

A prospective study of the contribution of migration to school drop-out rates amongst children made vulnerable by HIV/AIDS in eastern Zimbabwe

Constance Nyamukapa, Laura Robertson, Paradzai George Mushore, Simon Gregson

Background

Orphans and other children made vulnerable by HIV/AIDS have been found to be at increased risk of poor educational outcomes in sub-Saharan Africa [1-7]. In Zimbabwe, orphan status, particularly maternal orphanhood, has been associated with lower primary school completion rates [8, 9] and, amongst adolescent girls, lack of secondary school education [10], currently being out of school and poorer educational attainment [11].

In sub-Saharan Africa, orphans are usually cared for within the extended family [12]. Recent qualitative work [13, 14] from southern Africa has highlighted the potential negative impacts of AIDS orphans migrating to live with widely dispersed extended family members, including mistreatment by foster families and interruption of education.

In this paper, we use prospective data from a cohort of orphans and non-orphans in Manicaland, eastern Zimbabwe, to investigate whether children who recently migrated were at increased risk of dropping out of school.

Methods

Since 1998, five rounds of a population-based, open, prospective cohort study [15] have been conducted in twelve study sites in Manicaland province, eastern Zimbabwe – a predominantly rural area. At each round of this survey, a census of all households in the area is conducted, which enumerates all household members and collects basic demographic information, including the orphan status of all children less than 18 years old living in the household. Households that report deaths of adults aged 15-54 years during the inter-survey periods are approached and asked to complete a verbal autopsy questionnaire to ascertain the cause of death.

Three rounds of an embedded child cohort study were conducted in eight of the study sites between 2002 and 2006. All maternal and double orphans, one in five paternal orphans and one in fifty non-orphans aged under 18 years were identified in the second round of the main survey (2001/03) and were recruited to the embedded cohort study. Additionally, all children under 18 years born to recently deceased adults that were identified in the second round verbal autopsy survey were recruited. Data were collected on various topics relating to child wellbeing, living arrangements and education.

At the third round of the embedded child cohort study, extra efforts were made to follow-up children who had migrated, both within and outside the study sites. For this reason, we used baseline data from round 2 and follow-up data from round 3 to investigate the association between migration and school dropout amongst children aged 6-18 years who were enrolled in school at round 2. Throughout this paper, to improve clarity, we will refer to data from the second round of the embedded child cohort study as baseline data and third round data as follow-up data.

We used multivariate logistic regression to investigate whether children who were enrolled in school at baseline and migrated between baseline and follow-up, were more likely to have dropped out of school at follow-up than children who were enrolled in school at baseline but did not move households between the study rounds. We adjusted for orphan status, relationship to primary caregiver (natural mother, natural father, grandparent, other close relative or other), type of location (subsistence farming area, agricultural estate, small town or roadside trading settlement), household wealth tertile (based on a simple summed score of household asset ownership – a method developed and validated using data collected in the main cohort study [16], age of the child and sex of the child.

Results

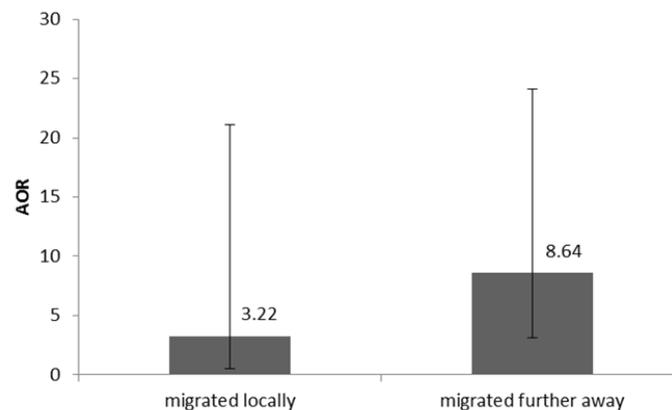
763 children aged 6-18 years were enumerated at baseline and 645 (85%) were followed up. 591/645 (92%) of children aged 6-18 years, who were enumerated at baseline and follow-up, were enrolled in school at baseline and were therefore included in our main analysis. 11% (50/467) of these children moved household between the two survey rounds and 9% (56/590) had dropped out of school at follow-up.

Table 1 shows crude and adjusted risk factors for migration, between baseline and follow-up, amongst children aged 6-18 years. In the crude analyses, maternal orphans were at higher risk of migration compared to non-orphans. Children with any caregiver other than their natural mother were also at increased risk of migration, particularly those being cared for by their natural father. In the multivariate model, the strength of the associations between all types of orphanhood and migration were reduced and were no longer statistically significant. The effect of relationship to primary caregiver increased in the multivariate model, with children being cared for by their grandparents becoming more likely to have migrated between baseline and follow-up.

Table 2 shows the crude and adjusted risk factors for dropping out of school at follow-up amongst children aged 6-18 years who were in school at baseline. In the crude models, migration between baseline and follow-up is a strong risk factor for dropping out of school (AOR 4.49; 95% CI 1.94-10.37) and this effect increases in the multivariate model (AOR 7.02; 95% CI 2.76-17.87). Orphanhood and relationship to caregiver were not significantly associated with dropping out of school in the crude or adjusted models.

The majority of children who migrated moved to households outside their local area – 26% (13/50) of children reported moving “locally” and 74% (37/50) reported moving further afield. Figure 1 shows that children who reported migrating “locally” were more likely to drop out of school compared to children who did not migrate (AOR 3.22; 95% CI 0.49-21.08; $p=0.222$), although this association was not statistically significant. Children who moved to more distant locations were significantly more likely to drop out of school compared with children who did not migrate between study rounds (OR 8.64; 95% CI 3.10-24.08; $p<0.001$).

Figure 1: Adjusted odds ratios comparing children aged 6-18 years who migrated locally, and those who migrated further away, with children who did not migrate between baseline and follow-up



Discussion

Moving household was a significant risk factor for dropping out of school amongst children aged 6-18 years. Multivariate statistical models indicate that orphan status and relationship to primary caregiver are not independent risk factors for dropping out of school. This suggests that migration could mediate, at least to some extent, the risk of dropping out of school that has been associated previously with other demographic impacts of the HIV epidemic such as orphanhood. Interventions are required that improve household stability to reduce child migration and also that target recently migrated children to ensure rapid return to school.

Table 1: Risk factors for migrating between baseline and follow-up rounds of the child cohort study amongst children aged 6-18 years at follow-up who were enrolled in school at baseline

RISK FACTOR	% migrated	N	Crude analysis*			Adjusted analysis*		
			AOR*	95% CI	p-value	AOR*	95% CI	p-value
Orphan status								
Non-orphans	4.8%	105	-	-	-	-	-	-
Maternal orphans	18.9%	53	4.23	1.32-13.59	0.015	1.18	0.28-4.99	0.820
Paternal orphans	11.5%	130	2.27	0.77-6.66	0.137	1.97	0.62-6.29	0.251
Double orphans	11.4%	140	2.25	0.78-6.54	0.135	0.64	0.17-2.41	0.509
Missing	10.3%	39	2.13	0.53-8.53	0.287	0.79	0.16-3.96	0.775
Relationship to primary caregiver								
Natural mother	5.7%	159	-	-	-	-	-	-
Natural father	18.2%	22	3.88	1.04-14.48	0.044	3.95	0.70-22.25	0.120
Grandparent	12.5%	88	2.47	0.96-6.31	0.060	3.81	1.17-12.47	0.027
Other close relative	17.5%	103	3.49	1.45-8.41	0.005	4.84	1.47-15.98	0.010
Other	27.3%	11	4.47	0.90-22.35	0.068	4.94	0.80-30.59	0.086
Missing	6.0%	84	0.95	0.30-3.00	0.927	1.11	0.33-3.73	0.862
Socio-economic status								
Least poor	17.5%	143	-	-	-	-	-	-
Poorer	9.8%	163	0.54	0.27-1.10	0.091	0.56	0.26-1.21	0.140
Poorest	4.5%	155	0.21	0.08-0.52	0.001	0.23	0.09-0.60	0.003
Location								
Agricultural estates	13.3%	90	-	-	-	-	-	-
Small towns	14.5%	76	1.24	0.50-3.07	0.647	0.93	0.34-2.53	0.885
Roadside trading settlements	10.0%	140	0.76	0.33-1.77	0.524	0.69	0.27-1.77	0.444
Subsistence farming areas	8.1%	161	0.61	0.26-1.42	0.247	0.53	0.21-1.33	0.176
Age of child								
6-8 years	10.9%	55	-	-	-	-	-	-
9-11 years	8.3%	120	0.73	0.25-2.17	0.574	0.67	0.20-2.25	0.516
12-14 years	8.0%	137	0.74	0.26-2.12	0.571	0.54	0.16-1.80	0.316
15-16 years	11.4%	88	1.00	0.34-2.99	0.992	0.56	0.16-1.99	0.368
17-18 years	20.0%	65	2.14	0.74-6.22	0.162	1.46	0.41-5.18	0.560
Sex of child								
Male	8.4%	251	-	-	-	-	-	-
Female	13.4%	216	1.85	1.00-3.42	0.048	2.26	1.16-4.40	0.016

*The crude logistic regression model adjusts for age and sex of the child at follow-up and location at baseline; the adjusted model adjusts for all variables

Table 2: Risk factors for dropping out of school between baseline and follow-up rounds of the child cohort study amongst children aged 6-18 years at follow-up who were enrolled in school at baseline

RISK FACTOR	% dropped out	N	Crude analysis*			Adjusted analysis (excluding recent migration)*			Adjusted analysis (including recent migration)*		
			OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Migrated between R2 and R3?											
No	7.7%	416	-	-	-	-	-	-	-	-	-
Yes	30.0%	50	4.49	1.94-10.37	<0.001	-	-	-	7.02	2.76-17.87	<0.001
Orphan status											
Non-orphans	9.4%	117	-	-	-	-	-	-	-	-	-
Maternal orphans	8.0%	75	0.54	0.17-1.73	0.298	0.67	0.14-3.22	0.619	0.80	0.14-4.53	0.805
Paternal orphans	10.6%	151	0.92	0.36-2.32	0.855	0.90	0.34-2.34	0.822	0.49	0.17-1.42	0.189
Double orphans	9.2%	196	0.62	0.25-1.54	0.307	1.02	0.29-3.59	0.978	0.79	0.18-3.51	0.759
Missing	9.8%	51	0.67	0.19-2.43	0.543	1.21	0.26-5.69	0.814	1.46	0.25-8.56	0.675
Relationship to primary caregiver											
Natural mother	11.8%	170	-	-	-	-	-	-	-	-	-
Natural father	10.3%	29	0.87	0.21-3.64	0.846	1.43	0.21-9.85	0.715	0.98	0.11-8.76	0.986
Grandparent	5.2%	136	0.41	0.15-1.09	0.074	0.35	0.09-1.31	0.120	0.38	0.08-1.75	0.213
Other close relative	10.8%	139	0.46	0.20-1.06	0.068	0.49	0.14-1.72	0.265	0.29	0.06-1.35	0.113
Other	33.3%	12	0.61	0.15-2.60	0.508	0.71	0.13-3.82	0.686	0.57	0.08-3.92	0.567
Missing	6.7%	104	0.37	0.14-1.01	0.053	0.42	0.14-1.28	0.126	0.42	0.12-1.52	0.186
Socio-economic status											
Least poor	9.7%	185	-	-	-	-	-	-	-	-	-
Poorer	12.4%	202	1.94	0.93-4.02	0.076	1.98	0.90-4.35	0.088	3.33	1.27-8.73	0.014
Poorest	6.6%	196	1.07	0.46-2.47	0.879	1.01	0.42-2.45	0.982	1.70	0.57-5.07	0.338
Location											
Agricultural estates	7.1%	113	-	-	-	-	-	-	-	-	-
Small towns	11.0%	91	2.25	0.77-6.59	0.139	2.46	0.79-7.72	0.122	2.02	0.56-7.26	0.281
Roadside trading settlements	11.7%	180	2.15	0.85-5.42	0.106	2.07	0.77-5.51	0.147	2.32	0.79-6.78	0.124
Subsistence farming areas	8.3%	206	1.76	0.68-4.55	0.240	1.72	0.64-4.62	0.282	1.20	0.39-3.72	0.749
Age of child											
6-8 years	4.6%	66	-	-	-	-	-	-	-	-	-
9-11 years	0.7%	145	0.14	0.01-1.35	0.088	0.14	1.3	0.090	0.14	0.01-1.49	0.103
12-14 years	3.8%	183	0.85	0.21-3.39	0.814	0.86	0.22-4.59	0.839	1.02	0.22-4.79	0.981
15-16 years	12.0%	108	2.93	0.79-10.78	0.107	3.17	0.75-13.89	0.097	3.61	0.80-16.21	0.094
17-18 years	37.7%	85	13.15	3.74-46.20	<0.001	15.35	4.47-78.28	<0.001	18.89	4.28-83.29	<0.001
Sex of child											
Male	10.0%	310	-	-	-	-	-	-	-	-	-
Female	8.9%	280	1.16	0.62-2.15	0.649	1.05	0.50-2.20	0.904	1.07	0.51-2.26	0.861

*The crude logistic regression model adjusts for age and sex of the child at follow-up and location at baseline; the adjusted models adjust for all variables, except migration status, which is excluded in the second model, presented here, but is included in the third model.

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