HEALTH PROBLEMS OF STREET CHILDREN IN ELDORET, KENYA

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ABSTRACT

Background: The street children phenomenon is an increasing problem in most cosmopolitan cities of the world including Eldoret, which is a fast growing town. With the growth of the town so is the increasing number of street children. It is therefore important to have baseline data on their health problems.

Objective: To determine the health problems of street children in Eldoret.

Design: A prospective and descriptive study.

Setting: Eldoret Town, Kenya.

Subjects: Eldoret street children aged 5 - 21years. Type 1 street children were the "on" the street children who spent most of their time on the streets but went home in the evenings, type 2 were the "of" the street children who spent all their time in the streets and had severed their links with their families and did not have a home to go to, type 3 were abandoned children staying in a shelter and type 4 were normal primary school children.

Results: One hundred and ninety one children were studied. There were 38, 47, 56 and 50 types 1, 2, 3 and 4 children, respectively. The most common symptom was cough (28.9%) while frequent diagnosis was upper respiratory tract infection (URTI) (12.1%) followed by skin disease (50.9%) as the leading disease category. The common drug of addiction was cigarette (37.6%) and none of the school children was taking any drug of addiction. The prevalence of disease was 467 per 1000 children. Type 2 street children had the highest prevalence of disease (833 per 1000 children). Shelter children had the least disease prevalence (474 per 1000). Factors determining prevalence of disease were the same as in normal children. The malnutrition rate was high with 31.1% and 41.9% of the children being stunted and underweight, respectively. Type 3 children had the highest rate of malnutrition with 51.8% and 64.3% being stunted and underweight.

Conclusion: Street children have a high incidence of childhood diseases. Factors determining occurrence of disease among street children are as in normal children. Respiratory and skin diseases were the leading causes of morbidity. Drug abuse was rampant among the street children but none of the school children abused any drug. Sexually transmitted infections were not prevalent. Most of the shelter children were malnourished.

Recommendations: The government of Kenya should provide free health care for street children in public hospitals. Further studies should be carried out on the prevalence of sexually transmitted diseases based on laboratory testing and on the causes of the injuries suffered by the street children. The reasons for the poor nutritional status of the shelter children should be analysed and appropriate measures taken.

INTRODUCTION

There are various types of children living under extremely difficult conditions. These include: street, refugee, abandoned, orphaned, and abused children among others[1]. The street children phenomenon was first noticed in Kenya in 1969 (Ayuku, personal communication). In Eldoret, it was first reported in 1985 and it escalated in 1989. It became worse in 1991-1992 during the infamous tribal clashes that preceded the 1992 multiparty elections. It is estimated that there are 135,000 street children in Kenya with about 8000 of them being homeless. In Eldoret, there are 1000 children in the streets and 500 in shelters

(Ayuku, personal communication). Other towns in Kenya with street children include Mombasa 5000, Kisumu 4000, Kitale 2000, Nakuru 2000, Nyeri 450 and Thika 520 (Ayuku, personal communication). In Nazareth, Ethiopia, Beyene found that there were 5,138 street children[2]. Inciardi *et al*[3] estimated that there were seven to seventeen million children in the streets of Brazil.

Factors that contribute to the street children phenomenon include: poverty, unplanned pregnancies, parents' deaths, growth of a town, disrupted extended family system, HIV/AIDS and drug abuse, especially alcohol[1,4-11]. The society looks at the street children as a nuisance and abuses them in many ways. These children

are shot dead by police, beaten by the public if they ask for money and are denied treatment in public and private hospitals if they cannot pay. The Moi Teaching and Referral Hospital used to offer them free medical services but the policy was discontinued after changing status from a district hospital to a teaching and referral hospital. They however, received some free treatment from a herbalist in town and from the visiting Indiana University (USA) doctors at the Rescue Centre(3,6,9-14).

Ayuku looked at the social networks of these children but did not determine their health problems. Kariri and colleagues in an unpublished report, looked at the health problems of the street children in Eldoret and found respiratory tract infections to be the most common diseases. Our study was, therefore, conducted with the aim of screening the Eldoret street children to determine the prevalence of disease and their health care providers.

MATERIALS AND METHODS

Study area: The study was conducted in the cosmopolitan town of Eldoret, which is 350 km north west of Nairobi. It has a good road network to and within the town. It hosts institutions such as Moi University, University of Eastern Africa Baraton, Mosoriot Primary Teachers' Training College, the Central Bank, Eldoret International Airport, five major commercial banks, and textile and paper industries around and within Eldoret town with a multi-ethnic and multi-racial population of 250,000.

Study population: Street children are not a homogenous group. Recognition of this heterogeneity as incorporated in the UNICEF definitions of street children used here. Thus 'on the street' children were those who maintained strong family ties, had a sense of belonging to a family and contributed to the household income. 'Of the street children' were those who had severed all family ties and were on their own. Shelter children also had no family ties but spent most of their time in institutions.

Study design: This was a cross-sectional, multiple group, case control study. There were two study and two control groups. The study groups were the 'of' and the 'on' street children while the control groups were the 'shelter' and the school children.

Sampling method: Both structured and unstructured data were used to identify the setting and record all activities that took place within the population of street children as they interacted among themselves and with the society(15). After mapping out the areas where the children could usually be found and spot observations made, respondents were selected for targeted and snowball sampling. This method was originally developed for analysing social structures within society(16-18).

Through snowball sampling, it is possible to make inferences about social networks and relations in areas in which sensitive, illegal or deviant issues are involved.

Unlike other research where appropriate samples reflecting target population parameters are drawn from exhaustive population lists, the fluid and mobile nature of street children makes estimates of composition and size a difficult, if not impossible task. This process begins with identification and recruitment of suitable candidates who might be willing to participate in the study. Targeted personal sampling is a data collection method used mainly for obtaining systematic information in urban areas. It starts with an initial mapping by defining areas on the basis of existing data and direct observations in which to conduct the research(19). Based on this information,

six target areas were defined in Eldoret town in which street children could be found.

These methods were used to estimate the number of street children in Eldoret town. The starting point was the initial sample of the street children who were each asked to name all the street children known to him or her. The newly recruited child formed the snowball "wave" or "chain". The principle behind snowball sampling was that the initial respondent who was chosen at random was invited to give names, age and description of the child's appearance, ethnic group, where to find the child as well as whether the child stayed on the street or returned home at the end of the day. This method helped to verify names of the street children and their characteristics.

In addition non-street children as control group and community members for focus group discussions were recruited. It was necessary to find out the attitudes and perspectives of the community toward street children and the children's perception of their situation. Each group consisted of eight to ten respondents who were recruited to discuss different topics about street children such as; causes of street children, their life style, problems on the streets, what they eat and community perception towards them.

The discussions were open ended and the talks ranged widely over various topics. The researcher ensured that each question on the data collection schedule was adequately addressed. The discussions were tape recorded but notes were also made regarding group dynamics and reactions of participants endorsing a view on which were later added to the transcription. The group discussions were followed by debriefing sessions during which the focus group leader answered questions clarifying issues and correcting misconceptions that had become evident during the group discussions. These discussions were also tape recorded and added to the focus group materials. The written materials were analysed and interpreted to determine themes and to create a conceptual map of children and the community's knowledge, perceptions, attitudes and behaviours related to street children.

For more information about why the children were on the streets, selected key informants from among the street children, government officials, social workers, parents, non government organisations (NGOs) dealing with children and the public were interviewed. These informants were interviewed using a semi - structured interview guide. Different interview guides were made for the children and for the public.

Having been identified thus, 191 children were recruited from a cohort of 400 children. The study groups were requested to come to the Faculty of Health Sciences (FHS) of Moi University for interviews, clinical examinations and anthropometric assessments. No child approached was reported to have refused or been unable to come to the FHS. They had to come to the FHS because they could not be clinically examined in the streets. The control groups were interviewed and examined at the shelter and at the school.

Data collection: A structured questionnaire was used to collect data. The data collected included age, sex, type of street child, residence, drug abuse and history of the present illness which was recorded as general, systemic, skin and sexually transmitted disease symptoms. Past medical history was also taken to indicate what the child had suffered from, where he had been treated, and who had taken care of him during his sickness. The children were also asked who their usual medical attendant was. A thorough clinical examination was then performed by the principal investigator (SOA) to look for signs of disease including sexually transmitted infections (STIs) and skin diseases. A diagnosis was then made by the principal investigator based on

the use of substances of addiction.

The children's weights were taken using a bathroom scale and recorded to the nearest gram. Height was taken using a heightometer and recorded to the nearest centimetre.

Study limitations: Some of the school children may not have given honest answers to questions pertaining to drug abuse.

Ethical considerations: The study was explained to the children and they willingly participated. Every child found to be suffering from an illness was given appropriate treatment. The study was part of an ongoing study by Ayuku (a PhD student) which already had ethical approval from the institutional research and ethics committee of the FHS.

Data management: The data were entered in a computer and analysed using the SPSS (Statistical Package for Social Sciences) program. Descriptive statistics were computed. Further analysis for statistical significance was not possible because of the small numbers of children with certain attributes.

RESULTS

One hundred and ninety one children were studied of whom 38 (19.9%) were type 1, 47 (24.6%) were type 2, 56 (29.3%) were type 3 and 50 (26.2%) were type 4.

Morbidity: The morbidity rate was 467 per 1000 children, with 786/1000, 833/1000, 474/1000 and 333/1000 among types 1, 2, 3, and 4 children, respectively. The morbidity rate among street children was 510/1000 as compared to 333/1000 among the controls (school children).

The most common disease was upper respiratory tract infection (URTI) (12.1%) with skin disease (50.9%) being the most common disease category.

Table 1

Diagnoses by types of street children

Disease	Type 1	Type 2	Type 3	Type 4	Total
Respiratory					
system	1 (5.6%)	8 (19%)	1 (6.7%)	1 (6.7)	11
Skin/STI	10 (55.6%)	26 (61.9%)	6 (66.7%)	3 (20)	45
Eye	0 (0%)	1 (2.4%)	0 (0%)	8 (53.3)	9
Dental	2 (11.1%)	2 (4.8%)	0 (0%)	2 (13.3)	6
GIT	3 (16.7%)	2 (4.8%)	1 (6.7%)	1 (6.7)	7
CVS	0 (0%)	2 (4.8%)	1 (6.7%)	0 (0)	3
Other	2 (11.1%)	1 (2.4%)	0 (0%)	0 (0)	3
Total	18 (100%)	42 (100%)	9 (100%)	15 (100)	84

Table 2

Categories of diseases

Disease category	Frequency	
	No.	%
Skin diseases	58	(50.9)
Respiratory system		
Diseases	16	(14)
Injuries	11	(9.6)
Eye diseases	9	(7.9)
Dental diseases	9	(7.9)
GIT diseases	7	(6.1)
CVS diseases	4	(3.5)
Urogenital/ STI	3	(2.6)
Other	8	(7)
Total	114	(100%)

Drug abuse: The prevalence of drug abuse was 545 per 1000 children. Of these 41 (37.6%), 34 (31.2%), 20 (18.3%), 9 (8.3%) and five (4.6%) were cigarette smokers, sniffing glue, taking alcohol, smoking *marijuana* and sniffing cocaine respectively.

Anthropometric data: The mean age was 14.03 ± 2.42 SD (range 5 to 22 years), mean weight was 40.8 ± 10.6 SD (range: 12.5 - 89.9 kg), mean height was $151.4 \, cm \pm 16 \, SD$ (range: 42.5 to 1 80 cm). There were 129 (67.9%) children with normal height for age, 59 (31.1%) were stunted and two (1.1%) were above the expected height for age. Of the stunted children, 28.8%, 13.6%, 49.2%, and 8.5% were types 1, 2, 3 and 4 respectively. 44.7% and 51.8% of types 1 and 3 were stunted.

Table 3

Personnel or facility consulted when sick

Personnel/ facility	Frequency	
	No.	%
Mobile clinic	66	(27.5)
Government facility	60	(25)
Private clinic	47	(19.6)
Nowhere	27	(11.3)
Indiana doctors	18	(7.5)
Hostels/shelter	11	(4.6)
Herbalist	6	(2.5)
School	3	(1.3)
Volunteers	2	(0.8)
Total	240	(100)

Table 4

Caretaker by type of street child

Caretaker	Type 1	Type 2	Type 3	Type 4	Total
Mother	13 (56.5%)	3 (14.3%)	2 (16.7%)	21 (42.6%)	39
Parents	5 (21.7%)	1 (4.8%)	1 (8.3%)	20 (40.8%)	27
Friends	1 (4.3%)	14 (4.8%)	8 (66.7%)	1 (2%)	24
Father	3 (13%)	2 (9.5%)	0 (0%)	7 (14.3%)	12
Nobody	1 (4.3%)	1 (4.8%)	1 (8.3%)	0 (0%)	3
Total	23 (100%)	21 (100%)	12 (100%)	49 (100%)	105

Table 5

Usual medical attendant by type

Medical attendant	Type 1	Type 2	Type 3	Type 4	Total
GK	8 (44.4%)	14 (50%)	3 (37.5%)	18 (36 7%)	43
Private	8 (44.4%)	2 (11.1%)	2 (25%)	31 (63 3%)	43
Nobody	1 (5.6%)	7 (38.9%)	3 (37.5%)	0	11
Herbalist	1 (5.6%)	5 (27.8%)	0 (0%)	0	6
Total	18 (100%)	28 (100%)	8 (100%)	49 (100%)	103

Table 6

Weight (WA) and height (HA) for age by type

Type	Weight Normal	Under-weight	Total	Height Normal	Stunted	Tall	Total
1	17 (44.7%)	21 (55.3%)	38 (100%)	21 (55.3%)	17 (44.7%)	0	38 (100%)
2	34 (72.3%)	13 (27.7%)	47 (100%)	39 (83%)	8 (17.4%)	0	47 (100%)
3	20 (35.7%)	36 (64.3%)	56 (100%)	27 (48.2%)	29 (51.8%)	0	56 (100%)
4	40 (80%)	10 (20%)	50 (100%)	43 (76%)	10 (20%)	2 (4%)	50 (100%)
Total	111 (58.1%)	80 (41.9%)	191 (100%)	125 (65.1%)	64 (33.5%)	02 (2.1%)	191 (100%)

There were 111 (58.1%) and 80 (41.9%) children with normal and low weight for age respectively. None of the children was overweight (obese). Of the undernourished children, 26.3%, 16.3%, 45% and 12.5% were types 1, 2, 3 and 4 respectively. More than fifty five per cent and 64.3% of types 1 and 3, respectively were undernourished.

Symptoms: The most common symptom was cough 56 (17.7%) followed by pruritus 32 (10.1%), rash 31 (9.8%), headache 26 (8.2%), pain in the eyes 24 (7.6%), abdominal pains 17 (5.4%), fever 17 (5.4%), sore throat 11 (3.5%), toothache 10 (3.2%), discharge from the skin ten (3.2%) and other symptoms 82 (31.3%).

Dermatovenereal diseases: There were 58 cases of dermatovenereal diseases of which there were 15 (25.9%) fungal infections, eleven (19%) injuries, ten (17.2%) parasitic infestations, eight (13.8%) acne vulgaris, seven (12.1%) eczema, six (10.3%) viral infections and one (1.7%) genital ulcer disease.

Reasons for taking drugs of addiction: The reasons given for taking drugs of addiction were: friends and peer pressure 26 (43.3%), to feel better or drunk 13 (21.7%), to feel warm, six (23.1%), no reason given, three (11.5%), to reduce boredom or for leisure three (11.5%) to remove bad thoughts two (7.7%), to catch sleep two (7.7%) and other reasons three (11.5%).

DISCUSSION

The street children phenomenon started in Kenya in 1952 during the Mau - Mau freedom war. It was first documented in Nairobi in 1969(3). In Eldoret, it was first seen in 1985 and reported in 1989. It got worse in 1991-1992 during the tribal clashes that preceded the 1992 multiparty elections in Kenya(3).

The most prevalent disease among these children was upper respiratory tract infection (URTI). The most prevalent disease categories were skin, respiratory, injuries, eye and dental diseases. This study was similar to one conducted in Colombo where the main causes of morbidity were respiratory diseases, skin diseases and injuries. However, the injuries in the Colombo study were due to road traffic accidents while ours were due to the children being shaved by broken pieces of bottles and fights among themselves(15). Kariri and colleagues found upper respiratory tract infections(URTI) to be the most prevalent disease (unpublished data). Our study differed from the other studies in that it was prospective while the other two were retrospective. Kariri and colleagues on the other hand depended on the children's perception of disease. Considering the circumstances under which street children live such as overcrowding, cold dusty environment, sniffing glue, cigarette smoking, fighting amongst themselves, being beaten by the public and police it was expected that respiratory diseases, skin diseases and injuries should be prevalent among them. Since these children scavenge on leftovers in dustbins and hotels, one would have expected diarrhoea and vomiting to be more prevalent than was seen. This was similar to other studies(2,3,9,13-15). This could be due to the conditioning of their immune systems from repeated exposure.

The highest prevalence of disease was among the type 2 street children while the lowest was among type 3 street children. Most of the type 2 children had multiple diagnoses. The difference in prevalence may have been due to the fact

that the shelter children received regular free medical check ups and treatment from the visiting Indiana University doctors on exchange programme at the Faculty of Health Sciences of Moi University. The other types of children did not get this care. Type 2 children depended more on the herbalist for their medical consultations than the other children and may not have been receiving proper treatment. They depended on their friends to look after them when sick as compared to types 1 and 4 who depended on their mothers and both parents respectively. This group of children had also the highest number of children that nobody took care of when sick. The difference in the prevalence of disease could not be explained by the nutritional status because while type 3 street children had the highest prevalence of underweight and stunting they had the lowest disease prevalence. The shelter and the school children had access to private and government doctors and none of them visited the herbalist.

The most common diseases among the type 2 children were scabies and URTI. This was similar to type 3 where acne vulgaris and URTI were the leading diagnoses . This was different from type 1 where the leading diseases were tinea corporis, malaria, helminthiasis and viral warts and allergic conjunctivitis in type 4. Type 2 children had the most cases of URTI, scabies, tinea capitis, septic wounds, and scars. This may have been because of negligence by the parents, abuse by parents, public, peers and government officials, poor living conditions, and drug abuse. Inexplicably all cases of allergic conjunctivitis were seen in school children and none in the street children who were exposed to dust. No sexually transmitted disease was diagnosed in the school children probably because of good parental care, they were not sexually abused, as is often the case among street children and they may also have received prompt and proper treatment. Tinea capitis is commonly seen in children up to the age of 10 years, hence none was seen in these school children because they were aged 12 to 15 years[13]. Dental caries occurred in type 1 and school children. This may have been due to eating too many sweets from dustbins and shops respectively. The most common skin symptoms were pruritus and rash. Pruritus is such a common symptom in dermatology that it is classified as a diagnosis under the International Classification of Disease (ICD)(Holly B. Hahn, personal communication). These were common because the children were exposed to such environmental hazards as cold, dust and lack of bathing, which led to dry skin. This also explained the itching and rash. Scabies was a result of poor hygienic practices, overcrowding, inability to bath, and poverty[22]. The dermatoses that led to pruritus and rash were scabies, xerosis, non-specific dermatitis, and atopic dermatitis. Scabies was the most common skin disease in this study though it is rare in African-Americans because the latter use a lot of petrolatum products like vaseline which smother the scabies mite. The street children in our study may not have been able to afford vaseline (Treadwell, personal communication). Other prevalent skin diseases were acne vulgaris tinea corporis, tinea capitis and scars. Since the mean age was 14 years, acne vulgaris was

expected because of a surge in the androgens at puberty[23]. The fungal infections were due to poverty, overcrowding, unhygienic environment, sharing of combs and caps, and lack of bathing[21]. The injury related diagnoses such as scars, burns, cut wounds, soft tissue injury and ulcers were due to physical abuse by the public, government officials, fights with peers, and accidents.

While twenty five children reported some symptoms related to sexually transmitted infections, only five were diagnosed as having an STI syndrome. The three most common symptoms were frequency of micturition, dysuria and lower abdominal pain. The STIs diagnosed included, herpes simplex, genital warts and genital ulcers. Considering that these children experience rape, prostitution, sexual abuse, casual sex and romantic sexual relationships, this prevalence was relatively low[24]. Swart-Kruger found that though the children were involved in sex for various reasons, fear for HIV/AIDS was not in their list of priorities[24]. They may therefore not have been taking appropriate precautions to prevent infection by HIV or other STIs. Certain studies have shown that street children are involved in unprotected sex[13]. STIs should be investigated using the laboratory.

Substance abuse by these children was very high. The most commonly abused substances were cigarettes smoking, glue and alcohol. The children least abused *marijuana* and cocaine. Most children had never heard of cocaine. However, with the opening of Eldoret International Airport, it may be just a question of time before cocaine becomes widely abused. No school child alluded to using any substance of abuse. This may have been because of fear of repercussions.

However, there are very many newspaper reports of substance abuse in Kenyan schools. Our findings were in contrast to those of Wansi *et al*[25] in Cameroon whereby the drugs consumed ranged from *Cannabis sativa* to cocaine and heroine. Cannabis was the most frequently abused substance followed by amphetamine-type tablets and a wide range of pharmaceuticals. Local brew was also widely abused[25]. In Ethiopia, drug abuse was on the increase in all sectors of society including street children. Khat was the most commonly abused drug in Ethiopia unlike Eldoret where it was not consumed[26]. In Peru, the prevalence of inhalant abuse was found to be 15-45% and was the third most commonly abused drug[26]. This was similar to our study. The reasons given to us by the children for abusing these drugs were peer pressure, to feel warm and not to be hungry among others. Other studies had similar findings. In Brazil, it was found that cocaine, marijuana, cigarettes, and solvents were widely abused[28,29]. In Nepal, heroine was widely abused because of religion and availability[30].

The nutritional status of the children studied was generally poor. Slightly more than thirty one per cent and 41.9% of the children were stunted and underweight respectively. Most of the stunted and undernourished children were type 3. This was surprising because these are children in a shelter and are supposed to be better fed

than the other types of street children. Probably the diet in the shelter is inadequate in quantity and quality or there were younger children in this group than the others. Considering that malnutrition predisposes a child to all sorts of diseases it was inexplicable that these children had the least prevalence of disease among the street children. Probably the frequent medical check-ups and treatments given by the Indiana University doctors markedly reduced the disease prevalence.

CONCLUSION

Street children have a high prevalence of childhood diseases and the factors that determined this were as in normal children. Skin and respiratory diseases were the most prevalent. Substance abuse was rampant with cigarette smoking being the most common. Most street children relied on their friends for care when sick whereas the school children depended on their parents. Type 1 and 2 street children had difficulty accessing private or government facilities for treatment. Sexually transmitted infections were not prevalent among the street children. Most shelter children were malnourished. The government should provide health care for street children in public hospitals. Laboratory based studies should be carried out to establish the prevalence of STIs, helminthiasis, anaemia and HIV. In-depth studies should be done to assess the injuries suffered by the street children. A detailed study of drug abuse should be conducted. The administration of the rescue center should be advised to provide adequate and nutritious diet.

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