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ORIGINAL ARTICLE

Analyzing the Health Status of Slum Dwellers: An Evidence of Lahore, Pakistan

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ABSTRACT

Background: Miserable status of health and public health is one of the major problems of more than 1 billion people living in slums across the world. Most of the governments, do not pay due attention.

Purpose: Current study is especially devised to highlight the major problems of slum population in relation with health and public health so that better policy measures might be suggested. The second most populous city of Pakistan is Lahore and it is the home of about 27 million people, slums area of Lahore were chosen as population.

Methodology: Through stratified sampling technique 250 households from ten slums were chosen as a sample. Inferential and descriptive statistical techniques have been used study in hand. The logistic regression model has been used to analyze the impact of important socio-economic variables on the health status of the family.

Results: From descriptive analysis, we know that about 73 percent of the slum residents have no access to even basic health facilities, 32 percent of the slum children are not immunized, 72 percent of the slum women give birth to children without any proper assistance and 56 percent do not receive antenatal check – ups during pregnancy. Further, about 66 percent of the dwellers have no access to safe drinking water while majority face unhygienic and poor solid waste management status.

Conclusion: The results of regression model shows that per capita income, education level of the family head, availability of safe drinking water and employment status of the family have positive while smoking and drinking leave negative impact on the health status of the dwellers. The findings address the authorities concerned to take holistic and practical measures for betterment of human development.

Keywords: Slums, Antenatal Care, Basic Health Facilities, Safe Water, Immunization, Solid Waste Management

INTRODUCTION

More than one billion people across the globe live in slums or informal settlements [1]. Health is one of the key indicators of human wellbeing and slums are most neglected urban areas where the status of health is found very poor. If the world is to move forward towards achieving the Sustainable Development Goal (SDG) 3, there is need to focus on providing better health facilities in slums. Achieving the targets of SDGs would be impossible without paying due attention to the health of slum residents. A great line of literature is available which highlights poor health conditions in slums worldwide.

The slum residents usually use the poor-quality water which becomes the root cause of many diseases. Poor water quality is a leading to a great number of diseases in slums across the world [2]. Similarly, the growing number of poor in slums lack basic amenities necessary for leading healthy lives. They do not have access to safe water. The use of poor-quality water leads to many water borne diseases [3].

Non availability of safe drinking is the major cause of miserable health status in slums [4]. Many other studies found that quality of drinking water is not fit for human use in squatters. The quality of drinking water was found substandard in the slums of Tamilnadu and Delhi [5]. The UN-Habitat is also greatly concerned with quality of water in slums. In slums households that lack security of tenure, access to safe water and sanitation facilities [6].

Unhygienic and unsanitary conditions are also the part and parcel of our debate. Many studies are available in literature which focuses on poor unhygienic and unsanitary conditions prevailing in slums. Slums badly affect the health status of residents due to lack of health services and basic infrastructure [7]. Slums in Nairobi continue to be characterized by poor living conditions, including inadequate toilet facilities, poor garbage disposal and drainage [8]. The slum dwellers of Ghana also lack basic environmental facilities such as sanitation, garbage disposal and drainage mechanisms [9].

Health of women is not given due attention especially during pregnancy. Usually, women give birth to children without any proper assistance and antenatal care. Women are not given proper attention in slums. Rate of assisted deliveries and antenatal care check- ups is many times lesser in slums than normal settlements [10]. Deliveries are usually carried in houses without a skilled birth attendant such as nurse in slums [11].

Immunization of children is another important indicator of health. So, we extend our discussion to immunization of slum children. The researchers tried to know the status of immunization against fetal diseases worldwide. The immunization status of the children in the slum area of Chandigarh was 30 percent as compare with 62.5 percent in rural areas and about 74 percent in urban areas [12]. This shows that immunization was found much lesser in slums than normal settlements. In another study reported that most of the slum parents are of the view that they have no idea about immunization [13].

May conclude that safe water is not in access of slum people. Immunization of children is much lesser than normal settlements. Normally the deliveries are carried in the houses and antenatal check – ups are found very rare. Basic health facilities are not in easy reach. Unhygienic and unsanitary conditions prevailing in the slums make the health status more miserable. The available literature provokes another study which must highlight all of these indicators of health in numeric terms so that the problem would become more understandable for the researchers and policy makers.

Inspiring by this key point, we tried to explore the factors related to health status and public health ranging from access of slum population to basic health facilities, status of assisted deliveries and antenatal check-ups, access to safe drinking water, immunization status of children to unhygienic and unsanitary conditions prevailing in the slums unanimously in single study. Furthermore, also built a logistic regression model to analyze the impact of important socio-economic variables on the health status of the family. For the purpose of this study, selected the 250 households from sampled 10 slums of Lahore, the home of 27 million people and the second most populous city of Pakistan.

METHODOLOGY

In first step representative sample was chosen. Target population consists of all the slums of Lahore. The list of slums was taken

from Lahore Development Authority (LDA) and it was used as a sampling frame. All the slums have been divided into six categories (Strata). In first step, sample slums were chosen on the basis of variability in the dwelling units among slums. In second step, representative households were chosen on the basis of variation in income which was estimated through a pretested interview schedule. Through stratified sampling technique 250 households from ten slums were chosen as a sample. In each slum the sample size was distributed according to the weight of number of households. The selection of sample, slum wise is shown in table (1).

Table 1: The Selection of Sample Slum Wise

Sr. No	Selected Slums	Number of Dwelling Units
1	Nawan Pind	12
2	Basti Jewan	15
3	Tibba Baba Fareed	16
4	Karol Ghatti	20
5	Harbanspura Extention	21
6	Saggiyan Pull	25
7	Rahmanpura, Extension	28
8	Youhana Abad	35
9	Gowala Colony, Extension	35
10	Takia Peer Yaqoob Shah	43

The logistic regression model is used which is given as:

$$\mathbf{H = \beta_0 + \beta 1\ Eh + \beta 2Sw + \beta 3Pi + \beta 4Sd + \beta 5Em + \varepsilon}$$

β_0 is the intercept term while β_1, β_2, β_3, β_4 and β_5 are coefficients of independent variables, H = Health (1= Access to health services, 0= No access to health services), Eh = Education of household head in years, Sw = Safe water for human use (1= Available, 0 = Not available), Pi = Per Capita income of the household in Rupees, Sd= Smoking and drinking (1= If Any Single person in the family is addicted, 0= If no one in the family is addicted), Em = Employment (1= Household head is employed, 0 = Household head is not employed) and $\boldsymbol{\varepsilon}$ = Error term.

RESULTS AND DISCUSSION

Descriptive analysis of some important variables related to health is given in this part of study. The first important question was whether slum population has access to health facilities. If health facilities are not used or once used due to constraints (too far away, too costly, unsuitable, lack of tools/ staff, not enough staff) during last one month, the household is considered deprived from basic health facilities [14].

Table 2: Population without Access to Health Facilities

Sr. No	Selected Slums	Number (%age)
1	Nawan Pind	9 (75%)
2	Basti Jewan	8 (53%)
3	Tibba Baba Fareed	9 (56%)
4	Karol Ghatti	15 (75%)
5	Harbanspura Extention	12 (57%)
6	Saggiyan Pull	18 (72%)
7	Rahmanpura, Extension	21 (75%)
8	Youhana Abad	28 (80%)
9	Gowala Colony, Extension	28 (80%)
10	Takia Peer Yaqoob Shah	35 (81%)
	Overall	183 (73%)

Table 3: Children Not Immunized

Sr. No	Selected Slums	Number (%age)
1	Nawan Pind	6 (50%)
2	Basti Jewan	5 (33%)
3	Tibba Baba Fareed	4 (25%)
4	Karol Ghatti	8 (40%)
5	Harbanspura Extention	5 (24%)
6	Saggiyan Pull	12 (48%)
7	Rahmanpura, Extension	5 (17%)
8	Youhana Abad	17 (49%)
9	Gowala Colony, Extension	4 (11%)
10	Takia Peer Yaqoob Shah	15 (35%)
	Overall	81 (32%)

The results given in table (2) show that 73 percent of slum population is deprived of basic health facilities. There are many other studies available in literature which show that health facilities are found rare in slums [15, 16].

The results presented in table (3) show that about 30 percent of slum children have not been immunized. The results are in line with a great number of studies available in literature. Immunization of children is also one of the important variables related to health. If any child in a house under the age of 5 not fully immunized according to vaccination calendar, the household is considered deprived of immunization [17, 18].

Table 4: Women without Assisted Delivery

Sr. No.	Selected Slums	Number (%age)
1	Nawan Pind	12 (100%)
2	Basti Jewan	5 (33%)
3	Tibba Baba Fareed	8 (50%)
4	Karol Ghatti	12 (60%)
5	Harbanspura Extention	10 (48%)
6	Saggiyan Pull	13 (52%)
7	Rahmanpura, Extension	24 (85%)
8	Youhana Abad	26 (75%)
9	Gowala Colony, Extension	27 (77%)
10	Takia Peer Yaqoob Shah	33 (77%)
	Overall	180 (72%)

The results illustrated in table (4) show that about 72 percent of the women give birth to a child without any proper assistance. Other studies in literature which that in slum most of the women do not receive proper assistance during delivery. The study explores the percentage of women having no assisted delivery. Any woman in the household who has given birth in last 3 years attended by untrained personnel in an inappropriate place will be considered deprived from assisted delivery [19, 20].

Table 5: Women without Antenatal Care

Sr. No	Selected Slums	Number (%age)
1	Nawan Pind	8 (67%)
2	Basti Jewan	7 (49%)
3	Tibba Baba Fareed	8 (50%)
4	Karol Ghatti	12 (60%)
5	Harbanspura Extention	11 (52%)
6	Saggiyan Pull	13 (52%)
7	Rahmanpura, Extension	8 (28%)
8	Youhana Abad	25 (71%)
9	Gowala Colony, Extension	22 (64%)
10	Takia Peer Yaqoob Shah	25 (58%)
	Overall	139 (56%)

The results given in table (5) show that 56 percent of the slum women do not receive proper antenatal care before during and after delivery. Also found from the study on slums of Dhaka, Bangladesh that most of the women do not receive proper natal check–ups. Antenatal care is another important indicator of health which must be focused properly. If there is any woman in the household who has given birth in last 3 years did not receive antenatal check–ups, the household will be considered deprived of antenatal care [21].

Table 6: Percentage of Population without Safe Drinking Water

Sr. No	Selected Slums	Number (%age)
1	Nawan Pind	12 (100%)
2	Basti Jewan	5 (33%)
3	Tibba Baba Fareed	8 (50%)
4	Karol Ghatti	12 (60%)
5	Harbanspura Extention	10 (48%)
6	Saggiyan Pull	13 (52%)
7	Rahmanpura, Extension	24 (85%)
8	Youhana Abad	26 (75%)
9	Gowala Colony, Extension	27 (77%)
10	Takia Peer Yaqoob Shah	33 (77%)
	Overall	180 (72%)

Unavailability of safe drinking water is creating a number of health problems. If the household has no access to an improved source of water according to MDGs standards, it is considered deprived of safe drinking water. We tried to find the percentage of slum population deprived from safe water which is given table (6). The percentage deprived from safe drinking water was found to be 66 percent. The results are in line with the studies which show that slum population is deprived of safe drinking water which gives birth to a number of diseases [20].

Table 7: Unhygienic and waste management status

Sr. No.	Observation/ Response	Number (%age)
1.	Type of sewerage system in the locality (a) Good (b) Satisfactory (c) Bad and need improvement	 30 (12%) 50 (20%) 170 (68%)
2.	Solid waste management system in the locality (a) Good (b) Satisfactory (c) Bad and need improvement	 35 (14%) 63 (25%) 152 (61%)
3.	What do you do with solid waste? (a) Remain scattered (b) Dump away from habitation (c) Burning	 90 (36%) 58 (23%) 102 (41%)
4.	Any low-lying area which lead to pool formation? (a) Yes (b) No	 215 (86%) 35 (14%)

The study explores the status of unhygienic and unsanitary conditions prevailing in the slums. The results presented in table (7) show that sewerage system in the locality is poor. About 68 percent of the slum dwellers view that sewerage facilities in the locality are unfit for human living. Solid waste management was also found very poor. About 61 percent of the slum residents responded that there is no proper system of solid waste management. Similarly, 36 percent of people living in slums responded that solid waste remains scattered, 23 percent are of the view that it is dumped away from the habitation and 41 percent think that it is burned. At the end on a question that if there is any low-lying area which leads to pool formation in the slums, 86 percent of the people dwelling in slums responded in yes. It is apparent from the results of a large number of studies available in literature that there is very poor hygienic and waste management status in the slums [22, 23].

Regression Results: Second part of the study presents the result of regression model. The estimates of determinants of health status are given in table (8).

Table 8: Logistic Estimates of Determinants of Health Status

Explanatory Variables	dy/dx	S.E	P Value
Per capita income	0.05578*	0.00784	0.015
Education	0.00995*	0.00520	0.018
Safe water	0.1925*	0.00545	0.000
Employment	0.00525*	0.04525	0.0085
Smoking and drinking	-0.08254*	0.01725	0.0325

*Denotes statistically significant at the 5% level

It is apparent from results that per capita family income has significant positive impact on health status of the family. Marginal value shows that probability of 1-unit positive change in per capita income of the family brings 0.05578 units positive change in health of the family. The studies also found that rise in income of the family leaves positive impact on health of the family. Education of household head is also found to have significant positive impact on health status of the family [24]. Probability of one-unit positive change in education of the family would lead to 0.00995 units positive change in health status of the family. Interestingly there are great number of studies available in literature which verify positive impact of household education on the health of the family [25, 26].

Availability of safe drinking water and employment status of family head have also significant positive impact on the health status of the family. Probability of 1-unit positive change in safe drinking water brings 0.1925 units positive change in health status of the family. These findings are in line with many other studies [27]. Similarly, probability of 1-unit positive change in employment status of the family leads to 0.00525 units positive change in health of the family. There are many other studies available in literature which verify the results [28]. At the end we find that smoking and drinking has strong negative association with health of the family. The results show that probability of 1 unit increase in smoking and drinking leads to 0.08254 units negative change in health of the family. We found some other studies in available literature which verify these findings [29, 30].

CONCLUSION

Health is one of the important indicators which need to be focused in any social setting especially in slums. More than 1 billion people across the globe are facing miserable health conditions in slums. The targeted descriptive analysis of deprivation from basic health indicators including deprivation from basic health facilities, assisted deliveries, antenatal check-ups, immunization of children, safe water and solid waste management. Results show that majority of slum people are deprived of basic health facilities, immunization of children, safe drinking water and solid waste management. Assisted deliveries and antenatal check-ups were found rare. Interestingly, the result of regression model show that per capita income, education level of the family head, availability of safe drinking water and employment status of the family have positive while smoking and drinking leaves negative impact on the health of the family.

The results call for certain policy actions for poor slum residents across the world. Governments might take many steps. A separate budget might be allocated to improve basic health indicators as mentioned in the study. Results of the study may attract the attention of NGOs, international organizations like World Bank, World Health Organization and international donors. The regression results suggest that per capita income, education level of the family head, availability of safe drinking water and employment status of the family might be improved and smoking and drinking might be discouraged to improve the health of the family. The world might get guidance from the results of the study showing immense health problems of slum residents and act accordingly because if the problem is not tackled in time, it would paralyze the world as whole.

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