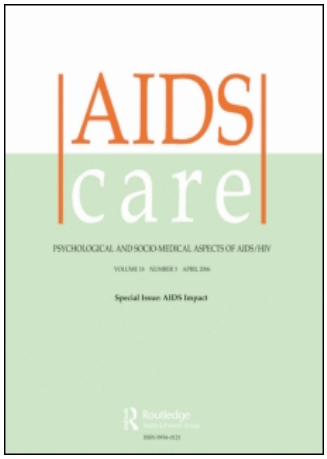

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M. L. Kürzinger [a]; J. Pagnier [a]; J. G. Kahn [b]; R. Hampshire [c]; T. Wakabi [d]; T. D. V. Dye [a]
[a] Axios International, Paris, France
[b] University of California at Berkeley, US
[c] Axios Foundation, Burkina Faso, Ouagadougou
[d] Axios Foundation, Tanzania, Dar-es-Salaam

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Education status among orphans and non-orphans in communities affected by AIDS in Tanzania and Burkina Faso

M.L. Kürzinger[a]*, J. Pagnier[a], J.G. Kahn[b], R. Hampshire[c], T. Wakabi[d] and T.D.V. Dye[a]

[a]*Axios International, Paris, France;* [b]*University of California at Berkeley, US;* [c]*Axios Foundation, Ouagadougou, Burkina Faso;* [d]*Axios Foundation, Dar-es-Salaam, Tanzania*

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The AIDS pandemic has created an estimated 15 million orphans who may face elevated risk of poor health and social outcomes. This paper compares orphans and non-orphans regarding educational status and delay using data collected in three low-income communities affected by AIDS in Tanzania and Burkina Faso. Orphans were significantly more likely not to attend school than were non-orphans and also to be delayed when in school, though, after controlling for confounders, the risk was borderline and non-significant. Multivariate analysis indicates that variables such as age, religion, family of origin, the relation between the child and the head of household and the dependency ratio of the household better explain differences in education than does orphan status. This study suggests, therefore, that orphans' educational status is relatively equivalent to non-orphans perhaps as a result of family based or community program safety nets.

Keywords: orphans; children; education; Burkina Faso; Tanzania; HIV/AIDS

Introduction

The AIDS pandemic has created millions of orphans, a trend envisioned to continue for the foreseeable future (Foster & Williamson, 2000). From 2001 to 2003, the estimated global number of AIDS orphans increased from 11.5 million to 15 million. (UNICEF, UNAIDS & USAID, 2004). This magnitude of orphans poses a long-term threat to future stability and development, especially in sub-Saharan Africa with the highest levels of HIV prevalence in the world. In 2005, the estimated prevalence of adults (15–49 years) living with HIV/AIDS was 2% in Burkina Faso and 6.5% in Tanzania. Further, 10% of children were orphans in Burkina Faso and 12% in Tanzania (UNICEF, 2006).

Orphans may be disadvantaged in numerous ways, according to several recent assessments (Andrews et al., 2006; Foster & Williamson 2000; UNICEF, 2003; UNICEF, UNAIDS & USAID, 2004). In terms of education, orphans have often been reported to be less likely enrolled in school (Foster & Williamson, 2000; USAID, 2004), though somewhat inconclusively. Studies often, however, use inconsistent methods to control for potential confounders. Analyses are needed that consider the impact of other variables, such as age and gender of the child, household characteristics (size, socioeconomic status, dependency ratio) (Ainsworth & Filmer, 2002; Bicego, Rutstein, & Johnson, 2003), head of the household characteristics (closeness of the relationship with the child, gender) (Ainsworth & Filmer, 2002; Ainsworth & Semali, 2000; Bicego et al., 2003; Bishai et al., 2003; Case, Paxson, & Ableidinger, 2003; Lindblade et al., 2003) and geographic variables (urban/rural settings, regions, countries) (Ainsworth & Filmer, 2002; Bicego et al., 2003). Further, the condition of orphans may vary by geographic setting, due to differing economic conditions and cultural practices (Foster & Williamson 2000). Finally programs specifically targeting the educational and social needs have proliferated throughout Africa in recent years with unclear impact to date. At least one prior study in this region (Pagnier et al., in press) demonstrates that once controlling for sociodemographic correlates, differences no longer exist in school enrollment and school delay in an urban region of Burkina Faso. Thus, a better understanding of how orphan conditions vary is needed in order for policy makers to better promote, change and improve child well-being in impoverished communities.

In the context of community strengthening, national and local authorities of Burkina Faso and Tanzania, with funding from The Abbott Fund and technical support from Axios,[1] started implementing in 2001–2002 the Step Forward program on orphans and vulnerable children (OVC) in HIV/AIDS affected areas. Step Forward is a multisectoral program that works through a combination of community support

*Corresponding author. Email: Marie-Laure.Kurzinger@axiosint.com

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(information and education activities, legal support, renovation of school equipment and local capacity building) as well as direct support to OVC (food, uniforms, lamps, school fees for schools, healthcare and treatment). The program aims at improving the individual living conditions of OVC and simultaneously improving the community environment where they live.

Before starting Step Forward, mapping exercises were conducted in each selected geographic area. These mappings were intended to serve programmatic goals for community mobilization and to identify and locate all orphans, vulnerable children and non-OVC eligible for direct support. The research objectives were to establish pre-program baseline educational and health status among orphans and non-orphans living in the selected areas and to assess to what extent orphans are disadvantaged relative to non-orphans with regard to these basic needs for personal and national development.

Methods

A 'mapping exercise' (i.e. a comprehensive sample and cross-sectional survey) was conducted to identify OVC and their living conditions (details below). In each district selected by needs assessments, data were collected on paper questionnaires and were checked, double entered and checked for consistency with descriptive statistics. Corrections were made through reconciliation with physical questionnaires. Data were analyzed using the SAS® software version 9.1.

The mapping exercise refers to the social mapping whereby village leaders, community members, district council officials and project staff collaborate in the process of identifying all children of the targeted community, including orphans, vulnerable children and non-OVC. This community mapping permitted specification of comprehensive samples (Michigan State University, 1999).

Three such mappings were conducted in 2003: one in Tanzania (in rural setting, Maramba ward of Muheza District) and two in Burkina Faso (in a rural setting of Kongoussi and in a peri-urban setting, Kiri-Sakabi). The study sample included 11,392 and 11,856 children aged 0 to 18 years old in Tanzania and Burkina Faso, respectively, representing 3,892 and 3,262 households.

The respondent in each household was the primary caregiver and, in case of her/his absence, the household head. This respondent provided the required information for all eligible children (i.e. children under 18 living in the household).

The mapping exercise collected data on household characteristics and sociodemographics, as well as information on educational and health status of the children.

Variables and statistical analysis

Outcomes were defined as follows: (1) school enrollment: whether the child was declared to be currently going to school or not; the question asked was: "The child is/has: 1 = going to school", 2 = "dropped out" or 3 = "never been to school"; (2) proper level: if the child was going to school, the current level was compared to the recommended level for the age of the child. If the current level was lower than the recommended one, then the child was classified as not being at proper level. This variable could reflect late school entry and/or interruption. Several potential confounders were considered: (1) age of the child, in two categories: 6–11, 12–18; (2) gender of the child; (3) religion of the child, in two categories: Christian and Muslim; (4) family of origin, i.e. if the child is living in the family of origin or not; (5) gender of the head of household; (6) relationship between the child and the head of the household: the head of household is one of the child's parents or another relative/non relative or one of the grand-parents; (7) household child/adult (dependency) ratio, which is calculated by dividing the number of children (under 18 years old) by the number of adults (19 years and above) within a household. This ratio, expected to show the burden of childcare by household, was divided into two categories, ≤ 1 and >1. Households with a ratio ≤ 1 have more adults than children.

The predictor was the orphan status. An orphan was defined as a child under the age of 18 who has lost one or both parents, corresponding to the recommended definition (UNAIDS, UNICEF & USAID, 2004). The non-orphan category was defined as a non-OVC. In fact, to better focus on the comparison between orphans and non-orphans, 'vulnerable' children were excluded because they represented a heterogeneous category subjectively defined by the interviewer.

Stepwise logistical regression was used to analyze the relationship between orphan status and education. Bivariate (unadjusted) models were performed to assess the relationship between the outcome and the predictor (orphan status) and all potential confounders separately. Potential confounders which were found to be independently at least marginally-associated ($p < 0.10$) with the likelihood of being an orphan and with the outcome were included in multivariate results, to examine how the magnitude and statistical significance of the orphan status coefficient changes with introduction of these confounders. The magnitude of association is

demonstrated by Odds Ratios (OR) while statistical significance is noted through calculation of 95% confidence intervals (95%CI) around ORs. When appropriate, adjusted ORs (AORs) are used to control for confounding effects.

Results

In total, the sub-population of orphans and non-orphans aged 6–18 represented 4931 and 4835 children in Tanzania and Burkina-Faso, respectively. In total, 64.8% of the orphans were not going to school in Burkina Faso versus 27.3% in Tanzania (Table 1). No significant difference was observed in Tanzania between orphans and non-orphans regarding school enrollment or school delay. In Burkina Faso, however, orphans were significantly more likely not to attend school when compared with non-orphans (OR = 1.21; 95%CI: 1.03, 1.42) and among those children who were going to school, orphans were significantly more likely not to be at the proper school level for their age (OR = 1.40; 95%CI: 1.05, 1.87).

Table 2 presents bivariate associations (and 90%CIs) between potential confounding variables and the main outcomes of interest in the Burkina Faso sample only because in Tanzania results were non-significant. Orphans were more than twice as likely as other children to be older (12–18 years). There was no significant difference between males and females in terms of orphanhood. Religion and orphanhood were significantly associated (OR = 1.4; 90%CI: 1.23, 1.60). Orphans were more likely to live in female-headed households than non-orphans (OR = 14.8; 90%CI: 12.2, 17.9). Family of origin and relationship between the child and the head of the household were significantly associated with orphanhood. There was no association between the dependency ratio and the orphanhood.

Children of 12–18 years had 1.5 times more risk of not going to school than children aged 6–11 years. Females were also more at risk of not going to school (OR = 1.2; 90%CI: 1.09, 1.33). Christians were more likely to go to school than Muslims. For the children not living in their family of origin, OR was equal to 1.2 (90%CI: 1.03, 1.49). Children living with their grandparents were significantly more likely to go to school than those living with their parents or other relatives. Children living in families where the dependency ratio is higher than 1 were at a significantly higher risk of not going to school (OR = 1.13; 90%CI: 1.01, 1.27).

Age was associated with not being at proper educational level (OR = 24.8; 90%CI: 17.41, 35.24). Religion was also associated with the fact of being at proper level or not; Christians were more likely not to be at proper level (OR = 1.3; 90%CI: 1.09, 1.52). Children living in female-headed households were more likely to be in delay at school. Children not living in their families of origin were more likely to experience delay at school. The other variables, such as sex of the child, relationship of the child to the head of the household, dependency ratio and perceived health, were not found to be associated with a delay in school.

Therefore, once controlling for other social and demographic factors, orphans in Burkina Faso were not more likely than other children to experience delay or non-enrollment. Although for school enrollment the OR was borderline significant (OR = 1.19; 95%CI: 0.99, 1.41) (Table 3).

Other studies have focused on different types of orphans (Ainsworth & Filmer, 2002; Bicego et al., 2003; Case et al., 2003; Lindblade et al., 2003). Double orphans are defined as children having lost

Table 1. Results of logistic regression: unadjusted odds ratios.

	Orphan		Non-orphan			
For Burkina Faso	*n*	%	*n*	%	OR	95% CI
Not going to school	502	64.77	2434	60.37	1.21	1.03, 1.42
Not being at proper educational level	165	67.35	884	59.49	1.40	1.05, 1.87

	Orphan		Non-orphan			
For Tanzania	*n*	%	*n*	%	OR	95%CI
Not going to school	407	27.26	945	27.62	0.98	0.86, 1.12
Not being at proper educational level	924	85.48	2092	84.80	1.05	0.86, 1.29

N.B. Non-orphan = Non-orphan and non-vulnerable.

Table 2. Results of logistic regression: exponentiated log odds of a child being orphan, not going to school and not being at proper level in Burkina Faso.

	Being orphan				Not going to school				Not being at proper level at school			
	n	%	OR	90%CI	*n*	%	OR	90% CI	*n*	%	OR	90%CI
Total	777	16.11			2942	61.06			1053	60.66		
Age of the child												
6–11	337	12.24	Referent		1585	57.62	Referent		465	42.78	Referent	
12–18	369	21.89	2.01	1.75, 2.30	1143	67.91	1.56	1.40, 1.73	463	94.88	24.78	17.41, 35.24
Sex of the child												
Male	407	16.40	Referent		1461	58.89	Referent		585	61.64	Referent	
Female	369	15.79	0.96	0.84, 1.09	1477	63.34	1.21	1.09, 1.33	468	59.54	0.92	0.78, 1.08
Religion of the child												
Muslim	427	14.36	Referent		2083	70.21	Referent		465	57.62	Referent	
Christian	338	19.05	1.40	1.23, 1.60	806	45.46	0.35	0.32, 0.39	576	63.65	1.29	1.09, 1.52
Sex of the head of household												
Male	519	11.76	Referent		2702	61.30	Referent		948	59.85	Referent	
Female	254	66.32	14.78	12.17, 17.93	227	59.27	0.92	0.77, 1.10	99	71.22	1.66	1.21, 2.28
Family of origin												
Yes	555	12.56	Referent		2676	60.64	Referent		968	59.98	Referent	
No	219	56.01	8.86	7.38, 10.65	256	65.64	1.24	1.03, 1.49	82	70.09	1.56	1.11, 2.20
Relationship of the child to the head of household												
Grandparents	97	39.27	Referent		138	55.87	Referent		56	60.22	Referent	
Parents and other relatives	677	14.87	0.27	0.22, 0.34	2792	61.42	1.26	1.01, 1.56	992	60.82	1.03	0.72, 1.47
Dependency ratio												
≤ 1	197	17.59	Referent		658	58.75	Referent		257	61.19	Referent	
>1	580	15.67	0.87	0.75, 1.01	2282	61.74	1.13	1.01, 1.27	796	60.49	0.97	0.80, 1.17

Table 3. Results of logistic regression: adjusted odds ratios in Burkina Faso.

	Not going to school		Not being at proper level	
	Adjusted OR*	95%CI	Adjusted OR**	95%CI
Orphan status				
Non-orphan	Referent		Referent	
Orphan	1.19	0.99 1.44	0.82	0.54, 1.24

*adjusted for age, religion, family of origin, relation with the household head.
**adjusted for age, religion, family of origin, gender of the household head.
N.B. Non-orphan = non-orphan and non-vulnerable.

both parents, paternal orphans as children having lost their father and maternal orphans their mother. The sample size allowed us to analyze potential differences between the four groups of children in terms of school enrollment. We applied the same methodology as for the previous analysis but defining the orphan status into the four following categories: double orphans, maternal orphans, paternal orphans and non-orphans as the group of reference. The Tanzania sample showed no difference in terms of school enrollment by type of orphans. On the other hand, for the Burkina Faso sample, even after adjustment on confounders, paternal orphans were at higher risk of not going to school compared to non-orphans (OR = 1.7; 95% CI: 1.27, 2.23).

Discussion

The differences observed in schooling rates between the two countries are distinct and likely reflect the overall income levels and policies on universal primary education. Data consistently shows significant differences in educational attendance between Tanzania and Burkina Faso, with the former having far higher rates of attendance, particularly in rural areas and at the primary school levels (see Institut National de la Statistique et de la Démographie et ORC Macro, 2004; National Bureau of Statistics, Tanzania, 2005). The difference in various fees applied to school attendance (e.g. tuition, uniforms, textbooks, other fees) is considerable, with Tanzania offering fee-free education while Burkina Faso implements several different fee structures (e.g. Bentaouett, 2006).

After adjustment for potential confounders in both countries, however, we found no significant differences remained between orphans and non-orphans in terms of education status, as measured by declared school enrollment and school delay. The relationship between orphan status and educational enrollment in Burkina Faso approaches statistical significance, perhaps indicating a positive impact of family and community mobilization around orphans. Our findings suggest that either other social and demographic variables affect educational enrollment and delay more than does orphanhood, or perhaps that community's efforts to compensate for challenges facing orphans have mediated the potentially negative impact of orphanhood on educational status (e.g. see Nyamukapa & Gregson, 2005).

Findings in the literature show that orphans are less likely to be enrolled or at their proper educational level than non-orphans of the same age and double orphans are at particular disadvantage (Bicego et al., 2003). Our model shows that high child/adults ratio (>1) seems to be associated with a higher risk of not attending school. If we consider the child/adult ratio as an approximation of the dependency ratio, it could be an indication that dependency is associated with school enrollment. Studies have shown that poverty, rather than orphan status, was the primary determinant of school enrollment (Ainsworth & Filmer, 2002). Religion is associated with school enrollment as well. For the Burkina Faso sites, while Christians are more likely to be orphans, perhaps reflecting the epidemiology of HIV infection in Africa (e.g. see Gray, 2004), Christians also have higher likelihood of attending formal school than Muslims. The result could be explained by the fact that Muslim children often attend non-formal education (i.e. Islamic school). Children living in female headed households and children not living in their family of origin are less likely to attend school and to be at proper level which suggests that the household environment may better explain school differences. In female-headed households, which could experience economic difficulties, school fees, uniforms, domestic responsibilities or paid work could be a barrier to education. Further, it's possible that there may also be discimination in terms of not providing education for children not living in their family of origin (e.g. Manasch et al., 2007).

A number of limitations must be considered in the interpretation of our findings. We did not measure, and thus lacked, economic indicators at the household level. The school enrollment status and grade

were self-reported; determination from written records would have been more definitive (Orazem & Gunnarsson, 2003). Further, street children and children in institutions were not included. Respondents may also have misreported the survival status of the biological parents. Children whose parents are alive but absent (such a working/living in Ivory Coast) are often considered as orphans.

Our findings overall suggest that orphans and non-orphans are not significantly different in terms of educational status in the surveyed communities. However, three points need to be underlined. First, other characteristics, rather than orphan status, appear to be more important determinants of educational attendance and achievement. This finding is consistent with other studies (Ainsworth & Filmer, 2002; Case et al., 2003), which showed the importance of other sociodemographic variables. Thus a more subtle identification of at-risk (of education enrollment and achievement) children should be possible. Further, it is possible that a stronger relationship has been moderated by community programs or family mobilization around orphans. Several programs suggest a positive impact on orphans, though are somewhat inconclusive (Strebel, 2004). This phenomenon should be examined in future studies, perhaps in qualitative work. Next, when comparing different types of orphans, we found that paternal orphans are at higher risk of not going to school in Burkina Faso, which is inconsistantly noted in other studies (e.g. Manasch & Boerma, 2004). As the issues surrounding orphanhood and also education reflect a complex mix of sociodemographic, policy and individual variables, thus the analysis and detection of trends among orphans is important to monitor the impact community and national programs and to identify unmet needs and social determinants or poor educational progress.

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Note

1. Founded in 1997, Axios is a global consultancy improving health systems and quality of care in developing countries through healthcare philanthropy and drug-donation program management.

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