Title:
Examining the Impact of Orphanhood on Sexual Initiation among Adolescents 10-19 in Rwanda and Zambia

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Theoretical focus: Family dynamics and family structure theory suggest that familial upheaval and disruption increase the probability that youth will engage in various risky behaviors. Change in family structure or time spent in non-intact families has been associated in the United States and some developing country settings with such negative behavioral outcomes as alcohol use, drug use, sexual intercourse, premarital pregnancy, and school dropout (Wu and Martinson, 1993; Wojtkiewicz, 1993; Florenzano, 1997; Roizblatt et al, 1997; Murray, 2001).

Unpublished research studies and programmatic and anecdotal reports have suggested that OVC are particularly vulnerable to early initiation of sexual behavior. While there is empirical evidence that orphans resulting from AIDS in the U.S. are more vulnerable to engaging in risk behaviors than non-orphans (Rotheram-Borus et al. 2001), there are no published quantitative studies on the issue of OVC and risk behaviors in Sub-Saharan Africa or Southeast Asia.

This study investigates whether changes in family structure, specifically characteristics of transition into single or double orphanhood, put adolescents aged 10-19 at a higher risk of sexual initiation in Rwanda and Zambia. Based on the literature on family structure and risk behaviors, we hypothesize that orphanhood results in earlier sexual initiation.

Data:

The USAID-funded Community REACH project, in collaboration with Project Concern International Zambia (PCIZ) and CARE Rwanda, collected data on exposure to interventions targeting orphans, and on a variety of health, psychosocial, economic, and educational outcomes among adolescents aged 13-19. Data was collected in peri-urban Lusaka, Zambia and in rural Gitarama province, Rwanda. Baseline data was collected in June-September 2003.

Information related to sexual behavior that was included in the questionnaire includes: exposure to violence, coercive sex and abuse; age at first sexual intercourse; age of first sexual partner; last sexual partner; number of sexual partners; contraceptive use at first

and last sex; condom use at first and last sex; pregnancy/abortion history; and use of alcohol and drugs. The data also include information regarding the survival status of both parents and the year of death for those parents who have died.

In Zambia, 1,109 adolescents aged 13-19 were interviewed. In Rwanda, 1,529 aged 13-19 were interviewed.

Research methods:

We will examine our data using a discrete time hazard model, which can address the fact that our data are censored (not all adolescents have started having sex) and dichotomous (ever had sex or not) for each year of the respondents' lives. In addition, because the hazard for our outcome variable of interest varies with time (over the life of the adolescent) and a pooled hazard model makes no assumption about the shape of the underlying hazard, this model is the most flexible. The multivariate model constructed for this research also includes time-varying covariates related to the family structure of the adolescent (parents living or dead as well as years since death of parent), and in the pooled logistic regression approach, the construction of time varying covariates is straight-forward and the computation of the model quite efficient. Finally, many of the independent variables have hazard rates which are not proportional over time, which precludes the use of the Cox Proportional Hazards Model (Collett, 1994).

Time is defined in one year intervals due to the nature of the data: The model is:

$$\text{Log}\,(P(t)/(1-P(t))=a(t) + b_1x_1 + b_2(t)x_2(t)$$

Where P (t) is the probability that an individual experiences the behavior (initiation of sexual behavior) at time t, given that he or she is at risk at time t-1; a(t) represents the effect of exposure to risk (time); x_1 is a vector of time invariant predictors and $x_2(t)$ is a vector of time-varying covariates (Allison, 1984).

Preliminary Results:

Rwandan boys are 80% more likely to have had sex than girls. In Rwanda, single orphans are 80% more likely to experience sexual debut than are children with both parents alive.

Preliminary Findings:

- Orphans may be particularly vulnerable to early sexual debut.
- Further investigation is required to determine if there are strong gender preferences.

Table 1. Final Pooled Logistic Regression Model: Sexual Debut Odds Ratios		
	Rwanda	**Zambia**
Age		
<12 years	1.30+	.08***
13-14 years *(Ref.)*	1.00	1.00
15-19 years	2.45*	2.86***
In School Status		
In school	.94	1.03
Out of school *(Ref.)*	1.00	1.00
Gender		
Female *(Ref.)*	1.00	1.00
Male	1.83	1.45
Socio-economic Status		
Poorest two quintiles	.93	1.28
Middle two quintiles *(Ref.)*	1.00	1.00
Richest quintile	1.60	1.66**
Relationship to Caregiver		
Self	1.73	NA
Son/daughter *(Ref.)*	1.00	1.00
Grandchild	NA	.60
Other relative/not related	.98	1.13+
Orphan Status		
Single orphan	1.84*	1.27
Both parents alive *(Ref.)*	1.00	1.00
Double orphan	1.71	1.50
Household Size		
1-3 people	1.02	.70+
4-5 people *(Ref.)*	1.00	1.00
6 or more people	.99	.74+

+p<.10 *p<.05 **p.01 ***p<.001