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Margaret Nyanchoka Keraka, W. N. Wamicha

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CHILD MORBIDITY AND MORTALITY IN SLUM ENVIRONMENTS ALONG NAIROBI RIVER

Margaret Nyanchoka Keraka*

Wellington Nguya Wamicha

Abstract: The problem that guided this study was that child mortality and morbidity disparities continue to be observed in the era of improved expansion of the provision of health care services. Some areas have low mortality and morbidity while others such as the slums of Nairobi have high. Various factors may account for this scenario. On the one hand, this would be because of uneven distribution of health facilities. On the other hand, environmental factors may be the major contributors to this high rate of morbidity and mortality. Environmental factors have been analysed in the context of socio-economic, socio-cultural and health environments.

The aim of this study was therefore to examine the impact of slum environments on morbidity and mortality profile in slum environments along Nairobi River. The main objectives were: first, to assess the influence of environmental factors on child morbidity and mortality, and second, to analyse the influence of the perception and behaviour patterns of slum dwellers on child mortality and morbidity.

The data used in this study was collected using in-depth interviews and extensive literature review. The key findings of the study included the fact that poverty is a major factor in child morbidity and mortality. It is because of low-income levels that the families concerned were not able to improve the sanitation that was in turn going to improve the health status of the children. The study therefore recommended that the government should give small loans to slum dwellers, which they can use to start income-generating activities. This can help generate some money that may improve childcare practices.

Key words: *Child morbidity, mortality, slums, Nairobi River, infectious diseases; malnutrition, sanitation.*

1. INTRODUCTION

The lack of employment opportunities on the farm and elsewhere due to the rapid labour force growth rate of 4% per annum has made many people jobless. Most of the unemployed and underemployed in the rural areas have been forced to move to the urban areas where they continue being jobless and therefore have expanded the unemployed population of the urban poor.

* Lecturer, Environmental Socio-cultural Studies Department, Kenyatta University, P. O. Box 43844, Nairobi. E-mail: nyanchoka@avu.org

The urban poor, on the other hand, can only afford housing in the informal settlements. Forty-seven percent of Kenya's urban population live in low-income neighbourhoods while 30-40% are estimated to be absolutely poor (World Bank 1995). It is estimated (UNDP 1995) that up to 50% of Nairobi's residents live in informal settlements scattered around the city. A recent study (Brockerhoff 1993) found that the urban poor in Kenya face several socio-economic and environmental difficulties.

It has also been observed that the capital city, Nairobi, registered under-five child mortality higher (66.1 per thousand live births) than other provinces such as Central (33.5), despite the fact that it is well served with most of the infrastructural facilities (tables 1 and 2). The under-five mortality of Nairobi Province could be high due to: (i) the presence of the slums that do not have ready access to these facilities, (ii) low public health expenditures and persistence of acute respiratory infections, (iii) continued high rates of case-fatality rates of malaria and AIDS in early childhood.

Table 1. Infant and child mortality estimates by province, Kenya 1998

Province	Infant mortality	Child mortality	Under-five mortality
Nairobi	41.1	26.1	66.1
Central	27.3	6.3	33.5

SOURCE: Kenya Demographic and Health Survey 1998.

Table 2. Distance to the nearest health facility providing child immunization services, according to province, Kenya 1993

Province	Distance in Kilometres							Service provided	Service missing
	<1	1-4	5-9	10-14	15-29	30+			
Nairobi	23	66.8	8.2	0.0	0.0	0.0	2.0	0.0	
Central	5.6	43.2	28.4	12	8.8	0.0	0.0	2.0	
Coast	20.9	33.3	19.4	4.2	11	1.5	0.0	9.8	
Eastern	9.3	35.9	12.1	9.8	12.5	2.3	0.0	9.1	
Nyanza	18	36.4	30	8.4	3.8	2.9	0.5	0.0	
Rift Valley	11.7	26	32.9	12.1	12.5	1.2	0.0	3.6	
Western	17	46.9	31.2	4.9	0.0	0.0	0.0	0.0	

SOURCE: Kenya Demographic and Health Survey 1993.

The most common diseases among children reported by the KDHS 1998 were diarrhoea, respiratory infections and malaria. Table 3 shows the percentage of children affected by diarrhoea and diarrhoea with blood. However, these results were for the whole of Kenya. There is a need to identify the common child infections in the slums.

Table 3. Percentage of children with diarrhoea and diarrhoea with blood during two weeks preceding the survey

Province	Type of disease	
	Diarrhoea	Diarrhoea with blood
Nairobi	12.9	3.4
Central	9.2	0.9

SOURCE: Kenya Demographic and Health Survey 1998.

The slums along Nairobi River fall under the low-income settlements that this paper addresses. These slums include Mathare, Majengo, Gikomba, Korogocho, Shauri Moyo, and Dandora, among others. In this study, we define a slum as an area of poor living conditions and unrepaired mud-buildings. Slums may also refer to unplanned settlements or squatters which are hazardously built and hence quite dangerous to live in.

1.1 Objectives of the Study

- a. To examine the influence of environmental factors on child morbidity and mortality;
- b. To assess the role of behavioural patterns and perceptions of the study population on child morbidity and mortality;
- c. To make policy recommendations on strategies that can be used to reduce child morbidity and mortality.

1.2 Justification of the Study

The study area was chosen because it has attracted several government and non-governmental organizations that aim at improving housing standards, establishment of income generating activities, provision of maternal and child health care and removal of solid wastes. UNCHS-Habitat (1996) and Republic of Kenya (1998) have, however, observed that such efforts have not had an impact on child survival status. This is probably because such attempts lack the knowledge of underlying factors necessary for the appropriate intervention measures. Alternatively, the methods employed do not involve the residents in

decision-making. Hence, the study of the impact of slum environment on child mortality require further research to come up with the most appropriate ways of solving the problems.

The study by UNICEF/Kenya (2001) has noted that the impact of slum environment on child survival is greater and has long-term effects on children compared to adults. Hence, an approach to the problem of environmental degradation is to focus on the well-being of children and their mothers at the household level. Furthermore, greater efforts and attention are required for certain groups, particularly the children in especially difficult circumstances (CEDC), for example, in Mathare and Soweto slums because of their unique problems which are different from those living in rural areas and high income settlements.

1.3 Theoretical Framework

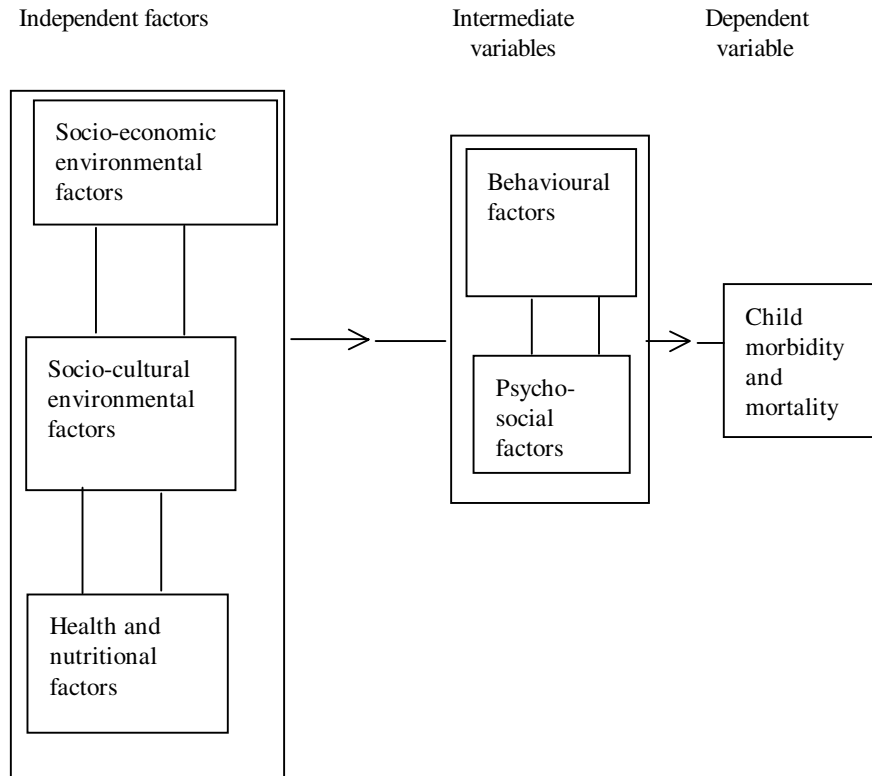
This study has used the conceptual model developed by Mosley (1985) for the study of the determinants of infant mortality in the Middle East. The analytical framework he proposed identifies the related exposure (environment) and susceptibility (host factors) as well as the intermediate variables through which social and economic determinants may operate to influence the levels of morbidity and mortality. Four intermediate variables are selected: non-specific resistance, immunity, diet and physical environment. The fifth factor which is directly affected by social process is therapy. He notes that the family setting as a whole determines the physical and cultural environment in which the child develops and the financial resources that may be available for his care. This theoretical model is relevant to this study since the index of infant mortality can help us to understand the health status of any community of which slums along Nairobi River are cases in point. If the conditions are favourable for the infants who are newly introduced to the external environment, then it will definitely be conducive for the adults.

The conceptual framework took into consideration three sets of variables namely; background, intermediate and dependent variables. The background variables include socio-economic environmental, socio-cultural environmental and, health and nutritional factors. When the background variables interact they influence the intermediate variables.

The intermediate variables include psycho-social and behavioural factors. It is expected that psycho-social factors, as intermediate factors, will affect the dependent variables, i.e., child morbidity and mortality (Fig.1).

Fig. 1. Conceptual framework for the analysis of the impact slum environment on

human morbidity and mortality



Source: Researcher.

The operational framework used in this study has been derived from the conceptual framework. The concepts used in the conceptual framework have been operationalised so that the socio-economic environmental factors include income, education and mass media. It is expected that if the mother is not educated, she may lack the knowledge of what constitutes proper hygienic standards such as good food preparation habits. Such habits may include food stored for long hours without refrigeration facilities and given to the child when it has gone bad. This makes the child suffer from diarrhoea-related diseases. Socio-cultural environmental factors include wife battering, heavy drinking and drug abuse, marital status, food taboos and polygyny. Health and nutritional factors include safe water, food availability, sewage facility, overcrowding, breast-feeding, toilet facility. The socio-economic

environmental factors, socio-cultural environmental factors and health and nutritional factors are background factors that influence intermediate factors that include psycho-social factors and behavioural factors. Psycho-social factors include perceptions and level of awareness about general health requirements. It is expected that the mother who believes that the reason why a latrine is used is for hygiene purposes will have fewer child deaths since she will make sure that it is clean and available. On the other hand, if the mother believes that the purpose of the latrine is to provide privacy, she may decide to use the bush as a toilet facility since it will provide privacy. This practice is risky in the sense that when it rains the faeces in the bush will be swept into the rivers and therefore contaminate the water which people downstream use. Usage of such water may facilitate water-borne infections of the children. Alternatively, such faeces disposed of in the bush can serve as breeding grounds for houseflies which will contaminate the food and consequently increase the risks of diarrhoeal infections to the children. Behavioural factors include personal hygiene, birth spacing and breast-feeding habits, and health care facilities utilization factors. Intermediate factors affect the dependent variables. The dependent variables are child morbidity and mortality, which have been operationalised as child sickness and death (Fig. 2.).

1.4 Hypotheses

1. Cultural environmental factors have the greatest influence on child morbidity and mortality;
2. Households whose women believed that their children were more susceptible to child sickness in the environment they lived in and who had a positive perception about a healthy behaviour were likely to experience fewer child sicknesses and deaths.

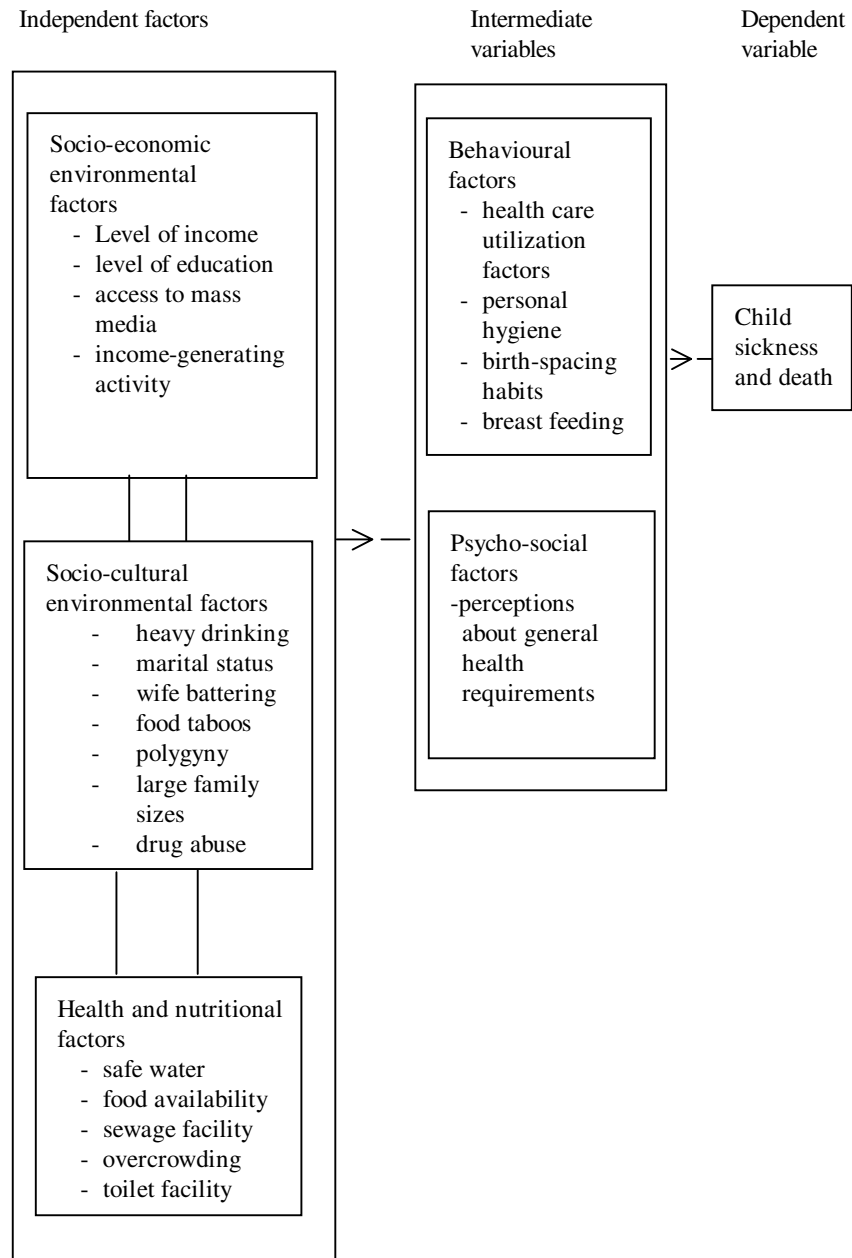
2. METHODOLOGY

The study aimed at examining the influence of environmental factors on child morbidity and mortality experiences. It covered children born to women aged 15-49 years during the last five years as per the month and the year of the interview in the study areas.

Purposive sampling was used to select the twenty women interviewed using an in-depth interview schedule. The women interviewed were selected according to the number of child deaths and whether the child had been sick in the last two weeks prior to the interview date. Under these criteria, those who had a sick child, had not lost a child or had two child deaths were six, six and eight, respectively. Selection according to the number of children lost and sickness cases was important because the factors that enhance child survival for those who have not lost any child can be compared to the factors that contribute to child deaths. Thus those who have lost children can learn from

those who have not lost any child. Those who have lost a child can learn child-rearing practices they need to improve on.

Fig. 2 Operational Framework



Selection was also done according to the age group of the mother. The women interviewed aged 15-24, 25-34 and 35-49 were seven, seven, and six, respectively (table 3). Selection according to age was done because child mortality experiences tend to differ according the age group of the mother. The young age groups are expected to have high child mortality rates because they are inexperienced in child bearing and rearing practices. This paper has been written using data derived from in-depth interviews conducted in 1998. It involved 20 women of reproductive age in the slums along Nairobi River.

Table 4. Number of child deaths and child sicknesses, and age group of the mother

Age-group of the mother	Child sickness and death incidences			
	Child was sick	No child died	Two children died	Total
15-24	2	2	3	7
25-34	2	2	3	7
35-49	2	2	2	6
Total	6	6	8	20

These women gave us information regarding the experiences they have heard about as regards morbidity and mortality status of this area.

This method was chosen because of limited resources to allow collection of quantitative data. However, these women gave detailed information that was supplemented by literature review.

3. DISCUSSION OF FINDINGS

3.1 Impact of Socio-economic Environmental Factors on Morbidity and Mortality Profile

It is evident from the information collected from the key informants in the study area that most of the slum dwellers along Nairobi River earn below Ksh 300-1000 only. Information on income was obtained by asking them how much they earn per day. Most of the slum dwellers earned Shs.50 per day. In this case, Shs.50 per day times 20 days a month was equivalent to Shs. 1000 per month. This amount was not adequate for the daily upkeep of the families in terms of their basic and health care needs. Similar findings have been obtained by UNCHS-Habitat (1996) which found that the consequences of

low income have led to an estimated 50 percent of children in Kibera slum malnourished. Information from the in-depth interviews indicated that due to their low incomes the majority of the slum dwellers are unable to invest in upgrading their houses and surrounding environments. Consequently, they continue living in areas that are prone to a variety of health hazards such as skin infections.

Unemployment is so rampant that the majority of them depend on the informal sector where they work as casual labourers. The World Bank (1995) has observed that unemployment is growing at the rate of 40-56% per annum. With such meagre earnings the urban poor are unable to cater for their basic needs, including food. This results in most of them being malnourished and less resistant to disease infections.

It was reported that the income for the slum dwellers was obtained from small-scale businesses in the informal sector such as *Jua Kali*, menial jobs such as working as watchmen and house helpers. Others were job seekers. The women-headed households also have problems because they are unable to obtain credit to start any business and are, therefore, dependent only on the low paying non-skilled jobs. Due to all these problems, their children suffer from diseases such as acute malnutrition, marasmus and marasmic kwashiorkor, among others.

Munyakho (1992) in his study on slum dwellers has found that lack of employment may affect some members of the family. Hence, the ones who are working are overloaded with household responsibility which leads to heavy drinking, drug abuse, child and wife abuse. This in turn affects the victim's health. A similar situation was also found in the study area. Results from the in-depth interviews indicated that heavy drinking, drug abuse, child and wife abuse were causes of family breakages and divorce that led to child care negligence. In the absence of one of the parents, child care became strenuous and hence inadequate medical care was provided.

This study also found that almost 90% of the inhabitants of slums along Nairobi River lack access to formal educational facilities. Non-formal schools are the major educational facilities available to them. There are only 66 schools in Nairobi catering for a student population of approximately 15,000 (UNICEF 1993). This means that most of the schools are congested. Apart from over-crowding, there is also the problem of under-staffing of qualified teachers in these schools as most of the qualified teachers do not like working in the slum environments. This study also found that the schools lack essential learning materials due to the high rate of poverty. Most of the parents cannot afford the cost of learning materials for their children. Furthermore, the problem of low enrolment and high dropout rates in the primary schools due to poverty was also reported. The situation is worse for girls whose education

is less valued by most parents. Most of the girls of school-going age have been forced by their parents to work as house-girls so as to earn them an income. With this trend in the educational level of attainment, there is a declining nutritional and hygienic awareness, especially among women, which contributes a great deal to the high morbidity and mortality levels observed in these areas. Similar findings have been obtained by the World Bank (1995) which shows that women's education and awareness of the importance of hygiene, such as the use of oral rehydration therapy (ORT) in managing diarrhoea and the importance of timely immunization, can save children's lives.

Another factor that was mentioned that contributes to this scenario is the fact that in most cases the slum dwellers have limited access to communication channels such as radios, televisions, the print media (journals, newspapers and magazines). They also do not actively participate in gathering information from the folk media, e.g., participation in community groups, drama, dance, song and poems which are all important in communicating developmental messages. This makes them to be quite disadvantaged since they are left unaware of the latest developments in many fields such as the prevention methods of the killer disease HIV/AIDS or the improved nutritional and hygienic standards which may also in turn reduce the level of morbidity and mortality. The community groups that exist are inactive because the *merry-go-round* money contributions that would unite them are not available. Thus communication is limited.

3.2 Socio-Cultural Environmental Factors

Rapid urbanization and the poor management of resources continue to create high levels of poverty and increasing cases of violence, especially that directed at the vulnerable members of the society such as children, women, and in some cases the aged.

Gender inequality was identified as another factor that adversely affects the morbidity and mortality status of the slum dwellers along the Nairobi River. Living in the slums creates particular difficulties for women and girls. Female-headed households in these slums often lack support especially from their male folk who are unemployed.

It was also reported that some of these slum dwellers have moved from their rural homes with a number of traditional beliefs and practices. Some of these beliefs relate to diseases, food and roles that prescribe and proscribe their life styles. These beliefs and practices affect children, pregnant women, girls and the disabled. They attribute certain conditions to violation of cultural codes, social ethics or taboos. These, together with marriage systems, which include polygamy, wife inheritance and child brides, are a cause of concern because they undermine the nutrition and health of the population and increase

HIV/AIDS infection.

Socio-cultural codes and taboos, for example, restrict the pregnant mother from eating certain nutritious food and getting a balanced diet when expectant, which will consequently make her give birth to a child who is underweight and will die if infected by a common disease such as malaria. Some men in the slums practice polygyny, which make the children suffer from food insecurity if, for example, the man has two wives with four children each and the monthly income is Kshs. 1000 per month.

Most of the slum dwellers were also found to have large family sizes, which they were not able to take care of. This also contributed to high morbidity and mortality risks because of inadequate food and money to cater for their basic needs such as health.

Wife inheritance was also a common phenomenon among the population under study. This increased the chances of one being infected with HIV/AIDS. This also meant that the victims of HIV/AIDS die or give birth to infected children thus increasing the mortality risks of these children.

Results from the in-depth interviews indicated that some migrants from the rural areas to slums are of youthful age. Thus they change their traditional cultural way of life to the western life styles and environment. For instance, the social settings such as lodges and cinema halls provide an easy avenue for interactions with peer groups and enhance the risks of HIV/AIDS infections which in turn increase the number of mortality cases. Some get married, or cohabit while others engage in pre-marital and extra-marital sexual activities. These results in giving birth to children already infected with HIV/AIDS.

3.3 Impact of Nutritional and Health Environment on Morbidity and Mortality

The inhabitants of the slums along Nairobi River have poor and inadequate water supply, sewage and refuse disposal. Children in these areas are often infected with diarrhoea and intestinal parasites, cold, influenza, skin infections, among others.

This study also found that sanitation is inadequate for the majority of the residents in the study areas. Nairobi City in general lacks access to appropriate excreta disposal. Similar findings have been obtained by Habitat (1994) that found that in addition to this provision of electricity and drainage systems, slum improvement initiatives have not been consistently maintained. Some slum dwellers resort to using water from Nairobi River for washing and bathing. This contributed to increased skin rashes and diarrhoea cases. The poor have less access to safe water, i.e., 40% compared to 60% non-poor (Bennet 1975). Urban slums, especially those along Nairobi River, are the worst hit with inadequate sanitation and water supply, which increases their

morbidity and mortality risks.

Toilet facility was also found to be a major health risk to slum dwellers. For those who have pit latrines, this is not an entirely safe excreta disposal facility. At times the human waste can mix with drinking water through underground seepage and flies can also carry disease-causing organisms from human wastes to foods. Many intestinal parasites such as worms originate from improper disposal of human waste. When it comes to children, they suffer stunted growth.

Most of these slum environments lack adequate water. The only option they have is to use unsafe water systems. UNICEF/Republic of Kenya (1992) estimates that urban slum dwellers end up spending more than 30% of their incomes on water of dubious quality due to difficulty in accessing safe water. The charges for available safe water are high. UNDP (1995) in its study in Nairobi observed that unsafe water is used by 43% of the slum population in Nairobi, which leads to water-borne diseases. Habitat (1994) has also come up with similar findings in its study of the slum dwellers, where it has found that lack of safe drinking water has contributed to increased urban mortality in Kenya.

Another factor that has led to high incidences of child morbidity and mortality in the slums along Nairobi River is overcrowding conditions among the residents who live in cheap but poorly ventilated and unplanned accommodation. UNICEF/Kenya (1974) has observed that in such environments up to about 15 people share a room and that several families live together since up to 80% of the households have only one room for all activities. Over-crowding aggravates respiratory related infections. This finding also supports what UNFPA (2001) found that crowded living conditions particularly in urban areas spread infection. People living in poverty are the most overcrowded because of the cost of housing and the large family sizes.

Poor sanitation leads to the fast spread of diseases in the slum settlements. This raises diarrhoea incidences. A study by Aaby (1987) has estimated that 25% child deaths in Nairobi resulted from measles in the slum areas.

Government health facilities in these slum areas are inadequate, and sometimes lack supplies, particularly drugs. Non-governmental organizations serve slums but the introduction of cost-sharing has reduced the number of people using the clinics. The attitude of the health staff toward slum dwellers is unsympathetic and contributes to non-use.

The nutritional status among the slum dwellers in the study area is also very poor. In most cases 50% of the income is spent on food. Families in most cases resort to low nutritional substitutes (kales and *ugali*) that affect the

health and nutrition of the children. Such substitutes have carbohydrates. Most of the residents including children take only one meal per day. As a result UNICEF (1995) estimated that 50% of the children are in such a condition; hence they have a very low resistance to disease infections which in turn also increases their risks of mortality. Malnutrition results from inadequate in-take of nutrients or from disease factors that affect digestion, absorption, transport and utilization of nutrients. The infectious diseases in particular affect both dietary intake and other processes. UNICEF/Republic of Kenya (1974) has noted that one of the major problems of the urban poor is malnutrition, which results in poor child growth and thus exposes the children to various infections. The diseases become worse due to the parents' having less income to buy medicine.

Nutritional levels in the slums are also affected by other factors such as breast-feeding, weaning, general child care practices, nutritional values of foods taken and the knowledge possessed by the children's caretakers of what constitutes a balanced diet. Most of these children have taken in little food, or food of poor nutritional value and hence suffer from growth retardation as is manifested by stunting, wasting and underweight.

The results also indicate that most of the diseases in these slums are as a result of lack of high personal hygienic standards and lack of pit latrines. Wang'ombe (1996), in his study of the slum dwellers, found that the pit latrines that are used in these areas are not planned sewage systems. Consequently, when they fill up when the rains come, they overflow and this worsens the health conditions of these people. In addition, the residents along the slums of Nairobi River use water from this river that is already polluted. When such water is used for drinking, bathing and cleaning, it becomes a major media for diseases, which can kill and debilitate millions of people. Current research that has been carried out by United Nations Fund for Population Activities (2001) has shown that water-borne diseases infect about 250 people annually and about 10 million of them die.

3.4 Efforts to Reduce Morbidity and Mortality Rates in Slum Environments

A recent government focus on implementation has shown that macro-economic stabilization has had a negative impact on the poor. For instance, cost-sharing by the poor in education and health has reduced access by the poor to these services. Secondly, increased prices of basic commodities have increased malnutrition. Furthermore, the government has not addressed issues that are critical and sensitive, for example, unequal access by the Kenyans to productive resources, especially land and unemployment, which has led to poverty.

Women groups have been formed to participate in child survival,

development and protection programmes. However, they need to focus on slum dwellers since these are the people who are most hit by high incidences of morbidity and mortality.

Religious groups, both Islamic and Christian networks, have also tried to reach many communities when it comes to matters affecting children and women. However, the traditional beliefs of the slum dwellers have hampered their progress in the areas. Schools and teachers are also being used to teach improved hygienic and nutritional standards to help reduce morbidity and mortality cases; however, in the slum settlements sometimes the school facilities are inadequate and some parents are not able to take their children to school because of their poverty. In addition, the curriculum is not practically oriented, students read for examinations and not for application in their future lives.

Commercial institutions such as the family planning organizations that run many private MCH/FP clinics have tried to increase awareness especially about HIV/AIDS infections. However, the traditional beliefs of the slum dwellers have hampered this progress.

Globally much progress has been made in the water and environmental sanitation sector. The period from 1980-1990 was declared the International Drinking Water Supply and Sanitation Decade (IDWSS) by the UN General Assembly. The World Bank (1995) observes that the goal of this declaration was to achieve universal access to water and sanitation in developing countries. However, at the end of the decade, between 1.2 million and 700 million people gained access to water supply and sanitation. This was far from universal access. That is why urban slums like those along Nairobi River continue to experience critical water shortages.

4. CONCLUSION

It was apparent from the in-depth interviews that women who had experienced multiple child deaths were often less resourceful and organized in caring for the remaining children and running the household. They were far less able than other women to describe the circumstances and causes of their child deaths. They were poor at making effective home diagnoses of their children's symptoms and taking active steps to help them. Certain households also suffered from unusually adverse conditions such as insufficient economic resources, health environment or access to medical help.

Generally it can be argued that deaths occurring to young children below the age of five are mainly as a result of environmentally caused diseases. Poor environment is reflected in the absence of clean and safe drinking water, poorly constructed and unhygienic, congested and poorly ventilated rooms. The first two are principal causes of diarrhoeal diseases, which lead to loss of

appetite among the people, thereby making even mild attacks fatal.

4.1 Recommendations for Policy Makers

1. Public awareness needs to be advocated. Individuals, NGOs, Government, and the private sector should carry out public awareness campaigns. The government should undertake training of the required health workers who will later be deployed into these areas (slums) in order to improve conditions. Nairobi City Council should mobilize social and health workers and institute outreach services to educate slum dwellers on proper hygiene and sanitation. More individuals and youth groups should volunteer and create awareness in slums. The NGOs should also sponsor health education programmes using electronic media. There is a need for health campaigns by voluntary organizations on the dangers of in-door bathing. Hence, mass awareness programmes should be encouraged and enhance community participation in health improvement programmes. More emphasis should be laid on critical emerging issues, for instance, the HIV/AIDS scourge. Literature should be published to create more awareness. Such literature that may be in the form of journals, magazines, etc., should be written in simple language or even in various local languages.
2. The community should be encouraged to initiate self-help projects to eradicate poverty. NGOs, Government, private sector should assist financially the absolutely poor families.
3. There is need for a strong legislation to regulate house construction and related amenities. The government health workers and the city commission officials should seriously see to it that landlords adhere to the required standard of building construction. Heavy fines should be imposed on those who fail to adhere to the laws governing house constructions.
4. The government should encourage the back-to-land policy by improving conditions in the rural areas. This will ease congestion in slums and hence reduce stress on services such as the lack of sufficient piped water in the urban areas.
5. The latrines need to be dug deep enough to minimize cases of bad odour and houseflies hovering around homesteads. The City Council should set conditions for this. If possible an area for latrine construction should be secluded away from the houses.

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