

The Plight of Orphans and Vulnerable Children in Nairobi Urban slums in the Face of HIV/AIDS

**Report of the World Bank-Funded OVC Project
(July 2006-June 2007)**

June 2007



AFRICAN POPULATION AND HEALTH RESEARCH CENTRE

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Recommended Citation

African Population and Health Research Centre (APHRC) and The World Bank. 2007. The Plight of Orphans and Vulnerable Children in Nairobi Urban slums in the Face of HIV/AIDS: APHRC and The World Bank.

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Acknowledgments

The Orphaned and Vulnerable Children (OVC) project benefited greatly from many individuals and organizations who contributed to the success of the study. The African Population and Health Research Center (APHRC) acknowledges the financial assistance from the World Bank (Grant # 7139065). Special thanks to Dr Michael Mills (the World Bank's Human Development Sector Leader for the Africa Region) for his technical support. Other World Bank staff were also involved in the study: These include Marito Garcia (Lead HD Economist and Program Coordinator for Africa Children and Youth, AFTH1); Oscar Picazo (Senior Health Economist, AFTH1); Wacuka Ikua (Operations Officer, AFTH1, based in Nairobi); and Josephine Kiyenje (ET Consultant, AFTH1, based in Nairobi). Dr Penny Holding from the African Mental Health Foundation provided guidance on the development of the questionnaires, study design, data analysis and report writing. The smooth completion of the OVC fieldwork owes much to the kind cooperation of the various Community Based Organizations and their staff, schools, the chiefs and elders in the study area, and more importantly, the respondents who generously gave their time to provide information. The dedicated field and office staff (see List of Contributors) worked tirelessly throughout the data collection, data processing/analysis and report writing period.

Abbreviations and Acronyms

AIDS	Acquired Immune Deficiency Syndrome
APHRC	African Population and Health Research Center
DHS	Demographic and Health Surveys
DSA	Demographic Surveillance Area
ERP	Education Research Project
FAO	Food and Agricultural Organization
FHI	Family Health International
HIV	Human Immunodeficiency Virus
KEMRI	Kenya Medical Research Institute
LSMS	Living Standard Measurement
NUHDSS	Nairobi Urban Health and Demographic Surveillance System
OAU	Organization of African Union
OVC	Orphaned and Vulnerable Children
PCA	Principal Component Analysis
REPSSI	Regional Psychosocial Support Initiative
UNAIDS	United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
US CDC	United States Center for Disease Control
WHO	World Health Organization

EXECUTIVE SUMMARY

Background

One of the many crises caused by the soaring rates of HIV and AIDS prevalence in Sub-Saharan Africa in the last decade is a sharp rise in the number of orphans, as parents and caregivers infected with HIV during the late 1980s and early 1990s are now succumbing to AIDS. By the end of 1999, 13.2 million children had been orphaned worldwide by AIDS and 90% of them were in Africa. By the year 2010, between 12% and 25% of children in a dozen sub-Saharan African countries will be orphans - with the vast majority of them orphaned due to HIV/AIDS – as a result of the current high proportion of adults already living with HIV/AIDS in these countries and the continuing difficulties in expanding access to life-prolonging antiretroviral treatment. In Kenya, approximately 1.7 million out of an estimated total of 15 million children – that is to say, about 11% of the total – have lost one or both of their parents, due largely to HIV/AIDS. Moreover, the number of orphans is projected to grow to 2.5 million by the year 2010, with 500,000 of these children having lost both their parents. Although many of these orphans are cared for by members of their extended family, the strain placed on caregivers can be large, especially in Kenya and other Sub-Saharan countries with very high poverty rates. The problem is compounded by the fact that there are many children who are not orphans but who are in vulnerable situations because of HIV-related reasons, for example because the family breadwinner has AIDS and is too sick to work.

From the increasing body of evidence being collected in sub-Saharan Africa it is apparent that the types of support that should be considered should go beyond purely material issues. Child protection, bereavement counseling and child advocacy is suggested by the literature. In addition, it is increasingly clear that the needs of each affected community are different, and consequently appropriate support structures are also likely to vary. The available literature also suggests the need to consider the resilience of families affected by HIV/AIDS prior to decisions being made on relevant support structures. A number of studies have discussed the relative strength provided by the extended family and other traditional support structures to cope with the potential burden of orphan hood. But alongside this is the evidence of the burden in some areas reaching such proportions that there is a disintegration of traditional frameworks.

Research Questions and Study Objectives

The aim of the study is to provide evidence to inform current and future policy and practice initiatives for OVC welfare in poor urban areas. The questions that the project attempts to answer in the context of urban slum areas in Kenya include:

- Should interventions be specifically targeted towards OVCs or families with OVCs, and if so which types/categories of OVCs (one-parent orphans, two-parent orphans, children with one parent dying of AIDS, etc.)?
- Relative to other children, and controlling for household-specific factors, in particular household socio-economic status, what are the main areas of vulnerability of OVCs (e.g. lower probability of enrolment in school and higher psychosocial needs etc.)? Consequently, what areas of OVC vulnerability should be the main focus of interventions that are targeted specifically to OVCs?

The specific objectives of the project are:

To identify child level characteristics that can be used to explain various welfare measures;

1. Identify households that would qualify for interventions based on their income or other related socio-economic status indicator; and
2. Identify areas of vulnerability that should be the main focus of interventions that are targeted specifically to OVCs (e.g. school enrolment, health care, psychosocial needs e.g. emotional-behavioral control, anxiety, feelings of belonging, etc.)

While there is a growing literature on OVCs in Sub-Saharan Africa, relatively little of it consists of research using detailed household data. The existing research explores the links between the welfare status of orphans (as measured by educational attainment or health indicators, for example) and household characteristics. Studies using detailed household data to analyze these and other aspects such as psychological and intra-household distribution are largely missing from the literature. One recent example of a study that uses household data to examine the factors affecting orphan welfare status is a paper by Ainsworth and Filmer (2002). The study examines the relationship linking orphan status, household wealth and school enrolment using data collected through the Demographic and Health Surveys (DHS) and Living Standard Measurement or LSMS surveys in the 1990s from 28 countries (22 in Sub-Saharan Africa). The authors found that household wealth explains much more of the variation in school enrolment than orphan status. At the same time, however, they found that the relationship among the variables examined differs quite significantly across countries. Using data from 19 Demographic

and Health Surveys (DHS surveys) conducted in 10 Sub-Saharan African countries between 1992 and 2000 Case, Paxson and Ableidinger (2003), found that orphans are significantly less likely than other children in the same household to be enrolled in school. Controlling for other factors, the likelihood of an orphan being enrolled is found to be positively related to the degree of biological closeness of the orphan to the household head. Further, differences have been observed between different areas, hence the need to look at the specific contexts.

Design and Methodologies

Study Setting and Populations

The study settings are two slum areas of Nairobi (Viwandani and Korogocho), located on the eastern side of the city. In these two slums the African Population and Health Research Center (APHRC) has been conducting a demographic surveillance system referred to as the Nairobi Urban Health and Demographic Surveillance System (NUHDSS), with about 60,000 registered inhabitants. These two densely populated communities have high unemployment, poverty, crime, poor sanitation and generally poorer health indicators when compared to Nairobi as a whole. This study consists of two components: secondary data analysis and a new data collection effort that involved a quantitative survey on psychosocial issues and other key indicators updates such as school enrollment and health status. The secondary data analysis mostly relied on a NUHDSS data collected by the Education Research Program. The criteria for inclusion of subjects for both secondary analysis and primary data collection were age and residency status: all children aged 6-14 years and residents in the APHRC demographic surveillance area (DSA) were eligible for participation in the study. Households included were those that had eligible children. There were 9,029 children aged 6-14 years, including 1,218 orphans, 7,609 non-orphans and 202 with unknown status.

Psychosocial Survey

The sample size for the additional data collection was calculated with sufficient power (80%) to be able to detect with 95% confidence, a difference of 5% in the percentage of children with the most demanding attribute of interest (school drop-out). The minimum sample size calculated for the two sub-groups is 2,122. We sought to include all orphans in both study sites (Viwandani and Korogocho) with an equal number of non-orphans matched upon age and gender. The total new sample then was estimated to be 2,402; 1,202 of these orphans and 1,202 non-orphans. A random sample of non-orphan children (6-14 years) was selected from the NUHDSS data. Viwandani had fewer orphans in the database thus there were fewer interviews to be conducted in Viwandani than in Korogocho

Content of the Psychosocial Survey

The data collection effort focused on the psychosocial needs of all children aged between 6-14 years (OVCs or not) in the surveyed households. There have been few studies in Africa of the impact of orphan hood on the psychosocial adjustment of children (Stein, 2003). Reports based upon professional observations and discussions with community participants suggest that in children the feelings of trauma and shock that follow the death of parent may be exacerbated by lack of material support and care. Many African children grow up in difficult circumstances due to the unique factors of their socio-economic, cultural, traditional and developmental circumstances. It is recognized that for optimal development the child requires particular care with regard to health, physical, mental, moral and social development. The child also requires protection to promote freedom, dignity and security, and that this care and protection should be provided in an atmosphere of happiness, love and understanding. The information collected from children and their caregivers describes the context of the individual child in relation to these multiple dimensions of child welfare. We extend the definition of welfare beyond the description of access to resources and the level of protection and care, to include a broader concept of well-being. Well-being is defined by the addition of measures of attitude, moods and feelings. The purpose of this research was to describe the experience of children in our target communities, explore the specific vulnerabilities of children who have been orphaned and to identify potential points of intervention to deal with context specific needs. In common with all previous studies in Africa, orphan hood was defined by the death of one or both parents. Initial analysis grouped together as orphans those children who had experienced the death of their mother, father or both parents.

Information was collected on the five following broad domains, to create measures of child well being. These domains were selected because in other contexts it has been found that vulnerable children are at risk of negative outcomes in each of the areas covered.

Domain 1: Education/School Related Issues. Child is enrolled in and regularly attends school, displays positive bonding to school and appropriate progress through school.

Domain 2: Health Related Issues. Height and weight, somatic symptoms, general health status and types of illness experienced, use of health facilities

Domain 3: Food security. Regularity of access to food currently and over time, as reported by the caretaker

Domain 4: Provision of Support: Care and Shelter. The provision of emotional support, personal space and possessions, and meeting of daily needs (meal preparation and care during illness).

Domain 5: Neglect/Abuse/Exploitation. Pattern of daily living, involvement in play, rest, chores, income generating activities. Variables included in this section were intended to measure how closely the daily activities of the child corresponded to a model of child appropriate activities. This model incorporates the rights of the child as laid out in the *African Charter on the Rights and Welfare of the Child* - which states that a child has the right to education, to rest and leisure, to engage in play and recreational activities appropriate to the age. The Charter also recognizes the role that the child should play in assisting the family, hence also the recognition of the importance of time spent in family chores, activities that also contribute to the development of independence skills of the child. The daily diary provided by the child as an example of a typical day was scored for the inclusion of each of the following 5 elements, education, play, chores, rest, and we also included mealtimes, as this was a regular element reported by children.

Domain 6: Social emotional and behavioral state. Observed and reported mood, behavior, future ambitions, and relationships with caretakers, siblings, peers and neighbours. This section also includes information on worries, defined as negative self-talk that distracts the individual from focusing on the problem at hand and, fears, the powerful, unpleasant feeling of risk or danger that can be either real or imagined.

Design of Data Collection Tools

The data collection tools were designed through processes that included review of existing tools from the internet including tools that have been used in other studies (e.g. FHI studies done in Zambia and other studies done in Rwanda, Cambodia). Some standardized instruments from the Regional Psychosocial Support Initiative (REPSSI), and a questionnaire with 24 items to assess health related quality of life in children, were also reviewed in the design process. REPSSI is a regional capacity-building organization working in 13 countries in East and Southern Africa to enhance the provision of psychosocial care and support to children affected by HIV/AIDS, poverty and conflict. Following a literature search on psychosocial issues a list of target questions was drawn up. These questions covering psychosocial, educational and socio-economic issues were combined into a preliminary questionnaire. The initial plan to have all questions answered by the children was seen to be overbearing on the children, hence the need arose for two sets of questionnaires, one for the caregiver and the other for the child. Two of the

field workers were involved in translating the questions into simple Kiswahili terms that could be easily understood by the target audience while still retaining the conceptual meaning. A transcription of responses elicited from two families provided the basis for further development of the final questionnaire.

Data Collection

Data collection was carried out between 20th February and 20th April 2007. The field supervisors and team leaders were expected to participate in data collection in addition to the supervisory role as stipulated in the field worker's manual. Additional responsibilities included quality control through spot checks of interviews and scripts, data cleaning, work assignments, follow-up cases, community liaison. The team also consisted of Editors, who were expected primarily to clean data, but also to participate in some data collection. During the process, it was found that some children were at school out of the study area and would only be available during the April holidays. There were also challenges in finding the respondents who were not at home and could only be found after repeated follow-up calls. Others were not found at all due to migrations, refusals, among other reasons.

Chapter 2: Enrolment, drop-out and repetition rates: Secondary data analysis

The Education Research Project (ERP) provides a biographical data set with information on child enrollment status (whether a child is enrolled in school or not for a given year during the period 2000 to 2005). The survey first round occurred in 2005 and retrospectively asked the child on his schooling history. The events attached to each individual (enrolment, drop out or repetition experiences) are therefore dated, unlike in the core NUHDSS. Typically, the individual changes are reported from one year to the other. In the first section this rich information is used to compute annual gross and net enrolment rates in the DSA as well as for each slum. The information is then broken down to the level of the child status (orphan or non orphan). The latter analysis of children enrolment by orphan status excludes children whose orphan status is unknown in the DSS. Another important exclusion is children who were missed in the ERP project.

The results clearly show that Viwandani performs better than Korogocho in terms of children enrolment. As expected there is distinct pattern since 2003 with an important increase (about 10 percentage points from 2002 to 2005). This suggests a positive effect of the free access to primary school policy in Kenya. It appears also that in general fostering families or the remaining parent ensure that orphans go to school. However their achievement and performance is lower compared to non orphans. Among the orphans, the annual average drop out rate at primary

school during the study period is 0.41 per cent in Korogocho, almost the double of their non orphan counterparts. In Viwandani, the annual average drop out rate at primary school during the same period is 0.34 per cent, which is below that of Korogocho but remains higher than the performance of non orphans in Viwandani (0.16).

As regards repetition, while 10.3 percent of the children have ever repeated among non orphans, up to 17 per cent of the orphans ever repeated. Once again it appears that Viwandani has better school performance with more than 1 point difference between non-orphan in the two locations and this gap reaches more than 1.5 point between orphans. At the same time there is again significantly less repetitions among non-orphans despite the apparent higher enrolment of the orphans. This actually suggests that policy measures to support orphans are urgent because repetition is a source of inefficiency of the schooling system. Orphans tend to spend too much time in the primary school, the consequence of which is a higher unit cost per student produced by the educational system.

Chapter 3: Psychosocial survey: Child welfare differentials by orphan status and slum residence

Caregivers Report

Education/School Related Issues: Viwandani children had better school progress than their Korogocho counterparts (mean score of -0.44 in Viwandani compared with -0.96 in Korogocho). The difference was statistically significant at the level of 0.01. This pattern is also noticeable in the distribution of children by score. Viwandani had higher proportion of children who were at the appropriate grade for their age (42%) or even one year ahead (17%), than Korogocho (30% and 9%, respectively). As expected, orphans tended to exhibit poorer school progress, both in terms of mean grade-per-age score ($p < 0.01$) and distribution by score ($p < 0.01$).

Health Related Issues: The majority of respondents rated the children's health as good 64 percent and 31 percent rated as average. Perceived child health was significantly better in Viwandani than in Korogocho ($p < 0.10$). Further, as an indicator of the level of care extended to the children, details of health seeking behavior were sought. In answer to the question "*when the child was last ill, was treatment sought?*" About 40 percent of children were ill or had been ill in the last two weeks preceding the survey. Among them, about 54 percent sought appropriate care (21.9% of the total); one-third sought inappropriate care and the remaining 12 percent did not seek any care. There were noticeable differences in health status and health seeking behavior by place of residence ($p < 0.05$).

Domain 3: Food security: Viwandani children are better-off than their Korogocho counterparts ($p < 0.01$); and non-orphans have better access to food than the orphans ($p < 0.01$). In particular, 24 percent of non-orphans did not have enough to eat everyday or few times a week, against 34 percent of the orphans; and 35 percent of orphans never experience lack of food, against 46 percent of the non-orphans. Further, the orphan group had significantly lower number of meals per day, in both count ($p < 0.001$). Viwandani children were also reported to have higher number of meals per day, than their counterparts from Korogocho; but the difference only reached statistical significance for the usual number of meals ($p < 0.01$).

Domain 4: Exploitation, Neglect and Abuse: Very few children were reported to be participating in income generating activities, and of those few children who did, 41% were said to use the money for their own use. There were no significant differences by slum residence or by orphan status.

Child Report

Domain 1: Education/School Related Issues: Viwandani children exhibited better patterns of attendance and positive attitudes to school, than the Korogocho ones. There was a clear trend for reported feelings, attitudes and experiences concerning school to be more positive amongst the Viwandani children. About 69 percent never missed going to school, compared to 58 percent in Korogocho ($p < 0.05$); 51 percent never went to school late, compared to 36 percent in Viwandani ($p < 0.01$); 84 percent reported they are happy with school work, against 68 percent in Korogocho ($p < 0.01$); 73 percent always had good perception of teachers, against 54 percent in Korogocho ($p < 0.01$); and 82 percent never felt like not attending school, compared to 68 percent in Korogocho ($p < 0.01$). Though non-orphan children also tended to exhibit better school attendance and attitudes to school than the orphans, differences only reached statistical significance for happiness with school work ($p < 0.05$).

Domain 2: Health Related Issues: There were significant differences in reported somatic health by location of residence, with Viwandani children tending to report less cases of physical health problems. By contrast, there were no significant differentials by orphan status. For height-for-age (stunting or long-term malnutrition), Viwandani children were better-off than their counterparts from Korogocho in terms of mean z-score ($p < 0.01$). However, differences between Korogocho and Viwandani in terms of proportion of malnourished children (z-score falling below -2 standard deviation) did not reach statistical significance. The reverse was observed with regard to differentials by orphan status. While both groups recorded almost the same mean z-

scores (about -2.3), orphans displayed significantly higher proportion of stunting than the non-orphans ($p < 0.10$).

Domain 3: Provision of Care and Shelter: Almost all children reported having a regular place to sleep. Sixty four percent of children reported sleeping on bed and mattress, with huge differences by location of residence, Viwandani children more commonly reported sleeping on a bed, than those from Korogocho ($p < 0.01$). A higher proportion of non-orphans than orphans reported sleeping on bed and mattress (66%, against 61%); however, the difference was not significant. The number of personal items a child possessed varied widely between children in each of the subgroups, with most possessing some items (see Table 3.16). Korogocho children tended to possess a greater number of items than children from Viwandani ($p < 0.01$); and non-orphans reported possessing a greater number of items than orphans ($p < 0.05$).

Differences between orphans and non-orphans are apparent in most aspects of child care investigated. Non-orphans were more likely: to always feel loved (43% against 41%) and; to never stay hungry during the day (though differences were not significant). They were also more likely to report never going to school hungry ($p < 0.05$); to never sleep hungry ($p < 0.10$); and to always have someone to care for them when they are sick ($p < 0.05$). Differences by area of residence were much larger, with Viwandani children reporting better care than those from Korogocho. For example, two-thirds of Viwandani children reported to always feel loved, compared with only 34 percent in Korogocho ($p < 0.01$); 48 percent reported to always have someone to care for them, compared with only 19 percent in Korogocho ($p < 0.01$).

Domain 4: Exploitation, Neglect and Abuse: About 75 percent of Korogocho children reported higher number of activities they were engaged in during week days, compared to 61 percent in Viwandani ($p < 0.01$). There was almost no difference between orphans and non-orphans. The same pattern can be noticed in activities during week-ends. Children in Viwandani felt that they were free to play always/every day, 39 percent compared with 20 percent in Korogocho ($p < 0.01$). While the Viwandani children also reported less rest time than their Korogocho counterparts (63% never had enough time, versus 45 percent in Korogocho) ($p < 0.01$), there was a trend towards less children from Viwandani feeling burdened by chores ($p < 0.01$), and fewer of them reporting missing school (not shown).

Few children reported being exposed to danger or abuse either often or everyday. Of the risky or dangerous experiences about which they were asked the most common rating was that it never happened (in excess of 90% of children). Orphans did not appear to be more vulnerable or

experience more negative outcomes. On the contrary, Viwandani children reported significantly lower frequencies of mistreatment, being sent to buy harmful substances, or discipline by beating. Overall, Viwandani was characterized by a smaller proportion of children reporting negative experiences.

Domain 5: Social Emotional and Behavioral State: the situation described by the children from Viwandani was more positive, while in other sub-groups the most commonly endorsed rating was *sometimes*. Seventy-six percent (compared to 47% in Korogocho) reported always getting on well with their parents or guardians ($p < 0.01$). Seventy-two percent of children in Viwandani reported always feeling loved and wanted, versus 40 percent in Korogocho ($p < 0.01$). A greater proportion of Viwandani children reported never fighting with parents or caregiver (76% compared with 68% in Korogocho) ($p < 0.05$), or never fighting with other children in the household (59% against 39% in Korogocho) ($p < 0.01$). There were no differences between the orphan and the non-orphan group. Playing with others was a more common feature of the lives of children from Viwandani, where overall responses suggested a greater community atmosphere, with children feeling more part of their neighborhood. The life described by the orphaned children was not noticeably different from that of the other children, but again more closely mirrored that of the children living in Korogocho than that of those living in Viwandani.

Chapter 4: Psychosocial survey: Aspects of child welfare

Defining aspects of child welfare

Apart from grade-per-age, all measures of child welfare were constructed using principal component analysis. There were a total of 10 welfare variables.

Domain 1: Education/School Related Issues: From the child report data, the following variables were constructed: School attendance; School avoidance; and School participation. School regularity and grade-for-age were constructed from caregiver reports.

Domain 2: Health Related Issues and Food Security. Somatic symptoms, and height-for-age (stunting) and weight-for-age (underweight) scores, were generated from the child questionnaire; Access to food defined from caregivers report.

Domain 3: Provision of Support, Care and Shelter. Material provision and Emotional support were constructed from child report.

Domain 4: Neglect/Abuse/Exploitation. Two variables, Exploitation and Activities were generated.

Domain 5: Social, Emotional and Behavioral State. One variable, Social, emotional and behavioral state was created.

Defining Covariates of Child Welfare

Potential household-level covariates of child welfare were retrieved from the round 13 (September-December 2006) DSS round data on household characteristics. Household assets included ownership of household durables such as cars, television sets, radios, refrigerators, beds, phones among other household durables. Household amenities included: type of main source of water; type of toilet facility; type of garbage disposal facilities; type of fuel used for lighting and cooking; place of cooking; floor, wall and roof characteristics; ownership of house where households are currently living; and number of living rooms (rental or owned). The educational level and ethnicity of the household head were also retrieved. Household livelihood information (ownership and size of livestock, and household income and expenditures) were not included since they were only collected in round 13.

Chapter 5: Psychosocial Survey: Explaining Various Aspects of Child Welfare (Multivariate Analyses)

Methods of Analysis

Multilevel models are used to account for the hierarchical structure of the data whereby children are nested within households. Two regression models were run for each child welfare indicator: In the first model orphan status is defined as a four-category variable (Non-orphan; Father-only orphan; Mother-only orphan; and both parents orphan), while in the second it is defined as a binary variable (Orphan; Non-orphan).

Education and School Related Welfare Indicators

Orphan status did not seem to affect child educational welfare indicators. The effects of being an orphan were negligible (ranging from -0.99 to +0.68) and non-significant. It can be noted that father-only orphan children were better-off than the non-orphans in terms of school avoidance ($p < 0.10$); mother-only children tended to be worse-off than the non-orphans in terms of school participation and grade-per-age (differences not statistically significant); both parent orphans tended to be worse-off than the non-orphans in terms of school avoidance and school participation (differences not statistically significant), but were better-off in terms of school regularity ($p < 0.01$). As indicated previously, these detailed effects of orphan status should be

interpreted with caution given the small proportion of children who are mother only or double orphans. Surprisingly, living with biological parents seemed to have negative effects on child school attendance, with children living with one or both biological parents showing lower level of school attendance, than those not living with any biological parents ($p < 0.05$ and $p < 0.10$, respectively). The variable, which also seemed to negatively influence school participation (not significant), was however associated with higher school regularity ($p < 0.10$) and better grade-percentage (not significant). There were large variations between Korogocho and Viwandani, with children from the latter location exhibiting better outcomes.

Access to Food and Health Related Welfare Indicators

Orphan status only marginally influenced child health indicators, with counter intuitive results in some cases. For example, orphans were less likely than non-orphans to report somatic symptoms, especially the father-only orphans ($p < 0.10$); and they tended to have higher height-for-age than the non-orphans, especially the mother-only orphans ($p < 0.10$), despite their relative poorer access to food ($p < 0.10$). Interestingly, children living with both parents had better access to food ($p < 0.01$) and higher height-for-age ($p < 0.10$) than those who were not living with any of their parents. While better access to food by children living with both parents may be a reflection of orphan status (as they are all non-orphans), the fact that they also have higher height-for-age (by contrast to non-orphans), indicates that living with biological parents and being non-orphan may have different –even opposite- influences on child health. As for schooling children from Viwandani had better outcomes.

Other areas of Child Welfare

The orphan status of children influenced some aspects of their psychosocial health. Orphans were less prone to vulnerability ($p < 0.05$), less likely to face sexual abuse ($p < 0.05$), and more likely to receive emotional support (especially the father-only orphans; $p < 0.10$), than the non-orphans. It is notable that children with both biological parents tended to be more likely to receive emotional support (not significant) and less prone to vulnerability ($p < 0.05$), than those who were living with none of their parents. But at the same time they were less likely to have their physical needs met and more likely to get involved in inappropriate activities (differences not significant). Viwandani children tended to be better off, than their Korogocho counterparts.

Chapter 6 Discussion and Implications

The pattern of ratings provided by the children from the orphan group suggests that their lives are defined by similar experiences to those of their peers growing up in the poorer of the two

areas in which we were working. There were no doubt a minority of children who experienced unacceptable levels of risk and vulnerability. In the main the orphan group experienced no more difficulties than those of all children growing up under chronic poverty, with restrictions to their access to regular care and attention, food and material goods. They were no less dissatisfied than their poor neighbors, and perhaps for the same reasons. Adding caretaker responses to those of the children, another important theme emerges, and that is of the contribution of a parent advocate to continuity and care of the child. Rather than lacking school provision in the area, interventions need to target parents to ensure regular attendance of their children. This suggests that parenting programs, and the identification of child advocates ensuring supportive and consistent parenting, may be appropriate to promote higher school achievement among OVC's in the areas studied.

CHAPTER 1

INTRODUCTION

1.1 Background

One of the many crises caused by the soaring rates of HIV and AIDS prevalence in Sub-Saharan Africa in the last decade is a sharp rise in the number of orphans, as parents and caregivers infected with HIV during the late 1980s and early 1990s are now succumbing to AIDS (Bicego et al., 2002). By the end of 1999, 13.2 million children had been orphaned worldwide by AIDS and 90% of them were in Africa (UNAIDS/WHO, 2000). By the year 2010, between 12% and 25% of children in a dozen sub-Saharan African countries will be orphans - with the vast majority of them orphaned due to HIV/AIDS – as a result of the current high proportion of adults already living with HIV/AIDS in these countries and the continuing difficulties in expanding access to life-prolonging antiretroviral treatment (UNICEF, 2003).

In Kenya, approximately 1.7 million out of an estimated total of 15 million children – that is to say, about 11% of the total – have lost one or both of their parents, due largely to HIV/AIDS. Moreover, the number of orphans is projected to grow to 2.5 million by the year 2010, with 500,000 of these children having lost both their parents (UNICEF, 2003). Although many of these orphans are cared for by members of their extended family, the strain placed on caregivers can be large, especially in Kenya and other Sub-Saharan countries with very high poverty rates. The problem is compounded by the fact that there are many children who are not orphans but who are in vulnerable situations because of HIV-related reasons, for example because the family breadwinner has AIDS and is too sick to work.

While there is overall agreement that the potential scope of the problem is likely to be a heavy burden at every level from the child to the community and national level, there is little agreement on what measures should be taken to address it. There are those that argue that interventions should not be focused specifically on Orphans and Vulnerable Children (OVCs), but rather on reducing poverty or on raising education or health resources at the community level. Even among those that believe in interventions focused specifically on OVCs or on their caregivers, there is a huge amount of disagreement on what is the best course of action, especially given the high cost of OVC-specific interventions (Deinenger et al 2003). Given the potential level of the need, careful allocation of resources should be made. To plan for appropriate interventions many assumptions have been made concerning the consequences of orphanhood, but there is still little data available on the details of the specific effects.

From the increasing body of evidence being collected in sub-Saharan Africa it is apparent that the types of support that should be considered should go beyond purely material issues (Atwine 2005). Child protection, bereavement counseling and child advocacy is suggested by the literature. In addition, it is increasingly clear that the needs of each affected community are different, and consequently appropriate support structures are also likely to vary. (Oleke et al 2005) The available literature also suggests the need to consider the resilience of families affected by HIV/AIDS prior to decisions being made on relevant support structures. (Adbe 2007) A number of studies have discussed the relative strength provided by the extended family and other traditional support structures to cope with the potential burden of orphan hood (Mahadhanvan etc....) But alongside this is the evidence of the burden in some areas reaching such proportions that there is a disintegration of traditional frameworks. (Nyamukapa et al 005, Oleke et al 2005, Nyambedha etq al 2003).

1.2 Justification of the Study

One reason for the lack of clarity on prevalence and vulnerability of OVCs in sub-Saharan African countries is a lack of systematic research using detailed and in-depth micro-data on OVC welfare. Much more empirical research on this area is needed, in different situations and contexts since the answers are likely to be context-specific, with solutions in urban areas not necessarily applicable to rural areas, for example. The aim of the study was to fill some of these gaps in the body of research. Some of the key questions regarding interventions to address the OVC problem were addressed using household data collected from two slum areas in Nairobi. A key area of focus was how to effectively target interventions to the most needy households, from among the sub-population of households with OVCs. This is especially critical due to the scale of the OVC problem, as well as the relatively high cost per child that OVC interventions can entail. Because of these two factors, only a limited number of households, within the overall population or within a particular geographical area, can typically receive benefits; thus, effective targeting is critical.

The results of the research are relevant when designing policies to enhance the welfare of OVCs in slum areas in Nairobi, as well as in other urban areas in sub-Saharan Africa. In particular, the government of Kenya and the World Bank are very aware of the need for a more focused and analytical approach. A social protection strategy for Kenya is now being developed, with optimal policy to address the OVCs problem being a key focus of this strategy. The findings

of the research will be very useful in this regard, particularly when formulating policies to address OVC interventions especially in slum areas in Kenya.

1.3 Research Questions and Study Objectives

The aim of the study is to provide evidence to inform current and future policy and practice initiatives for OVC welfare in poor urban areas. The questions that the project attempts to answer in the context of urban slum areas in Kenya include:

Should interventions be specifically targeted towards OVCs or families with OVCs, and if so which types/categories of OVCs (one-parent orphans, two-parent orphans, children with one parent dying of AIDS, etc.)?

Relative to other children, and controlling for household-specific factors, in particular household socio-economic status, what are the main areas of vulnerability of OVCs (e.g. lower probability of enrolment in school and higher psychosocial needs etc.)? Consequently, what areas of OVC vulnerability should be the main focus of interventions that are targeted specifically to OVCs?

The specific objectives of the project are:

To identify child level characteristics that can be used to explain various welfare measures;

Identify households that would qualify for interventions based on their income or other related socio-economic status indicator; and

Identify areas of vulnerability that should be the main focus of interventions that are targeted specifically to OVCs (e.g. school enrolment, health care, psychosocial needs e.g. emotional-behavioral control, anxiety, feelings of belonging, etc.)

While there is a growing literature on OVCs in Sub-Saharan Africa, relatively little of it consists of research using detailed household data. The existing research explores the links between the welfare status of orphans (as measured by educational attainment or health indicators, for example) and household characteristics. Studies using detailed household data to analyze these and other aspects such as psychological and intra-household distribution are largely missing from the literature. One recent example of a study that uses household data to examine the factors affecting orphan welfare status is a paper by Ainsworth and Filmer (2002). The study examines the relationship linking orphan status, household wealth and school enrolment using data collected through the Demographic and Health Surveys (DHS) and Living Standard Measurement or LSMS surveys in the 1990s from 28 countries (22 in Sub-Saharan Africa). The authors found that household wealth explains much more of the variation in school enrolment

than orphan status. At the same time, however, they found that the relationship among the variables examined differs quite significantly across countries. Using data from 19 Demographic and Health Surveys (DHS surveys) conducted in 10 Sub-Saharan African countries between 1992 and 2000 Case, Paxson and Ableidinger (2003), found that orphans are significantly less likely than other children in the same household to be enrolled in school. Controlling for other factors, the likelihood of an orphan being enrolled is found to be positively related to the degree of biological closeness of the orphan to the household head. Further, differences have been observed between different areas, hence the need to look at the specific contexts.

1.4 Design and Methodologies

1.4.1. Study Setting

The study settings are two slum areas of Nairobi (Viwandani and Korogocho), located on the eastern side of the city. In these two slums the African Population and Health Research Center (APHRC) has been conducting a demographic surveillance system referred to as the Nairobi Urban Health and Demographic Surveillance System (NUHDSS), with about 60,000 registered inhabitants. These two densely populated communities have high unemployment, poverty, crime, poor sanitation and generally poorer health indicators when compared to Nairobi as a whole. Viwandani is located about seven kilometers southeast from Nairobi's city centre. Located on a long and narrow stretch of reserve land owned by the Nairobi City Council, the area is bordered by the industrial area and the Nairobi River. It covers about 0.52 km² with a population density estimated at about 52,583 inhabitants per km². Korogocho covers a smaller area than Viwandani (0.45 km²) and has higher population density (63,318 inhabitants per km²). Compared with Viwandani, Korogocho has less disparity with regard to sex and age distribution of the population. The two communities exhibit structural differences that provide opportunity for comparisons between communities facing poverty and health challenges, but operating under different livelihood settings. Viwandani, home to many industrial workers, attracts migrants with relatively higher education levels, and exhibits higher levels of economic activity for both men and women. The population in Korogocho is more stable and shows more co-residence of spouses.

1.4.2. Study populations

This study consists of two components: secondary data analysis and a new data collection effort that involved a quantitative survey on psychosocial issues and other key indicators updates

such as school enrollment and health status. The secondary data analysis mostly relied on a NUHDSS data collected by the Education Research Program. The criteria for inclusion of subjects for both secondary analysis and primary data collection were age and residency status: all children aged 6-14 years and residents in the APHRC demographic surveillance area (DSA) were eligible for participation in the study. Households included were those that had eligible children. There were 9,029 children aged 6-14 years, including 1,218 orphans, 7,609 non-orphans and 202 with unknown status. The sample is described in Table 1.1.

Table 1.1. Initial sample size: OVC secondary data analysis, 2007, Nairobi Informal Settlements.

	Total	Orphan	Non-orphan	Unknown
Original sample of children	9,029	1,218	7,609	202
Children without schooling information	2,968	806	1,995	167
Children with schooling information	6,061	412	5,614	35
	Total	Pre- primary	Primary	Secondary
By level of education:	6,061	1,319	4,738	4

The analysis of these existing NUHDSS data was carried out in order to update the occurrence and timing of key events for each child identified in the database. In addition to household and community characteristics, information was used to:

1. Compute annual gross and net enrolment rates in the DSA as well as for each slum
2. Estimate the rate of primary level drop-out in the slums and by orphan status
3. Estimate a repetition rate that is calculated as the share of pupils who were enrolled in the previous and current year but at the same grade.

1.4.3. Psychosocial Survey

1.4.3.1. Sampling Frame and Sample Size

The sample size for the additional data collection was calculated with sufficient power (80%) to be able to detect with 95% confidence, a difference of 5% in the percentage of children with the most demanding attribute of interest (school drop-out). The minimum sample size calculated for the two sub-groups is 2,122 (see **appendix BV** for the formula for sample size determination). We sought to include all orphans in both study sites (Viwandani and Korogocho) with an equal

number of non-orphans matched upon age and gender. The total new sample then was estimated to be 2,402; 1,202 of these orphans and 1,202 non-orphans. A random sample of non-orphan children (6-14 years) was selected from the NUHDSS data. Viwandani had fewer orphans in the database thus there were fewer interviews to be conducted in Viwandani than in Korogocho. The sample structured is shown in Table 1.2.

Table 1.2. Initial sample size: OVC Psychosocial survey, 2007, Nairobi Informal Settlements.

	Viwandani	Korogocho	Total
Non-orphan	295	907	1,202
Orphan	295	907	1,202
Total	590	1,814	2,404

Through the NUHDSS questionnaires, data is regularly collected on household characteristics, pregnancies, births, deaths, verbal autopsies, migration histories as well as on vaccination and marital status updates. Morbidity, schooling, and economic activity data are also collected but less frequently. **Appendix I** provides a detailed description of the NUHDSS data and questionnaires. For the analysis of child welfare, most household-level covariates were retrieved from the NUHDSS database.

1.4.3.2. Content of the Psychosocial Survey

The data collection effort focused on the psychosocial needs of all children aged between 6-14 years (OVCs or not) in the surveyed households. There have been few studies in Africa of the impact of orphan hood on the psychosocial adjustment of children (Stein, 2003). Reports based upon professional observations and discussions with community participants suggest that in children the feelings of trauma and shock that follow the death of parent may be exacerbated by lack of material support and care. Many African children grow up in difficult circumstances due to the unique factors of their socio-economic, cultural, traditional and developmental circumstances. It is recognized that for optimal development the child requires particular care with regard to health, physical, mental, moral and social development. The child also requires protection to promote freedom, dignity and security, and that this care and protection should be provided in an atmosphere of happiness, love and understanding. The information collected from children and their caregivers describes the context of the individual child in relation to these multiple dimensions of child welfare. We extend the definition of welfare beyond the description of access to resources and the level of protection and care, to include a broader concept of well-being. Well-being is defined by the addition of measures of attitude, moods and

feelings. The purpose of this research was to describe the experience of children in our target communities, explore the specific vulnerabilities of children who have been orphaned and to identify potential points of intervention to deal with context specific needs. In common with all previous studies in Africa, orphan hood was defined by the death of one or both parents. Initial analysis grouped together as orphans those children who had experienced the death of their mother, father or both parents.

Below we provide a description of the rationale behind the domains on which information was elicited to create a measure of child well being. These domains were selected because in other contexts it has been found that vulnerable children are at risk of negative outcomes in each of the areas covered.

1.3.3.2.1. Domain 1: Education/School Related Issues

Content: Child is enrolled in and regularly attends school, displays positive bonding to school and appropriate progress through school.

Rationale: School attendance is not only related to later employment opportunities, but a positive attitude to school attendance conveys protection against later negative behaviors such as alcohol abuse (Guo, Hawkins, Hill, & Abbott, 2001). Previous studies in resource-limited settings have found variable effects on school attendance. Several studies have shown that orphans were more likely to be out of school, with double orphans the most vulnerable (Case, Paxson, & Ableidinger, 2004; Desmond et al., 2002; Makame, Ani, & Grantham-McGregor, 2002; Monasch & Boerma, 2004; Muller & Abbas, 1990; UNICEF, 2000), while other studies have found limited affects on school attendance (Deininger, Garcia, & Subbarao, 2003; Kamali et al., 1996; C. A. Nyamukapa, Foster, & Gregson, 2003). Other studies have observed effects on progress through school, with orphans less likely than non-orphans to be at their proper educational level. (Bicego, Rutstein, & Johnson, 2003) Another negative impact of orphan-hood is the association found between social stigma and social isolation with poor school performance. (C. Nyamukapa & Gregson, 2005).

1.3.3.2.2. Domain 2: Health Related Issues

Content: Height and weight, somatic symptoms, general health status and types of illness experienced, use of health facilities.

Rationale: Morbidity, and mortality, are closely related to indices of poorer nutrition, and an increased prevalence of stunting and wasting among orphans (Lindblade, Odhiambo, Rosen, & DeCock, 2003; Mishra, Arnold, Otieno, Cross, & Hong, 2005). Multiple studies provide evidence for higher morbidity among orphans compared to non-orphans in the same community (Bledsoe, Ewbank, & Isiungo-Abanihe, 1988; Oni, 1995), although again the association has not been found in all studies (Lindblade, Odhiambo, Rosen, & DeCock, 2003). A number of studies have also found higher rates of reporting of somatic symptoms (Atwine, Cantor-Graae, & Bajunirwe, 2005; Cluver & Gardner, 2006). There is also evidence of limitations to the access and use of medical care by children who have been orphaned (Bledsoe, Ewbank, & Isiungo-Abanihe, 1988; Deininger, Garcia, & Subbarao, 2003; Mishra, Arnold, Otieno, Cross, & Hong, 2005).

1.3.3.2.3. Domain 3: Food security

Content: Regularity of access to food currently and over time, as reported by the caretaker.

Rationale: Food security is the ability of the household or institution to obtain enough food for the child to eat at all times when hungry. As with many factors in a child's life, food security interacts with other domains. Hunger is associated with limitations in school performance and may act as a trigger for antisocial behavior (Foster, Makufa, Drew, Mashumba, & Kambeu, 1997).

1.3.3.2.4. Domain 4: Provision of Support: Care and Shelter

Content: The provision of emotional support, personal space and possessions, and meeting of daily needs (meal preparation and care during illness).

Rationale: It is widely acknowledged that the most important aspect of childhood is the sense of physical safety and psychological security provided by the adult or adults who are involved in the child's life. The provision of loving care may be as or even more important for child well being as food security. (Bowlby, 1980, 1982) Orphaned children have reported the emotional significance of having contact with family members to show that they were cared for and not forgotten.(Wood, Chase, & Aggleton, 2006) In the same study orphaned children reported having no adult with whom they felt able to share feelings. Lack of emotional support was identified in one study as contributing to an aggravated bereavement process.(C. Nyamukapa & Gregson, 2005) Previous investigations have highlighted the commonness with which orphans talk about lack of food at home, about being hungry at school, and about going to bed hungry.

(L. Z. Gilborn, Nyonyintono, Kabumbuli, & Jagwa-Wadda, 2001; Makame, Ani, & Grantham-McGregor, 2002)

1.3.3.2.5. Domain 5: Neglect/Abuse/Exploitation

Content: Pattern of daily living, involvement in play, rest, chores, income generating activities.

Variables included in this section were intended to measure how closely the daily activities of the child corresponded to a model of child appropriate activities. This model incorporates the rights of the child as laid out in the *African Charter on the Rights and Welfare of the Child*, (OAU, 1990) - which states that a child has the right to education, to rest and leisure, to engage in play and recreational activities appropriate to the age. The Charter also recognizes the role that the child should play in assisting the family, hence also the recognition of the importance of time spent in family chores, activities that also contribute to the development of independence skills of the child. The daily diary provided by the child as an example of a typical day was scored for the inclusion of each of the following 5 elements, education, play, chores, rest, and we also included mealtimes, as this was a regular element reported by children.

Rationale: Many reports from high prevalence HIV/AIDS areas emphasize the vulnerability of orphaned children to abuse and maltreatment. Maltreatment, as it is used here, includes being put to work, children being forced into inappropriate work, being physically beaten by household members, being beaten by others and not protected by adults in the household, and being sexually abused. Community members interviewed by the Foster group (Foster et al., 1995) also reported that people take advantage of orphaned children as laborers.

In a preliminary analysis of a community study based in Tanzania, the data revealed that about 76% of orphaned children reported being hit, kicked, or beaten at home (Whetten et al., 2007, personal communication). Despite these reports about the high incidence of child abuse, there are few published studies, and almost no models for intervening with child maltreatment in this population. It is apparent that without the safety provided by a loving and committed caregiver, girls, in particular, are more vulnerable to exploitation, such as coercive and commercial sex and unwanted and early marriage and pregnancy (L. Gilborn, 2002); “under age girls are married to get the bride price” (interview with community member in Foster et al., 1997). Some adolescents in Zimbabwe also reported experiencing episodes of physical, verbal and sexual abuse.(Wood, Chase, & Aggleton, 2006). However neither of the two studies described above included a comparison group that would enable to evaluate whether it was the vulnerability of

the context in which the children lived or specifically being an orphan that created the vulnerability observed.

1.3.3.2.6. Domain 6: Social emotional and behavioral state

Content: Observed and reported mood, behavior, future ambitions, and relationships with caretakers, siblings, peers and neighbours. This section also includes information on worries, defined as negative self-talk that distracts the individual from focusing on the problem at hand and, fears, the powerful, unpleasant feeling of risk or danger that can be either real or imagined.

Rationale: Children who are orphans are more likely to have worries, appear distressed and be depressed (Birdthistle, 2004; Forsyth, Damour, Nagler, & Adnopo, 1996; Makame, Ani, & Grantham-McGregor, 2002). Orphaned children have reported a negative opinion of their lives, and to having thoughts of death, low self-esteem and little hope for a good future (Atwine, Cantor-Graae, & Bajunirwe, 2005).

1.3.3.2.7. Potential Influences on Outcome

Not only do previous studies suggest the aspects of functioning and behavior that may be affected by the experience of losing one or more parent, they also indicate potential sources of variability in outcome. These can be summarized as follows.

Levels of orphan hood: As described above differences in outcome have been observed depending upon the specific experience of loss. Expressed by participants in Wood et al (2006), in a study carried out in Zimbabwe, was the greater perceived severity of experience for the child suffering maternal versus paternal loss. Participants attributed this difference to the better quality of emotional relationships found between mothers and children. Community respondents in studies carried out in Nyanza (Nyambedha, Wandibba, & Aagaard-Hansen, 2003) and Manicaland (C. Nyamukapa & Gregson, 2005) echo this belief in the relative disadvantage of maternal orphans.

Time since orphan hood: Data from Zimbabwe suggests that early loss has a more significant effect on primary school completion than orphan hood that commences later in childhood (Nyamukapa & Gregson, 2005).

Gender: Potential differential effects on outcome experienced by male and female children have been observed in relation to school outcome. In Manicaland, for example, it is reported that girls are more likely to be taken out of school to care for ailing relatives. The same study identified differences in outcome following paternal death on boys and girls. It was observed that girls were more likely to complete primary schooling if they are paternal orphans (Nyamukapa & Gregson, 2005).

1.4.3.3. Design of Data Collection Tools

The data collection tools were designed through processes that included review of existing tools from the internet including tools that have been used in other studies (e.g. FHI studies done in Zambia and other studies done in Rwanda, Cambodia). Some standardized instruments from the Regional Psychosocial Support Initiative (REPSSI), and a questionnaire with 24 items to assess health related quality of life in children, were also reviewed in the design process. REPSSI is a regional capacity-building organization working in 13 countries in East and Southern Africa to enhance the provision of psychosocial care and support to children affected by HIV/AIDS, poverty and conflict. Following a literature search on psychosocial issues a list of target questions was drawn up. These questions covering psychosocial, educational and socio-economic issues were combined into a preliminary questionnaire. The initial plan to have all questions answered by the children was seen to be overbearing on the children, hence the need arose for two sets of questionnaires, one for the caregiver and the other for the child. Two of the field workers were involved in translating the questions into simple Kiswahili terms that could be easily understood by the target audience while still retaining the conceptual meaning. A transcription of responses elicited from two families provided the basis for further development of the final questionnaire.

1.4.3.4. Field Work

Dr. Penny Holding, a specialist in child psychology from the African Mental Health Foundation with experience on psychosocial issues, was hired to provide expertise on the content of questionnaires and study design, and in the analysis of data and report writing. Field work for the OVC project commenced December 2006 to April 2007. During this period, the following activities were undertaken:

1.3.3.4.1. Community Mobilization

The study was introduced to Chiefs, community leaders and Community Based Organisations on 12 January 2007 during a meeting to present upcoming projects at APHRC planned for their areas. Three people were also hired, two in Korogocho and one in Viwandani to visit the organizations that dealt with OVCs in the two communities and local primary schools to provide details of the OVC project and request that they provide support for needy children identified through the project. The schools were also asked if they could provide appropriate space in which to interview children involved in the study.

1.3.3.4.2. Recruitment and Training of Field Workers

Twenty nine (29) fieldworkers experienced in working with young children were hired. The recruitment process started in December 2006 and ended in January 2007. Training of field workers consisted of a combination of classroom training and practical experience in the field. A training of trainers that involved 9 of the field workers was conducted initially. These trained trainers conducted the pilot test of the instruments and also supported the training of the rest of the field workers. Both the training of trainers (which happened before the pilot testing) and the training of the rest of the field workers (which occurred after the pilot testing), took about four days each. Topics covered during the training sessions included: Training objectives and organization; General overview of APHRC/NUHDSS/OVC Study; Basic principles in conducting research; Overview of OVC Field Work; Psychosocial issues and training of the tools; Demonstration of anthropometric measurements; Role plays. During this period, the questionnaire and the consent form were further refined to accommodate proper and simpler/clearer Kiswahili expressions.

1.3.3.4.3. Refining of Tools and Pilot Testing

A review of the questionnaire format by the psychological consultant suggested that the questionnaire to be administered to children should be shortened, and identified specific questions as more appropriate to be asked of caretakers. The questionnaire was split into two: One questionnaire consisted of the more general background questions on schooling details, health status and health seeking behavior, food intake and family composition was to be asked to the Caregivers of the target children. The second questionnaire consisting of items tapping daily activities and psychosocial issues were to be asked of the children. Details of the specific questions are provided in Annex xx.

The pilot process included the administration of the two questionnaires by two field workers to different children from the sampled age set, which were tape recorded and transcribed verbatim.

The answers to the questions and the process of the interview were discussed in detail by the field workers with the psychologist and the OVC research officer. The conclusion was that there was a need to enhance the level of understanding and involvement of the children in the interview process. This was achieved through modifying some of the questions, by changing the vocabulary used, and by presenting the child questionnaire within a vignette story format, a commonly used technique for eliciting children's experiences (Barter & Renold, 1999). Providing the child with vignettes based on the experience of others allows the interviewer to explore sensitive topics in a less threatening way. In the African context, where one to one interactions with strange adults are not a common experience for children, the story format places the interview within a more familiar experience (Holding et al., 2004). The inclusion of pictures to support the story being told increases the child's interest in the process, and helps to maintain the child's attention. Children were to be provided with a storyline supported by drawings that depicted the life experiences of children in their community. Children were then asked to describe the differences or similarities that the child experienced compared to that depicted in the story. An artist was contracted to draw illustrations as explained in the storyline. Additional probes were added to elicit as much personal detail as possible from those children who did not spontaneously supply additional information. The storyline is contained within the child's questionnaire while the drawings are in a separate booklet. The story is of Juma/Maria (**Annex ...**)

The nine trained trainers carried out the Pilot study for 3 days (5th –7th February 2007). A total of 36 child Interviews and 53 caregiver's interviews were completed. The data collected was entered and analyzed. The trained Field Worker's also narrated their experiences. The process was useful in gauging the effectiveness of the tools. Some further modifications were made to the language used in order to increase the clarity and consistency of the questions for respondents.

1.3.3.4.4. Data Collection

Data collection was carried out between 20th February and 20th April 2007. The field supervisors and team leaders were expected to participate in data collection in addition to the supervisory role as stipulated in the field worker's manual. Additional responsibilities included quality control through spot checks of interviews and scripts, data cleaning, work assignments, follow-up cases, community liaison. The team also consisted of Editors, who were expected primarily to clean data, but also to participate in some data collection. During the process, it was found that some children were at school out of the study area and would only be available during the April

holidays. There were also challenges in finding the respondents who were not at home and could only be found after repeated follow-up calls. Others were not found at all due to migrations, refusals, among other reasons. The final sample size is shown in Table 1.3.

Table 1.3. Final sample size: OVC Psychosocial survey, 2007, Nairobi Informal Settlements.

	Total	Orphan	Non-orphan
1. Caregiver questionnaire			
Original sample of caregivers	2,404	1,202	1,202
Caregivers not interviewed	519		
Caregivers successfully interviewed	1,885		
2. Child questionnaire			
Original sample of children	2,404	1,202	1,202
Not interviewed	797		
Children successfully interviewed	1,607		
Children with corresponding caregiver interview	1,550	950	600
By age:			
Children aged 6-14 years	1,235	768	467
Children aged 15-18 years	315	182	133
Children 6-14 years by slum residence:			
Korogocho	935	575	360
Viwandani	300	193	107

As can be seen, 519 caregivers were not interviewed due to migration (314), refusals (48), deaths (17), upcountry (10) and other reasons (130). Reasons for not interviewing 797 children included migration (312), upcountry/school (193), refusals (44), death (3), and other reasons such as unknown whereabouts (245).

1.4.3.5. Data Management

Preparation of the data entry screen started on 26th February 2007. Sixteen data entry clerks were assigned to do the data entry, starting on 27th March 2007. Data cleaning included both on site management and consultation with field staff. The caregiver and child datasets were merged using the child's ID. These IDs also helped in linking the children records to the DSS

data to identify household characteristics and other household-level potential covariates of child welfare.

1.4.4. Ethical considerations

Ethical approval for the research was obtained from the KEMRI National Ethical Review Committee. Two sources of information were to be consulted in this project, adult caretakers and the children themselves. The main target group of children was to be younger than the legal age of consent. For both groups of informants we strove to achieve strict confidentiality and privacy, ask questions in a non-judgmental manner, and respect the wishes of potential respondents to refuse participation or withdraw participation. Children under 18 were to be interviewed with the permission of their parent or guardian, as well as verbal assent from the child. Written consent was obtained from the adult following information about the aims and objectives of the study. Caregivers were not present during the child interviews, but were provided with details of the questions to be asked. Responses were recorded in writing on the record forms. When a child disclosed abuse or showed distress the interviewer was trained to listen and counsel disclosure to a responsible adult. When both the child and guardian gave permission referrals were made to appropriate agencies identified prior to the start of the study.

CHAPTER 2

ENROLMENT, DROPOUT AND REPETITION RATES: SECONDARY DATA ANALYSIS

The Education Research Project (ERP) provides a biographical data set with information on child enrollment status (whether a child is enrolled in school or not for a given year during the period 2000 to 2005). The survey first round occurred in 2005 and retrospectively asked the child on his schooling history. The events attached to each individual (enrolment, drop out or repetition experiences) are therefore dated, unlike in the core NUHDSS. Typically, the individual changes are reported from one year to the other. In the first section this rich information is used to compute annual gross and net enrolment rates in the DSA as well as for each slum. The information is then broken down to the level of the child status (orphan or non orphan). The latter analysis of children enrolment by orphan status excludes children whose orphan status is unknown in the DSS. Another important exclusion is children who were missed in the ERP project.

The total sample size of 6-14 year old children in the DSA is 9,029 among which only 67.13 per cent (6,061 children) have data on schooling history. We cannot assume that the missing 2,968 individuals (806 orphans, 1995 non orphan and 167 with unknown status) are missing at random and caution may be taken while inferring from the current analysis. Indeed the total sample contains 1,218 orphans, 7,609 non-orphans and 202 with unknown status. This makes the percentage without education data to be 66% among orphans as opposed to 26% among non-orphans. Clearly this is not missing at random. We accounted for this problem in the sampling for the new data collection under the assumption that most probably the most vulnerable orphans may be the ones missed. We make all the effort to follow the sampled children who have changed residence, i.e. they are sent to live with someone else within the DSS. Effort has been made also to interview children who were simply sent to boarding schools outside the slums. In the longitudinal analysis, we'll also be able to control for children, especially orphaned who have died or been out-migrated as these are very important welfare outcomes.

In a second section, the enrolment information is used also to estimate the rate of primary level drop-out in the slums and by orphan status. For each year, we estimate the number of children who were in school the previous year but not in the current. We also estimated a repetition rate that is calculated as the share of pupils who were enrolled in the previous and current year but at the same grade.

2.1. Enrolment Status

The study sample of the 6,061 children interviewed in 2005 by ERP shows that their schooling experiences are distributed as follows:

- 3,877 children have ever been in pre-primary school;
- 4,738 have ever been in primary school;
- 4 have ever been in secondary school.

Among the secondary school population, 3 were aged 13 and 1 was aged 12 at the time they reached the indicated level. There were only 3 children aged 14, all of whom were in their final years of primary school at the time of the interview. When focusing on primary school level, the 4,738 children realized 16,356 schooling records. The information used in the event-history analysis can be distributed as follows:

Table 2.1. Distribution of primary school outcome, 2000-2005: OVC Project, Nairobi Informal Settlements

Class attended this year	Age at school performance										Total
	5	6	7	8	9	10	11	12	13	14	
0	4	6	1	1	.	1	.	.	.	.	13
1	528	1,713	1,376	555	169	69	16	5	.	.	4,431
2	66	426	1,427	1,219	514	167	68	17	3	.	3,907
3	11	61	357	1,117	958	433	136	53	11	.	3,137
4	.	9	47	242	732	705	341	104	27	.	2,207
5	.	2	6	27	169	463	480	213	34	.	1,394
6	.	.	1	5	21	111	302	271	63	.	774
7	.	.	.	.	4	13	81	182	105	1	386
8	.	.	.	.	.	4	9	44	48	2	107
Total	609	2,217	3,215	3,166	2,567	1,966	1,433	889	291	3	16,356

Note: The same individual can be counted 6 times if for instance, he sat in class 1 to 6 starting in 2000.

Table 2.1 indicates that only 612 individuals (4 per cent) attended primary school when they were not in the official school going age 6-13.

Table 2.2 gives the records of children enrolled in primary school for any given year for the study period 2000-2005. Note that it is normal that we do not have enough records in earlier periods as a lot of children who reached primary schooling year in 2005 were simply too young

in the previous years. It is however important to note that due to the retrospective nature of the study, the most recent figures are the less biased. The field workers could not have met with children who were enrolled in the DSA in 2000 but left since that date (death or out-migrated). This is a truncation problem that we will address in the event history analysis in the next sections.

Table 2.2. Number of children (all ages) enrolled in primary school, 2000-2005: OVC Project, Nairobi Informal Settlements

DSA slum indicator	Year of interview						Total
	2000	2001	2002	2003	2004	2005	
Korogocho	580	958	1,413	1,957	2,455	2,879	10,242
Viwandani	332	560	814	1,135	1,461	1,817	6,119
Total	912	1,518	2,227	3,092	3,916	4,696	16,361

The figure of enrolment for year 2005 means that of the 4738 children with primary schooling data, 42 already stopped going to school by 2005. These findings are confirmed in the next section on drop out. The preceding information is re-estimated for the primary school going age in Table 2.3. The table constitutes the basis for calculating the net enrolment rate in the following paragraph.

Table 2.3. Number of children (aged 6-13) enrolled in primary school, 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

DSA slum indicator	Year of interview						Total
	2000	2001	2002	2003	2004	2005	
Korogocho	553	912	1,353	1,885	2,396	2,818	9,917
Viwandani	312	524	780	1,074	1,391	1,751	5,832
Total	865	1,436	2,133	2,959	3,787	4,569	15,749

Finally to estimate school enrolment, we need to estimate the denominator, that is, the number of children who fall in the official school going age (6-13 years). This is indicated for the two slums in Table 2.4 below.

Table 2.4. Primary school age population by slum (2000-2005): OVC Psychosocial survey, Nairobi Informal Settlements

DSA slum indicator	Year of interview						Total
	2000	2001	2002	2003	2004	2005	
Korogocho	990	1,341	1,764	2,280	2,769	3,305	12,449
Viwandani	474	676	942	1,218	1,537	1,909	6,756
Total	1,464	2,017	2,706	3,498	4,306	5,214	19,205

Based on the above information, we can now estimate the gross and net enrolment rates by site and by orphan status (Table 2.5).

Table 2.5. Enrolment Rate by site and orphan status, average 2000-2005 (%): OVC Psychosocial survey, Nairobi Informal Settlements

Site and status	Net	Gross
Korogocho	76.0	79.0
Orphan	77.1	79.25
Non-orphan	75.7	78.69
Viwandani	83.0	87.0
orphan	86.5***	89.9**
Non-orphan	82.2	86.8
DSS sites+	78.0	82.0

+ All children in the DSA.

***Significant at 1%; **significant at 5%; *significant at 10%. We used a two-sample test of proportion.

While the average in Table 2.5 clearly shows that Viwandani performs better than Korogocho in terms of children enrolment, Table 2.6 shows the details per year. As expected there is a distinct pattern since 2003 with an important increase (about 10 percentage points from 2002 to 2005). This is probably the benefit of the free access to primary school in Kenya.

Table 2.6. Net Enrolment Rate by site, 2000-2005 (%): OVC Psychosocial survey, Nairobi Informal Settlements

	2000	2001	2002	2003	2004	2005
Korogocho	55.86	68.01	76.70	82.68	86.53	85.26
Viwandani	65.82	77.51	82.80	88.18	90.50	91.72
DSS sites	59.08	71.19	78.82	84.59	87.95	87.63

Similar to the general picture in the DSA, the subgroup of orphans in Viwandani seems to be doing much better than their counterparts in Korogocho. This is explained by the existence of

better infrastructure in Viwandani and the fact that the latter is a richer slum. It is however important to note that there is a catching up effect from Korogocho where enrolment has been growing faster especially since 2003. A striking feature of this analysis is that non orphans are not doing better than orphans as regards school enrollment. In both slums, Tables 2.5, 2.7 and 2.8 support that orphans are more able to go and stay in school (in our case primary school). This is particularly significant in Viwandani and is in line with similar findings in the OVC research literature. It can be explained by the stronger motivation of orphan as well as the selection process of caregivers. It however hides also a lower performance of orphan because they have a slower pace of progression than the non-orphans (see next section).

Table 2.7. Orphan Net Enrolment Rate by site, 2000-2005 (%): OVC Psychosocial survey, Nairobi Informal Settlements

	2000	2001	2002	2003	2004	2005	Average
Korogocho	53.25	68.86	80.80	86.25	86.59	87.11	77.1
Viwandani	73.13	88.04	87.93	85.11	92.45	92.49	86.53
DSS sites	57.72	73.49	82.58	85.96	88.02	88.40	79.36

Table 2.8. Non-orphan Net Enrolment Rate by site, 2000-2005 (%): OVC Psychosocial survey, Nairobi Informal Settlements

	2000	2001	2002	2003	2004	2005	Average
Korogocho	56.76	68.33	75.74	81.97	86.51	85.04	75.73
Viwandani	64.71	75.80	81.93	88.53	90.51	91.65	82.19
DSS sites	59.50	70.99	78.01	84.38	88.02	87.59	78.08

2.2. Drop-Out In Primary School

The primary school level drop-out is a rare event in our study population. It represents only 0.89 percent of the children, that is, 54 in the total DSA population with education information as of end of round 12.

Table 2.9. Number of those who dropped out of school in the population, 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

Child dropped out at least once from school	N	%
No	6,007	99.11
Yes	54	0.89
Total	6,061	100.00

* 3 out of the 54 children do not have known status as orphan or non orphan.

It is important to note that we consider dropout as a repeatable event in the remainder of this study. In the latter case, one child living in Viwandani dropped out twice. The child dropped out when moving into 2002, joined again in 2003, and again dropped out in 2004. This means in an event history analysis we have at most 55 occurrences of a drop out in the 6 years of the study at the primary school level. However we can alternatively consider only children who are not in transition, that is, we exclude all children who may be apparent dropouts. These are children who were in class 8 the previous year that we assume to be in a temporary out of school situation where they are waiting to be able to start their first year of secondary school. In that scenario, we are left with 51 children who dropped out between 2000 and 2005. Now let us consider the performance of our study participants as regards the drop out. Table 2.10 summarized the drop out situation in the slums by orphan status and is complemented by the detailed figures in Table 2.11 and 2.12.

Table 2.10. Dropout Rate by site and orphan status, average 2000-2005 (%): OVC Psychosocial survey, Nairobi Informal Settlements

Korogocho-	
Orphan	0.41
non-orphan	0.22
Viwandani	
Orphan	0.34
non-orphan	0.16
DSS sites-	0.20

Tables 2.11 and 2.12 summarize the drop out rates and frequencies per year respectively by orphan status and by slum residence.

Table 2.11a. Number and proportion of non orphan children who dropped out of primary school, 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

	Year of interview					Total
	2001	2002	2003	2004	2005	
N	4	2	5	10	17	38
Percentage of the primary level population	0.25	0.09	0.17	0.28	0.39	0.20

Table 2.11b. Number and proportion of orphan children dropped out of primary school, 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

	Year of interview					
	2001	2002	2003	2004	2005	Total
N	2	1	3	0	8	14
Percentage of the primary level population	0.52	0.21	0.53	0	1.10	0.39

Among the non orphans, the annual average drop out rate at primary school during the study period is 0.22 in Korogocho (Table 2.10), slightly beyond the DSS average of 0.20 per cent of the primary level study population. In total Korogocho accounts for 68.4 per cent of the drop out in the non orphan group. When exploring the same phenomenon in the non orphan group in Viwandani, it is easy to note that the annual average drop out rate at primary school during the same period is only 0.16 per cent. Tables 2.12a and 2.12b show the distribution of the dropouts per year in the primary school going age.

Table 2.12a. Number of non orphan children dropped out of primary school by slum, 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

DSA slum indicator	Year of interview					
	2001	2002	2003	2004	2005	Total
Korogocho	3	1	5	6	11	26
Viwandani	1	1	0	4	6	12
Total	4	2	5	10	17	38

Table 2.12b. Number of orphan children dropped out of primary school by slum, 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

DSA slum indicator	Year of interview					
	2001	2002	2003	2004	2005	Total
Korogocho	2	0	3	0	6	11
Viwandani	0	1	0	0	2	3
Total	2	1	3	0	8	14

Tables 2.10, 2.11 and 2.12 allow a comparative analysis of non orphans and orphans in the DSA. It appears in general that even though fostering families or the remaining parent ensure

that orphans go to school, their achievement and performance is lower compared to non orphans. Among the orphans, the annual average drop out rate at primary school during the study period is 0.41 per cent in Korogocho, almost the double of their non orphan counterparts. In total Korogocho accounts for 79 per cent of the drop outs in the orphan group.

When exploring the same phenomenon in the orphan group of Viwandani, it is easy to note that the annual average drop out rate at primary school during the same period is 0.34 per cent, which is below that of Korogocho but remains higher than the performance of non orphans in Viwandani (0.16).

2.3. Repetition Rates

The definition by UNESCO indicates the repetition rate is the proportion of pupils from a cohort enrolled in a given grade at a given school-year who study in the same grade in the following school-year. It measures the phenomenon of pupils from a cohort repeating a grade, and its effect on the internal efficiency of educational systems. In addition, it is one of the key indicators for analyzing and projecting pupil flows from grade to grade within the educational cycle.

Table 2.13. Number of those who repeated in the population 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

Has ever repeated in school	Number	Per cent	Cum Per cent
No	5,374	88.7	88.67
Yes	687	11.3	100.00
Total	6,061	100.0	.

Table 2.13 suggests there are 11 percent of all the children who repeated at least once a grade in their primary school experience. When we consider their status, Table 2.14 indicates this represents 10.35 per cent of the non orphan population. These latter non orphan repeaters realized 588 repetition events. Even though the orphan repeaters realized only 137 repetition events, they represent a much more important part of the orphan population, that is, 17 per cent.

Table 2.14. Number of children who repeated by orphan status (pooled population) 2000-2005: OVC Psychosocial survey, Nairobi Informal Settlements

Has ever repeated in school	One or both parent died					
	No		Yes		Total	
	N	%	N	%	N	%
No	4,590	89.65	669	83.0	5,374	88.7
Yes	530	10.35	137	17.0	687	11.3
Total	5,120	100.0	806	100.0	6,061	100.0

In summary, while 10.3 percent of the children have ever repeated among non orphans, up to 17 per cent of the orphans ever repeated. This again confirms that orphans may have a lower performance in school. The repetition occurrences in the complete sample (orphan, non orphan and unknown status) are distributed as follows in Table 2.15.

Table 2.15. Number of repetition occurrences in primary school by slum, 2000-2005: OVC Project, Nairobi Informal Settlements

DSA slum indicator	Year of interview					
	2001	2002	2003	2004	2005	Total
Korogocho	70	73	117	143	169	572
Viwandani	24	33	36	40	81	214
Total	94	106	153	183	250	786

A more precise picture of repetition rates is given by Table 2.16 that summarizes the annual average repetition rate by orphan status and by slum (more details in the Appendix).

Table 2.16. Repetition rates by site and orphan status average, 2000-2005 (%): OVC Project, Nairobi Informal Settlements

	%
Korogocho-	
Orphan	5.61
non-orphan	3.74
Viwandani	
orphan	4.04
non-orphan	2.61
DSS sites-	3.67

Table 2.16 compare orphan and non orphan by slum. Once again it appears that Viwandani has better school performance with more than 1 point difference between non-orphan in the two

locations and this gap reaches more than 1.5 point between orphans. At the same time there is again significantly less repetitions among non-orphans despite the apparent higher enrolment of the orphans. This actually suggests that policy measures to support orphans are urgent because this is one important source of inefficiency of the schooling system. Orphans tend to spend too much time in the primary school, the consequence of which is a higher cost per student produced by the system.

2.4. Effect of Parent Death on Children School Performance

In this section we look at the sequencing of mother's death (respectively father's death) and its consequences on orphaned child school repetition. In a first part a descriptive study allows us to understand the correlation between the two variables and in a final section we explore the causes of children repetition controlling for family and individual level characteristics as well as community effects. Table 2.17 shows that 74 per cent of all the mothers of our study population were born between 1970 and 1984. This is a very young population of mothers. However it appears that the DSS recorded 116 deaths among these mothers, that is, 3.51 per cent (see Table 2.18).

Table 2.17. Distribution of mothers and fathers, 2000-2005: OVC Project, Nairobi Informal Settlements

Cohort born...	Mothers	Fathers
<=1944		46 (1.9%)
1945/1949	4 (0.2%)	65 (2.7%)
1950/1954	13 (0.5%)	143 (5.9%)
1955/1959	54 (2.1%)	238 (9.9%)
1960/1964	215 (8.3%)	446 (18.5%)
1965/1969	388 (14.9%)	564 (23.4%)
1970/1974	693 (26.7%)	613 (25.4%)
1975/1979	918 (35.4%)	284 (11.8%)
1980/1984	305 (11.8%)	11 (0.5%)
1985/1989	6 (0.2%)	1 (0.04%)
Total	2,596 (100.0%)	2,411 (100.0%)

Note: There are a total of 3,302 identified mothers.

Note: There are a total of 2,573 fathers with an identifier.

Table 2.18. Distribution of mothers' and fathers' events in the DSA 2000-2005: OVC Project, Nairobi Informal Settlements

Event type experienced during residency	Mothers	Fathers
DEATH	116	56
ENTRY	1,460	1114
ENUMERATION	2823	2338
EXIT	1526	1140
IN-IMIGRATION	617	271
OUT-MIGRATION	592	138

Note: a mother who in-migrated several times is counted only once here.

Note: a mother who in-migrated several times is counted only once here.

It is interesting also to note the mobility among mothers of the 6-14 years old children in the DSA. From August 2000 to August 2006, 592 mothers out-migrated while 617 mothers came in and stayed for at least 90 days. The remaining analysis is based on orphan and non-orphan population of the DSA, ignoring the children whom status is unknown. The analysis is also constrained to the period common to the two surveys (ERP and DSS), that is 2002 to 2005. It appears in the case of mothers that six orphans repeated two years before losing their mother in the period 2002 to 2005.

As expected, Table 2.19 shows that fathers are relatively from older generations. The rate of death among fathers is 2.18, which is lower than the mother case. Fathers in the DSA seem relatively less mobile, suggesting that one important reason to women in-migrations is through marriage.

2.5. Conclusion

The study based on the existing data that pools together the ERP and the NUHDSS information encountered a number of difficulties related to the very short period. The actual period to examine the relationship between parental death and orphanhood is actually August 2002 to December 2005. This is an important limitation to make use of the event history strength of the analysis. Despite the latter limitation, a descriptive analysis of the data indicates some interesting results. The results clearly show that Viwandani performs better than Korogocho in terms of children enrolment. As expected there is distinct pattern since 2003 with an important increase (about 10 percentage points from 2002 to 2005). This suggests a positive effect of the free access to primary school policy in Kenya. It appears also that in general fostering families or the remaining parent ensure that orphans go to school. However their achievement and performance is lower compared to non orphans. Among the orphans, the annual average drop out rate at primary school during the study period is 0.41 per cent in Korogocho, almost the

double of their non orphan counterparts. In Viwandani, the annual average drop out rate at primary school during the same period is 0.34 per cent, which is below that of Korogocho but remains higher than the performance of non orphans in Viwandani (0.16).

As regards repetition, while 10.3 percent of the children have ever repeated among non orphans, up to 17 per cent of the orphans ever repeated. Once again it appears that Viwandani has better school performance with more than 1 point difference between non-orphan in the two locations and this gap reaches more than 1.5 point between orphans. At the same time there is again significantly less repetitions among non-orphans despite the apparent higher enrolment of the orphans. This actually suggests that policy measures to support orphans are urgent because repetition is a source of inefficiency of the schooling system. Orphans tend to spend too much time in the primary school, the consequence of which is a higher unit cost per student produced by the educational system.

APPENDIX

Table A1: Number and proportion of non orphan children who repeated of primary school all ages, 2000-2005: OVC Project, Nairobi Informal Settlements

	Year of interview					
	2001	2002	2003	2004	2005	Total
N	66	72	115	139	196	588
Percentage of the primary level population	4.17	3.31	4.04	3.91	4.49	3.32

Table A2: Number and proportion of orphan children who repeated of primary school, all ages , 2000-2005: OVC Project, Nairobi Informal settlements

	Year of interview					
	2001	2002	2003	2004	2005	Total
N	25	30	34	40	45	174
Percentage of the primary level population	6.56	6.45	5.96	6.14	6.21	5.22

CHAPTER 3

PSYCHOSOCIAL SURVEY: CHILD WELFARE DIFFERENTIALS BY ORPHAN STATUS AND SLUM RESIDENCE

2.1 Characteristics of children

The distribution of children that were interviewed by slum residence, orphan status and sex is presented in Table 3.1. About 76 percent of children (935) were from Korogocho, and only 24 percent were from Viwandani; a pattern due to the fact that the latter location had fewer orphans. As previously indicated the sampling frame was to target all the orphans and match them with an equal number of non-orphans. Despite this goal, the sample of 1,235 children aged 6-14 years that were successfully interviewed consisted of 768 of non-orphans (62%) and only 467 orphans (38%). About two-thirds of the orphans had lost their father only (307), 20 percent had lost their mother only (95), while the remaining 14 percent (65) had lost both parents. Overall, there were fewer boys (579 against 656 girls), a pattern observed across the two slum areas.

Table 3.1 Distribution of 1,235 children by orphan status, gender and slum residence: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Korogocho		Viwandani		Total	
	N	%	N	%	N	%
Overall	935	100.0	300	100.0	1,235	100.0
By Orphan status						
Non-orphan	575	61.5	193	64.3	768	62.2
Orphan	360	38.5	107	35.7	467	37.8
Father only	239	25.6	68	22.7	307	24.9
Mother only	68	7.3	27	9.0	95	7.7
Both parents	53	5.7	12	4.0	65	5.3
By sex						
Male	437	46.7	142	47.3	579	46.9
Female	498	53.3	158	52.7	656	53.1

Respondents to the questionnaires are shown in Table 3.2. Overall, about 79 percent of respondents were parents. The proportion was slightly higher in Viwandani (82%) than in Korogocho (79%), reflecting, at least partly, lower proportion of orphans in the former area. Area differences in the type of respondents were statistically significant at the level of 0.10. As

expected, the proportion of parent respondents was substantially lower for orphans (62%) than for non-orphans (90%), while by contrast the proportion of non-relative respondents was higher for orphans (20%) than for non-orphans (4%). Overall differentials by orphan status proved statistical significance at the level of 0.01. Respondents were also asked to provide information on the primary caregiver of the target child. For 82 percent of children, the primary caregiver was reported to be a parent. While differences across the two slum areas did not reach statistical significance at the level of 0.10, there were wide differences by orphan status ($p < 0.01$).

Table 3.2. Respondents and primary caregivers: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Total	Disribution (%)			
		Parent	Other relative	Non-relative	Total
Panel 1. Respondent					
Overall	1,235	79.4	10.7	10.0	100.0
By residence			p=0.090		
Korogocho	935	78.5	10.5	11.0	100.0
Viwandani	300	82.0	11.3	6.7	100.0
By orphan status			p=0.000		
Non-orphans	768	90.0	5.9	4.2	100.0
Orphans	467	61.9	18.6	19.5	100.0
Panel 2. Primary caregiver					
Overall	1,235	82.0	7.7	10.3	100.0
By residence			p=0.133		
Korogocho	935	81.4	7.4	11.2	100.0
Viwandani	300	84.0	8.7	7.3	100.0
By orphan status			p=0.000		
Non-orphans	768	92.2	3.7	4.2	100.0
Orphans	467	65.3	14.4	20.3	100.0

Table 3.3 shows that the number of other children in the household was reported to be smaller in Viwandani (mean 1.8 compared to 2.8 in Korogocho; $p < 0.01$). No difference was seen between households in which orphans were resident compared to non orphans.

In the presence of orphan hood, families may find themselves separated and siblings placed into different households. The study was therefore interested in ascertaining the number of children who had siblings present in the same household. Viwandani also recorded lower figures than Korogocho (1.7 on average against 2.4 in Korogocho; $p < 0.01$). By contrast with the number of children, the number of siblings was substantially lower for orphans than for non-

orphans (1.9 on average, compared to 2.4; $p < 0.01$). This suggests that siblings are being separated in orphan households.

Table 3.3. Number of children and siblings in the households: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Mean number of children or siblings ^a	Number of children or siblings ^b				
		0	1-2	3+	Mising	Total
Panel 1. Total number of children						
Overall	2.5	11.5	45.3	43.2	0.0	100.0
By residence	$p=0.000$		$p=0.000$			
Korogocho	2.8	9.5	41.4	49.1	0.0	100.0
Viwandani	1.8	17.7	57.3	25.0	0.0	100.0
By orphan status	$p=0.608$		$p=0.388$			
Non-orphans	2.5	10.6	45.4	44.0	0.0	100.0
Orphans	2.6	13.1	45.0	42.0	0.0	100.0
Panel 2. Total number of siblings						
Overall	2.2	11.7	44.9	33.3	10.1	100.0
By residence	$p=0.000$		$p=0.000$			
Korogocho	2.4	10.5	41.6	37.8	10.2	100.0
Viwandani	1.7	15.7	55.0	19.3	10.0	100.0
By orphan status	$p=0.000$		$p=0.000$			
Non-orphans	2.4	8.1	45.7	37.5	8.7	100.0
Orphans	1.9	17.8	43.5	26.3	12.4	100.0

^at-test was used to test the differences; ^bchi-square test was used to test the differences.

3.2. Caregivers Report

This section presents findings on various areas of child welfare as reported by the caregivers. The issues covered include: 1) Education/school related issues; 2) Health related issues; 3) Food security; and 4) Exploitation, neglect and abuse.

3.2.1. Domain 1: Education/School Related Issues

Current school attendance rates reported by respondents matched those described in the secondary analysis, with over 99% of children over the whole sample attending school. Progress through school was measured by punctuality and regularity of attendance. As shown in Table 3.4, 20 percent of children went to school late and 32 percent missed school at least once during the week preceding the survey. The proportions were significantly higher in Korogocho ($p < 0.01$). While there was no significant difference in school punctuality by orphan status, orphans tended to miss school more frequently than their non-orphans counterparts ($p < 0.05$).

Table 3.4. Punctuality and regularity of school attendance: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Went to school late any day of last week				Missed to go to school any day of last week			
	Yes	No	Don't know/-missing	Total	Yes	No	Don't know/-missing	Total
Overall	20.1	73.0	7.0	100.0	31.7	61.7	6.6	100.0
By residence		p=0.000				p=0.000		0.0
Korogocho	23.2	69.8	7.0	100.0	35.1	58.1	6.9	100.0
Viwandani	10.3	82.7	7.0	100.0	21.0	73.0	6.0	100.0
By orphan status		p=0.191				p=0.036		
Non-orphans	19.3	74.2	6.5	100.0	29.6	64.3	6.1	100.0
Orphans	21.4	70.9	7.7	100.0	35.1	57.4	7.5	100.0

The most common reasons given for going late to school included late wake up (122 children out of 248), sickness (46), hunger (14) and domestic work (13). Reasons for missing school on the other hand included sickness (243 children out of 391), lack of fees and books (82) and domestic work (18). Progress through school was also measured by the grade-per-age, a variable constructed from the current age and grade of the child. For example, the child scores -1 if he/she is currently in the grade just behind the appropriate grade for his/her age; he/she scores -2 if the current grade is two years below the appropriate grade for his/her age, and he/she scores 1 if their current grade is one year above the appropriate grade for his/ her age. Results for grade-per-age are displayed in Table 3.5.

Table 3.5. Children grade-per-age: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Mean scores ^a	Grade per age ^{b,c}					Total
		-3	-2	-1	0	1	
Overall	-0.83	10.7	15.7	30.1	33.0	10.5	100.0
By residence	p=0.000				p=0.000		
Korogocho	-0.96	12.2	17.5	31.6	30.2	8.6	100.0
Viwandani	-0.44	6.0	10.0	25.7	41.7	16.7	100.0
By orphan status	p=0.002				p=0.000		
Non-orphans	-0.74	8.7	13.3	30.5	37.0	10.6	100.0
Orphans	-0.98	13.9	19.7	29.6	26.3	10.5	100.0

^at-test was used to test the differences; ^bchi-square test was used to test the differences; ^cFew cases with scores of -4 or lower were recoded as -4; few cases with scores of 2 or higher were recoded as 1.

Viwandani children had better school progress than their Korogocho counterparts (mean score of -0.44 in Viwandani compared with -0.96 in Korogocho). The difference was statistically significant at the level of 0.01. This pattern is also noticeable in the distribution of children by score. Viwandani had higher proportion of children who were at the appropriate grade for their age (42%) or even one year ahead (17%), than Korogocho (30% and 9%, respectively). As expected, orphans tended to exhibit poorer school progress, both in terms of mean grade-per-age score ($p < 0.01$) and distribution by score ($p < 0.01$).

3.2.2. Domain 2: Health Related Issues

Caregivers were asked to rate the status of their child's health. The majority of respondents rated the children's health as good 64 percent and 31 percent rated as average. Perceived child health was significantly better in Viwandani than in Korogocho ($p < 0.10$) as can be seen in Table 3.6. As expected, the health of non-orphans was slightly better than that of the orphans ($p < 0.10$). Child health in the last two weeks is summarized in Table 3.7. Further, as an indicator of the level of care extended to the children, details of health seeking behavior were sought. In answer to the question "*when the child was last ill, was treatment sought?*" About 40 percent of children were ill or had been ill in the last two weeks preceding the survey. Among them, about 54 percent sought appropriate care (21.9% of the total); one-third sought inappropriate care and the remaining 12 percent did not seek any care. There were noticeable differences in health status and health seeking behavior by place of residence ($p < 0.05$). The most common recent illnesses (i.e. within the last 2 weeks) were described as coughs and colds in Viwandani. All other sub-groups identified malaria and fever as the most common.

Table 3.6. Children's perceived health status: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Perceived status of child's health			
	Good	Average	Poor	Total
Overall	64.3	30.7	5.0	100.0
By residence	$p=0.072$			
Korogocho	62.7	31.8	5.6	100.0
Viwandani	69.3	27.3	3.3	100.0
By orphan status	$p=0.090$			
Non-orphans	66.5	29.0	4.4	100.0
Orphans	60.6	33.4	6.0	100.0

Table 3.7. Children’s health and health seeking behavior: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Child ill/has been ill at any time in the last two weeks				Total
	No	Yes			
		Sought appropriate care	Sought inappropriate care	Did not seek care	
Overall	59.7	21.9	13.0	5.4	100.0
By residence					
Korogocho	57.3	23.9	13.2	5.7	100.0
Viwandani	67.0	16.0	12.3	4.7	100.0
By orphan status					
Non-orphans	60.9	21.4	12.2	5.5	100.0
Orphans	57.6	22.9	14.1	5.4	100.0

3.2.3. Domain 3: Food security

Respondents were asked whether they would say the target child usually has enough to eat. Table 3.8 shows that about 61 percent of children had enough food to eat. Access to food was significantly better in Viwandani than in Korogocho ($p < 0.01$), and significantly better among non-orphans than among orphans ($p < 0.01$). Food security was also assessed by asking respondents how often the target child did not have enough to eat in the past six months. Results in Table 3.9 indicate that overall, about 42 percent of children always had enough to eat in the last six months. Again, Viwandani children are better-off than their Korogocho counterparts ($p < 0.01$); and non-orphans have better access to food than the orphans ($p < 0.01$).

Table 3.8. Children access to food: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Had enough to eat			Total
	Yes	No	Don't know	
Overall	60.6	38.9	0.6	100.0
By residence				
Korogocho	57.2	42.1	0.6	100.0
Viwandani	71.0	28.7	0.3	100.0
By orphan status				
Non-orphans	65.9	33.9	0.3	100.0
Orphans	51.8	47.1	1.1	100.0

In particular, 24 percent of non-orphans did not have enough to eat everyday or few times a week, against 34 percent of the orphans; and 35 percent of orphans never experience lack of food, against 46 percent of the non-orphans.

Table 3.9. Percentage of children who did not have enough to eat in the last six months: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Everyday	Few times a week	Few times a month	Once a month or less	Never	Don't know	Total
Overall	5.3	22.4	19.6	10.0	41.7	0.9	100.0
By residence	p=0.000						
Korogocho	4.1	24.8	21.8	7.0	41.4	1.0	100.0
Viwandani	9.3	15.0	12.7	19.7	42.7	0.7	100.0
By orphan status	p=0.001						
Non-orphans	4.4	19.5	18.6	10.7	45.8	0.9	100.0
Orphans	6.9	27.2	21.2	9.0	34.9	0.9	100.0

Regularity of food intake was also measured by asking the respondents to indicate how many meals the child usually have per day, and more specifically, whether the child had breakfast, lunch and supper in the last two days preceding the interview. As can be seen in Table 3.10, the orphan group had significantly lower number of meals per day, in both count ($p < 0.001$). Viwandani children were also reported to have higher number of meals per day, than their counterparts from Korogocho; but the difference only reached statistical significance for the usual number of meals ($p < 0.01$).

Table 3.10. Number of meals per day: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Usual number of meals	Number of meals per day over the last two days
Overall	2.5	2.4
By residence	p=0.001	p=0.193
Korogocho	2.5	2.4
Viwandani	2.6	2.5
By orphan status	p=0.000	p=0.000
Non-orphans	2.6	2.5
Orphans	2.4	2.3

3.2.4. Domain 4: Exploitation, Neglect and Abuse

In poorest settings like the slums it might be expected that children will need to contribute to the family income. As an indicator of whether orphans suffer an increased level of responsibility in this area, respondents were asked to provide information on the child's involvement in income generating activities. As shown in Table 3.11, very few children were reported to be participating in income generating activities, and of those few children who did, 41% were said to use the money for their own use. There were no significant differences by slum residence or by orphan status.

Table 3.11. Child involvement in income generating activities: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Yes	No	Don't know	Total
Overall	5.6	94.4	0.0	100.0
By residence		p=0.425		
Korogocho	5.9	94.1	0.0	100.0
Viwandani	4.7	95.3	0.0	100.0
By orphan status		p=0.210		
Non-orphans	5.0	95.1	0.0	100.0
Orphans	6.6	93.4	0.0	100.0

3.3 Child Report

This section presents findings on various areas of child welfare. The results are based on data collected from children on issues including: 1) Main activities the child is involved in; 2) Affect and behaviour (happiness and sadness, worries, social relationships, anger and joy); 3) Physical and sexual abuse; 4) Fears; 5) Shelter and care; 6) Physical health; 7) Attitude towards school; and 8) Anthropometric measurements. The results presented in this section are organized around the following themes: 1) Education/school related issues; 2) Health related issues; 3) Exploitation/neglect/abuse; and 4) Social emotional and behavioral state.

3.3.1. Domain 1: Education/School Related Issues

Children are expected not only to have access to education, but steps should be taken to encourage regular attendance. Children were asked to rate the regularity of their school attendance; their level of punctuality; and the frequency with which they miss days of school. Other school related information that was collected concerned the child's attitude towards school, towards their teachers, and towards staying on after school hours. Table 3.12 summarizes answers to the following questions: In the last one or two weeks, how often would you say that 1) You have missed to go to school; 2) You have gone to school late; 3) You are happy with schoolwork in school; 4) Teachers are nice; and 5) You do not feel like going to school.

As can be seen, Viwandani children exhibited better patterns of attendance and positive attitudes to school, than the Korogocho ones. There was a clear trend for reported feelings, attitudes and experiences concerning school to be more positive amongst the Viwandani children. About 69 percent never missed going to school, compared to 58 percent in Korogocho ($p<0.05$); 51 percent never went to school late, compared to 36 percent in Viwandani ($p<0.01$); 84 percent reported they are happy with school work, against 68 percent in Korogocho ($p<0.01$); 73 percent always had good perception of teachers, against 54 percent in Korogocho ($p<0.01$); and 82 percent never felt like not attending school, compared to 68 percent in Korogocho ($p<0.01$). Though non-orphan children also tended to exhibit better school attendance and attitudes to school than the orphans, differences only reached statistical significance for happiness with school work ($p<0.05$).

Table 3.12 Patterns of school attendance and perception/attitude toward school among 1,235 children: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Never	Some- times	Often	Always/ everyday	DK/Miss/ NAa	Total
Panel 1. How often child has missed going to school						
Overall	60.4	32.9	2.8	0.7	3.2	100.0
By residence			p=0.002			
Korogocho	57.5	35.2	2.7	0.9	3.7	100.0
Viwandani	69.3	25.7	3.3	0.0	1.7	100.0
By orphan status			p=0.137			
Non-orphans	60.9	33.5	2.7	0.7	2.2	100.0
Orphans	59.5	31.9	3.0	0.6	4.9	100.0
Panel 2. How often child went to school late						
Overall	39.8	46.9	7.7	2.4	3.2	100.0
By residence			p=0.000			
Korogocho	36.0	49.2	8.3	2.7	3.7	100.0
Viwandani	51.3	39.7	5.7	1.7	1.7	100.0
By orphan status			p=0.138			
Non-orphans	39.8	47.8	7.7	2.5	2.2	100.0
Orphans	39.6	45.4	7.7	2.4	4.9	100.0

Table 3.12. Continued

	Never	Some- times	Often	Always/ everyday	DK/Miss/- NAa	Total
Panel 3. How often child would say he is happy with schoolwork						
Overall	0.3	4.1	23.2	71.8	0.5	100.0
By residence			p=0.000			
Korogocho	0.3	4.6	26.4	68.0	0.6	100.0
Viwandani	0.3	2.7	13.3	83.7	0.0	100.0
By orphan status			p=0.008			
Non-orphans	0.0	3.7	22.8	73.4	0.1	100.0
Orphans	0.9	4.9	24.0	69.2	1.1	100.0
Panel 4. How often child would say teachers are good						
Overall	0.7	13.8	26.2	58.8	0.6	100.0
By residence			p=0.000			
Korogocho	0.8	14.3	30.2	54.1	0.6	100.0
Viwandani	0.3	12.0	14.0	73.3	0.3	100.0
By orphan status			p=0.418			
Non-orphans	0.5	13.8	26.4	59.0	0.3	100.0
Orphans	0.9	13.7	25.9	58.5	1.1	100.0
Panel 5. How often child feels like not attending school						
Overall	71.0	25.6	1.4	1.0	1.1	100.0
By residence			p=0.000			
Korogocho	67.7	28.9	1.5	0.8	1.2	100.0
Viwandani	81.3	15.3	1.0	1.7	0.7	100.0
By orphan status			p=0.110			
Non-orphans	71.5	25.7	1.4	1.2	0.3	100.0
Orphans	70.2	25.5	1.3	0.6	2.4	100.0

^aDon't know/Missing/Not applicable

3.3.2. Domain 2: Health Related Issues

To assess the health status of children, information was collected from anthropometric measurements and from the reported frequency of the child feeling unwell, feeling pain, feeling very tired, feeling strong and full of energy, and not having appetite due to illnesses.

3.3.2.1. Reported somatic health status

Table 3.13 shows significant differences in reported somatic health by location of residence, with Viwandani children tending to report less cases of physical health problems. By contrast, there were no significant differentials by orphan status.

Table 3.13. Somatic health among 1,235 children: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Never	Some- times	Often	Always/ everyday	DK/Miss/- NAa	Total
Panel 1. How often child felt unwell						
Overall	15.8	71.0	10.9	2.4	0.0	100.0
By residence			p=0.037			
Korogocho	15.6	70.2	12.2	2.0	0.0	100.0
Viwandani	16.3	73.7	6.7	3.3	0.0	100.0
By orphan status			p=0.664			
Non-orphans	15.2	70.7	11.6	2.5	0.0	100.0
Orphans	16.7	71.5	9.6	2.1	0.0	100.0
Panel 2. How often child feels pain						
Overall	35.2	54.0	7.5	3.2	0.0	100.0
By residence			p=0.026			
Korogocho	33.1	55.3	8.2	3.4	0.0	100.0
Viwandani	42.0	50.0	5.3	2.7	0.0	100.0
By orphan status			p=0.657			
Non-orphans	34.0	55.1	7.8	3.1	0.0	100.0
Orphans	37.3	52.3	7.1	3.4	0.0	100.0
Panel 3. How often child feels tired						
Overall	23.6	58.2	13.1	5.0	0.0	100.0
By residence			p=0.000			
Korogocho	21.5	58.4	15.2	4.9	0.0	100.0
Viwandani	30.3	57.7	6.7	5.3	0.0	100.0
By orphan status			p=0.129			
Non-orphans	22.9	59.8	11.7	5.6	0.0	100.0
Orphans	24.8	55.7	15.4	4.1	0.0	100.0

^aDon't know/Missing/Not applicable

3.3.2.2. Anthropometric measurement

Among various growth-monitoring indices, there are three commonly used comprehensive profiles of malnutrition in children namely stunting, wasting and underweight, measured by height-for-age, weight-for height, and weight-for-age indexes respectively. More specifically, stunting or growth retardation results in young children from recurrent episodes or prolonged periods of nutrition deficiency for calories and/or protein available to the body tissues, inadequate intake of food over a long period of time, or persistent or recurrent ill-health. Wasting or acute PEM captures the failure to receive adequate nutrition during the period immediately before the survey, resulting from recent episodes of illness and diarrhea in particular, or from

acute food shortage. Underweight status is a composite of the two preceding ones, and can be due to either chronic or acute malnutrition (FAO, 1997¹).

Table 3.14. Child nutritional status: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Mean Z-scores ^a	Percent of malnutrition ^b		
		Total (below -2SD)	Mild-to-moderate malnutrition	Severe malnutrition (below -3SD)
Panel 1. Height-for-Age (Stunting)				
Overall	-2.3	35.2	20.3	14.9
By residence	p=0.000		p=0.567	
Korogocho	-2.5	34.8	19.6	15.1
Viwandani	-1.6	36.5	22.4	14.1
By orphan status	p=0.916		p=0.073	
Non-orphans	-2.3	34.4	18.5	16.0
Orphans	-2.3	36.4	23.3	13.1
Panel 2. Weight-for-Age (Underweight)				
Overall	-1.6	30.9	22.3	8.6
By residence	p=0.404		p=0.460	
Korogocho	-1.6	30.5	22.4	8.1
Viwandani	-1.5	32.1	21.7	10.4
By orphan status	p=0.118		p=0.003	
Non-orphans	-1.7	33.8	25.4	8.4
Orphans	-1.4	26.1	17.1	9.0

^at-test was used to test the differences; ^bchi-square test was used to test the differences.

Table 3.14 shows that for height-for-age (stunting or long-term malnutrition), Viwandani children were better-off than their counterparts from Korogocho in terms of mean z-score ($p < 0.01$). However, differences between Korogocho and Viwandani in terms of proportion of malnourished children (z-score falling below -2 standard deviation) did not reach statistical significance. The reverse was observed with regard to differentials by orphan status. While both groups recorded almost the same mean z-scores (about -2.3), orphans displayed significantly higher proportion of stunting than the non-orphans ($p < 0.10$).

¹FAO (eds) *Human Nutrition in the Developing World*. Food and Agricultural Organization of the United Nations, Rome, 1997

As concerns, weight-for-age (underweight), area differences were insignificant both in terms of mean z-scores and proportion of malnutrition. Surprisingly, orphans tended to record better z-scores than the non-orphans, but the difference failed to reach statistical significance. The rate of wasting was significantly lower among orphans (26% against 34%), and the difference reached statistical significance at the level of 0.05.

3.3.3. Domain 3: Provision of Care and Shelter

This section investigated aspects of privacy, emotional support and level of care through looking at the security that the child has within the home, and the attention received when sick. Ratings were elicited on the quality of the child's sleeping environment, the number of the child's personal possessions, the reported frequency with which the child goes to school hungry, is hungry during the day, and with which the child goes to bed hungry. Other questions attempted to tap the child's feeling of being loved, whether the child had somebody to confide in, and to identify who were the most commonly identified confidantes in each group. The key figures involved in providing care in the form of cooking meals and taking care of the child's health needs, were also recorded.

3.3.3.1. Child space and items owned

Almost all children reported having a regular place to sleep. Children were also asked what they usually sleep on. As Table 3.15 indicates, 64 percent of children reported sleeping on bed and mattress, with huge differences by location of residence, Viwandani children more commonly reported sleeping on a bed, than those from Korogocho ($p < 0.01$). A higher proportion of non-orphans than orphans reported sleeping on bed and mattress (66%, against 61%); however, the difference was not significant.

Table 3.15. Frequency of having somewhere to sleep: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Bed and mattress	Bed without mattress/Mattress on the floor	Other	Total
Overall	64.1	16.4	19.6	100.0
By residence		p=0.000		
Korogocho	60.2	18.9	20.9	100.0
Viwandani	76.0	8.3	15.7	100.0
By orphan status		p=0.138		
Non-orphans	66.0	15.0	19.0	100.0
Orphans	60.8	18.6	20.6	100.0

The number of personal items a child possessed varied widely between children in each of the subgroups, with most possessing some items (see Table 3.16). Korogocho children tended to possess a greater number of items than children from Viwandani ($p<0.01$); and non-orphans reported possessing a greater number of items than orphans ($p<0.05$).

Table 3.16. Number of items owned (clothes, shoes, books, pen, stationery, toys, uniform, bag, bicycle, furniture, and electronics): OVC Psychosocial survey, 2007, Nairobi Informal Settlements.

	None-/A few	Some	Many	All	Total	Mean	SD
Overall	15.3	45.6	38.9	0.2	100.0	4.0	1.43
By residence			p=0.000				
Korogocho	14.4	40.7	44.6	0.3	100.0	4.1	1.45
Viwandani	18.0	61.0	21.0	0.0	100.0	3.6	1.27
By orphan status			p=0.014				
Non-orphans	13.4	45.4	41.0	0.1	100.0	4.1	1.41
Orphans	18.4	45.8	35.3	0.4	100.0	3.8	1.46

3.3.3.2. Child care

To assess child care, children were asked how often they: 1) feel loved by their household members; 2) go to school hungry/stay hungry in the morning; 3) stay hungry during the day; 4) sleep hungry; and 5) would say that there is someone to take them to seek care/treatment when sick. The results are provided in Table 3.17. Differences between orphans and non-orphans are apparent in most aspects of child care investigated. Non-orphans were more likely: to always feel loved (43% against 41%) and; to never stay hungry during the day (though differences were

not significant). They were also more likely to report never going to school hungry ($p < 0.05$); to never sleep hungry ($p < 0.10$); and to always have someone to care for them when they are sick ($p < 0.05$). Differences by area of residence were much larger, with Viwandani children reporting better care than those from Korogocho. For example, two-thirds of Viwandani children reported to always feel loved, compared with only 34 percent in Korogocho ($p < 0.01$); 48 percent reported to always have someone to care for them, compared with only 19 percent in Korogocho ($p < 0.01$).

Table 3.17. Shelter and care among 1,235 children, by location of residence and orphan hood status: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Never	Some- times	Often	Always/ everyday	DK/Miss/ -NA ^a	Total
Panel 1. How often child feels loved by household members						
Overall	1.5	20.2	35.6	42.1	0.7	100.0
By residence			p=0.000			
Korogocho	1.6	22.7	41.1	34.2	0.4	100.0
Viwandani	1.3	12.3	18.3	66.7	1.3	100.0
By orphan status			p=0.139			
Non-orphans	1.7	18.2	37.1	42.6	0.4	100.0
Orphans	1.3	23.3	33.0	41.3	1.1	100.0
Panel 2. How often child goes to school hungry						
Overall	53.6	31.3	10.7	4.3	0.2	100.0
By residence			p=0.000			
Korogocho	48.5	34.4	12.4	4.5	0.2	100.0
Viwandani	69.7	21.3	5.3	3.7	0.0	100.0
By orphan status			p=0.033			
Non-orphans	56.4	30.5	9.8	3.4	0.0	100.0
Orphans	49.0	32.6	12.2	5.8	0.4	100.0
Panel 3. How often child stays hungry during the day						
Overall	59.1	32.4	6.8	1.6	0.1	100.0
By residence			p=0.000			
Korogocho	55.4	34.7	8.2	1.6	0.1	100.0
Viwandani	70.7	25.3	2.3	1.7	0.0	100.0
By orphan status			p=0.152			
Non-orphans	61.6	30.6	6.3	1.6	0.0	100.0
Orphans	55.0	35.3	7.7	1.7	0.2	100.0
Panel 4. How often child sleeps hungry						
Overall	59.1	34.7	5.0	1.0	0.2	100.0
By residence			p=0.000			
Korogocho	53.2	39.8	6.0	1.0	0.1	100.0
Viwandani	77.7	19.0	2.0	1.0	0.3	100.0
By orphan status			p=0.068			
Non-orphans	61.7	32.8	4.6	0.9	0.0	100.0
Orphans	54.8	37.9	5.8	1.1	0.4	100.0
Panel 5. How often child said there is someone to care for them when sick						
Overall	4.5	37.7	32.2	25.7	0.0	100.0
By residence			p=0.000			
Korogocho	5.2	41.7	34.4	18.6	0.0	100.0
Viwandani	2.3	25.0	25.0	47.7	0.0	100.0
By orphan status			p=0.024			
Non-orphans	3.4	36.2	33.6	26.8	0.0	100.0
Orphans	6.4	40.0	29.8	23.8	0.0	100.0

^aDon't know/Missing/Not applicable

3.3.4. Domain 4: Exploitation, Neglect and Abuse

This section of data collection was also aimed at establishing levels of exposure to degrading treatment, especially physical or mental injury or abuse, neglect or maltreatment, including sexual abuse of the child. Items also captured aspects of fulfillment of parental responsibility, through an exploration of how domestic discipline is administered. Questions covered sensitive and potentially disturbing details, but began with more positive statements concerning the child's sense of belonging and feeling loved. Potential exploitation was evaluated through reported involvement in 5 daily elements (play, rest, education, feeding, and chores). In addition the child was asked to rate the adequacy of the play-time they had; their perceived adequacy of time to rest and the burden they felt concerning chores they are given at home. The child was asked how well s/he got on with his/her parents, how loved or wanted s/he felt, his/her feelings of freedom and whether the parent provided guidance in protection from danger or abuse. Items concerning exploitation and abuse included the frequency with which the child was involved in quarrels or fights with parents, other adults in the household and other children in the home. The child was also asked to rate feelings of being mistreated/treated unfairly, exposed in general to danger and the frequency with which the child was sent to procure or purchase harmful substances, is forced to sleep outside, left outside alone during the day, disciplined harshly, receives forms of discipline other than physical punishment, the reported frequency of being beaten at home and being beaten by others in the neighborhood. Sexual Abuse was addressed by questions on the frequency of being inappropriately touched, persuaded to touch another inappropriately and of having experienced rape or attempted rape.

3.3.4.1. What do children spend their time doing?

In response to questioning about their daily routines, children's descriptions provided a picture of a day consisting of essentially child appropriate activities. Children are fed, sent to school, allowed to play and rest and are expected to involve themselves in household chores. The pattern of responses elicited suggested that where the child lives has more impact on the daily routine experienced than their orphan status, with the children in Viwandani reporting a trend towards fewer of the expected daily elements. Table 3.18 shows that about 75 percent of Korogocho children reported higher number of activities they were engaged in during week days, compared to 61 percent in Viwandani ($p < 0.01$). There was almost no difference between orphans and non-orphans. The same pattern can be noticed in activities during week-ends (Panel 2 of table 3.18).

Table 3.18. Number of times child engaged in activities like Food, Education, Play, Chores and Rest during weekdays and weekends: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Almost never 0-2	Some- times 3	Often 4	Always 5	Total	Mean	SD
Panel 1. During week days							
Overall	4.0	24.6	48.7	22.6	100.0	3.9	0.80
By residence	p=0.000						
Korogocho	3.4	21.9	47.2	27.5	100.0	4.0	0.81
Viwandani	6.0	33.0	53.7	7.3	100.0	3.6	0.73
By orphan status	p=0.352						
Non-orphans	3.7	23.7	48.1	24.6	100.0	3.9	0.80
Orphans	4.7	26.1	49.9	19.3	100.0	3.8	0.80
Panel 2. During week ends							
Overall	17.6	39.0	32.3	11.1	100.0	3.3	0.94
By residence	p=0.000						
Korogocho	14.4	37.3	35.0	13.3	100.0	3.5	0.91
Viwandani	27.3	44.3	24.0	4.3	100.0	3.0	0.95
By orphan status	p=0.653						
Non-orphans	17.7	38.8	32.4	11.1	100.0	3.3	0.95
Orphans	17.3	39.4	32.1	11.1	100.0	3.4	0.93

Table 3.19 summarizes answers to the following questions: In the last one or two weeks, how often would you say that 1) You have enough time to play (outside school); 2) You have enough time to rest at home; and 3) You feel bothered because of being given a lot of work at home. Again, differences by orphan status are minimal. Children in Viwandani felt that they were free to play always/every day, 39 percent compared with 20 percent in Korogocho ($p < 0.01$). While the Viwandani children also reported less rest time than their Korogocho counterparts (63% never had enough time, versus 45 percent in Korogocho) ($p < 0.01$), there was a trend towards less children from Viwandani feeling burdened by chores ($p < 0.01$), and fewer of them reporting missing school (not shown).

Table 3.19. How often child gets enough time to play, rest and whether they feel they are burdened with chores: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Never	Some- times	Often	Always/ everyday	Total
Panel 1. How often the child has enough time to play					
Overall	7.9	42.1	25.5	24.5	100.0
By residence		p=0.000			
Korogocho	7.9	43.4	28.7	20.0	100.0
Viwandani	7.7	38.0	15.7	38.7	100.0
By orphan status		p= 0.890			
Non-orphans	7.4	42.5	25.8	24.4	100.0
Orphans	8.6	41.5	25.1	24.8	100.0
Panel 2. How often the child has enough time to rest					
Overall	48.9	37.2	9.6	4.3	100.0
By residence		p=0.000			
Korogocho	44.5	39.6	11.3	4.6	100.0
Viwandani	62.7	29.7	4.3	3.3	100.0
By orphan status		p=0.886			
Non-orphans	48.7	36.9	10.2	4.3	100.0
Orphans	49.3	37.7	8.8	4.3	100.0
Panel 3. How often child feels bothered by a lot of work at home					
Overall	66.2	23.7	6.4	3.7	100.0
By residence		p=0.000			
Korogocho	62.1	26.4	7.2	4.3	100.0
Viwandani	78.7	15.3	4.0	2.0	100.0
By orphan status		p=0.811			
Non-orphans	66.7	23.8	6.1	3.4	100.0
Orphans	65.3	23.6	6.9	4.3	100.0

^aDon't know/Missing/Not applicable

3.3.4.2. Child Risk of Being Abused or Being in Dangerous Situations

Few children reported being exposed to danger or abuse either often or everyday. Of the risky or dangerous experiences about which they were asked the most common rating was that it never happened (in excess of 90% of children). The exceptions to this high level of safety were observed on questions relating to being disciplined by beating, and being sent out to buy harmful substances (e.g. cigarettes or alcohol). Table 3.20 shows that orphans did not appear to be more vulnerable or experience more negative outcomes. On the contrary, Viwandani children reported significantly lower frequencies of mistreatment, being sent to buy harmful substances, or discipline by beating. Overall, Viwandani was characterized by a smaller proportion of children reporting negative experiences.

Table 3.20. Child abuse: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Never	Some- times	Often	Always/ everyday	DK/Miss/- NA ^a	Total
Panel 1. How often child feels mistreated at home						
Overall	59.4	30.4	7.5	2.6	0.2	100.0
By residence			p=0.000			
Korogocho	54.7	34.0	8.3	2.8	0.2	100.0
Viwandani	74.3	19.0	4.7	2.0	0.0	100.0
By orphan status			p=0.386			
Non-orphans	61.5	28.4	7.4	2.6	0.1	100.0
Orphans	56.1	33.6	7.5	2.6	0.2	100.0
Panel 2. How often child has been in danger						
Overall	63.0	31.3	4.9	0.9	0.0	100.0
By residence			p=0.649			
Korogocho	63.2	30.9	5.1	0.8	0.0	100.0
Viwandani	62.3	32.3	4.0	1.3	0.0	100.0
By orphan status			p=0.633			
Non-orphans	63.9	30.5	4.6	1.0	0.0	100.0
Orphans	61.5	32.6	5.4	0.6	0.0	100.0
Panel 3. How often child has been sent to buy harmful substances						
Overall	58.5	28.7	7.8	5.0	0.0	100.0
By residence			p=0.015			
Korogocho	57.9	27.7	9.0	5.5	0.0	100.0
Viwandani	60.3	32.0	4.0	3.7	0.0	100.0
By orphan status			p=0.153			
Non-orphans	60.8	27.6	6.9	4.7	0.0	100.0
Orphans	54.6	30.6	9.2	5.6	0.0	100.0
Panel 4. How often child is disciplined harshly by caregiver/parent						
Overall	39.6	47.2	8.3	4.9	0.0	100.0
By residence			p=0.000			
Korogocho	38.6	49.2	9.0	3.2	0.0	100.0
Viwandani	42.7	41.0	6.0	10.3	0.0	100.0
By orphan status			p=0.849			
Non-orphans	38.9	48.1	8.3	4.7	0.0	100.0
Orphans	40.7	45.8	8.1	5.4	0.0	100.0
Panel 5. How often child is beaten by adults at home						
Overall	37.8	53.3	7.6	1.3	0.0	100.0
By residence			p=0.000			
Korogocho	33.3	56.7	8.8	1.3	0.0	100.0
Viwandani	52.0	42.7	4.0	1.3	0.0	100.0
By orphan status			p=0.616			
Non-orphans	36.5	54.4	7.7	1.4	0.0	100.0
Orphans	40.0	51.4	7.5	1.1	0.0	100.0

^aDon't know/Missing/Not applicable

3.3.5. Domain 5: Social Emotional and Behavioral State

This section measured affect, describing children's externally displayed or reported mood, through both the child's report on their own emotions as well as through the observations made by both the caretaker and the interviewer. In this section we were also interested in issues concerning social development and interpersonal processes, including friendships and peer relations, social competence, aggression, social withdrawal, isolation and future ambitions. We asked the children to list issues that worry them, and how often these thoughts distracted them. We were also interested in the context and regularity of feelings of fear, rather than to describe the actual focus of their fear.

3.3.5.1. How well do children get on with others?

Children were asked to report how often they would say: 1) they get along well with their parents/caregiver; 2) they feel loved or wanted by their parents/caregiver; 3) they quarrel or fight with Parents/caregiver; and 4) they quarrel or fight with other children at home. As shown in Table 3.21, the situation described by the children from Viwandani was more positive, while in other sub-groups the most commonly endorsed rating was *sometimes*. Seventy-six percent (compared to 47% in Korogocho) reported always getting on well with their parents or guardians ($p < 0.01$). Seventy-two percent of children in Viwandani reported always feeling loved and wanted, versus 40 percent in Korogocho ($p < 0.01$). A greater proportion of Viwandani children reported never fighting with parents or caregiver (76% compared with 68% in Korogocho) ($p < 0.05$), or never fighting with other children in the household (59% against 39% in Korogocho) ($p < 0.01$). There were no differences between the orphan and the non-orphan group.

3.2.5.2. How happy are children's life?

Table 3.22 provides a summary of the following questions: In the last few weeks how often would you say that 1) you cried; 2) you had problems falling asleep; 3) you feel like running away from home; 4) other children pick on you/backbite you/discriminate against you; and 5) you feel you are different from other children. The most commonly endorsed ratings provided a picture of children whose lives were not characterized by extreme levels of emotional trauma or negative relationships with others. Children laughed sometimes or often, but they also reported sometimes having negative feelings (crying, feeling unhappy, angry, worried, fearful, trouble falling asleep, etc.). About 89 percent of children reported having never thought of having run away from home, with substantial differences by area (95% in Viwandani and 87 in Korogocho; $p < 0.05$). More than 50% of children had felt picked on by others at some point, although the majority of children enjoyed the company of others, and actively sought out the company of other children. Very few children described fighting with others are a common feature of their lives. Playing with others was a more common feature of the lives of children from Viwandani,

where overall responses suggested a greater community atmosphere, with children feeling more part of their neighborhood. The life described by the orphaned children was not noticeably different from that of the other children, but again more closely mirrored that of the children living in Korogocho than that of those living in Viwandani.

Table 3.21. Child's affect and behavior: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Never	Some- times	Often	Always/ everyday	DK/Miss/- NA ^a	Total
Panel 1. How often child gets along with parents						
Overall	1.3	13.2	31.7	53.9	0.0	100.0
By residence			p=0.000			
Korogocho	1.0	14.8	37.4	46.8	0.0	100.0
Viwandani	2.3	8.3	13.7	75.7	0.0	100.0
By orphan status			p=0.308			
Non-orphans	1.4	12.4	30.5	55.7	0.0	100.0
Orphans	1.1	14.6	33.6	50.8	0.0	100.0
Panel 2. How often child feels loved and wanted						
Overall	1.9	14.4	35.6	48.0	0.1	100.0
By residence			p=0.000			
Korogocho	2.1	16.2	41.3	40.3	0.1	100.0
Viwandani	1.0	9.0	18.0	72.0	0.0	100.0
By orphan status			p=0.417			
Non-orphans	2.2	13.8	35.2	48.8	0.0	100.0
Orphans	1.3	15.4	36.4	46.7	0.2	100.0
Panel 3. How often child fights/quarrels with caregiver						
Overall	70.0	26.0	3.2	0.7	0.1	100.0
By residence			p=0.006			
Korogocho	68.1	28.2	3.1	0.5	0.0	100.0
Viwandani	75.7	19.0	3.7	1.3	0.3	100.0
By orphan status			p=0.688			
Non-orphans	70.4	25.9	3.0	0.7	0.0	100.0
Orphans	69.2	26.1	3.6	0.9	0.2	100.0
Panel 4. How often child fights/quarrels with other children						
Overall	43.5	46.3	8.1	1.9	0.2	100.0
By residence			p=0.000			
Korogocho	38.6	50.3	9.2	1.7	0.2	100.0
Viwandani	58.7	34.0	4.7	2.7	0.0	100.0
By orphan status			p=0.399			
Non-orphans	42.7	46.9	8.3	2.1	0.0	100.0
Orphans	44.8	45.4	7.7	1.7	0.4	100.0

^aDon't know/Missing/Not applicable

Table 3.21. Continued

	Never	Some- times	Often	Always/ everyday	DK/Miss/ -NA ^a	Total
Panel 1. How often child cries						
Overall	17.4	61.9	16.9	3.6	0.2	100.0
By residence			p=0.000			
Korogocho	13.4	63.1	19.3	4.1	0.2	100.0
Viwandani	30.0	58.0	9.7	2.3	0.0	100.0
By orphan status			p=0.312			
Non-orphans	17.6	62.9	16.2	3.4	0.0	100.0
Orphans	17.1	60.2	18.2	4.1	0.4	100.0
Panel 2. How often child has problems falling asleep						
Overall	41.1	40.8	12.6	5.3	0.2	100.0
By residence			p=0.000			
Korogocho	36.6	43.2	14.6	5.5	0.2	100.0
Viwandani	55.3	33.3	6.3	5.0	0.0	100.0
By orphan status			p=0.929			
Non-orphans	42.1	40.2	12.2	5.3	0.1	100.0
Orphans	39.6	41.8	13.1	5.4	0.2	100.0
Panel 3. How often child feels like running away from home						
Overall	88.6	9.3	1.5	0.6	0.1	100.0
By residence			p=0.003			
Korogocho	86.6	11.0	1.7	0.5	0.1	100.0
Viwandani	94.7	4.0	0.7	0.7	0.0	100.0
By orphan status			p=0.084			
Non-orphans	90.0	8.1	1.2	0.8	0.0	100.0
Orphans	86.3	11.4	1.9	0.2	0.2	100.0
Panel 4. How often other children pick on child						
Overall	24.5	55.0	14.9	5.7	0.0	100.0
By residence			p=0.000			
Korogocho	21.0	56.3	17.0	5.8	0.0	100.0
Viwandani	35.3	51.0	8.3	5.3	0.0	100.0
By orphan status			p=0.034			
Non-orphans	23.3	56.4	13.5	6.8	0.0	100.0
Orphans	26.3	52.7	17.1	3.9	0.0	100.0
Panel 5. How often child feels different from other children						
Overall	35.1	40.7	14.0	10.0	0.1	100.0
By residence			p=0.000			
Korogocho	31.9	42.4	15.5	10.3	0.0	100.0
Viwandani	45.3	35.7	9.3	9.3	0.3	100.0
By orphan status			p=0.644			
Non-orphans	35.4	41.7	13.4	9.4	0.1	100.0
Orphans	34.7	39.2	15.0	11.1	0.0	100.0

^aDon't know/Missing/Not applicable

CHAPTER 4

PSYCHOSOCIAL SURVEY: ASPECTS OF CHILD WELFARE

This chapter provides detailed description of the variables capturing various aspects of child welfare, and the potential household-level covariates identified from the NUHDSS database. Apart from grade-per-age (see Section 3.2.1), all measures of child welfare were constructed using principal component analysis (PCA), with Varimax rotation using the raw scores on the constituent variables. PCA is a statistical technique that linearly transforms an original set of observed variables into a substantially smaller and more coherent set of uncorrelated variables that capture most of the information through maximizing the variance accounted for in the original variablesⁱⁱ. Variables were excluded from analysis on an item-by-item basis if they had a loading lower than 0.40 and/ or a cross-loading higher than 0.30. Factor scores, including all retained variables, were generated for the remaining variables. The exception was the domain Social, Emotional and Behavioral State, consisting of 24 variables. For this domain, a single factor score was generated from the first component. The rotated component matrices of the PCAs are presented in Appendix xx.

4.1. Defining aspects of child welfare

The Child Questionnaire consisted of the child's reported daily diary and 55 questions on the following domains: Freedom from exploitation (6); Attitude to school (7); Social, emotional and behavioral state (25); Shelter and care (12); and Physical health (5). Within each domain children were asked to rate the regularity of participation in activities described and the strength of attitudes towards specific experiences. Ratings were made on a 4-point scale, with 1 meaning never participate, or never feel; 2 (sometimes); 3 (often); and 4 (always/everyday). Some questions elicited more qualitative information to provide clarification of the more general information provided by ratings. The Caregiver form on the other hand covered the following sections: 1) Schooling details; 2) Health status and health seeking behavior; 3) Food intake; and 4) Anthropometric measures.

Each variable was scrutinized for within population variance, Greater than 70% endorsement at any one rating level on an item is commonly used to indicate restricted variance in responses (Gregory, 1992). Of the responses that did not meet this criterion, more than half represented

ⁱⁱDunteman, G.H.: 1989, *Principal Component Analysis* (SAGE publication, Newbury Park)

descriptions of rare events, such as rape and running away, and would thus be expected to have more restricted variance. Of the remainder, the maximum endorsement was no greater than 75% and thus no variable was excluded at this point in the analysis. Anthropometric measurements were transformed into z-scores using STATA program of *zanthro*. This program allows transformation of child anthropometric data to z-scores using the LMS method and the reference data available from the 2000 CDC Growth Reference in the U.S. or the 1990 British Growth Reference. In this data, we used the CDC growth reference in the U.S.

4.1.1. Domain 1: Education/School Related Issues

4.1.1.1. Child report

The following variables were finally included in the construction of schooling-related welfare indicators. How often would you say that 1) You have gone to school late; 2) You are happy with schoolwork in school; 3) Teachers are nice; 4) You do not feel like going to school; 5) You feel like dropping out of school; 6) You feel like staying longer in school when other children go home; and 7) You like being in school: The loadings on Component 1, accounting for 25% of the variance observed, describes features of school attendance; the loadings on Component 2, accounting for 22% of the variance observed, describes negative attitudes to school attendance; while the loadings on Component 3, accounting for 19% of the variance observed, describes interaction within school, with work and staff. From now onwards, these variable scores will be referred to as School attendance; School avoidance; and School participation, respectively. Summary statistics by residence and orphan status are presented in Table 4.1.

4.1.1.2. Caregiver report

Almost all children were reported to have ever attended school (99%) or to be currently attending school (95%). The focus was then on school punctuality, regularity and progress. The school punctuality and regularity variables were combined (using PCA) to create a variable score referred to as School regularity. The grade-for-age variable is also considered as an indicator of child welfare in the area of education. Summary statistics of these two variables are shown in Table 4.1.

Table 4.1. Summary statistics of school-related outcome variables: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	School attendance	School avoidance	School participation	School regularity	Grade-for-age
1. Quartiles (Overall)					
First quartile (25%)	-0.80	-0.73	-0.85	-0.57	-1.0
Mediane	-0.77	-0.22	0.69	0.83	-1.0
Third quartile (75%)	0.87	0.36	0.78	0.83	0.0
2. Mean scores (overall mean is zero, except for grade-for-age)					
By residence	p=0.818	p=0.001	p=0.000	p=0.000	p=0.000
Korogocho	0.00	0.05	-0.08	-0.09	-0.94
Viwandani	0.01	-0.15	0.26	0.29	-0.44
By orphan status	p=0.110	p=0.519	p=0.543	p=0.032	p=0.004
Non-orphans	-0.03	0.01	0.01	0.05	-0.74
Orphans	0.06	-0.02	-0.02	-0.08	-0.65

4.1.2. Domain 2: Health Related Issues and Food Security

4.1.2.1. Child Report

Section 7 of the Child questionnaire contains the following somatic symptoms. How often would you say that 1) You feel unwell/ill; 2) You feel pain (not related to being beaten); 3) You feel very tired; 4) You feel strong and full of energy; and 5) You have no appetite due to illness. The fourth variable was excluded from the final model. The first component labeled as Somatic symptoms, accounted for 47% of variance observed (see Appendix XX). Further, the anthropometric measurements were converted into z-scores. For the purpose of this study, we use the height-for-age (stunting) and weight-for-age (underweight) scores. The three variables are described in Table 4.2.

4.1.2.2. Caregiver Report

Caregivers were asked to rate the target child's health (poor, average, good), and to report if he/she was ill or has been ill in the two weeks preceding the interview. If the child was ill or has been ill, questions on health seeking behavior were also asked. These variables were used to construct a variable labeled Health status and seeking behavior (see Appendix xx). Four set of questions in the caregiver form were designed to measure child access to food (see section 4 of

the questionnaire in annex xx). These variables were used to construct an indicator of child welfare referred to as Access to food. A description of these two variables is shown in Table 4.2.

Table 4.2. Summary statistics of health- and food security-related outcome variables: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Somatic symptoms	Height-for-age	Weight-for-age	Health status and seeking behavior	Access to food
1. Quartiles (Overall)					
First quartile (25%)	-0.54	-2.34	-2.17	-0.87	-0.90
Mediane	0.13	-1.52	-1.39	-0.33	-0.50
Third quartile (75%)	0.53	-0.80	-0.63	1.16	0.83
2. Mean scores (overall mean is zero, except for the anthropometric scores)					
By residence	p=0.180	p=0.000	p=0.417	p=0.000	p=0.024
Korogocho	0.02	-2.49	-1.62	0.06	0.04
Viwandani	-0.07	-1.63	-1.46	-0.17	-0.11
By orphan status	p=0.122	p=0.892	p=0.116	p=0.129	p=0.000
Non-orphans	0.03	-2.27	-1.68	-0.03	-0.12
Orphans	-0.06	-2.30	-1.41	0.06	0.19

4.1.3. Domain 3: Provision of Support, Care and Shelter

The following variables were used to construct indicators of child welfare in the domain of care and shelter: 1) What child normally sleeps on; 2) Items owned by the child; 3) Whether the child normally has someone to cook for him/her everyday; and how often the child would say that: 4) he/she feels loved by household members; 5) he/she goes to school hungry/stays hungry in the morning; 6) he/she stays hungry during the day; 7) he/she sleeps hungry; 8) he/she gets along well with parents/caregiver; 9) he/she feels loved or wanted by parents/caregiver; 10) he/she feels free to do the good things he/she likes doing like playing; and 11) his/her parents/caregiver talk to him/her about not doing dangerous things like fighting, stealing, smoking, using drugs, coming home late etc. Two components were extracted, each accounting for 20% of the variance observed: The first component was labeled as Material provision as the factor loadings suggested the care provided was targeted at physical needs. Variables with higher loadings on component 2 describe more social aspects of care and therefore, the component was labeled Emotional support. Summary statistics of these two welfare variables are shown in Table 4.3.

Table 4.3. Summary statistics of care and shelter-, abuse and exploitation-, and social and emotional-related outcome variables: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Material provision	Emotional support	Exploitation	Activities
1. Quartiles (Overall)				
First quartile (25%)	-0.81	-0.62	-0.80	-0.82
Mediane	-0.22	0.01	-0.12	-0.08
Third quartile (75%)	0.60	0.79	0.62	0.56
2. Mean scores (overall mean is zero)				
By residence	p=0.000	p=0.000	p=0.000	p=0.000
Korogocho	0.06	-0.15	0.09	0.14
Viwandani	-0.19	0.46	-0.27	-0.42
By orphan status	p=0.001	p=0.206	p=0.711	p=0.487
Non-orphans	-0.07	0.03	-0.01	0.02
Orphans	0.12	-0.05	0.01	-0.02

Table 4.3. Continued

	Sexual abuse	Physical/ verbal abuse	Vulnerability	Social, emotional, behavioral state
1. Quartiles (Overall)				
First quartile (25%)	-0.32	-0.68	-0.70	-0.69
Mediane	-0.15	-0.19	-0.14	-0.03
Third quartile (75%)	-0.05	0.50	0.50	0.62
2. Mean scores (overall mean is zero)				
By residence	p=0.154	p=0.001	p=0.016	p=0.000
Korogocho	-0.02	0.05	0.04	0.12
Viwandani	0.07	-0.16	-0.12	-0.37
By orphan status	p=0.602	p=0.535	p=0.376	p=0.726
Non-orphans	0.01	0.01	-0.02	-0.01
Orphans	-0.02	-0.02	0.03	0.02

4.1.4. Domain 4: Neglect/Abuse/Exploitation

Two analyses were run in this domain, one focused on those items directed towards the use of the child's time (exploitation), and the second directed towards issues of abuse. The first analysis used the following variables: 1) Frequency of child activities (food, education, play, chores and rest) during week days and during week-ends (2 variables); and how often the child would say that he/she: 2) has gone to school late; 3) has missed to go to school; 4) has enough time to rest at home; and 5) feels bothered because of being given a lot of work at home. The results of the first of the PCA suggested two factor scores. The first component, which accounted for 25% of the variance observed, was labeled Exploitation as factor loadings suggested burden on time. The second and third accounted for about 24% each. The underlying concept of component 2 appears to concern involvement in child appropriate activities. The derived factor score was labeled as Activities. For a brief description of these three indicators, see Table 4.3.

The second analysis for this domain used 12 variables derived from section 4 (Child Abuse) of the child questionnaire (see the questionnaire in Annex xx). The results of the PCA also suggested three factors. The factor loadings for component 1, accounting for 18% of the variance, suggested the label of Sexual abuse. The factor score derived from component 2 can be associated with times concerning verbal and physical violence, and was therefore labeled Physical/verbal abuse. The final factor score derived from the third component, which accounted

for 14% of the variance, was labeled Vulnerability, as items with higher factor loadings concerned the child being placed in vulnerable situations (see table 4.3 for summary statistics of these variables).

4.1.5. Domain 5: Social, Emotional and Behavioral State

The Social, emotional and behavioral state domain was analyzed based on 24 variables from sections 3 and 5 of the child questionnaire. The corresponding welfare indicator was described by a single factor score, derived from the first component of the un-rotated solution, accounting for 18% of the variance. The factor score was labeled Social, emotional and behavioral state. Summary statistics are shown in Table 4.3.

4.2. Defining Covariates of Child Welfare

Potential household-level covariates of child welfare were retrieved from the round 13 (September-December 2006) DSS round data on household characteristics. Household characteristics and livelihood data in round 13 were collected for all the households in the study areas (Korogocho and Viwandani). However, in retrieving household characteristics and livelihood information from the round 13 DSS data, we recorded some missing data, most of which are due to difficulties to find credible respondents at home during the day. A total of 302 children out of a sample of 1,235 children from the OVC project appear to belong to households whose characteristics and livelihood data were not collected. These children had their household assets and amenities data imputed from round 8 (January-April 2005), the most recent DSS round which collected household characteristics. The variables that were retrieved from the DSS falls within the following categories: Household assets and household amenities.

Household assets included ownership of household durables such as cars, television sets, radios, refrigerators, beds, phones among other household durables. Household amenities included: type of main source of water; type of toilet facility; type of garbage disposal facilities; type of fuel used for lighting and cooking; place of cooking; floor, wall and roof characteristics; ownership of house where households are currently living; and number of living rooms (rental or owned). The educational level and ethnicity of the household head were also retrieved. Household livelihood information (ownership and size of livestock, and household income and expenditures) were not included since they were only collected in round 13.

From preliminary analysis some variables were excluded as they did not show any variation. For example, 98.2 percent of households in the sample had access to tap water; and 99.3 of households had roof mad of iron sheet (corrugated). There was almost no possession or car or bicycle (about 99.5% of households). The following variables were used to construct a household wealth variable, a proxy for the household economic status: 1) Possession of bicycle, fridge, TV, radio, sewing machine, electric iron box, fan, phone, cooker, sofa, table, flush light, kerosene lamp, kerosene stove, wall clock, mattress, blanket, and bed; 2) floor and wall materials; and 3) tenure of the dwelling. The following variables were recoded and included in the analysis: 1) education and ethnicity of the household head; and 2) household amenities (toilet facility, cooking fuel and source of lighting). The frequency distribution of these variables is shown in Table 4.4. Continuous covariates (number of children and siblings in the household and child age) are displayed in Table 4.5.

Table 4.4. Frequency distribution of categorical covariates of child welfare: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

Covariates ^a	%	N
Slum residence		
Korogocho	75.7	935
Viwandani	24.3	300
Education of HouseHead		
None	20.3	251
Primary	57.2	707
Secondary+	22.4	277
Toilet facility		
Flush/VIP toilet	16.0	197
Traditional/pit latrine	67.6	835
None/others	16.4	203
Kerosene/paraffin cooking fuel		
No	22.8	282
Yes	77.2	953
Electricity light		
No	65.4	808
Yes	34.6	427
Ethnicity (Ref: Kikuyu)		
Kikuyu	33.4	412
Luyha	12.5	154
Luo	28.4	351
Others	25.7	318
Orphan status		
Non orphan	62.2	768
Father only orphan	24.9	307
Mother only orphan	7.7	95
Double orphan	5.3	65
Time since death of parent		
No death	62.2	768
< 6 years	16.5	204
6+ years	21.3	263
Living with biological parents		
No	16.0	198
With 1 parent	45.3	560
With both parents	38.6	477
Child sex		
Male	46.9	579
Female	53.1	656

^aHousehold wealth is not shown

Table 4.5. Frequency distribution of continuous covariates of child welfare: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

Covariate	Mean	Median	Min	max
Number of other children in the households	2.54	2	0	13
Number of siblings in the household	1.97	2	0	11
Child age	10.91	11	7	14

CHAPTER 5

PSYCHOSOCIAL SURVEY: EXPLAINING VARIOUS ASPECTS OF CHILD WELFARE (MULTIVARIATE ANALYSES)

This section is comprised of regression analyses explaining the measures of child welfare defined in Chapter 4 and summarized in Tables 4.1 to 4.3. The potential covariates are in Tables 4.4 and 4.5. As can be seen, the variables are structured in three levels. Slum residence is the community-level covariate. As shown in Chapter 3, there are wide differentials of child welfare by place of residence. The household-level explanatory variables include the education of the household head; household wealth as a proxy of the economic status; household amenities (toilet facility, cooking fuel and source of lighting); number of other children in the household (continuous variable); and ethnicity of the household. Preliminary analysis (not shown) revealed that the number of other children and the number of siblings were highly correlated (correlation of 0.70 ($p < 0.01$)). The latter was thus excluded from the analysis. At the individual level, the covariates include orphan status; whether the child lives with his/her biological parents; age (continuous variables); and sex. The orphan status is modeled to indicate whether or not the child can be classified as an orphan, and if so, the type of orphan (father only, mother only or two-parent orphan). Preliminary analysis showed that the variable time to death of parent was strongly correlated with orphan status (correlation of 0.77 ($p < 0.01$)). The former was then excluded from the analysis.

The sample is made of 1,235 children aged 6-14 years, nested in 1,034 households. There are 864 households with one child; 140 households with two children; 29 households with three children; and one household with four children.

5.1. Methods of Analysis

Multilevel models are used to account for the hierarchical structure of the data whereby children are nested within households. As a result, the conventional assumption of independence of observations is no more valid since units from the same group are expected to be more alike, at least in part because they share a common set of characteristics or have been exposed to a common set of conditions. Unless some allowance for clustering is made, standard statistical methods for analyzing such data are no longer valid, as they generally produce downwardly biased variance estimates, leading for example to infer the existence of an effect when in fact

that effect estimated from the sample could be ascribed to chance (Duncan et al., 1998; Rasbash et al., 2002). Since all dependent variables (child welfare) are continuous, the following format is used for each of the 19 dependent variables:

$$\begin{cases} S_{ij} = \alpha_{0j} + \sum_{p=1}^8 \beta_p h_{pj} + \sum_{q=1}^4 \lambda_q c_{qij} + e_{0ij} \\ \alpha_{0j} = \alpha_{00} + u_{0j} \end{cases}$$

Where S_{ij} is a measure of the child welfare status of child i in household j ; α_{0j} is the intercept, modelled to randomly vary across communities; α_{00} is the fixed intercept, and u_{0j} is the random effect associated with household j ; h_{pj} is the p^{th} community- or household-level covariate for the household j ; c_{qij} is the q^{th} child-level covariate for the child i in household j ; β_p and λ_q are the fixed regression coefficients associated with h_{pj} and c_{qij} , respectively; and e_{0ij} is the level-1 residual. The general assumption in multilevel modelling is that u_{0j} and e_{0ij} are independent and distributed normally with zero means and variances σ_u^2 and σ_e^2 , respectively (Raudenbush & Bryk, 2002; Rasbash et al., 2002).

Two regression models were run for each child welfare indicator: In the first model orphan status is defined as a four-category variable (Non-orphan; Father-only orphan; Mother-only orphan; and both parents orphan), while in the second it is defined as a binary variable (Orphan; Non-orphan). Findings from this model should be interpreted with caution as the sample of children consists of only about 8 percent of mother-only orphans and 5 percent of both-parents orphans (see Table 4.4). The results for the second model are not shown. The results of the analysis are shown in Table 5.1 (Education and School Related Welfare Indicators); Table 5.2 (Access to Food and Health Related Welfare Indicators), and Table 5.3 (Other areas of Child Welfare).

5.2. Education and School Related Welfare Indicators

Table 5.1 confirms the findings from Chapter 3 whereby most child welfare indicators exhibited large differentials by place of residence, controlling for all other potential covariates. With the exception of school attendance, the influence of slum residence on all welfare indicators is strong and statistically significant at the level of 0.01. Viwandani children are better-off than their Korogocho counterparts in terms of school participation, school regularity and grade-per-age, as

illustrated by positive coefficients ($p < 0.01$), and in terms of school avoidance, as illustrated by negative coefficient ($p < 0.01$).

Orphan status did not seem to affect child educational welfare indicators. The effects of being an orphan were negligible (ranging from -0.99 to +0.68) and non-significant. It can be noted that father-only orphan children were better-off than the non-orphans in terms of school avoidance ($p < 0.10$); mother-only children tended to be worse-off than the non-orphans in terms of school participation and grade-per-age (differences not statistically significant); both parent orphans tended to be worse-off than the non-orphans in terms of school avoidance and school participation (differences not statistically significant), but were better-off in terms of school regularity ($p < 0.01$). As indicated previously, these detailed effects of orphan status should be interpreted with caution given the small proportion of children who are mother only or double orphans.

Surprisingly, living with biological parents seemed to have negative effects on child school attendance, with children living with one or both biological parents showing lower level of school attendance, than those not living with any biological parents ($p < 0.05$ and $p < 0.10$, respectively). The variable, which also seemed to negatively influence school participation (not significant), was however associated with higher school regularity ($p < 0.10$) and better grade-per-age (not significant).

At the household level, the household head's education and household economic status seemed to only affect child's grade-per-age ($p < 0.05$). The effect of toilet facility on school attendance was strong and in the expected direction, with children from households with traditional pit latrines or no facility displaying lower school attendance score, than those in households with flush toilet or very improved (vip) latrines. The effect on school avoidance was also in the expected direction, though it did not reach statistical significance at the level of 0.10. The presence kerosene/paraffin cooking fuel tended to have protective effects on school attendance (not significant) and school regularity ($p < 0.10$). Surprisingly, the presence of electricity did not have any impact on child schooling indicators, neither did the number of other children in the household. Table 5.1 also shows wide ethnic differentials in grade-per-age and school regularity, and to a lesser extent, in school attendance. Children from Kikuyu ethnic group children had higher grade-per-age than children from other ethnic groups; but at the same time, they recorded lower school regularity and attendance.

Table 5.1. Multilevel multivariate analysis of school-related child welfare: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	School attendance	School avoidance	School participation	School regularity	Grade-for-age
Slum residence (Ref: Korogocho)					
Viwandani	-0.042	-0.252 **	0.471 **	0.254 **	0.400 **
Education of household head (Ref: None)					
Primary	0.061	0.042	-0.040	-0.059	0.007
Secondar+	0.108	-0.030	-0.042	0.150	0.220 *
Household wealth (Ref: Poorest)					
Middle	0.006	0.089	-0.099	-0.032	0.002
Least poor	-0.027	-0.059	-0.032	-0.041	0.233 *
Toilet facility (Ref: Flush/vip)					
Traditional/pit latrine	-0.274 **	-0.007	0.081	-0.095	-0.088
None/others	-0.240 *	0.106	-0.105	0.001	0.050
Kerosene/paraffin cooking fuel (Ref: No)					
Yes	0.105	0.068	0.000	0.134 †	0.005
Electricity light (Ref: No)					
Yes	-0.050	-0.035	-0.030	-0.050	0.076
Number of children in the HH	0.009	0.012	0.020	-0.022	-0.012
Ethnicity (Ref: Kikuyu)					
Luyha	0.159 †	0.072	-0.049	0.179 †	-0.472 **
Luo	-0.043	0.093	0.037	0.062	-0.435 **
Others	0.042	-0.013	0.081	0.353 **	-0.420 **
Orphan status (Ref: Non-orphan)					
Father only orphan	0.087	-0.143 †	-0.014	0.040	0.023
Mother only orphan	0.057	-0.049	-0.169	0.037	-0.161
Double orphan	-0.069	0.154	-0.239	0.265 †	-0.040
Living with biological parents (Ref: No)					
With 1 parent	-0.221 *	0.026	0.117	-0.003	0.193
With both parents	-0.188 †	-0.032	-0.115	0.261 *	0.210
Child age	0.044 **	-0.074 **	0.031 *	0.033 **	-0.209 **
Child sex (Ref: Male)					
Female	-0.065	-0.033	0.134 *	-0.017	0.205 **
Random effects					
Child level (e_{0ij})	0.767 **	0.714 **	0.835 **	0.531 **	0.922 **
Household level (u_{0j})	0.161 *	0.199 **	0.084	0.385 **	0.381 **

†p<.10; *p<.05; **p<.01

Table 5.2. Multilevel multivariate analysis of health-related child welfare: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Somatic symptoms	Height-for-age	Weight-for-age	Health status and seeking behavior	Access to food
Slum residence (Ref: Korogocho)					
Viwandani	-0.008	0.696 *	-0.050	0.254 **	-0.075
Education of household head (Ref: None)					
Primary	0.005	-0.438	-0.239	-0.012	-0.043
Secondar+	-0.073	-0.359	0.003	0.063	-0.117
Household wealth (Ref: Poorest)					
Middle	-0.027	-0.075	-0.138	0.056	-0.083
Least poor	-0.113	-0.137	-0.164	0.049	-0.154 †
Toilet facility (Ref: Flush/vip)					
Traditional/pit latrine	0.036	-0.902 **	-0.276	-0.123	-0.063
None/others	0.009	-0.712	0.018	-0.262 *	-0.097
Kerosene/paraffin cooking fuel (Ref: No)					
Yes	-0.009	0.600 *	0.235	-0.039	-0.093
Electricity light (Ref: No)					
Yes	-0.045	-0.134	0.214	-0.077	-0.132 †
Number of children in the HF	0.007	-0.164 **	-0.184 **	-0.006	0.074 **
Ethnicity (Ref: Kikuyu)					
Luyha	0.158	0.622 †	0.855 **	0.190 †	0.136
Luo	0.426 **	1.086 **	1.042 **	-0.049	0.129 †
Others	0.081	0.194	0.287	0.113	-0.030
Orphan status (Ref: Non-orphan)					
Father only orphan	-0.154 †	0.404	0.178	0.080	0.137 †
Mother only orphan	-0.072	0.813 †	-0.128	0.064	-0.010
Double orphan	-0.075	0.223	-0.353	-0.022	0.085
Living with biological parents (Ref: No)					
With 1 parent	0.089	-0.095	-0.201	-0.035	-0.073
With both parents	0.117	0.760 †	-0.382	0.160	-0.322 **
Child age	-0.012	0.041	-0.093 *	0.047 **	0.004
Child sex (Ref: Male)					
Female	0.046	0.028	0.201	0.016	-0.028
Random effects					
Child level (e_{0ij})	0.692 **	7.249 **	8.381 **	0.638 **	0.154 **
Household level (u_{0j})	0.259 **	6.585 **	0.115	0.319 **	0.743 **

†p<.10; *p<.05; **p<.01

Table 5.3. Multilevel multivariate analysis of of abuse, care and behavior-related child welfare: OVC Psychosocial survey, 2007, Nairobi Informal Settlements

	Material provision	Emotional support	Exploitation	Activities	Sexual abuse	Physical/-verbal abuse	Vulnerability	Social, emotional, behavioral state
Slum residence (Ref: Korogocho)								
Viwandani	-0.105	0.645 **	-0.281 **	-0.640 **	0.082	-0.138	-0.056	-0.448 **
Education of household head (Ref: None)								
Primary	0.030	0.102	-0.006	0.083	-0.064	-0.062	-0.096	-0.010
Secondar+	-0.046	0.142	0.017	0.220 *	-0.128	-0.032	-0.114	-0.082
Household wealth (Ref: Poorest)								
Middle	-0.099	-0.068	0.071	-0.059	-0.088	-0.051	0.111	-0.021
Least poor	-0.144 †	0.146 †	-0.046	-0.031	-0.117	-0.140 †	-0.105	-0.144 †
Toilet facility (Ref: Flush/vip)								
Traditional/pit latrine	0.148 †	0.125	0.062	-0.078	-0.043	-0.106	0.012	-0.229 **
None/others	0.084	-0.086	0.020	-0.050	0.092	-0.199 †	-0.069	-0.157
Kerosene/paraffin cooking fuel (Ref: No)								
Yes	-0.016	0.111	0.054	0.044	0.118 †	-0.105	0.036	0.029
Electricity light (Ref: No)								
Yes	-0.140 *	-0.025	0.034	0.028	-0.009	0.045	-0.002	-0.015
Number of children in the HF								
	0.058 **	-0.027 †	0.037 *	-0.063 **	0.015	0.011	0.018	0.027 †
Ethnicity (Ref: Kikuyu)								
Luyha	0.356 **	0.060	0.070	0.153 †	-0.085	0.103	-0.025	0.083
Luo	0.450 **	-0.175 *	0.222 **	0.069	0.228 **	-0.023	0.193 *	0.240 **
Others	0.047	0.091	-0.012	-0.118	-0.027	-0.097	-0.224 **	-0.085

Table 5.3. Continued

	Material provision	Emotional support	Exploitation	Activities	Sexual abuse	Physical/-verbal abuse	Vulnerability	Social, emotional, behavioral state
Orphan status (Ref: Non-orphan)								
Father only orphan	-0.010	0.141 †	-0.065	0.041	-0.175 *	-0.117	-0.171 *	-0.025
Mother only orphan	-0.204 †	0.078	-0.042	0.056	-0.220 †	-0.031	-0.164	-0.029
Double orphan	0.040	-0.152	0.050	-0.094	0.174	0.141	-0.067	0.217
Living with biological parents (Ref: No)								
With 1 parent	0.128	0.040	0.073	0.035	0.004	0.111	-0.037	0.108
With both parents	-0.153	0.171	0.017	0.176	-0.066	0.022	-0.233 *	0.122
Child age	0.021 †	0.013	-0.007	0.048 **	0.010	-0.035 **	0.024 †	0.017
Child sex (Ref: Male)								
Female	-0.135 *	0.019	0.061	0.019	-0.037	-0.037	-0.228 **	-0.035
Random effects								
Child level (ϵ_{0ij})	0.636 **	0.745 **	0.725 **	0.653 **	0.949 **	0.866 **	0.777 **	0.651 **
Household level (u_{0j})	0.231 **	0.138 *	0.193 **	0.211 **	0.017	0.101	0.162 **	0.238 **

†p<.10; *p<.05; **p<.01

At the individual level, child age was strongly associated with child schooling. Older children tended to exhibit higher attendance, participation, and regularity, and lower avoidance. They also tended to have lower grade-per-age scores. While gender-differences in school attendance, avoidance and regularity were negligible, females had higher school participation and grade-per-age, than males ($p < 0.10$ and $p < 0.05$, respectively).

Level-2 random variations remained large and statistically significant in the multivariate model (except for school participation), indicating that other household-level covariates not included in the model, not measured or not measurable, have effects on child school-related welfare indicators.

5.3. Access to Food and Health Related Welfare Indicators

Table 5.2 shows that area differences in child health indicators were observed for height-for-age (stunting) and health status and seeking behavior. In these two aspects of child health, Viwandani children were better off than their Korogocho counterparts, as already noticed in the bivariate analysis of health (Sections 3.2.2 and 3.3.2) and the multivariate analysis of school-related welfare indicators (Section 5.1). Orphan status only marginally influenced child health indicators, with counter intuitive results in some cases. For example, orphans were less likely than non-orphans to report somatic symptoms, especially the father-only orphans ($p < 0.10$); and they tended to have higher height-for-age than the non-orphans, especially the mother-only orphans ($p < 0.10$), despite their relative poorer access to food ($p < 0.10$). Interestingly, children living with both parents had better access to food ($p < 0.01$) and higher height-for-age ($p < 0.10$) than those who were not living with any of their parents. While better access to food by children living with both parents may be a reflection of orphan status (as they are all non-orphans), the fact that they also have higher height-for-age (by contrast to non-orphans), indicates that living with biological parents and being non-orphan may have different –even opposite- influences on child health.

It is interesting to note that the number of children in the household was negatively and strongly related to height-for-age, weight-for-age and access to food ($p < 0.01$). Regarding ethnic differentials, while Kikuyu children tended to have better access to food than their counterparts from the other ethnic groups, at the same time they also had lower height-for-age and weight-for-age, and reported more frequent somatic symptoms, than those from other ethnic origins. They also tended to record poorer health status and seeking behaviors. The household amenities used in the analysis were significantly associated with at least one aspect of child health, in the

expected direction. Toilet facility had significant effects on height-for-age ($p < 0.01$) and health status ($p < 0.05$); cooking fuel was associated with height-for-age ($p < 0.05$); and source of lighting was correlated with access to food ($p < 0.10$). It is worth noting that the education of the household head, and to a lesser degree, household wealth, did not show significant association with the child health indicators of interest. Children from the least poor households fare better compared to those from the poorest households only in terms of access to food.

From our data the age of the child only influenced his/her weight-for-age ($p < 0.05$) and health status and seeking behavior ($p < 0.01$), with older children exhibiting better outcomes in both aspects of health. Gender-differences in health were only apparent in weight-for-age. Females tended to be better off, but the difference failed to reach statistical significance.

As for the school-related welfare indicators, level-2 random variations remained large and statistically significant (except for weight-for-age). This suggests that other covariates at the household level that could explain intra-household variations in health-related welfare indicators were not included in the analysis, or were not measured or measurable.

5.4. Other areas of Child Welfare

Table 5.3 shows the multilevel multivariate analysis of eight indicators of effects of abuse, care and behavior-related welfare indicators. For the first two variables in Table 5.3 (Material provision and Emotional support), the higher the score, the better the child. For the remaining six variables, the higher the score, the worse the child. As can be seen, the orphan status of children influenced some aspects of their psychosocial health. Orphans were less prone to vulnerability ($p < 0.05$), less likely to face sexual abuse ($p < 0.05$), and more likely to receive emotional support (especially the father-only orphans; $p < 0.10$), than the non-orphans. It is notable that children with both biological parents tended to be more likely to receive emotional support (not significant) and less prone to vulnerability ($p < 0.05$), than those who were living with none of their parents. But at the same time they were less likely to have their physical needs met and more likely to get involved in inappropriate activities (differences not significant).

Area differences are apparent in Table 5.3, with advantage to Viwandani children, as previously reported. Children from that area were significantly supported emotionally ($p < 0.01$), and were less prone to exploitation and negative emotional and behavioral state, than those from Korogocho. Children from the least poor households had more emotional support, faced less

physical and verbal abuse, and exhibited less negative behavioral states, than their counterparts from the poorest households. Surprisingly, their material needs were less frequently met, compared with those from the poorest households ($p < 0.10$). Household head's education had no effects on the outcomes investigated in this section, except for child involvement in inappropriate activities, where it showed a counter intuitive and significant effect, as secondary education is associated with higher involvement of children in inappropriate activities ($p < 0.05$). The effects of household amenities, where significant, also seemed to operate contrary to expectation.

The number of children in the household is worthy of attention. While its effects on emotional support (negative and significant) and on involvement in inappropriate activities (positive and significant) are in line with expectation, its influences on material provision and on exploitation (positive and significant), are contrary to expectation. Finally, there are significant ethnic differences in table 5.3, with Kikuyu children having less material support ($p < 0.01$) than children from other ethnic groups, but *a contrario*, displaying better outcomes in terms of emotional support, exploitation and abuse.

From our data, the older children were more likely than the younger, to have their material needs met ($p < 0.10$), to get involved in inappropriate activities ($p < 0.01$), and to be vulnerable ($p < 0.10$). As expected, they were also less susceptible to physical or verbal abuse, compared with their younger counterparts. Gender differences appeared in only two aspects of welfare. Females seemed less frequently placed in vulnerable situations than males ($p < 0.01$); but their material needs were less frequently met ($p < 0.05$), compared to the needs of their male counterparts. As can also be seen in Table 5.3, household-level variations remained in the model, except for sexual and physical abuse.

CHAPTER 6

DISCUSSION AND IMPLICATIONS

The importance of this piece of research is the necessity to define the most efficacious point of intervention to meet the needs of a population group whose potential vulnerability is widely recognized. Previous research in other contexts in sub-Saharan Africa has shown variable outcomes, but has highlighted the following welfare outcomes as the most at risk: mortality, health, school, neglect, abuse, and exploitation. Contributing to the variability in outcome appears to be the context-specific nature of welfare outcomes. Appropriate dimensions for measuring welfare outcomes also vary by context. While focusing upon examining school related outcomes, this research drew upon the children themselves to describe their experience of daily living and to draw a broad picture of their experience of living. All the children in this research were residents of informal settlements in Nairobi. As our results show, however, even between low income slum areas there are vast differences in the experiences facing children. This research provides further evidence of the need to define need and vulnerability for children who are orphans within the context in which they reside. The flip side of that statement is that for many of the children that contributed to our study their vulnerability was defined by the chronic poverty in which they reside, rather than by their status as orphans.

Which welfare outcomes were sensitive to orphan status specifically?

In common with previous studies we did record an effect of being an orphan on the regularity of school attendance, with a tendency for orphans to make slower progress through school. As sickness was the most common reason for missing school, it may be that the health status of the orphaned children was contributing to the higher incidence of missing school. Without data on the HIV status of the children themselves we cannot separate out the effect on this outcome of being an orphan from the child's own status. Other findings support the necessity for focused rather than global measures to support vulnerable children. For example we observed differences in outcome depending upon whether the child was male or female (such as progress through school, and exposure to vulnerable situations), as well as differences in, according to which parent has died (such as the effect upon growth attainment, and access to food).

The multilevel analysis did indicate that the while the experience of orphan hood is associated with negative welfare outcomes that include psychosocial experiences, in the specific context in which our children resided it was the experience of poverty that was the more significant risk

factor in their lives. However there are other features of the data that indicate that it is not economic factors alone that contribute to risk and resilience. Examining differences by location enabled us to identify factors that, even within a low resource setting, appear to contribute to resilience in the face of adversity. Children growing up in Viwandani experienced far fewer and less extreme negative events. A number of family features that characterize this community, such as more stable family circumstances, more regular employment, and slightly higher education levels of the parents, may contribute to these differences between communities. More complex models need to be run to test out these relationships, which appear to go beyond the purely economic benefits of the different employment patterns. It is possible that, for example, the difference in illness reported (in Korogocho the most common illness was reported to be malaria, while in Viwandani coughs and colds) can be attributed to greater parental awareness and knowledge. Thus the difference is likely to be attributable to more accurate reporting amongst Viwandi parents, than a different illness profile.

Differences in family stability may also be behind the different outcomes experienced by racial groups. Nairobi is close to the Kikuyu homelands, and Kikuyu families may have thus been more longer-term residents of the area, therefore potentially able to call upon a greater network of support. Interestingly however the benefits of having one or more biological parent available to support you did not appear to provide the protection against school drop out or encourage a more active participation in school. This finding might also support a less economic model of effects, in that it is not just having the structure available that is important for child outcome, but also the understanding and guidance of the significant adults in a child's life. The features of school attendance, social emotional development and abuse experienced by the different groups of children suggest that parents in the area may benefit from direct instruction in parenting skills to help motivate their children to, in particular, achieve at school. The pattern of outcome in the emotional and behavioral measures also suggest that all, but particularly the vulnerable children, would benefit from more widespread training of teachers in counseling and providing motivation support for their pupils. For the child orphaned the need is not just to find shelter, food and a bed, but somebody who they can turn to for emotional support, and who will ensure that there is an acceptable level of continuity and stability in the child's life.

Limitations of approach to data collection

Within the strength of the methodology employed also lies its weakness. The use of story telling to provide a less threatening method of eliciting children's attitudes and feelings encourages a greater number of children to participate in the information gathering process. However, children commonly provide a positive picture of their lives, and this methodology may tend to

underestimate the negative attitudes that are held. Nevertheless, while less common, some children did endorse the most negative of rating levels, and others disclosed the experience of abuse. As with all information gathering techniques, the use of multiple respondents provide the most objective of assessments of what is actually occurring. We feel that the responses provided by the children did give us a relatively accurate picture of the daily experience of the children of Korogocho and Viwandani. One particular limitation appears to be the quantitative measure of activity developed, as its relationship with child level characteristics were difficult to interpret. Some further refinements need to be made in interpreting the activity measure developed, and this will be achieved by a more qualitative analysis of the daily stories that the children provided. Another refinement that might be considered for future exercises is the way in which information about child labour is collected. Direct observation may provide a more accurate picture of what is occurring in the community. The method employed here, of direct questioning, may have led to an underestimation of the level of child participation in income generating activities.

Summary of results and recommendations

The pattern of ratings provided by the children from the orphan group suggests that their lives are defined by similar experiences to those of their peers growing up in the poorer of the two areas in which we were working. There were no doubt a minority of children who experienced unacceptable levels of risk and vulnerability. In the main the orphan group experienced no more difficulties than those of all children growing up under chronic poverty, with restrictions to their access to regular care and attention, food and material goods. They were no less dissatisfied than their poor neighbors, and perhaps for the same reasons. Adding caretaker responses to those of the children, another important theme emerges, and that is of the contribution of a parent advocate to continuity and care of the child. Rather than lacking school provision in the area, interventions need to target parents to ensure regular attendance of their children. This suggests that parenting programs, and the identification of child advocates ensuring supportive and consisting parenting, may be appropriate to promote higher school achievement among OVC's in the areas studied.

REFERENCES

- Atwine, B., Cantor-Graae, E., & Bajunirwe, F. (2005). Psychological distress among AIDS orphans in rural Uganda. *Soc Sci Med*, 61(3), 555-564.
- Barter, C., & Renold, E. (1999). The Use of Vignettes in Qualitative Research [Electronic Version]. *Social Research Update*. Retrieved 30/5/07 from <http://sru.soc.surrey.ac.uk/SRU25.html>.
- Bicego, G., Rutstein, S., & Johnson, K. (2003). Dimensions of the emerging orphan crisis in sub-Saharan Africa. *Social Science & Medicine*, 56, 1235-1247.
- Birdthistle, I. (2004). Understanding the needs of needs of orphans and other children affected by HIV and AIDS in Africa: The state of science.
- Bledsoe, C. H., Ewbank, D. C., & Isiungo-Abanihe, U. C. (1988). The effect of child fostering on feeding practices and access to health services in rural Sierra Leone *Social Science & Medicine*, 27(6), 627-636.
- Bowlby, J. (1980). *Attachment and Loss* (Vol. 3). New York: Basic Books.
- Bowlby, J. (1982). *Attachment and Loss* (2nd ed. Vol. 1). New York: Basic Books.
- Case, A., Paxson, C., & Ableidinger, J. (2004). Orphans in Africa: Parental Death, poverty and school enrolment. *Demography*, 41(3), 483-508.
- Cluver, L., & Gardner, F. (2006). The psychological well-being of children orphaned by AIDS in Cape Town, South Africa. *Ann Gen Psychiatry*, 5, 8.
- Deininger, K., Garcia, M., & Subbarao, K. (2003). AIDS-induced Orphanhood as a Systemic Shock: Magnitude, Impact, and Program Interventions in Africa. *World Development*, 31, 1201-1220.
- Desmond, C., Gow, J., Badcock-Walters, P., Booyen, F., Dorrington, R., D., E., et al. (2002). The current and future impact of the HIV/AIDS epidemic on South African children. In A. Cornis (Ed.), *AIDS, public policy and child well-being*. Florence: UNICEF-IRC.
- Forsyth, B. W., Damour, L., Nagler, S., & Adnopoz, J. (1996). The psychological effects of parental human immunodeficiency virus infection on uninfected children. *Arch Pediatr Adolesc Med*, 150(10), 1015-1020.
- Foster, G., Makufa, C., Drew, R., Mashumba, S., & Kambeu, S. (1997). Perceptions of children and community members concerning the circumstances of orphans in rural Zimbabwe. *AIDS Care*, 9(4), 391-405.
- Foster, G., Shakespeare, R., Chinemana, F., Jackson, H., Gregson, S., Marange, C., et al. (1995). Orphan prevalence and extended family care in a peri-urban community in Zimbabwe. *AIDS Care*, 7(1), 3-17.
- Gilborn, L. (2002). The effects of HIV infection and AIDS on children in Africa. *Western Journal of Medicine*, 176(1), 12-14.
- Gilborn, L. Z., Nyonyintono, R., Kabumbuli, R., & Jagwa-Wadda, G. (2001). *Making a difference for children affected by AIDS: Baseline findings from operations research in Uganda*. Washington, DC: Horizons Program.
- Guo, J., Hawkins, J. D., Hill, K. G., & Abbott, R. D. (2001). Childhood and adolescent predictors of alcohol abuse and dependence in young adulthood. *J Stud Alcohol*, 62(6), 754-762.
- Holding, P. A., Taylor, H. G., Kazungu, S. D., Mkala, T., Gona, J., Mwamuye, B., et al. (2004). Assessing cognitive outcomes in a rural African population: Development of a

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Kamali, A., Seeley, J. A., Nunn, A. J., Kengeya-Kayondo, J. F., Ruberantwari, A., & Mulder, D. W. (1996). The orphan problem: experience of a sub-Saharan Africa rural population in the AIDS epidemic. *AIDS Care*, 8(5), 509-515.

Lindblade, K. A., Odhiambo, F., Rosen, D. H., & DeCock, K. M. (2003). Health and nutritional status of orphans <6 years old cared for by relatives in western Kenya. *Trop Med Int Health*, 8(1), 67-72.

Makame, V., Ani, C., & Grantham-McGregor, S. (2002). Psychological well-being of orphans in Dar Es Salaam, Tanzania. *Acta Paediatrica*, 91(4), 459-465.

Mishra, V., Arnold, F., Otieno, F., Cross, A., & Hong, R. (2005). Education and nutritional status of orphans and children of HIV-infected parents in Kenya, *DHS Working Papers No. 24: DHS Working Papers*.

Monasch, R., & Boerma, J. T. (2004). Orphanhood and childcare patterns in sub-Saharan Africa: an analysis of national surveys from 40 countries. *Aids*, 18 Suppl 2, S55-65.

Muller, O., & Abbas, N. (1990). The impact of AIDS mortality on children's education in Kampala (Uganda). *AIDS Care*, 2(1), 77-80.

Nyambedha, E., Wandibba, S., & Aagaard-Hansen, J. (2003). Changing patterns of orphan care due to the HIV epidemic in western Kenya. *Social Science & Medicine*, 57, 301-311.

Nyamukapa, C., & Gregson, S. (2005). Extended family's and women's roles in safeguarding orphans' education in AIDS-afflicted rural Zimbabwe. *Social Science & Medicine*, 60(10), 2155-2167.

Nyamukapa, C. A., Foster, G., & Gregson, S. (2003). Orphans' household circumstances and access to education in a maturing HIV epidemic in eastern Zimbabwe. *Journal of Social Development in Africa*, 18(7), 32.

OAU. (1990). *African Charter on the Rights and Welfare of the Child* Retrieved. from http://www.africa-union.org/official_documents/Treaties_%20Conventions_%20Protocols/A.%20C.%20ON%20THE%20RIGHT%20AND%20WELF%20OF%20CHILD.pdf.

Oni, J. B. (1995). Fostered Children's perception of their health care and illness treatment in Ekiti Yoruba households, Nigeria. *Health Transition Review*, 5(1), 21-34.

Stein, J. (2003). *Sorrow makes children of us all: A literature review on the psychosocial impact of HIV/AIDS on children* University of Cape Town, Cape Town.

UNICEF. (2000). Data Briefs Out of school: The orphan's dilemma *The Progress of Nations* Retrieved 14.06, 2007, from <http://www.unicef.org/pon00/outof.htm>

Wood, K., Chase, E., & Aggleton, P. (2006). 'Telling the truth is the best thing' :Teenage orphans' experiences of parental AIDS-related illness and bereavement in Zimbabwe. *Social Science & Medicine*, 63, 1923-1933.

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Faso. Similar linkages have been developed with Nairobi University's Population Studies and Research Institute, Makerere Institute of Social Research, Uganda, Centre for Social Research, University of Malawi, UERD (Unite d'Enseignement et de Recherche en Demographie), Burkina Faso, University of Cape Coast, Ghana, University of Ghana, Legon, University of Witwatersrand, South Africa, and other academic and research institutions. The Centre is also a member of INDEPTH-Network, an International Network of field sites conducting continuous Demographic Evaluation of Populations and Their Health through which the Centre engages in comparative studies and shares analytical advances in demographic surveillance systems with sites in other developing countries; Global Equity Gauge Alliance (GEGA), International Union for Health Promotion and Education (IUHPE), Committee for International Cooperation in National Research in Demography (CICRED), among others.

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ANNEXES

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