



HHS Public Access

Author manuscript

J Adolesc Health. Author manuscript; available in PMC 2018 April 01.

Published in final edited form as:

J Adolesc Health. 2017 April ; 60(4): 417–424. doi:10.1016/j.jadohealth.2016.11.015.

Sexual behaviour among orphaned adolescents in western Kenya: a comparison of institutional- and family-based care settings

Lonnie Embleton, MPH¹, Joram Nyandat, MBChB, MPH², David Ayuku, PhD³, Edwin Sang, MS⁴, Allan Kamanda, MPH², Samuel Ayaya, MBChB, MMed^{4,5}, Winstone Nyandiko, MBChB, MMed, MPH^{4,5}, Peter Gisore, MBChB, MMed⁵, Rachel Vreeman, MD, Msc^{4,5,6,9}, Lukoye Atwoli, MBChB, MMed⁷, Omar Galarraga, PhD⁸, Mary A. Ott, MD⁹, and Paula Braitstein, PhD^{4,10,11,12}

¹Institute of Medical Science, Faculty of Medicine, University of Toronto, Toronto Canada

²Moi Teaching and Referral Hospital, Eldoret, Kenya

³Department of Behavioral Sciences, College of Health Sciences, School of Medicine, Moi University, Eldoret, Kenya

⁴Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya

⁵Department of Child Health and Paediatrics, Moi University, College of Health Sciences, School of Medicine, Eldoret, Kenya

⁶Department of Pediatrics, Indiana University, School of Medicine, Indianapolis, USA

⁷Department of Mental Health, Moi University, College of Health Sciences, School of Medicine, Eldoret, Kenya

⁸Department of Health Policy, Services, and Practice, School of Public Health, Brown University, Providence, Rhode Island, USA

⁹Indiana University School of Medicine, Department of Pediatrics, Indianapolis, IN, USA

¹⁰Department of Medicine, College of Health Sciences, School of Medicine, Eldoret, Kenya

¹¹Regenstrief Institute, Inc, Indianapolis, USA

¹²Dalla Lana School of Public Health, University of Toronto, Toronto, Canada

Abstract

Corresponding Author: Paula Braitstein, PhD, Associate Professor and CIHR Research Chair of Applied Public Health, Dalla Lana School of Public Health, University of Toronto, Division of Epidemiology, 155 College Street, Toronto, ON Canada, M5T 3M7, paula.braitstein@utoronto.ca, Tel: +254 (0) 728 825 620.

Declaration of Interest: none

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Purpose—This study sought to assess whether risky sexual behaviours and sexual exploitation of orphaned adolescents differed between family-based and institutional care environments in Uasin Gishu County, Kenya.

Methods—We analyzed baseline data from a cohort of orphaned adolescents aged 10–18 years living in 300 randomly-selected households and 19 Charitable Children’s Institutions. The primary outcomes were having ever had consensual sex, number of sex partners, transactional sex, and forced sex. Multivariable logistic regression compared these between participants in institutional care and family-based care, while adjusting for age, sex, orphan status, importance of religion, caregiver support and supervision, school attendance, and alcohol and drug use.

Results—This analysis included 1,365 participants aged 10 years; 712 (52%) living in institutional environments and 653 (48%) in family-based care. Participants in institutional care were significantly less likely to report engaging in transactional sex (AOR 0.46 95% CI: 0.3–0.72) or to have experienced forced sex (AOR=0.57 95% CI: 0.38–0.88) when controlling for age, sex, and orphan status. These associations remained when adjusting for additional variables.

Conclusion—Orphaned adolescents living in family-based care in Uasin Gishu, Kenya, may be at increased risk of transactional sex and sexual violence compared to those in institutional care. Institutional care may reduce vulnerabilities through the provision of basic material needs and adequate standards of living that influence adolescents’ sexual risk-taking behaviours. The use of single items to assess outcomes and non-explicit definition of sex suggest the findings should be interpreted with caution.

Keywords

orphans; sexual behaviour; transactional sex; Kenya; institutional care; family-based care

There are 55 million orphaned children living in sub-Saharan Africa, a significant proportion of whom (27%) have been orphaned due to the HIV/AIDS epidemic [1]. In Kenya, there are approximately 2.6 million orphans due to all causes, of whom 38% were orphaned due to AIDS, representing 12% of children under the age of 18 years in the country [2]. Globally, young people aged 10–24 accounted for 39% of all new HIV infections in 2012, with 72% of these cases occurring in sub-Saharan Africa [3]. Orphaned children living in HIV endemic settings are at high risk of HIV infection, [4,5] which may be associated with changes in caregiver and care environment.

The death (orphan) or disappearance (separated) of one (single orphan/separated) or both parents (double orphan/separated) [6], often involves changing caregiver(s) and care environment of the child [7,8]. These changes may result in significant psychological distress and alter risk-taking behaviours [9–12]. Paternal orphans typically continue to reside with their mothers; however, maternal orphans are much less likely to remain with their fathers [13]. Extended families care for over 90% of double orphans and single orphans not living with a surviving parent [14]. With growing numbers of orphans requiring care and support [14], in combination with high levels of poverty, rapid urbanization, and the dissolution of traditional households in sub-Saharan Africa, some extended families have not been able to meet care-taking expectations and responsibilities [8,15,16]. As a result, other types of care environments have emerged in sub-Saharan Africa to address the growing

orphan crisis [14], including institutional care (orphanages) and community-based care [7,8,17]. Institutional care has been criticized as an unfavourable solution due to its historical limitations in their meeting children's developmental and psychosocial needs, caregiver abuse, and human rights violations [18–20]. UNICEF and Save the Children have recommended that countries move toward the de-institutionalization of orphaned children [18,19].

A meta-analysis revealed that orphaned adolescents have a significantly greater HIV seroprevalence than their non-orphaned peers [5]. Orphan status has been associated with having an earlier sexual debut, multiple partners, and transactional sex [5], and orphans may be at heightened risk of physical and sexual abuse compared to non-orphans [21,22]. However, some studies in western Kenya have found that orphan status was not significantly associated with increased sexual risk-taking behaviours among adolescents [23–25]. Rather, social-cultural, psychological, economic, and contextual factors were found to play a significant role in increasing orphaned adolescent sexual risk-taking behaviour in this region [24,25]. Other studies have found that resiliency characteristics [26], economic status [27,28], social support, and primary caregiver play a protective role in decreasing adolescents' risky behaviours [29]. Therefore, it is likely that changing family structure, caregiver relationships, and living arrangements impact orphaned adolescents' sexual risk practices. Changes in caregiver and care environment upon the death or disappearance of one or both parents may expose orphaned and separated adolescents to sexual exploitation [22] and diminish or eliminate protective mechanisms, normally enacted by parents, that reduce adolescent risky behaviours [30–32].

Due to differences previously found in care environments in Uasin Gishu (UG) county Kenya [8], it is likely that care environment plays an important role in orphaned and separated adolescents' sexual risk-taking behaviours. Yet, the effect of care environment (broadly defined here as institutional care versus family-based care) on orphaned and separated adolescents' sexual risk-taking behaviour and sexual exploitation has not been investigated. Therefore, we sought to determine if care environment (institutional care versus family-based care) contributed to differences in sexual behaviours and sexual exploitation of orphaned and separated adolescents utilizing baseline data from the Orphaned and Separated Children's Assessment Related to their Health and Well-Being (OSCAR) Project.

METHODS

Study Setting

UG County is one of the 47 counties of Kenya. In 2010, UG County had approximately 894,179 individuals from 202,291 households, of whom 41.5% were aged 14 years or less. Approximately 51.3% UG County population live below the Kenyan poverty line. Eldoret town is headquarters of UG county and has a population of 289,389 [33]. It is home to Moi University, Moi Teaching and Referral Hospital (MTRH), and the Academic Model Providing Access to Healthcare Program [34].

OSCAR's Health and Well-Being Project

OSCAR's Health and Well-Being Project is a longitudinal cohort evaluating the effects of living in different care environments on the physical and mental health outcomes of orphaned and separated children aged 18 years of age or less. The study aims to describe these care environments, determine whether they are able to meet the basic needs of the resident children, and examine the effect of the care environments and care characteristics on resident children's physical and mental health over time. The study began enrolling participants in June 2010.

Human Subjects Protection

The Moi University College of Health Sciences and MTRH Institutional Research and Ethics Committee and the Indiana University Institutional Review Board approved this study. Heads of households or the Directors of Charitable Children's Institutions (CCIs) provided written informed consent for children's participation. Individual written informed assent was provided by each child aged 7 years and older. Fingerprints were used for both children and guardians who were unable to sign or write their name.

Study Population

The project follows a cohort of orphaned and separated children from communities within 8 administrative Locations in UG County, and includes 300 households, 19 Charitable Children's Institutions (CCIs), and 100 street-involved children and youth [35]. This study includes any orphaned or separated (a child whose biological parent(s) are absent from their life) [6] child aged 18 years of age or less, living within the sampled care environment, regardless of the reason for orphanhood. The present analysis was restricted to baseline data collected from June 2010–November 2012 from participants aged 10–18 years of age.

Eligibility, Sampling and Recruitment

Family-based care environments—Family-based care is that which occurs in the community and may take a number of forms including: care by a surviving parent, extended family, or foster care [8]. Households were recruited following extensive community consultations, establishment of a sampling frame, and approached individually by Community Health Workers [35]. In depth details regarding the study's sampling strategy can be found elsewhere [35]. In brief, there were 2181 households identified caring for orphaned and separated adolescents that became the sampling frame, from which the project randomly sampled 300 households. Eligible households were required to be caring for orphaned and/or separated children but may also have been caring for their own biological children. In order not to 'single out' the orphaned child in the household, all children in the household were eligible to participate. In total there were 221 (14.9%) non-orphaned children in households that were caring for orphans who participated in the study. There were no households or participants from family-based care environments, which declined to participate in the study. Consent, registration, enrolment and all individual study procedures for recruited households took place at the central OSCAR clinic located at MTRH. Additional details about eligibility, sampling, and recruitment, and an in-depth description of

family-based and institutional care environments can be found in the respective publications [8,35].

Institutional care environments—Under the Kenyan Children Act (2001), orphanages and other institutions serving orphans are called CCIs (i.e. children’s homes), if they are able to accommodate 20 children [36]. All institutions were eligible for recruitment into the study provided they met the criteria of the Kenyan Children Act (2001) and were located within the UG county boundaries. The UG County Children’s Department maintains a list of registered and unregistered institutions, and has monthly meetings with them in the UG Children’s Services Forum. Two methods were used to identify and recruit CCIs to participate in the project. First the project utilized the lists of registered CCIs maintained by the UG Children’s Department and contacted them with a formal letter of introduction from the District Children’s Officer (DCO). Second, snowball-sampling techniques were used with community members and other stakeholders to identify and contact non-registered CCIs. In total, of the 21 CCIs identified in UG County, which were contacted, 20 agreed to participate, and one was ineligible. All study procedures for the children in CCIs took place *in situ* at the institution. All children including the biological offspring of CCI personnel living in the institution (e.g. children of so-called House Parents) were eligible to participate in order not to ‘single out’ the orphaned children. In total there were 51 (3.7%) biological offspring of CCI personnel who participated in the study.

Study Procedures

Socio-demographics and sexual practices were ascertained through a standardized clinical encounter and psychosocial data collection process that was conducted *in situ* at CCIs and at the OSCAR Project clinic for household participants. The clinical encounter, which was administered by a nurse and medical officer, was intended to be an enhanced well-child ‘checkup’ that included a complete physical history and review of health symptoms. The psychosocial instrument was self-administered (for those who could read and write) or psychologist-administered (for those that could not read or write well enough to complete it on their own).

Measures and Sources of Data

Socio-demographic characteristics were ascertained during the clinical encounter. These included age, sex (male/female), and orphan/separated status (maternal, paternal, double, not orphaned), and school attendance (currently attending school, yes/no, not applicable). A single orphan/separated child was defined as a child whose mother (maternal) or father (paternal) had died or was completely absent from their life. A double orphan/separated child was defined as a child for whom both parents were deceased or absent from their life [6]. For the purposes of analyses we combined orphaned and separated children into the categories of maternal, paternal or double orphan.

Sexual activity which was self-reported in the psychosocial assessment included the following questions: have you started having a boyfriend or girlfriend (yes, no, unsure, refuse to answer), age of first boyfriend or girlfriend, have you ever had consensual sex (yes, no, unsure, refuse to answer), age of sexual debut (how old were you when you first had

sex?), number of people you have ever willingly had sex with (1, 2–5, 5–10, >10), have you ever exchanged sex for money, food, and/or shelter (many times, sometimes, not in the past 6 months but this has happened, never) has anyone ever tried or forced you to have sex when you did not want them to (many times, sometimes, not in the past 6 months but this has happened, never).

Hypothesized risk and protective indicators which were self-reported in the psychosocial assessment tool and included: religious affiliation (Christian, Muslim, Other, none, refuse to answer), importance of religion in life (most important, very important, somewhat important, not important at all), caregiver support (this person is helpful when I have a problem, yes/no), caregiver knows what you do with your free time (doesn't know, knows a little, knows a lot, unsure, refuse to answer), and any alcohol and or drug use (yes, no, refuse to answer).

Statistical Analysis

Socio-demographic variables were analyzed by care environment (institutional vs. household) and stratified by orphan status. Means and standard deviations, medians and inter-quartile ranges (IQR) were computed for normally distributed and non-normally distributed continuous variables, respectively. Chi-square tests were used to compare categorical and binary variables.

Primary outcomes of interest were: ever had consensual sex (yes versus no), number of lifetime consensual sex partners (1 versus greater than 1), ever exchanged sex for food, money, and/or shelter (yes versus no) and forced sex (yes versus no). The exposure of interest was care environment (family-based care versus institutional care). Logistic regression models were used to characterize the association between care environment and the four sexual behaviour outcomes. In these models we adjusted for potential confounding factors: age, gender, orphan status, importance of religion, currently in school, caregiver support, caregiver knows what you do with your free time, and any alcohol or drug use. We adjusted for multiple comparisons using Bonferroni's correction. We assessed missing data for all measures and models, and have included the sample size for each primary model run. As no more than 15% of data were missing for any of the complete case analyses in adjusted models, we did not attempt any additional adjustment for missing data.

RESULTS

Included in this analysis were 1,365 participants aged 10 to 18, of whom 712 (52%) resided in institutional care environments and 653 (48%) in family-based care. The mean age was 13.9 years (SD: 2.3), and 52% were male (Table 1). The majority of participants in institutional care environments were double orphans (86%) in comparison to 41% of those in family-based care. Paternal orphans (82%) comprised the majority of single orphans (59%) in family-based care.

Almost all participants reported a Christian religious affiliation (91%), and 90% indicated that religion was the most important or a very important component of their life, with minimal variation between care environments. A significantly higher proportion of orphans

in institutional care were currently in school in comparison to family-based care (97% vs. 92%, $p < 0.001$). Adolescents residing in institutions were more likely to report that their caregiver was helpful when they had a problem (86% vs. 79%, $p = 0.0012$). Nine percent of participants reported having ever used alcohol or drugs; this was highest among double orphans in institutional care (12%).

Table 2 summarizes orphaned and separated adolescents' sexual behaviours stratified by care environment. Overall, 17% of participants reported that they had ever had consensual sex, (15% institutional- versus 19% family-based care), with a median age of 14 years (IQR: 12–16) at sexual debut. A higher proportion of paternal orphans in institutional care reported that they had started having a girlfriend or boyfriend (28%) and a higher proportion of paternal orphans in both care environments reported having ever had consensual sex (19% and 20%) in comparison to all other orphans. Among participants who had ever willingly had sex, 58 (25%) reported having had more than one sexual partner. Overall, 118 (9%) participants reported having ever exchanged sex for money, food and/or shelter, with a higher proportion of those in family-based care ($n = 72$, 11%) in comparison to institutional care ($n = 46$, 6%). Likewise, a higher proportion of adolescents in family-based care reported that someone had tried or forced them to have sex (11%) in comparison to those in institutional care (7%). Maternal orphans (15%) in institutional care and double orphans (13%) in family-based care most frequently reported this outcome.

Table 3A presents the unadjusted analyses for sexual behaviour outcomes for participants living in the two care environments. There was no significant difference in participants reporting ever having consensual sex between care environments. Adolescents residing in institutional care were twice as likely (OR=1.97, 95% CI: 1.07–3.62) to report having voluntarily had sex with more than one partner, 50% less likely (OR=0.53 95% CI: 0.36–0.79) to have ever exchanged sex for money, food, and/or shelter, and 35% less likely to report being forced to engage in sex (OR=0.65 95% CI: 0.44–0.94).

In adjusted analyses (Table 3B), the strength of associations remained when controlling for age, gender, and orphan status, with the exception of having voluntarily had sex with more than one partner, which became non-significant when adjusted for these factors (AOR=1.74 95% CI: 0.85–3.57). The associations between care environment and having ever exchanged sex for food, money, and/or shelter, and forced sex remained similar when adjusted for the importance of religion, school enrolment, and caregiver support. When adjusted for “caregiver knows what you do with your free time”, the association between forced sex and care environment became non-significant (AOR=0.67 95% CI: 0.41–1.08). Participants who reported that their caregiver knew a little or a lot of what a participant did with their free time were significantly less likely to report exchanging sex (AOR=0.32 (0.19–0.55), forced sex (AOR=0.35 95% CI: 0.21–0.58), and although it failed to reach statistical significance, having had more than one consensual sexual partner (AOR=0.41 95% CI: 0.17–1.0).

When adjusted for reported alcohol and drug use, adolescents in institutional environments remained less likely to report exchanging sex (AOR=0.37 95% CI: 0.23–0.6) and forced sex (AOR=0.5 95% CI: 0.32–0.78) in comparison to those living in family-based care. Across participants, those who reported alcohol and drug use were significantly more likely to

report ever having sex (OR=2.19 95% CI: 1.28–3.72), exchanging sex (OR=6.17 95% CI: 3.78–10.07) and forced sex (OR=7.98 95% CI: 4.99–12.75).

DISCUSSION

These findings suggest that orphaned adolescents' sexual behaviours and risks are influenced by care environment. Overall, living in institutional care appears to independently protect orphaned adolescents in this setting, especially from sexual exploitation (i.e. exchanging sex, sexual violence), compared to orphaned adolescents living in family-based care. As the cohort gets older and more participants transition through adolescence, the relationship between care environment, sexual debut, exploitation, and risky behaviour merits longitudinal investigation not only to elucidate risk and protective mechanisms in relation to care environment, but also to describe the mechanisms of action for this effect.

This study confirms the independently protective effects of caregiver supervision and support, especially as related to transactional sex and sexual violence [32,37]. Similarly, being in school is strongly associated in this study with reduced sexual risks that include being sexually active. As expected, alcohol and drug use is strongly associated with increased risk taking behavior and exploitation. Religion appeared to have no effect on sexual risks with the exception that adolescents for whom religion was of little import were more likely to engage in transactional sex.

In general, orphans in sub-Saharan Africa may be at risk of experiencing a forced first sexual encounter in comparison to their non-orphaned peers [11,21]. Our findings demonstrate that parental/guardian/caregiver supervision may play a role in reducing these risks, and therefore programs aimed at strengthening parenting skills may merit implementation and future research. Even when controlling for these potentially protective factors however, the effect of care environment did not change. We hypothesize that poverty in this setting is likely driving orphaned adolescents' engagement in transactional sex, especially among the relatively economically deprived households participating in this study [8]. These findings are in line with other sub-Saharan African settings, where orphans and other vulnerable adolescents living in extreme poverty were significantly more likely to engage in transactional sex [10,23,24,28]. Strengthening the capacity of families to care and provide for orphaned and vulnerable children and adolescents may have the ability to reduce transactional sex and prevent forced sexual encounters. Social protection strategies, such as cash-transfers, education, insurance, and nutritional support, may have the capacity to reduce transactional sex among orphaned adolescents living in family-based care through alleviating extreme poverty and thereby the need to exchange sex for food, gifts, money, or other items [38,39]. Other strategies to strengthen family-based care, such as community-based care programs and support [8], which are responsive to the social-cultural and economic context, should be implemented and rigorously evaluated for their ability to reduce adolescent sexual risk-taking behavior and exploitation.

Strengths and Limitations

This study had several limitations. First, the outcome measures were self-reported. Adolescent sexual behaviour is a sensitive topic, and because the study relied on self-reports,

it was subject to social desirability bias, with participants likely to underreport on their sexual practices. This may have been particularly true of participants living in institutional care who may have been afraid to disclose their sexual behaviours for fear of repercussions. Additionally, missing data from some respondents could have altered the estimates of outcomes and variables included in the models. We attempted to minimise this potential source of bias by assuring the participants during each assessment of privacy and confidentiality in data handling. In addition, we encouraged participants to complete the assessment themselves, but had a clinical psychologist available to assist them in the event that they needed clarification to any questions, in an attempt to have encouraged more honest responses. Second, the term ‘sex’ was not explicitly defined as vaginal intercourse, and therefore adolescents may have interpreted the meaning of ‘sex’ differently based on their age and knowledge. Lastly, outcomes were measured using a single item, therefore reducing their potential reliability.

There are also several strengths to our study. First was the relatively large sample size, which increased the power to detect differences between care environments. Second, the random selection of households caring for orphaned children and the near universal inclusion of all registered institutional environments in the county reduced the potential for any selection bias in the study design, thus increasing confidence in the generalizability of our findings. Third, by focusing predominantly on a population of orphaned adolescents in different care environments, we have been able to go beyond comparisons of orphaned and non-orphaned populations, and elaborate on the factors associated with sexual health risk behaviours among orphans.

CONCLUSION

In this study, care environment was not associated with orphaned and separated adolescents’ sexual initiation. Orphaned and separated adolescents living in institutional environments were less likely than those in family-based environments to report engaging in transactional sex and being forced into sex. Institutional care may reduce vulnerabilities through the provision of basic material needs, an adequate standard of living, and stronger adolescent-caregiver relationships. Increasing social and economic support to households caring for OVC may reduce sexual risk-taking behaviours and the potential for exploitation.

Acknowledgments

Funding Source: The project described was supported in part by the Eunice Kennedy Shriver National Institute Of Child Health & Human Development [R01HD060478]. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Eunice Kennedy Shriver National Institute of Child Health & Human Development or the National Institutes of Health.

We wish to gratefully acknowledge the Chiefs, Assistant Chiefs, and Village Elders of the Locations of Pioneer, Kapsoya, Koisagat, Ol’Lenguse, Olare, Tarakwa, Kipsinende and Kapyemit for their support and leadership. We also wish to acknowledge all the residents of these Locations and in particular the many households caring for vulnerable members of their community, notably orphaned and separated children, children with physical and mental disabilities, and the elderly. We particularly want to acknowledge the County and District Children’s Officers, in particular Mr. Philip Nzenge, for their dedication to protecting the children of Uasin Gishu County, as well as the Uasin Gishu Children’s Services Forum.

This study would not have been possible without the willing participation of the children and youth participants and their guardians and we would like to acknowledge and thank them. The enthusiasm and commitment of the staff

and volunteers of the OSCAR project have not gone unnoticed and we the authors wish to thank them for their efforts and engagement with this project.

Abbreviations

DCO	District Children's Officer
UG	Uasin Gishu
OSCAR Project	Orphaned and Separated Children's Assessments Related to their Health and Well-Being Project
CCIs	Charitable Children's Institutions
MTRH	Moi Teaching and Referral Hospital
OVC	Orphaned and Vulnerable Children
IQR	Interquartile Range

References

1. UNICEF. The State of the World's Children 2012: Children in an Urban World. New York, NY: UNICEF; 2012.
2. UNICEF. Numbers: Every child counts, revealing disparities, advancing children's rights. New York, NY: 2014. State of the World's Children 2014.
3. UNAIDS. HIV prevention, treatment, care, and support for adolescents and youth. Geneva, Switzerland: 2014.
4. WHO. HIV and adolescents: guidance for HIV testing and counselling and care for adolescents living with HIV: recommendations for a public health approach and considerations for policy-makers and managers. Geneva: 2013.
5. Operario D, Underhill K, Chuong C, et al. HIV infection and sexual risk behaviour among youth who have experienced orphanhood: systematic review and meta-analysis. *J Int AIDS Soc.* 2011; 14:25. [PubMed: 21592368]
6. Schenk, K., Williamson, J. Ethical Guidelines for Gathering Information from Children and Adolescents in International Settings. Washington, DC: Population Council; 2005.
7. Nyambedha EO, Wandibba S, Aagaard-Hansen J. Changing patterns of orphan care due to the HIV epidemic in western Kenya. *Soc Sci Med.* 2003; 57:301–11. [PubMed: 12765710]
8. Embleton L, Ayuku D, Kamanda A, et al. Models of care for orphaned and separated children and upholding children's rights: cross-sectional evidence from western Kenya. *BMC Int Heal Hum Rights.* 2014; 14:9.
9. Cluver L, Gardner F, Operario D. Psychological distress amongst AIDS-orphaned children in urban South Africa. *J Child Psychol Psychiatry Allied Discip.* 2007; 48:755–63.
10. Cluver L, Orkin M, Boyes M, et al. Transactional sex amongst AIDS-orphaned and AIDS-affected adolescents predicted by abuse and extreme poverty. *J Acquir Immune Defic Syndr JAIDS.* 2011; 58:336–43. [PubMed: 21857361]
11. Thurman TR, Brown L, Richter L, et al. Sexual risk behavior among South African adolescents: is orphan status a factor? *AIDS Behav.* 2006; 10:627–35. [PubMed: 16838071]
12. Whetten K, Ostermann J, Whetten R, et al. More than the loss of a parent: potentially traumatic events among orphaned and abandoned children. *J Trauma Stress.* 2011; 24:174–82. [PubMed: 21442663]
13. UNICEF, Fund UNC. Africa's Orphaned and Vulnerable Generations: Children Affected By Aids. New York: 2006.

14. Monasch R, Boerma JT. Orphanhood and childcare patterns in sub-Saharan Africa: an analysis of national surveys from 40 countries. *AIDS*. 2004; 18:S55–65.
15. Hosegood V, Floyd S, Marston M, et al. The effects of high HIV prevalence on orphanhood and living arrangements of children in Malawi, Tanzania, and South Africa. *Popul Stud (NY)*. 2007; 61:327–36.
16. Heymann J, Earle A, Rajaraman D, et al. Extended family caring for children orphaned by AIDS: balancing essential work and caregiving in a high HIV prevalence nations. *AIDS Care*. 2007; 19:337–45. [PubMed: 17453567]
17. van Blerk L, Ansell N. Alternative care giving in the context of aids in Southern Africa: Complex strategies for care. *J Int Dev*. 2007; 19:865–84.
18. UNICEF, Fund UNC. *The Framework for the Protection, Care and Support of Orphans and Vulnerable Children Living in a World with HIV/AIDS*. New York: 2004.
19. Save the Children. *A Last Resort: The growing concern about children in residential care*. London, UK: 2003.
20. Powell G. Children in institutional care: lessons from Zimbabwe's experience. *J Soc Dev Afr*. 2006; 21:130–46.
21. Nichols J, Embleton L, Mwangi A, et al. Physical and sexual abuse in orphaned compared to non-orphaned children in sub-Saharan Africa: A systematic review and meta-analysis. *Child Abuse Negl*. 2014; 38:304–16.
22. Morantz G, Cole D, Vreeman R, et al. Child abuse and neglect among orphaned children and youth living in extended families in sub-Saharan Africa: What have we learned from qualitative inquiry? *Vulnerable Child Youth Stud*. 2013; 8:338–52. [PubMed: 24563656]
23. Juma M, Alaii J, Bartholomew LK, et al. Risky sexual behavior among orphan and non-orphan adolescents in Nyanza Province, Western Kenya. *AIDS Behav*. 2013; 17:951–60. [PubMed: 23073645]
24. Juma M, Alaii J, Bartholomew LK, et al. Understanding orphan and non-orphan adolescents' sexual risks in the context of poverty: a qualitative study in Nyanza Province, Kenya. *BMC Int Heal Hum Rights*. 2013; 13:32.
25. Puffer ES, Drabkin AS, Stashko AL, et al. Orphan status, HIV risk behavior, and mental health among adolescents in rural Kenya. *J Pediatr Psychol*. 2012; 37:868–78. [PubMed: 22728899]
26. Puffer ES, Watt MH, Sikkema KJ, et al. The protective role of religious coping in adolescents' responses to poverty and sexual decision-making in rural Kenya. *J Res Adolesc*. 2012; 22:1–7. [PubMed: 22505794]
27. Ssewamala FM, Han CK, Neilands TB, et al. Effect of economic assets on sexual risk-taking intentions among orphaned adolescents in Uganda. *Am J Public Health*. 2010; 100:483–8. [PubMed: 20075323]
28. Mmari K, Michaelis A, Kiro K. Risk and protective factors for HIV among orphans and non-orphans in Tanzania. *Cult Health Sex*. 2009; 11:799–809. [PubMed: 19499394]
29. Mmari K. Exploring the relationship between caregiving and health: Perceptions among orphaned and non-orphaned adolescents in Tanzania. *J Adolesc*. 2011; 34:301–9. [PubMed: 20605627]
30. Cohen, Da, Farley, Ta, Taylor, SN., et al. When and where do youths have sex? The potential role of adult supervision. *Pediatrics*. 2002; 110:e66. [PubMed: 12456933]
31. Karofsky PS, Zeng L, Kosorok MR. Relationship between adolescent-parental communication and initiation of first intercourse by adolescents. *J Adolesc Heal*. 2001; 28:41–5.
32. Kabiru CW, Beguy D, Undie C-C, et al. Transition into first sex among adolescents in slum and non-slum communities in Nairobi, Kenya. *J Youth Stud*. 2010; 13:453–71. [PubMed: 24955020]
33. CRA. *Kenya County Fact Sheets: Uasin Gishu County*. Nairobi: Commission on Revenue Allocation, Government of Kenya; 2011.
34. Einterz RM, Kimaiyo S, Mungech HNK, et al. Responding to the HIV pandemic: the power of an academic medical partnership. *Acad Med*. 2007; 82:812–8. [PubMed: 17762264]
35. Kamanda A, Embleton L, Ayuku D, et al. Harnessing the power of the grassroots to conduct public health research in sub-Saharan Africa: a case study from western Kenya in the adaptation of community-based participatory research (CBPR) approaches. *BMC Public Health*. 2013; 13:91. [PubMed: 23368931]

36. The Children (charitable Children's institutions) Regulations (a supplement to the children Act, 2001) 2005;89 (Legisl.
37. Marston M, Beguy D, Kabiru C, et al. Predictors of sexual debut among young adolescents in Nairobi's informal settlements. *Int Perspect Sex Reprod Health*. 2013; 39:22–31. [PubMed: 23584465]
38. Cluver LD, Hodes R, Sheer L, et al. Social Protection: potential for improving HIV outcomes among adolescents. *J Int AIDS Soc*. 2015; 18(suppl 6)
39. Cluver LD, Orkin FM, Boyes ME, et al. Cash plus care: social protection cumulatively mitigates HIV-risk behaviour among adolescents in South Africa. *AIDS*. 2014; 28(Suppl 3):S389–97. [PubMed: 24991912]

Implications and Contribution

Orphaned adolescents in institutional care were less likely to report having engaged in transactional sex or having experienced forced sex. These findings have implications for orphan care policy and suggest that families need additional support to care for adolescent orphans in their home environment.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1 Socio-demographic characteristics of children aged 10–18 at baseline stratified by care environment and orphan status

Characteristics	Overall N=1,365 N (%)	Institutional-based care (n=712) n (%)				Family-based Care (n=653) n (%)			
		Maternal Orphan (n=46)	Paternal Orphan (n=57)	Double Orphan (n=609)	Total	Maternal Orphan (n=70)	Paternal Orphan (n=316)	Double Orphan (n=267)	Total
Mean Age (sd)	13.9 (2.3)	13.9 (2.5)	13.9 (2.5)	13.9 (2.3)	13.9 (2.3)	14 (2.4)	13.8 (2.3)	13.9 (2.3)	
Sex									
Male	714 (52.3)	28 (60.9)	28 (49.1)	341 (56.0)	397 (55.8)	41 (58.6)	151 (47.8)	125 (46.8)	317 (48.5)
Female	651 (47.7)	18 (39.1)	29 (50.9)	268 (44.0)	315 (44.2)	29 (41.4)	165 (52.2)	142 (53.1)	336 (51.5)
Religious Affiliation									
Christian	1241 (90.9)	43 (93.5)	53 (93.0)	574 (94.3)	670 (94.1)	66 (94.3)	271 (85.8)	234 (87.6)	571 (87.4)
Muslim	37 (2.7)	0 (0)	0 (0)	13 (2.1)	13 (1.8)	1 (1.4)	18 (5.7)	5 (1.9)	24 (3.7)
Other	2 (0.15)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1.4)	1 (0.3)	0 (0)	2 (0.3)
None	21 (1.5)	1 (2.2)	1 (1.8)	4 (0.7)	6 (0.8)	1 (1.4)	7 (2.2)	7 (2.6)	15 (2.3)
Refuse to Answer	2 (0.15)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (0.7)	2 (0.3)
Missing	62 (4.5)	2 (4.3)	3 (5.3)	18 (3.0)	23 (3.2)	1 (1.4)	19 (6.0)	19 (7.1)	39 (6.0)
Importance of Religion in Life									
Most important	404 (29.6)	17 (37.0)	22 (38.6)	191 (31.4)	230 (32.3)	21 (30.0)	83 (26.3)	70 (26.2)	174 (26.7)
Very Important	831 (60.9)	26 (56.5)	32 (56.1)	383 (62.9)	441 (61.9)	41 (58.6)	193 (61.1)	156 (58.4)	390 (59.7)
Somewhat important	57 (4.2)	1 (2.2)	0 (0)	14 (2.3)	15 (2.1)	5 (7.1)	18 (5.7)	19 (7.1)	42 (6.4)
Not important at all	73 (5.4)	2 (4.3)	3 (5.3)	21 (3.4)	26 (3.7)	3 (4.3)	22 (7.0)	22 (8.2)	47 (7.2)
Currently in School									
Yes	1294 (94.8)	45 (97.8)	52 (91.2)	596 (97.9)	693 (97.3)	65 (92.9)	289 (91.5)	247 (92.5)	601 (92.0)
No	60 (4.4)	0 (0)	5 (8.8)	7 (1.1)	12 (1.7)	4 (5.7)	25 (7.9)	19 (7.1)	48 (7.4)
Missing	11 (0.8)	1 (2.2)	0 (0)	6 (1.0)	7 (1.0)	0 (0)	2 (0.6)	1 (0.4)	4 (0.6)
Caregiver support: This person is helpful when I have a problem									
Yes	1129 (82.7)	41 (89.1)	45 (78.9)	526 (86.4)	612 (86.0)	57 (81.4)	253 (80.1)	207 (77.5)	517 (79.2)
Caregiver knows what you do with your free time?									

Characteristics	Overall N=1,365 N (%)	Institutional-based care (n=712) n (%)				Family-based Care (n=653) n (%)			
		Maternal Orphan (n=46)	Paternal Orphan (n=57)	Double Orphan (n=609)	Total	Maternal Orphan (n=70)	Paternal Orphan (n=316)	Double Orphan (n=267)	Total
Doesn't Know	155 (11.4)	8 (17.4)	6 (10.5)	80 (13.1)	94 (13.2)	9 (12.9)	29 (9.2)	23 (8.6)	61 (9.3)
Knows a little	897 (65.7)	28 (60.9)	40 (70.2)	408 (67.0)	476 (66.9)	38 (54.3)	215 (68.0)	168 (62.9)	421 (64.5)
Knows a lot	100 (7.3)	4 (8.7)	5 (8.8)	45 (7.4)	54 (7.6)	5 (7.1)	19 (6.0)	22 (7.0)	46 (7.0)
Unsure	16 (1.2)	1 (2.2)	0 (0)	8 (1.3)	9 (1.3)	1 (1.4)	1 (0.3)	5 (1.9)	7 (1.1)
Refuse to Answer	197 (14.4)	5 (10.9)	6 (10.5)	68 (11.2)	79 (11.1)	17 (24.3)	52 (16.5)	49 (18.4)	118 (18.1)
Alcohol & Drug use									
Yes	121 (8.9)	3 (6.5)	4 (7.0)	72 (11.8)	79 (11.1)	6 (8.6)	14 (4.4)	22 (8.2)	42 (6.4)
No	1162 (85.1)	41 (89.1)	49 (86.0)	506 (83.1)	596 (83.7)	63 (90.0)	280 (88.6)	223 (83.5)	566 (86.7)
Missing	82 (6.0)	2 (4.4)	4 (7.0)	31 (5.1)	37 (5.2)	1 (1.4)	22 (7.0)	22 (8.2)	45 (6.9)

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2

Orphaned adolescent's sexual behaviours stratified by care environment

	Overall N=1365 N (%)	Institutional-based care (n=712) n (%)			Family-based care (n=653) n (%)			Total
		Maternal Orphan (n=46)	Paternal Orphan (n=57)	Double Orphan (n=609)	Maternal Orphan (n=70)	Paternal Orphan (n=316)	Double Orphan (n=267)	
Started having a boyfriend or girlfriend?								
Yes	279 (20.4)	8 (17.4)	16 (28.1)	114 (18.7)	21 (30.0)	64 (20.3)	56 (21.0)	141 (21.6)
No	988 (72.4)	35 (76.1)	37 (64.9)	462 (75.9)	46 (65.7)	224 (70.9)	184 (68.9)	454 (69.5)
Unsure	16 (1.2)	1 (2.2)	1 (1.8)	4 (0.7)	2 (2.9)	3 (9.9)	5 (1.9)	10 (1.5)
Refuse to Answer	22 (1.6)	0 (0)	0 (0)	8 (1.3)	0 (0)	6 (1.9)	8 (3.0)	14 (2.1)
Missing	60 (4.4)	2 (4.3)	3 (5.3)	21 (3.4)	1 (1.4)	19 (6.0)	14 (5.2)	34 (5.2)
Age of having 1st boyfriend or girlfriend, median (IQR)	14 (12–15)	13 (13–14)	13 (11–15)	13 (12–15)	13 (12–15)	14 (12–16)	13 (12–15)	14 (12–15)
Age of having 1st consensual sex, median (IQR)	14 (12–16)	13 (10–15)	15 (12–16)	12 (9–15)	14 (12–16)	15 (14–16)	13 (11–14)	14 (12–16)
Ever had consensual sex								
Yes	233 (17.07)	5 (10.87)	11 (19.3)	93 (15.27)	13 (18.57)	62 (19.62)	49 (18.35)	124 (18.99)
No	1006 (73.7)	36 (78.26)	40 (70.18)	474 (77.83)	52 (74.29)	217 (68.67)	187 (70.04)	456 (69.83)
Unsure	8 (0.59)	0 (0)	1 (1.75)	0 (0)	1 (1.43)	5 (1.58)	1 (0.37)	7 (1.07)
Refuse to Answer	39 (2.86)	1 (2.17)	0 (0)	17 (2.79)	1 (1.43)	9 (2.85)	11 (4.12)	21 (3.22)
Missing	79 (5.79)	4 (8.7)	5 (8.77)	25 (4.11)	3 (4.29)	23 (7.28)	19 (7.12)	45 (6.89)
Number of consensual sex partners								
1	165 (70.82)	2 (40)	4 (36.36)	63 (67.74)	7 (53.85)	53 (85.48)	36 (73.47)	96 (77.42)
2–5	26 (11.16)	1 (20)	4 (36.36)	14 (15.05)	2 (15.38)	2 (3.23)	3 (6.12)	7 (5.65)
6–10	16 (6.87)	1 (20)	1 (9.09)	7 (7.53)	1 (7.69)	3 (4.84)	3 (6.12)	7 (5.65)
>10	16 (6.87)	1 (20)	1 (9.09)	4 (4.3)	2 (15.38)	3 (4.84)	5 (10.2)	10 (8.06)
Missing	10 (4.29)	0 (0)	1 (9.09)	5 (5.38)	1 (7.69)	1 (1.61)	2 (4.08)	4 (3.23)
Ever exchanged sex for money, food, and shelter								
Many times	29 (2.1)	1 (2.2)	0 (0)	13 (2.1)	4 (5.7)	5 (1.6)	6 (2.2)	15 (2.3)
Sometimes	33 (2.4)	0 (0)	2 (3.5)	10 (1.6)	2 (2.9)	9 (2.8)	10 (3.7)	21 (3.22)

	Overall N=1365 N (%)	Institutional-based care (n=712) n (%)				Family-based care (n=653) n (%)			
		Maternal Orphan (n=46)	Paternal Orphan (n=57)	Double Orphan (n=609)	Total	Maternal Orphan (n=70)	Paternal Orphan (n=316)	Double Orphan (n=267)	Total
Not in the past 6 months	56 (4.1)	4 (8.7)	2 (3.5)	14 (2.3)	20 (2.8)	2 (2.9)	15 (4.7)	19 (7.1)	36 (5.51)
Never	1153 (84.5)	38 (82.6)	49 (86.0)	541 (88.8)	628 (88.2)	59 (84.3)	261 (82.6)	205 (76.8)	525 (80.4)
Missing	94 (6.9)	3 (6.5)	4 (7.0)	31 (5.1)	38 (5.3)	3 (4.3)	26 (8.2)	27 (10.0)	56 (8.58)
Has anyone tried or forced you to have sex when you did not want them to									
Yes	123 (9.0)	7 (15.2)	3 (5.3)	43 (7.1)	53 (7.4)	7 (10.0)	29 (9.2)	34 (12.7)	70 (10.72)
No	1154 (84.5)	37 (80.0)	49 (86.0)	537 (88.2)	623 (87.5)	62 (88.6)	263 (83.2)	206 (77.2)	531 (81.32)
Missing	88 (6.5)	2 (4.3)	5 (8.8)	29 (4.8)	36 (5.1)	1 (1.4)	24 (7.6)	27 (10.0)	52 (7.96)

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3a

Associations between care environment and sexual behaviour (un-adjusted)

	OR (95% CI) Ever had sex N=1365	OR (95% CI) Number partners 1 versus >1 N=233	OR (95% CI) Exchange sex N=1271	OR (95% CI) Forced Sex N=1277
Institutional care environment (ref=HH)	0.95 (0.67–1.33)	1.97 (1.07–3.62) *	0.53 (0.36–0.79) **	0.65 (0.44–0.94) *

*
p<0.05**
p<0.0125 (Bonferroni's adjustment for multiple comparisons of p<0.05/4 = 0.0125)

NB: p-values not calculated for 95% confidence intervals that include 1.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3b

Associations between care environment and sexual behaviour adjusting for resiliency and risk factors (*all models adjusting for age, gender and orphan status*)

	AOR (95% CI) Ever had sex N=1365	AOR (95% CI) Number partners 1 versus >1 N=233	AOR (95% CI) Exchange sex N=1365	AOR (95% CI) Forced Sex N=1365
Institutional care environment (ref=HH)	0.96 (0.64–1.46) n=1355	1.74 (0.85–3.57) n=233	0.46 (0.3–0.72) **	0.57 (0.38–0.88) **
Adjusting for Importance of Religion				
Care environment (ref=HH)	0.95 (0.62–1.46) n=1282	1.57 (0.76–3.23) n=222	0.51 (0.33–0.8) **	0.63 (0.41–0.96) **
Importance of Religion (ref= most important)				
Very/Somewhat Important	1.13 (0.75–1.70)	0.97 (0.5–1.86)	0.82 (0.54–1.26)	0.82 (0.55–1.24)
Not important at all	1.5 (0.53–4.22)	0.18 (0.02–1.49)	3.45 (1.74–6.82)	2.04 (0.98–4.24)
Adjusting for Currently in School				
Care environment (ref=HH)	1.06 (0.7–1.62) n=1346	1.77 (0.86–3.64) n=222	0.48 (0.31–0.75) **	0.60 (0.39–0.92) *
Currently in School	0.41 (0.22–0.76)	1.63 (0.42–6.24)	0.44 (0.2–0.98)	0.40 (0.19–0.86)
Adjusting for Caregiver Support				
Care environment (ref=HH)	0.98 (0.65–1.48) n=1355	1.64 (0.79–3.38) n=223	0.48 (0.31–0.74) **	0.61 (0.40–0.93) *
This person is helpful when I have a problem	0.66 (0.42–1.03)	0.46 (0.22–1.0)	0.65 (0.39–1.06)	0.42 (0.27–0.66)
Adjusting for Caregiver knows what you do with your free time				
Care environment (ref=HH)	0.95 (0.61–1.48) n=1160	2.13 (0.97–4.68) n=206	0.4 (0.25–0.66) **	0.67 (0.41–1.08) n=1147
Caregiver knows what you do with your free time? (ref=Doesn't Know)				
Knows a little/A lot	0.95 (0.53–1.69)	0.41 (0.17–1.0)	0.32 (0.19–0.55)	0.35 (0.21–0.58)
Unsure	1.18 (0.52–2.68)	0.3 (0.07–1.33)	0.63 (0.29–1.36)	0.36 (0.15–0.88)
Refuse to Answer	****	****	3.06 (0.98–9.53)	3.97 (1.34–11.77)
Adjusting for alcohol/drug use				
Care environment (ref=HH)	0.93 (0.61–1.43) n=1274	1.62 (0.78–3.38) n=221	0.37 (0.23–0.60) **	0.50 (0.32–0.78) **
Alcohol/drug use	2.19 (1.28–3.72)	1.38 (0.66–2.9)	6.17 (3.78–10.07)	7.98 (4.99–12.75)

* p<0.05

** p<0.0125 (Bonferroni's adjustment for multiple comparisons of p<0.05/4 = 0.0125)

NB: p-values not calculated for 95% confidence intervals that include 1.