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RESEARCH ARTICLE

ENVIRONMENTAL CONDITIONS AND HEALTH STATUS OF SLUM DWELLERS
IN CIVIL LINE AREA OF ALIGARH CITY, U.P

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ABSTRACT

The main objective of the paper is to find out the impact of environmental conditions on health status of slum dwellers in civil line area of Aligarh city. The main components of environmental conditions included in this study are related to housing conditions, water supply, sanitation, garbage and electricity. The study is based on primary data collected from a survey of 300 households in 5 different slum localities of the civil line area of the city. It is observed that the environmental conditions of the slum population are alarming. There is lack of all basic amenities and social facilities which greatly affected the health conditions of the sampled respondents. There is dearth of drainage, drinking water and toilet facilities. Open drains and adjacent houses are characterized by dirty and unhygienic conditions. The impact of these conditions is reflected in diseases like skin problem, backbone problem, malnutrition, gout, asthma, malaria and ulcer in the study area. Health is basically related to nutrition as well as to hygiene. Income is also one of the main factors that affect the health profile of the slums. Besides income, lack of education and awareness also plays an important role in the health status of slums. The study shows the slum people in civil line area of Aligarh city are engaged in rickshaw pulling, Baidari and rag picking. The monthly income of the slum people is very low. Due to their poverty slum people are forced to do self medication instead of going to any health centre for medical check-up. The present scenario of the slums draws our attention to take effective steps in order to improve the quality of their life.

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INTRODUCTION

The census defines a slum as "residential areas where dwellings are unfit for human habitation" because they are dilapidated, cramped, poorly ventilated, unclean, or "any combination of these factor which are detrimental to the safety and health." Thus, a slum may be defined as an overcrowded area characterized by substandard houses without even essential amenities like water, light, ventilation, drainage, approach roads, sewer lines, etc. which are generally inhabited by the illiterates or poor forced by the circumstances to lead disorganized life (Rathor, 2003). Some of the worst slums in the world can undoubtedly be found in Indian cities. Due to lack of proper town and country planning, cities have been chronically incapable of accommodating the ever-increasing flow of migrants from rural areas and small towns (Mohanty and Mohanty, 2005). India has the world's second largest urban population and roughly 93 million Indians reside in the urban slum conditions (<http://censusindia.gov.in/>).

The percent of urban population to the total population is constantly increasing from 25.7 per cent in 1991 to 27.8 per cent in 2001 to 31.1 per cent in 2011 (Census of India, 2011) and it is expected to be 41 per cent by 2030. Indian urbanization is characterized by widespread poverty, poor infrastructure and environmental degradation. In most of the Indian cities, nearly two third population lives in inadequate housing units having unsafe structure without adequate space and basic facilities like piped water supplies, toilets, drains, garbage disposal facilities, road connectivity, electricity, etc. Rapid urbanization has caused the expanding of slums, squatters and informal housing all around the rapidly expanding cities. The slum population of India is constantly increasing from 27.9 million in 1981 to 50 millions in 2001 to 93 millions in 2011 (<http://censusindia.gov.in/>). According to Government sources, the slum population of India have exceeded the population of Britain (<http://www.indiaonlinepages.com/>). It has doubled in last two decades. Unplanned and haphazard growth of urban areas have become the reason for the growth and spread of slums and squatter settlements which present striking features in the ecological structure of Indian cities, not only in Metropolitan cities but even in medium-sized towns like Aligarh.

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The problem of growth of slums is most common in all cities of the country. The development of slum colonies occur due to many factors such as, the shortage of developed land for housing, the high prices of land beyond the reach of urban poor, a large influx of rural migrants to the cities in search of job etc. In Aligarh city, civil line area is also affected with the development of slums. The present study shows that the environmental problems are acute in the slums, which have occupied all open areas. There is dearth of all infrastructural amenities provided in the slums, like living space, bathing facilities, water supply, solid waste disposal and sanitation. Overcrowding, noise and air pollution coupled with inadequate health, lack of education and recreation facilities in the colonies add to the extremely poor conditions of environment which further damage the environment scenario of the slums. These areas do not have proper sewerage system which poses a serious environmental and health hazard to inhabitants. Open drains over flowing with sewage, roads with potholes and dust, open areas littered with garbage and open defecation, contribute to render the environment unsuitable for human habitation. Income of the slum dwellers is very low. The amount of wages paid is not only meagre but also irregular. The physique and clothing of slum dwellers reveals the extent of their poverty and deprivation. They suffer from various diseases. In the above contest, it necessitates a systematic research to understand the condition of slums in the civil lines area of Aligarh city to facilitate urban planners and decision makers to take effective measures to improve the quality of life of slum dwellers.

Objectives

In this context, the present study was undertaken with following objectives:

- To analyse the distribution of slum localities in the study area.
- To assess the environmental conditions of the slums.
- To understand economic conditions of the slum dwellers in different localities.
- To find out the prevalent diseases among the slum dwellers in different slum localities.

Database and Methodology

The data was collected from both primary and secondary sources. The study is mainly based on primary data collected through field survey of the slum localities found in the civil line area of Aligarh city. Personal interviews with the respondents on the basis of questionnaire was undertaken to collect the relevant data. The fieldwork was done during the months of February and March, 2013. Data from secondary sources have been collected principally from the District Statistical Bulletins of Aligarh District and other Government offices. The data for the environmental conditions and health status of the slum dwellers in civil line area of Aligarh city was obtained from a comprehensive survey of the study area. The sample for the present study was purposefully designed having the following three stages. In the first stage slum localities were identified. The identified slum localities were Shamshad market, Jamalpur, Jiwangarh, near Abdullah College and near Chungi crossing.

Thereafter a questionnaire was prepared to acquire the data pertaining to economic, environmental and health conditions of the slum dwellers. Slum households from each selected slum locality were randomly selected for detailed survey. Finally, simple percentage has been calculated for obtaining the results and the data was presented in suitable tables and diagrams.

Literature Review

Several studies have examined environmental conditions and health status of slum dwellers. Unger A and Riley L.W. (2007) has defined Slums and studied the various challenges related to health status of the slum dwellers. Ali S. (2003) studied the environmental situation of slums in India. He used interview method and 24 schedules to measure the environmental condition of slums. He observed that the environmental conditions especially the sanitation condition of the resettlement colonies is in a deplorable state. Zanuzdana, A., Khan, M. Kraemer, A. (2012) in their study entitled "Housing satisfaction related to health and importance of services in urban slums: Evidence from Dhaka, Bangladesh" used a systematic sampling approach for selection of households for interview. They examined the difference between housing conditions of rural people and urban poor and found that the housing condition of urban poor is highly unsatisfied. Dana T. (2011) used the interview method for collecting the data pertaining to unhygienic living conditions and health problems in selected slums of Dhaka city. She examined that respondents were living in very poor unhygienic conditions. Water supply, drainage system, general environmental condition was very poor. She stated that among the respondents majority of them were 22 to 32 years and they were unemployed.

Sufaira C. (2013) revealed the socio-economic conditions of urban slum dwellers in Kannur Municipality. She used well structured and predetermined questionnaire for 212 slum households. She conducted the survey in two slum areas, notified and non-notified. She examined that poor are characterized by low wages and chronic unemployment and underemployment, poor housing conditions and low level of organization on notified and non notified area. Rout R.N. (2008) examined the slum growth in Bhubaneswar. He used schedule, structured interview and systematic sampling method. He observed that unhealthy environment, unhygienic living conditions and structurally inadequate housing are the key factors of slum pockets which further lead to substantial number of problems.

Geographical Profile of Aligarh City

The district Aligarh comprising the northern most part of the Agra division, lies in the doab of the Ganga and the Yamuna. Ganga separates the district from Badaun for a few Km. in the extreme. North-east while Yamuna constitutes the dividing line in the N-W between Aligarh and Gurgaon district of Haryana to the north, the boundary is formed by the Anupshahar and Khurja tehsils of Bulandshahar. The breadth is 112 kms and the length from north to south is 72 kms. Total area of the district is 5019 sq. kms. The district headquarters is located in Aligarh (figure1).

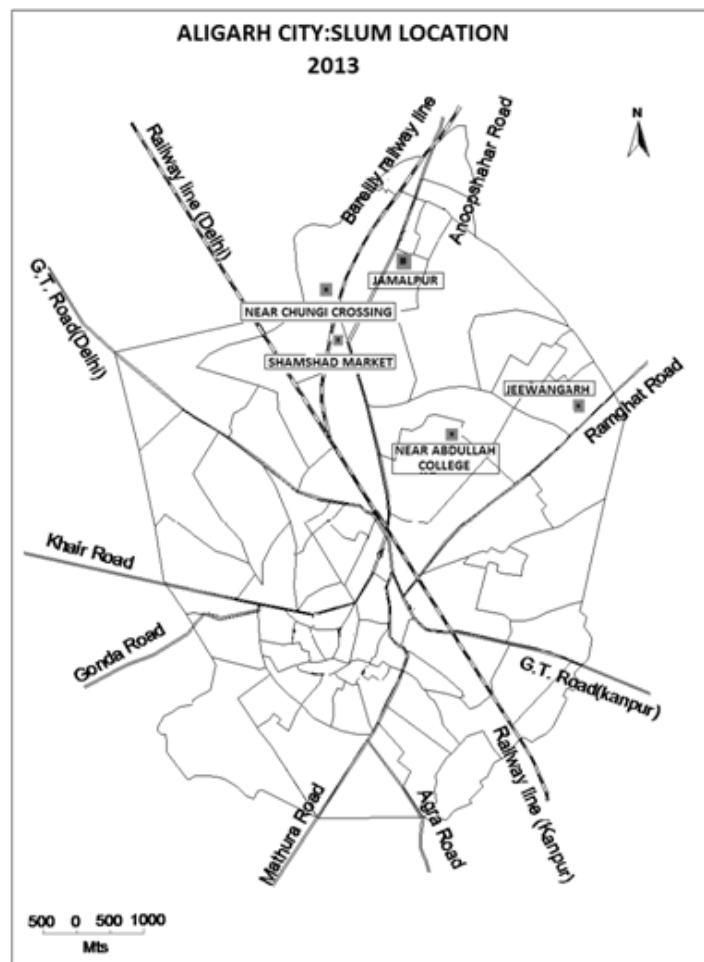


Figure 1. Aligarh City: Slum Locations (2013)

Table 1. Distribution of Total and Sampled Slums Households in Civil Lines Area of Aligarh City (2013)

Slum Localities	Slum Households		Population		Total
	Total	Sampled	Male	Female	
Near Abdullah College	65	60 (92.31)	214	149	363
Shamsbad Market	75	60 (80.00)	226	150	376
Jamalpur	140	90 (64.26)	321	243	564
Jiwangarh	240	60 (25.00)	246	173	419
Near Chungi Crossing	30	30 (100.00)	121	85	206
Total	550	300 (54.55)	1128	800	1928

Source: Based on field survey (2013)

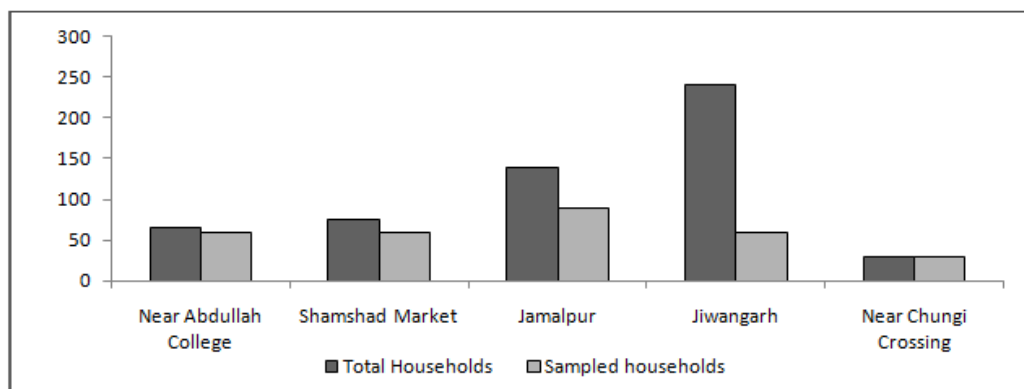


Figure 2. Total Slum Households in Selected Slum Localities (2013)

Aligarh city has a number of slums areas which includes places like Jamalpur, near Chungi crossing, near Abdullah College, Jiwangarh, Shamshad market and other places. According to the District Urban Development Authority there are around 128 registered slums in Aligarh with a total population of 380,776. As per the EHP report 52.4 percent of the population resides in slums (http://www.uhi-india.org.in/MLE-data/Aligarh-Report_April.pdf). Over a period of more than a decade some of the slums have become developed colonies. Additionally, some new unregistered colonies are also found in the city. The field survey of the civil line area reveals five major slum localities namely near Abdullah College, Jamalpur, near Chungi crossing, Jiwangarh and Shamshad (Figure 1). These 5 localities covered 550 slum households (Figure 2). The total sampled slum households were 300 having a population of 1928 persons. Total male and female population is 1128 and 800 respectively (Table 1).

DISCUSSION

Environmental conditions of Slum Localities

Every human settlement, even it is meant for weaker sections of society must have provision for minimum basic services and facilities such as drinking water, housing, electricity, sanitation, education and health services. If these basic services and facilities are not available life becomes very difficult.

Housing Condition

Slums are generally characterized by poor housing conditions (Sehgal,1998). It is observed that the houses in the slum areas are constructed with the cheap materials consisting of one or two rooms which are temporary in nature (Rao, 1991). Table 2 shows that 62 per cent slum households of slum dwellers in civil line area of Aligarh city is characterized by *kutchha* houses made by mud and wood with thatched roofs. It is found that only 38 per cent house of slum dwellers reside in *pakka* house. It is found that the number of kachcha houses is comparatively less in Jamalpur and Jiwangarh slum localities but the living condition is very poor (Figure 3). There is no ventilation and almost all households do not have separate kitchens due to which the living condition becomes worst. Their houses are characterized by very dirty and unhygienic conditions.

Water Supply Condition

Table 3 shows the water supply condition in the selected slum localities. It is found that about 80 per cent slum dwellers depend upon public hand pump water while, 20 per cent on municipal tap water which are insufficient and irregular. It is found that there is no water connection inside the slums, but outside the slums municipal tap water and public hand pumps are located along the road.

Table 2. Housing Condition of Slum Dwellers

Slum Localities	Types of Houses	
	Kachcha	Pakka
Near Abdullah College	60 (100.00)	0 (0.00)
Shamshad Market	60 (100.00)	0 (0.00)
Jamalpur	18 (20.00)	72 (80.00)
Jiwangarh	18 (30.00)	42 (70.00)
Near Chungi Crossing	30 (100.00)	0 (0.00)
Total	186 (62.00)	114 (38.00)

Source: Based on field survey (2013)

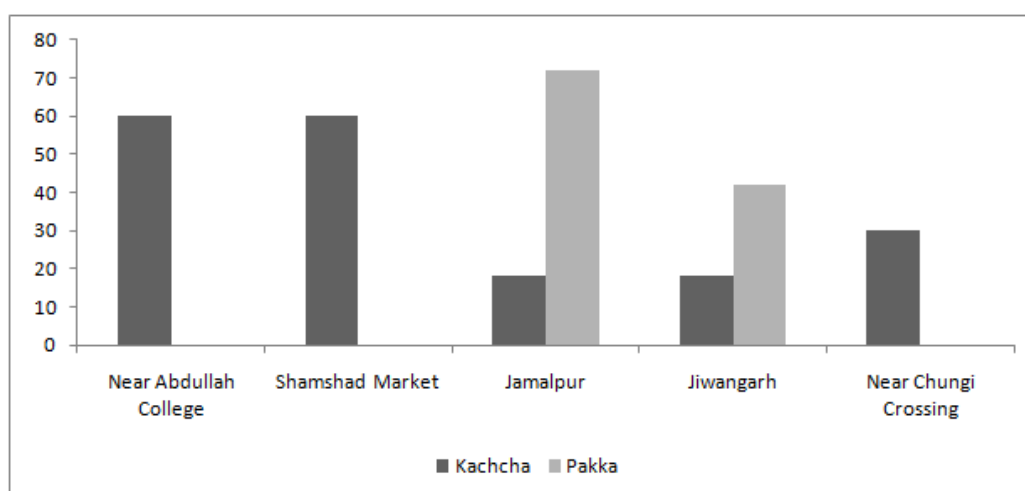


Figure 3. Types of Houses in Selected Slum Localities (2013)

Field surveys have revealed that these water connections are located in unhygienic conditions, near garbage dumps or polluted drains.

Table 3. Water Supply Condition of Slum Dwellers

Types	No. of Households	Percentage
Hand pump	240	80
Municipal tap water	60	20
Total	300	100

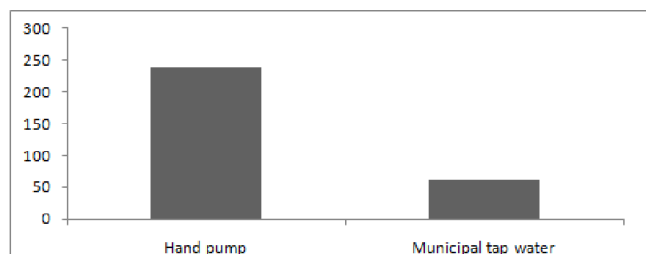


Figure 4. Water Supply Condition of the Slums (2013)

Drainage Pattern

Table 4 shows that there are no proper sanitation facilities i.e. the drainage system. Its absence in slums leads to uncleanliness and various diseases. Field surveys have revealed that there is absence of waste water disposal system. All the slums dwellers in civil line area dispose their waste water in *kutcha nalies*, around their slum houses or in the small dug out pits. To drain their waste water, they usually make a hole in the wall of *jhuggies* from where waste water is disposed into the *kutcha* dug out *nalies*. Pools of waste water were seen in the slums.

Table 4. Drainage Systems of Slum Dwellers

Type of Drainage	No. of households	Percentage
Open	300	100
Closed	0	0
Total	300	100

Source: Based on field survey (2013)

Electricity Supply

Table 5 shows the absence of electricity connection in slum households. They use lamps to illuminate their houses. The slum dwellers cannot get legal electricity connection, because they don't have proof of permanent residence and sufficient income to pay the electric bills. There is lack of basic amenities and social facilities which greatly affected the health condition of sample respondent. Thus, it is seen that the environmental conditions of the slum dwellers are alarming.

Table 5. Electricity Supply in Slums

Accessibility to Electricity	No. of Households	Percentage
Yes	0	0
No	300	100
Total	300	100

Source: Based on field survey (2013)

Economic condition of Slum Dwellers

It is seen that slum dwellers are engaged in different types of works. The males are engaged in occupations like blacksmith, carpenter, embroidery work, loading/unloading, rickshaw pulling while the females mostly work as domestic helpers. The duration of working hours is exclusively long. They have to work from morning till evening without any break. Due to lack of skills and education many slum dwellers face high rates of unemployment. Field surveys have revealed that 80 percent of slum dwellers are workers and 20 percent are non workers in the selected slum localities.

Occupational Structure

Table 6 and figure 5 shows the occupational structure of slum dwellers in civil lines area. The study shows that the maximum slum dwellers were engaged in rickshaw pulling (30.55 per cent) followed by domestic help (29.05 per cent) and rag picking (18.93 per cent). Among the males none of the respondents were working as domestic helper while among the females none was engaged in rickshaw pulling.

Duration of Working Hours

Table 7 shows the duration of working hours of the slum dwellers. It shows the most of the slum dwellers worked for 10 to 12 hours (40.32 per cent) but the share of males in this category is 54.05 percent. Those working between 8 to 10 hours were found to be 40.20 percent but the share of females was higher (60.00 percent) in this category. They work regularly without proper diet and nutrition so duration of work and types of work both effect the health condition of slum dwellers.

Monthly Income

Table 8 shows that most of the slum people have monthly income between Rs 900 to 1200. This data indicates that due to low income of the family, they are deprived of facilities which are essential for the proper growth and development. In spite of long working hours their income is very low. They work regularly from morning till night. So the working hours and low income both are playing important role for poor health conditions of slums.

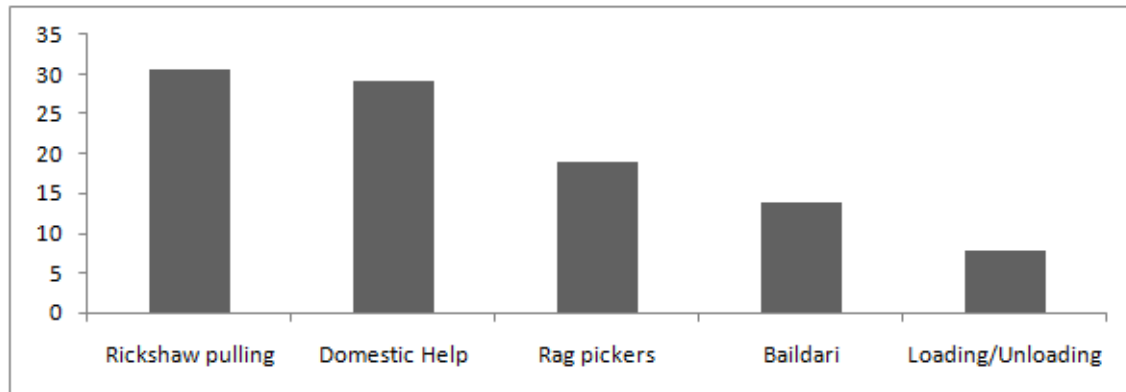
Prevalent Diseases among Slum Dwellers

The present study shows that the slums are at a constant risk of health hazards due to the conditions in which they live and work. During rainy season the water gets accumulated on the roads and is prone to varying diseases due to dirty water. There is lack of drainage, toilet and drinking water facilities. The open drains near their houses are very dirty characterized by unhygienic condition. So the slum dwellers are exposed to all kinds of hazards and they suffer from various diseases. The maximum number of slum dwellers were found to be suffering from Asthma (33.40 per cent) followed by Malnutrition (22.35 per cent) and Malaria (13.54 per cent). The other diseases found in the slum dwellers were Ulcer, skin problem, backbone problem and gout (figure 7).

Table 6. Occupational Structure of slum dwellers

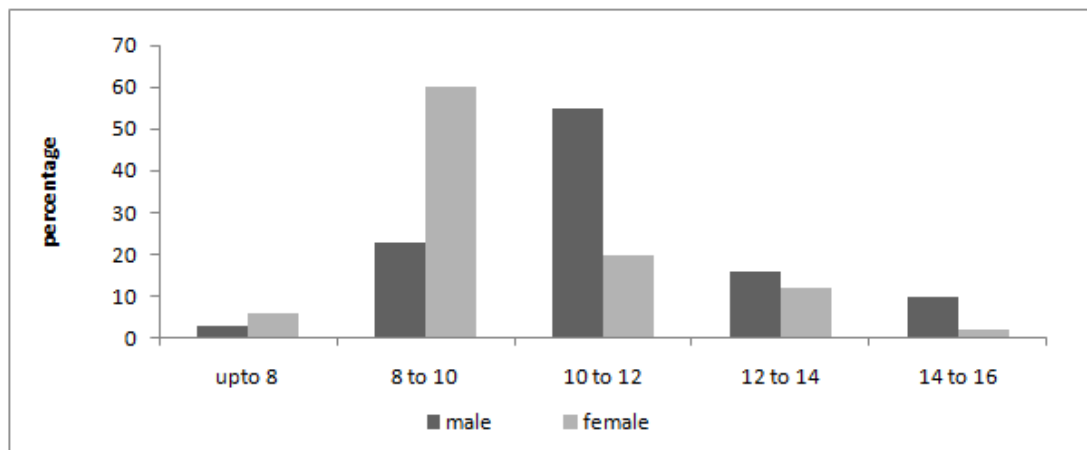
Occupation	Male	Percentage	Female	Percentage	Total	Percentage
Rickshaw pulling	589	52.22	0	0.00	589	30.55
Domestic Help	0	0	560	70.00	560	29.05
Rag pickers	245	21.59	120	15.00	365	18.93
Baidari	226	20.16	40	5.00	266	13.80
Loading/Unloading	68	6.02	80	10.00	148	7.68
Total	1128	100	800	100	1928	100

Source: Based on field survey (2013)

**Figure 5. Occupational Structure of Slum Dwellers (2013)****Table 7. Duration of Working Hours of Slum Dwellers**

Duration (in hours/day)	Male	Percentage	Female	Percentage	Total	Percentage
Up to 8	34	3.01	48	6.00	82	4.25
8 to 10	296	26.24	480	60.00	775	40.20
10 to 12	621	54.05	160	20.00	785	40.32
12 to 14	180	15.16	96	12.00	277	14.37
14 to 16	22	1.95	16	2.00	38	1.97
Total	1128	100.00	800	100.00	1928	100.00

Source: Based on field survey (2013)

**Figure 6. Working Hours of Slum Dwellers (2013)****Table 8. Monthly Income of Slum Dwellers**

Monthly Income (in Rupees)	No. of households	Percent
Upto 600	63	21.00
600-900	66	22.00
900-1200	129	43.00
1200-1500	54	18.00
1500-1800	57	19.00
1800- 2100	6	2.00
More than 2100	9	3.00
Total Households	300	100.00

Source: Based on field survey (2013)

Table 9. Prevalent Diseases in Sampled Slum Dwellers

Diseases	Male	Percentage	Female	Percentage	Total	Percentage
Asthma	384	40.21	260	26.72	644	33.40
Mal nutrition	176	18.43	255	26.21	431	22.35
Malaria	109	11.41	152	15.62	261	13.54
Ulcer	94	9.84	83	8.53	177	9.18
Backbone problem	69	7.23	85	8.74	154	7.99
Skin problem	69	7.23	72	7.40	141	7.31
Gout	54	5.65	66	6.78	120	6.22
Total	955	100.00	973	100	1928	100.00

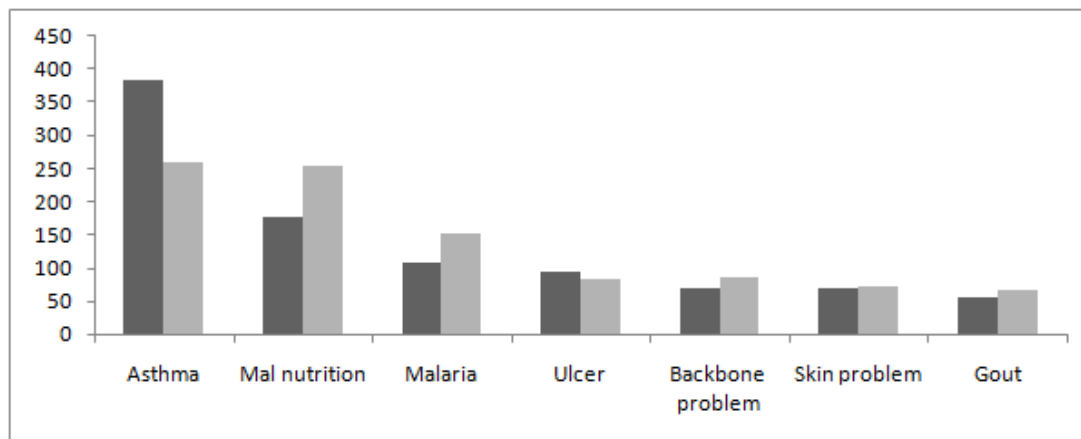


Figure 7. Prevalent Diseases in Slum Dwellers (2013)

Conclusion and Suggestions

The findings of the present study show that the impact of increasing pollution on the health of slum dwellers is enormous. The field survey revealed that the health condition of slum dwellers is lacking. The physical environment of the slum dwellers depends on the different types of facilities like availability of water, toilets, drainage, lighting and proper housing conditions. But these facilities are totally absent in the 5 slum localities. Both indoor and outdoor environment of slum dwellers is repulsive. Indoor environment of slum dwellers is much polluted. There is no proper ventilation; lack of open space, open drainage and heap of garbage is found in slums.

Field survey has revealed that on one hand due to these polluted conditions slum dwellers are suffering from various disease like malaria, backbone problem, skin problem, ulcer etc. while on the other hand due to high cost of treatment and non availability of public medical services, slum dwellers are unable to get medical aid. The level of education among the slum dwellers is very low; this reflects the low level of awareness and civic consciousness. The health problems among slum dwellers are not only due to bad environment but more due to the negligence. There is need for providing better sanitary conditions and nutrition. Because their monthly income is very low so they are unable to get better nutrition. In spite of low income awareness of nutrition is also absent. There is need to create health awareness among slum dwellers. To evaluate and monitor existing environmental improvement schemes in the slum regular health camps should be organized. Besides, the social and economic improvement of slum dwellers, physical infrastructures per household should also be provided in 5 slum localities in civil line area of Aligarh city.

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