68	20.22	2.53
Puri	1.51	2.79	1.39	2.77	3.44	2.83	3.61	2.08	20.42	2.55
Nayagarh	1.89	0.89	4.25	2.64	2.98	3.21	2.77	2.71	21.34	2.67
Khordha	1.19	1.65	3.07	3.30	3.29	3.64	3.26	2.84	22.24	2.78

Source: Computed by authors from Annual Health Survey-III, 2012-13,Office of the Registrar General & Census Commissioner, India

Licensed Under Creative Commons Attribution CC BY

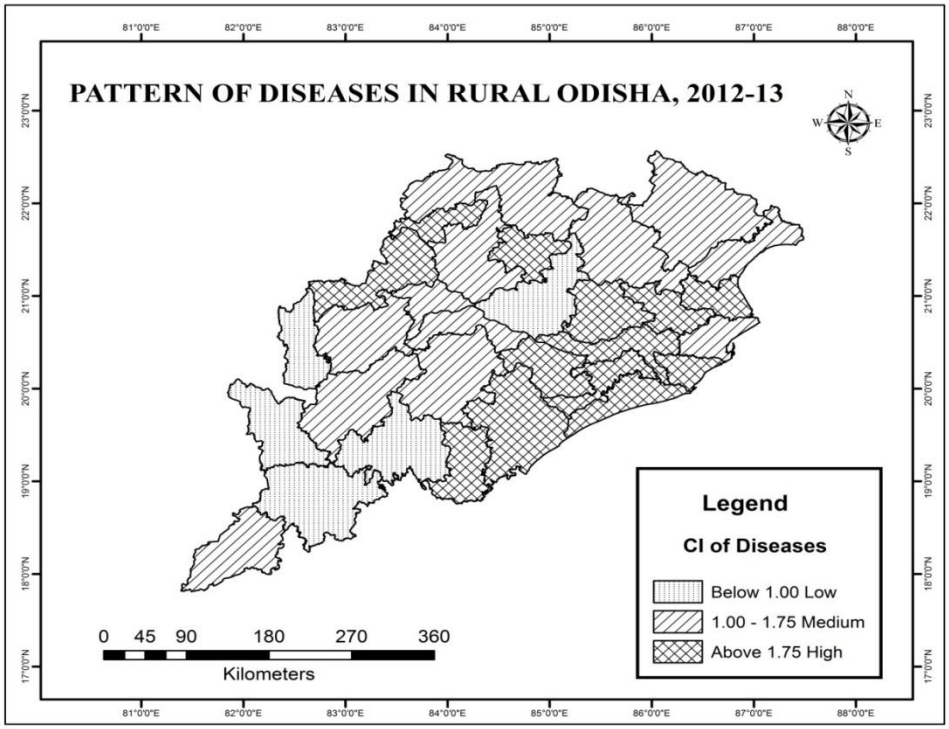

Figure 1: Pattern of Diseases in Rural Odisha

Table 5: Inter-District Variation in Patterns of Diseases, 2012-13

Levels of Diseases	Score	No of Districts	Districts
Low	Below 1.00	5	Anugul, Rayagada, Koraput, NuapadaNabarangapur
Medium	1.00 to 1.75	12	Kendujhar, Malkangiri, Sonapur, Kalahandi, Baleshwar, Sundargarh, Mayurbhanj, Baudh, Kandhamal, Kendrapara, Sambalpur, Balangir
High	Above 1.75	13	Bargarh, Ganjam, Gajapati,Debagarh, Cuttack, Jagatsinghapur, Bhadrak, Jharsuguda, Dhenkanal,Jajapur,Puri, Nayagarh, Khordha

Source: Calculated by the author from the table-4

Higher level of diseases has been seen mainly in the coastal districts of Odisha. Three districts of northern part have higher prevalence of diseases; Bargarh (1.82), Debagarh (2.10) and Jharsuguda (2.40). India's most under developed area KBK (Kalahandi-Balangir-Koraput) region has lower level of diseases pattern. It has been known to us that prevalence of diseases is high in underdeveloped area and low in developed areas but in case of Odisha it has been seen in a different pattern because this mainly depends on reporting or registration. In Odisha developed areas have higher rate of diseases due to reporting/registration of the particular disease whereas due to non-registration or lower rate of reporting the lower rate of prevalence of diseases is found in the underdeveloped districts.

So one interesting question arises in our mind that- "why this type of variation is seen in the state of Odisha"? To answer this typical question, we have calculated the Correlation Coefficient (Table 4) among the selected indicators (refer to methodology section) with the composite mean standard score of all diseases taking together (acute and chronic).

Table 6 reveals that occurrence of disease is positively highly correlated with male and female literacy. So where the level of literacy is high, there is higher rate of reported diseases.

Table 6: Correlation among the select indicators

Indicators	Occurrence of Diseases	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
Occurrence of Diseases	1	0.199	-0.189	0.199	-0.358	0.189	.585**	.560**
X_9		1	-0.283	1.000**	-0.097	0.283	0.016	0.019
X_{10}			1	-0.283	-.493**	-1.000**	-0.062	0.006
X_{11}				1	-0.097	0.283	0.016	0.019
X_{12}					1	.493**	-.465**	-.528**
X_{13}						1	0.062	-0.006
X_{14}							1	.969**
X_{15}								1
N = 30, **. Correlation is significant at the 0.01 level (2-tailed).								

Source: Computed by authors from Annual Health Survey-III, 2012-13, Office of the Registrar General & Census Commissioner, India

Licensed Under Creative Commons Attribution CC BY

7. Conclusion

Disease is the one of the negative indicators of health status of living organism. The prevalence rate of acute diseases is high but a declining trend is evident which gives an impression that certain things have worked out such as medical facilities to reduce the levels of acute illnesses. But the prevalence rate of chronic diseases is lower than acute but it has been increasing from time to time. Higher prevalence of acute diseases has been seen in the northern districts and some coastal districts of state. And, higher prevalence of chronic diseases is high in the developed districts like; Khordha, Puri, Jajapur etc.

The districts of northern and southern region are educationally lagging behind than the coastal parts of state; as per the estimation of 2011 census. It has been found that the rate of prevalence of diseases is high in the districts of coastal part of the state which are the developed districts.It has been known to us that prevalence of diseases is high in underdeveloped area and low in developed areas but in case of Odisha, it reveals a different pattern because this mainly depends on reporting or registration. In Odisha developed areas have higher rate of diseases due to reporting/registration of the particular disease whereas due to non-registration or lower rate of reporting the lower rate of prevalence of diseases is found in the underdeveloped districts. So, it can be concluded that the areas where the literacy rate is high there is a higher reporting/ registration of diseases which accounts for higher rate of prevalence of diseases.

References

[1] Das Sibabrata, (2013): "Patterns of Social and Spatial Inequalities in Child Nutrition in Odisha, India", Asian Profile, Vol. 41 No. 2, pp 189 – 206.
[2] Farmer Paul, (1996): "Social Inequalities and Emerging Infectious Diseases", Emerging Infectious Diseases, Vol.2 (4), pp.259-269. https://www.ncbi.nlm.nih.gov/pubmed/8969243
[3] Meara W.P. O', et. al., (2009): "The impact of primary health care on malaria morbidity - defining access by disease burden", Trop Med Int Health, Vlo.14 (1), pp.29–35/doi:10.1111/j.1365-3156.2008.02194.x.
[4] Mamdani M, Bangser M, (2004): "Poor people experiences of health services in Tanzania: A literature review", Reproductive health Matter, Vol. 12 (24), pp. 138-153https://www.tandfonline.com/doi/abs/10.1016/S0968-8080%2804%2924135-0
[5] Mini GK, Thankappan KR. (2017): "Pattern, correlates and implications of non-communicable disease multimorbidity among older adults in selected Indian states: a cross-sectional study", BMJ Open, Vol. 7, pp.1-6/ doi: 10.1136/bmjopen-2016- 013529
[6] Morse SS. (1995): "Factors in the emergence of infectious diseases", Emerging Infectious Diseases, Vol. 1(1), pp. 7-15.https://wwwnc.cdc.gov/eid/article/1/1/95-0102
[7] Prusty Ranjan Kumar, Gouda Jitendra and Pradhan ManasRanjan, (2015): "Inequality in the Utilization of Maternal Healthcare Services in Odisha, India", International Journal of Population, Article ID 531485, 10 pages / http://dx.doi.org/10.1155/2015/531485
[8] Upadhyay R. P. (2012): "An Overview of the Burden of Non- Communicable Diseases in India", Iranian Journal of Public Health, Vol. 41(3), 2012, pp.1-8.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3481705/

Author Profile

Ranajit Bera, Research Scholar, Department of Applied Geography, Ravenshaw University, Cuttack.

Ramya Ranjan Behera, Research Scholar, Department of Applied Geography, Ravenshaw University, Cuttack.

Prof. Pritirekha Daspattanayak, Head, Department of Applied Geography & Dean, School of Regional Studies and Earth Sciences, Ravenshaw University, Cuttack.

Licensed Under Creative Commons Attribution CC BY