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From the Desk of the Secretary

Geographical Society of North Bengal is an NGO located in the district of Jalpaiguri, West Bengal, India. Initially it was formed for educational development in the under developed Dooars area but its area of operation is not restricted in a single point and rather it is open for all, irrespective of geographical space. Geographical Society of North Bengal has stepped in to eight year of its working. The society is bound by promise to continue its unending efforts in the processes of social development and the first edition of ‘Geo-Analyst’ is one of such endeavours related to that. I thank all the members of the society for their kind co-operation to publish this Journal. I appeal to every Academician, Research Scholars and Social scientist from India and abroad to enrich the idea of social science related themes.

Alipurduar
July, 2011

Hiranmoy Biswas
Secretary



Editorial

In our contemporary life, the study of social sciences arouses great significance as the social landscape has been rapidly changing. In view of multi-faceted and dynamic nature of social sciences each and every micro level study of it highlights distinct importance in multi-disciplinary studies. Recently, there is a sign of growing interest as well as anxiety about the social changes taking place almost every part worldwide and the interest in social studies is growing for this reason. The introducing issue of Geo-Analyst, a bi-annual journal of social sciences of the Geographical Society of North Bengal is out on the stand, which has addressed to complex, changing and challenging issues along with few innovative ideas of development in the courtyard of social sciences.

Alipurduar
July, 2011

Piyal Basu Roy
Editor

Association amongst Various Diseases in Jalgaon City, Maharashtra, India

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Abstract

The term association of diseases may be defined as the incidence of two diseases more often than would be expected by chance. Therefore, the present study is an attempt to examine the association between selected 18 diseases in Jalgaon City. To examine the association between these diseases, a total of 500 household respondents belonging to 69 wards have been interviewed during August-September, 2010 following stratified random sampling method. The results portrays that there is significant correlation between diseases in most cases although a few have negative correlation e.g. Malaria and Typhoid these two communicable diseases are found significant association. Diabetes Mellitus and Hyper Tension are the two non-communicable diseases closely associated. The present study highlights the degree of association existing between diseases as prevailing in the town of Jalgaon, Maharashtra, India.

Key Words: Association of Diseases, Correlation Coefficient, Jalgaon City, Kendall's Ranking Coefficient.

Introduction

Urbanization is an important demographic shift in India. According to the NFHS-3 reports, India's urban population was 28 percent, and in Maharashtra it is recorded 42.4 percent ranking second followed by Tamil Nadu (43.9%). Urbanization has been traditionally linked to development with improvement of human health (Akhtar, 1982). Generally in Indian cities one half lives are relatively clean and healthy conditions while the remaining lives in overcrowded slums. Environmental and socio-economic factors contribute to high morbidity rates in urban areas.

Objectives The present paper is an attempt to find out the association among different 18 communicable and non-communicable diseases in Jalgaon City.

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Data base and Methodology

The study is mainly based on primary sources of data, collected through Household Health Schedule, 2010 which included demographic, environmental, socio-economic, health related aspects (9 communicable and 9 non-communicable diseases). Information has been collected by conducting door-to-door survey of 500 households from 69 wards in Jalgaon City. Secondary data of Census 2001 were also used for comparison. To check and verify the accuracy of data, suitable computer softwares have been used. The statistical techniques namely Kendall's Ranking Coefficient and Correlation Coefficient have been used for association among various diseases. (Suryawanashi, 2002).

Study Area

Present study was conducted in Jalgaon City, a district headquarter situated in the northern part of Maharashtra state. It lies between 20° 56' 45" North to 21° 02' 13" North Latitude and 75° 30' 51" East to 75° 37' 31" East Longitude. The study region has an area of 68.2427 sq km and administratively it is divided in to 69 wards (*JCMC: DPR with Micro Plan*). The climate of the study area is generally hot and dry and average annual rainfall is 525.80 mm. The average maximum temperature is 43.5° C. and average minimum temperature is 11° C. According to the 2001 Census, the total population of Jalgaon City was about 3.68 lakh.

Discussion:

Kendall's Ranking Coefficient Method is used for getting the rank of coefficient value of all diseases in the 69 wards of Jalgaon City. Disease wise morbidity cases in wards are converted in descending order under the head of each disease separately. The rank of each ward has been made for each district separately. Lastly, all the ranks occupied by a ward are added up. The sum of ranks is divided by number of diseases prevailed in that ward. To get the average ranking co-efficient value following formula is used:

$$Rc_1 = \frac{Dr_1 + Dr_2 + Dr_3 + Dr_n}{N}$$

Where,

Rc_1 = The Diseases Ranking Co-efficient value of Ward 1.

$Dr_1, Dr_2, Dr_3,$ and Dr_n = are the Ranks occupied by the ward 1 for Diseases r_1, r_2, r_3, r_n .

N = is the total number of Diseases taken into consideration in a Ward.

In order to find out association amongst various 18 diseases, correlation coefficient values were computed with the help of computer software. If the correlation coefficient values for diseases are recorded more than 0.5, it shows a significant association with each other. Zero value shows the independent association and minus(-) value shows the negative association among diseases (Table :1).

Table: 1 JCMC: Association Amongst the Diseases with the help of Co-efficient Correlation Values																		
Diseases	C. Cold	Diar/gastro	Malaria	Typhoid	Conjunctivitis	Scabies	Hepatitis	Tuberculosis	Chikungunya	Anemia	Obesity	Diabetes M	H. Tension	H. Attack	Teeth & Gum D.	Acc & Inj	Mental Illness	Other NCD
C. Cold	1.00																	
Diar/Gastro	0.87	1.00																
Malaria	0.69	0.49	1.00															
Typhoid	0.62	0.40	0.65	1.00														
Conjunctivitis	0.63	0.54	0.41	0.31	1.00													
Scabies	0.46	0.48	0.17	0.09	0.10	1.00												
Hepatitis	0.33	0.36	0.06	0.17	0.25	0.03	1.00											
Tuberculosis	0.37	0.30	0.43	0.25	0.33	0.15	0.24	1.00										
Chikungunya	0.23	0.30	0.17	-0.09	0.12	0.54	0.06	0.17	1.00									
Anemia	0.63	0.63	0.44	0.44	0.59	0.07	0.34	0.46	0.04	1.00								
Obesity	0.01	-0.01	-0.14	-0.13	0.06	0.02	0.07	-0.05	-0.12	0.02	1.00							
Diabetes M.	0.11	0.10	-0.11	-0.13	0.30	0.00	0.08	-0.15	0.04	0.06	0.15	1.00						
H. Tension	0.26	0.25	0.11	-0.02	0.42	0.13	0.13	0.10	0.23	0.29	0.25	0.54	1.00					
H. Attack	0.12	0.13	-0.02	0.08	0.07	-0.01	0.08	-0.08	-0.01	0.05	0.25	0.11	0.10	1.00				
Teeth & Gum D.	0.61	0.50	0.53	0.43	0.83	0.02	0.26	0.28	0.05	0.48	-0.07	0.14	0.18	0.15	1.00			
Acci & Inj	0.19	0.32	-0.04	-0.06	0.21	0.25	0.16	0.14	0.38	0.48	0.14	0.03	0.21	0.09	0.07	1.00		
Mental Illness	0.18	0.26	0.11	-0.04	0.10	0.28	0.01	0.30	0.09	0.14	0.08	-0.12	-0.05	0.10	0.01	0.19	1.00	
Other NCD	0.22	0.13	0.07	0.05	0.32	0.06	0.29	0.37	0.00	0.33	0.30	0.14	0.21	0.26	0.25	0.09	0.01	1.00

Source: Field Work by Researcher, 2010.

Findings

The above table shows that, the intestinal disease like Diarrhea or Gastroenteritis have close association with nutritional deficiency like Conjunctivitis, Anemia, Teeth and Gum Diseases. A very significant association is seen between Common Cold with Diarrhea/Gastroenteritis, Malaria, Typhoid, Conjunctivitis, Anemia and Teeth and Gum Diseases. This association is explained by the value of correlation of co-efficient, which ranges from 0.61 to 0.87. In the study area, Diarrhea/Gastroenteritis is closely associated with Conjunctivitis, Anemia and Teeth and Gum Diseases. The value of correlation co-efficient is 0.54, 0.63 and 0.50 respectively. Diarrhea/Gastroenteritis and Anemia are significantly associated in Jalgaon City by the value of 0.63. Malaria and Typhoid show significant association, because the value of these two diseases is 0.65. Both these diseases are communicable and are caused due to unhygienic living condition and poor sanitation. Similarly Malaria, Teeth and Gum Diseases are also closely associated because of poor socio-economic factors. The Conjunctivitis with Anemia, Teeth and Gum Diseases are found significantly associated and all three are closely related with nutritional deficiency. Their correlation co-efficient value is significantly high. In the study area Scabies and Chikungunya is also closely associated, because of poor environmental factors and personal hygiene. Diabetes Mellitus and Hyper tension are two non-communicable diseases significantly associated having co-efficient value is 0.54. These are caused by the changing life style and food habits of the urban lower and middle class families. Scabies and Diabetes Mellitus are found independent association with each other in Jalgaon City.

Diarrhea/Gastroenteritis and Obesity is found negative association. Malaria with Obesity, Diabetes Mellitus, Heart Attack and Teeth and Gum Diseases are also having negative association. Typhoid with Obesity, Diabetes Mellitus, Hyper Tension, Accident and Injuries and Mental Illness are insignificantly associated with each other in study area. Scabies with Heart Attack has also no significant association. Tuberculosis with Obesity, Diabetes Mellitus and Heart Attack is found in negative association. Chikungunya with Obesity and Heart Attack is also found insignificant association. Obesity, Teeth and Gum Diseases are also found in negative association. Diabetes Mellitus with Mental Illness, Hyper tension with Metal Illness is recorded negative association in the study area.

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