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Impact of Environment on the Health of Urban Poor- A Community Based Study

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Abstract: *All major cities of India face haphazard, unplanned expansion leading to increase in population. Ultimately there is creation of slum areas around city peripheries and low-lying areas due to this unchecked growth.. Environmental degradation is fundamentally linked to poverty in India, which is the main obstacle in dealing with environment related problems and health. If effective and practical solutions to remedy environmental hazards are to be taken, this environment poverty nexus cannot be ignored.* ***Objective****- To assess environmental risk factors and their resultant diseases in slum areas of Shahabad (Dist. Kurukshetra).* ***Material and methods****- This cross sectional study was conducted during a period of three months i.e. December 2017 to February 2018 in the urban field practice area of Dept. of Community Medicine, in the major slums of Shahabad (Dist. Kurukshetra), Haryana. For this descriptive study sample population was taken from the representative areas. For the purpose of this study, the entire area of Shahabad was divided into five units (east, west, north, south and central). In the first stage two clusters were randomly selected from each unit. In the second stage, equal number i.e. 10 households were randomly selected from the selected clusters for interview (100 households). Environmental health factors that were considered for the present study are socio-economic conditions, housing conditions, sanitation, waste water and solid waste disposal, nutrition level and water quality. Incidence of major diseases with reference to their age groups was considered for second part of the questionnaire.* ***Results****- The analysis of slums of Shahabad show highly unsustainable environmental conditions. A clear relationship is indicated by results of this study between many diseases and unsustainable environment and socio-economic conditions. When diseases are considered according to gender, the prevalence of diseases is different among males and females.* ***Discussion****- Slum areas lack infrastructure along with degraded local environment which is the product of illiteracy and unawareness. Consequently slum dwellers are facing health risk and threats. The growth and expansion of slums can therefore threaten sustainable and urban development at local, national and regional scales.* ***Conclusion****- There is a need of engagement of slum dwellers in improving and maintaining environment health. 'Community engagement' is one of the best mitigation strategies which is based upon people involvement in improving the quality of environment in a sustainable way.*

Keywords *-Slums, environment, environmental risk factors, diseases.*

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I. Introduction

India is a developing country with a total population of 130 cores.(1) Imbalanced social and economic development is the primary cause of environment challenges and issues affecting development in India. Rapid urbanization due to shift of population from rural to urban areas has further complicated these challenges. Thus, all major cities of India face haphazard, unplanned expansion leading to increase in population. Ultimately there is creation of slum areas around city peripheries and low-lying areas due to this unchecked growth. Slums are typically characterized, in part, by the lack of access to clean water and exposure to insanitary conditions with excrement and open sewage pooling along unpaved walkways. According to 2011 census (India)(2) , the number of cities and towns, which accounted for the total slum population is 6,54,94,604.

The UN (United Nations) operationally defines a slum(3) as "a group of individuals living under the same roof in an urban area, lacking in one or more of the following five amenities": 1) Durable housing (a permanent structure providing protection from extreme climatic conditions) ; 2) Sufficient living area (no more than three people sharing a room) ; 3) Access to improved water (water that is sufficient, affordable, and can be

obtained without extreme effort) ; 4) Access to improved sanitation facilities (a private toilet or a public one shared with a reasonable number of people) ; and , 5) Secure tenure (de facto or de jure secure tenure status and protection against forced eviction).

The UN even incorporated slums into the Millennium Development Goals as part of goal 7, to ensure environmental sustainability: target 7.D is to "Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers" (4) , putting area level deprivation and urban poverty on the development agenda. The Government of India is increasingly concerned with growing poverty, inequality and poor health among its urban residents. Policy initiatives such as Rajiv Awas Yojana, has been developed by Indian government which has a goal of "slum free india".(5)

Shahabad (M) is a town and a municipal committee in Kurukshetra district in the Indian state of Haryana. The total population of Shahabad (Dist. Kurukshetra), Haryana is approx. 70,000 with urban slums contributing to 2% of population. To ensure a healthy living environment in such areas, the managers of India's major urban centres are facing rising difficulties in developing their management plans. Thus, environmental degradation is fundamentally linked to poverty in India, which is the main obstacle in dealing with environment related problems and health. If effective and practical solutions to remedy environmental hazards are to be taken, this environment poverty nexus cannot be ignored.

The main objective of this paper is to analyze the environmental risk factors and their resultant diseases. On the basis of which, a set of community engagement strategies were designed to attain the sustainable development in the slum areas of Shahabad.

II. Objective

To assess environmental risk factors and their resultant diseases in slum areas of Shahabad (Dist. Kurukshetra).

III. Material and Methods

This cross sectional study was conducted during a period of three months i.e. December 2017 to February 2018 in the urban field practice area of Dept. of Community Medicine, in the major slums of Shahabad (Dist. Kurukshetra), Haryana. For this descriptive study sample population was taken from the representative areas.

For the purpose of this study, the entire area of Shahabad was divided into five units (east, west, north, south and central). In the first stage two clusters were randomly selected from each unit. In the second stage, equal number i.e. 10 households were randomly selected from the selected clusters for interview (100 households). The households were selected after mapping and numbering the selected slum area. A well-designed interview schedule was used to interview the sample population. Tools and techniques were prepared after conducting meetings with faculty of Community Medicine, social scientists and statisticians.

Environmental health factors that were considered for the present study are socio-economic conditions, housing conditions, sanitation, waste water and solid waste disposal, nutrition level and water quality. To check the economic status of population, per capita income was calculated (B G Prasad Classification). To check the housing condition questions were asked relating to the area of house, number of rooms, building material and house repairing rate. Housing structure was divided into two categories i.e. kutcha (local word used if mud, grass, wood or tin is used as building material) and pakka (local word used if bricks and cement are used as building material). To obtain the household density (crowding), total area of the house was divided by the number of people living in the house. Sanitation conditions related questions were asked as if they had attached or separated latrines, how do they deal with waste water (sewage pipe, pit drainage, open drain or other) and solid waste (municipal dustbins, streets or dump at open place or other). Nutrition level was estimated by the frequency of meal intake (one time / two times / three times per day). Some questions were directly asked during field survey about the sources of water (municipal water supply, hand pump, electric pump or other), and whether they filter or purify that water or not.

Incidence of major diseases with reference to their age groups was considered for second part of the questionnaire. Diseases were generalized and divided into categories as respiratory diseases (tuberculosis, asthma, influenza and emphysema), digestive diseases (cholera, dysentery, diarrhoea, hepatitis B-C, dehydration, gastro-enteritis), skin diseases, cardiovascular disease, diabetes, hypertension and any epidemic in last 30 days. To reduce any recall bias, history of disease in last 30 days only was recorded. All ailments and symptoms, reported sickness or sickness perceived by the respondent in the slum areas were recorded. Sickness reported by slum dwellers was categorized as mild or severe. Severe illnesses which required advice from medical practitioner or admission in hospital and cases of chronic diseases eg. Hypertension, Diabetes etc. which were on treatment were recorded. Information regarding morbidity was collected on the basis of documented evidence i.e. OPD / treatment cards. To check anaemia, haemoglobin estimation was done for all subjects. Respondents who reported severe illness or those with chronic disease who failed to show any documentation of disease were excluded from the study.

IV. Results

Table 1. Socio-economic Profile of Study Area

S.No.	Parameter	
Housing conditions		
1.	Average area of houses	125 square meters
2.	Average room density	5 persons/room
3.	Housing structure (building material)	75% kutcha
4.	Average age of houses	20-30 years
5.	Poor ventilation	75% of houses
6.	Houses with no courtyard	80%
7.	Average repairing or white wash rate	10 years
Socio-economic condition		
1.	Dependency rate	70%
2.	Average income / household	8000/month/household
3.	Family size / household	7 persons/household
4.	Rate of illiteracy	70%
5.	Average meal intake	once per day
Environmental conditions observed		
1.	Condition of sewage system	Poor(open drain, no drain or pit drain)
2.	Streets	Unpaved and congested
3.	Method of solid waste disposal	Dumping
4.	Quality of drinking water	Poor
5.	Environmental awareness	80% families use water without purification
6.	Neighbourhood hygiene	Solid waste dumping and stagnant domestic waste water

The analysis of slums of Shahabad show highly unsustainable environmental conditions (table 1). The study area has slums with housing condition which is highly unsafe as 75% of houses are of kutcha category. Such type of houses are vulnerable to various environmental health risks. When average room density was considered it was found that most of the houses are overcrowded (5 persons / room and average total area 125 sq meters). 80% houses were without courtyard and 75% houses have poor ventilation. Though the age of houses is not very old but the maintenance rate is as low as 10 years. Among the social determinants, average size of the family is large i.e. 7 persons / household. It is one of the causes of illiteracy among slum dwellers, well indicated by 70% illiterate population.. Among the economic conditions, slum dwellers have low income (8000/month/household) which is further impaired by high dependency rate (70%). Majority among employed are labourers in construction sector and factories on daily wages. Very low nutrition level is there in the study area i.e. more than 40% households take one meal per day.

In these areas, improper sewerage system is reflective of environmental degradation. To drain waste water from their houses people use open drains which lead to open man holes and pits. Streets are mainly unpaved and uneven. Solid wastes of houses are dumped in open spaces. Rain water and waste water stagnant in those grounds cause ill smell and provide breeding environment conductive to many vector borne diseases like malaria, dengue etc. Electric pump is the main source of drinking water. Moreover slum dwellers use water without any processing/ purification, because of their unawareness in this regard.

Table 2. Frequency of Major Diseases Among Different Age Groups In The Slums Of Shahabad

S.no.	Major Diseases	Young (1-14yrs)	Adults (15-60yrs)	Aged (≥60yrs)
Communicable diseases				
1.	Typhoid fever	16	04	09
2.	Diarrhoea	14	03	05
3.	URTI	18	01	08
4.	Tuberculosis	00	01	00
5.	LRTI	02	06	14
6.	Hepatitis A	03	08	09
7.	Scabies/ skin disease	03	02	03
Non-communicable diseases				
7.	Hypertension	00	20	30
8.	Cardiovascular disease	00	00	06
9.	Diabetes	00	04	10
10.	Anaemia	38	15	18
11.	Malaria	00	04	01
12.	Others	02	03	09

Table 3. Gender Differences in Disease Incidence

S.no.	Disease	Males (%)	Females (%)
1.	Anaemia	15	80
2.	Hypertension	40	60
3.	Heart disease	30	70
4.	Diabetes	60	40
5.	Skin disease	40	70
6.	URTI	40	60
7.	Asthma	80	20
8.	Hepatitis A	70	40
9.	Diarrhoea	40	70

Source: Field survey of the slums of Shahabad

A clear relationship is indicated by results of this study between many diseases and unsustainable environment and socio-economic conditions. Different diseases show different percentage among age groups, as susceptibility towards disease varies with the age as shown by table 2.

Major diseases which are found in slums of Shahabad are typhoid fever, diarrhoea, URTI, LRTI, malaria, hepatitis A, hypertension, cardiovascular diseases, anaemia, tuberculosis and some others like diabetes, skin problems etc. Because of low immunity, lack of sanitation and improper diet, diseases which dominate among children are anaemia (38%), URTI (18%), typhoid fever (16%) and diarrhoea (14%). Hypertension is the major disease (20%) found among age group 15-60 yrs followed by anaemia (15%). Diseases which dominate among aged people are hypertension (30%), anaemia (18%), LRTI (14%) and diabetes (10%).

When diseases are considered according to gender, the prevalence of diseases is different among males and females. As shown in table 3, high rate of anaemia is observed in female population as compared to males. It may be due to low nutrition level and poor maternal health in slums of study area. Diseases which dominate in male population are asthma, diabetes and hepatitis A. The reason for this may be their type of occupation (factory workers), negligence of health and environmental degradation.

V. Discussion

Shahabad has grown very rapidly in the last few years. As a consequence of which it has failed to accommodate the underprivileged population, so they have been forced to live in the marginal parts leading to the development of slums in Shahabad. These areas lack infrastructure along with degraded local environment which is the product of illiteracy and unawareness, consequently slum dwellers are facing health risk and threats.

The findings of present study are in concordance with other studies.(6,7,8) The study by Sclar et al. shows that close living quarters, poor sanitation and lack of access to potable water are all characteristics of slum communities and are likely to produce poor health.(6) According to Unger and Riley, crowding tends to promote the transmission of infectious diseases like pneumonia, diarrhoea and tuberculosis.(7) Similarly , a study by Spears has found negative association between neighbour's open defecation and child's height.(8) The findings of study by Ali and Suleiman shows that slum residents themselves can impact their environment due to lack of basic services, which results in contaminated soil and polluted air and waterways. (9) The growth and expansion of slums can therefore threaten sustainable and urban development at local, national and regional scales.(10) Limitation of this study is that due to exclusion of study subjects who failed to show any documentation of disease , exact incidence of diseases could not be calculated.

VI. Conclusion

In **conclusion**, we emphasize that morbidity in any given population relates directly with environment that surrounds it. The principle objective of this study was, to identify the common morbidities in this underprivileged population and engage them further for improving their own environmental sanitation. There is a need of engagement of slum dwellers in improving and maintaining environment health. 'Community engagement' is one of the best mitigation strategies which is based upon people involvement in improving the quality of environment in a sustainable way. This can be achieved by-

a) Promotion of awareness raising activities like preparation and distribution of environmental education resource material, communicating environmental health messages through mass media, public trainings and meetings.
b) Recruiting volunteers or members from the representative slum communities.
c) Developing a campaign plan for target communities.

Finally, this study has lead the authors to suggest some community based activities to engage the local dwellers in changing the degraded environment to sustainable environment and hence minimize the health threats that they are facing presently.

References

[1]. WHO/ India statistics. Available from : www.who.int/country/India/en.
[2]. Census of India: Slum population in states/UTs,2011. Available from : www.censusindia.gov.in.
[3]. UN-Habitat. State of the World's Cities 2006/2007 (online), Nairobi, Kenya: 2006/7.
[4]. United Nations (UN). The Millennium Development Goals Report. New York, NY: United Nations; 2013.
[5]. Ministry of Urban Housing and Poverty Alleviation. Rajiv Awas Yojana: Guidelines for slum free city planning. New Delhi: Govt. of India; 2010.
[6]. Sclar Elliot D, Garau Pietro, Carolini Gabriella. The 21st century health challenge of slums and cities. Lancet. 2005;365:901-3 (PubMed).
[7]. Unger Alon, Riley Lee W. Slum health: from understanding to action. PLOS Medicine. 2007; 4 : 1561-6 (PubMed).
[8]. Spears Dean. The World Bank Sustainable Development Network Water and Sanitation Program, 2013. How much international variation in child height can sanitation explain? Policy Research Working Paper 6351.
[9]. Ali, M.H., Sulaiman, M.S. (2006). The causes and consequences of the informal settlements in Zanzibar. XXIII Congress of the International Federation of Surveyors, Munich, Germany. Retrieved from http://www.fig.net/resources/proceedings.(Google Scholar)
[10]. Patel, A. (2012). Slumulation: An integrated simulation framework to explore spatio-temporal dynamics of slum formation in Ahmedabad, India. PhD Dissertation. George Mason University Fairfax VA.

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