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Original article

Gender and the Effects of an Economic Empowerment Program on Attitudes Toward Sexual Risk-Taking Among AIDS-Orphaned Adolescent Youth in Uganda

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Abstract

Purpose: This article examines gender differences in attitudes toward sexual risk–taking behaviors of acquired immune deficiency syndrome (AIDS)–orphaned youth participating in a randomized control trial testing an economic empowerment intervention in rural Uganda.

Methods: Adolescents (average age 13.7 years) who had lost one or both parents to AIDS from 15 comparable schools were randomly assigned to either an experimental (n = 135) or a control condition (n = 142). Adolescents in the experimental condition, in addition to usual care, also received support and incentives to save money toward secondary education.

Results: Findings indicate that although adolescent boys and girls within the experimental condition saved comparable amounts, the intervention appears to have benefited girls, in regard to the attitudes toward sexual risk–taking behavior, in a different way and to a lesser extent than boys.

Conclusions: Future research should investigate the possibility that adolescent girls might be able to develop equally large improvements in protective attitudes toward sexual risk taking through additional components that address gendered social norms. © 2010 Society for Adolescent Medicine. All rights reserved.

Keywords: Gender; Sexual risk taking; Microfinance; Economic empowerment intervention; Orphan; Adolescent; Sub-Saharan Africa

Worldwide, gender and poverty are two of the most important influences on health [1]. This is particularly true in sub-Saharan Africa (SSA), the poorest region of the world, and the region most affected by human immunodeficiency virus (HIV)/aquired immune deficiency syndrome (AIDS), a highly gender-discriminatory epidemic [2–6]. This article considers the role of gender in a health-promoting economic empowerment intervention study in Uganda. Specifically, the present study compares the behavioral health functioning of adolescent girls with boys who are AIDS orphaned participating in a randomized clinical trial testing the effect of an economic intervention on the health outcomes of adolescents.

The need for the present study is rooted in three contexts. First, in SSA, women are disproportionately affected by HIV [1,2]. Women's vulnerability to infection is exacerbated by poverty, early marriage, and cultural attitudes that limit women's power in relationships, including the power to negotiate safe sex [2–6]. Among young adults ages 15–24 years, females are particularly affected, representing 74% of new HIV infections in SSA [6]. In Uganda, where the first HIV case in East Africa was discovered in the 1980s [7], females aged 15–19 are four times more likely to be HIV infected than their male peers, with higher rates in more heavily affected areas (most recent data are from the period 2004–2005 [8]).

Second, HIV has also contributed to vast increases in the numbers of AIDS-orphaned children and adolescents defined

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by the United Nations as persons of age 0–18 years who have lost at least one parent to HIV/AIDS. By this definition, Uganda is home to more than 1 million AIDS-orphaned children, and in the heavily affected southern district of Rakai, approximately two in five children have been orphaned because of AIDS [9]. Studies have repeatedly linked orphan status—particularly for females—to heightened HIV risk [10].

Third, the need for the present study is reflected in the increasing recognition of the ways in which poverty, health disparities, and gender discrimination reinforce one another [11–13]. The *Lancet* series on the science of HIV prevention, for example, has recently emphasized structural determinants of health, calling for the development and testing of ''combined'' interventions to address multiple dimensions of preventive health [11]. Indeed, studies have begun integrating social and economic empowerment, such as the Intervention with Microfinance for AIDS and Gender Equity study in South Africa, which combines microfinance with women's empowerment [14]. In this vein, the current study considers the relationship between gender and success in a health-promoting economic empowerment intervention for AIDS-orphaned children in Uganda. Specifically, this study is guided by the following questions: Do female and male AIDS-orphaned youth benefit equally from an economic empowerment intervention in rural Uganda? If not, what are the policy and program implications of these findings?

Background and Theory: The SUUBI Research Program

Data examined here were obtained from the SUUBI Research Program (hereafter, SUUBI, which is a Luganda word for ''hope''). SUUBI (2005–2008) was funded by the National Institute of Mental Health. The study was carried out in Rakai District of Uganda, which is the site of the first HIV infection detected in East Africa during the 1980s [7]. This study received institutional review board approval by Columbia University and Uganda National Council of Science and Technology. The overall aim of SUUBI was to develop and test the feasibility of an intervention program for improving the health outcomes and life chances of AIDS-orphaned adolescents through the use of microfinance—in the form of Child Savings Accounts (CSAs).

The SUUBI Research Program was guided by asset theory [15,16]. Asset theory posits that when people have assets, such as education, savings accounts, or productive assets, such as small businesses, this can change not only their economic lives but also their behavior, attitude, and hope for the future. In addition, asset theory suggests that asset accumulation creates ''asset effects,'' in which more assets in the present influence expectations for more resources in the future, and also engender greater social trust (e.g., feelings of safety and security), and lengthened time horizons (e.g., greater future planning), [17]. Overall, asset theory posits that economic opportunities influence the formation of attitudes and beliefs, as well as intentions and behaviors [18]. Asset theory is consistent with behavioral and psychosocial theories that endorse the idea that opportunity influences the formation of attitudes, intentions, beliefs, and behaviors [19–21].

Accordingly, SUUBI provided poor AIDS-orphaned adolescents with asset-ownership opportunities through the use of CSAs. Modeled on U.S. Individual Development Accounts, a CSA is a microfinance product that facilitates the development of savings and their attendant ''asset effects'' [17]. CSA programs, including SUUBI, involve youth in basic financial education, introduce them to formal financial institutions, and incentivize them to save small amounts by offering a subsidized match rate. In SUUBI, the match rate was 2:1. The matched savings had to be used either for the youth's postprimary education, or for starting a small family business. All participants chose postprimary education as their saving goal.

Methods

Participant selection and assignment

SUUBI included 286 AIDS-orphaned youth (average age 13.7 years) in primary school—immediately before the transition to secondary school. AIDS orphan status was defined as having lost either one or both parents to AIDS, according to self-report. Due to attrition, the final sample included 277 participants. Participants were selected from 15 primary schools with similar socioeconomic characteristics, including overall performance on the standardized national primary leaving examinations used as a qualification for admission to secondary school. In addition, the selected schools attracted students from similar socioeconomic backgrounds.

Each of the 15 schools was randomly assigned to either experimental or control condition at the school level, so that all students within one school received the same condition assignment. Because of geographic distance between schools, participants assigned to different conditions did not know each other.

Participants assigned to the control condition received the usual care for orphaned children, consisting of counseling and educational related supplies (including textbooks). Further, by virtue of being in school, all participants received health education (including AIDS-focused education) provided through a nationwide school-based curriculum. Participants assigned to the experimental condition (SUUBI program) received the usual care plus an economic empowerment intervention consisting of three components: (1) twelve 1–2-hour workshops over a 10-month period focused on asset building and financial planning. The workshops introduced the participants to asset-building strategies, including saving, education, and small business development; (2) a monthly mentorship program for adolescents with peer mentors on future planning and life options; and (3) a matched CSA, dedicated to paying for postprimary schooling.

CSA details

SUUBI worked with Centenary Rural Development Bank, one of the foremost financial institutions working with low-income families in Uganda. The minimum base deposit for each participant was provided by SUUBI to facilitate access to a no-fee account. The adolescent's family members and relatives were then allowed to make deposits directly into the CSA, and were encouraged to do so by the participants. Although matching funds were maintained in a separate account—distinct from participants' CSAs—the participants received monthly savings account statements that indicated both the participant's own accumulated savings, as well as the current match amount [22]. These statements were intended to act as a morale booster, and to facilitate trust building. When participants were ready to use their savings to pay for postprimary education, they would produce their one-third of the total due, and the SUUBI project staff would pay the remaining two-thirds in matching funds directly to the school. Thus, although they were kept abreast of their accumulated matching fund value, at no time did CSA group participants have direct access to matching funds. The match rate was set at 2:1, based on earlier studies on individual development accounts, which found that participants who received a match rate of 2:1 saved at a significantly higher rate than participants who received a lower match rate [23,24].

In addition, a match cap, or maximum amount of savings to be matched by SUUBI, was set at an equivalent of $10 (U.S. dollars) per CSA group participant, per month (with a cap of $120 per participant for a 12-month period). Thus, if participants deposited $10 each month in their CSA for 12 months without withdrawing from the account, they would accumulate $120. These funds would then be matched by SUUBI with an additional $240, paid directly to the secondary school. The total amount saved by the participant, including matching funds, would therefore be $360, in this case. In rural Uganda, $360 is sufficient to pay for at least 2 years of secondary education, including tuition and school uniform.

It is important to note that although there are studies focused on saving performance of poor families in SSA [25–27], none of these studies were the actual accounts held in the names of the youth, nor were the youth surveyed in these studies.

Measurement and analysis

Data were obtained through a 90-minute individual assessment at baseline and at the 10-month follow-up interviews. The interviews were conducted by local research assistants who were unaware of the study assignment. We matched the interviewers with the interviewees by gender. Assessment items, adapted for Ugandan adolescents from previously tested scales in Uganda [9] and South Africa [28] were translated into the local language and checked for wording and meaning by Ugandan research staff. Specifically, adaptation of the instruments involved the Ugandan private investigator researching relevant measures used in similar studies throughout SSA, drawing items from these scales and revising to fit the local culture. The measures were reviewed by three community leaders in the study area and pretested by the local project coordinator in Uganda.

This study primarily focuses on two outcomes: (1) savings performance, and (2) attitudes toward sexual risk–taking behaviors.

Saving performance

We used average monthly net deposit (AMND) as the measure of saving performance [24,29]. AMND is defined as net deposits per month of participation. This measure controls for the length of time that a participant had had to save. Higher AMND implies higher savings, with a theoretical range of zero to infinity.

Attitudes toward sexual risk–taking behaviors

It is important to note up front that measuring sexual risk taking among adolescents presents a problem in most public health studies because of lack of reliable measurement instruments [30–32]. For instance, although actual sexual risk–taking behavior is one of the outcomes, we tried to capture in the SUUBI study, the number of study participants reporting sexual risk–taking behavior was too small ($N = 7$) to permit statistical analysis. These reports of low sexual activity among participants may be attributed to age (median age of participants, 13.15 years) and school enrollment status. In rural Uganda the median age at first intercourse is 16.5 years among women and 18 years for males [33]. Given this finding, and because shifts in attitude may be the next best option to capture sexual risk–taking behaviors among adolescents [32,34,35], as well as the fact that such measures have been found to be predictive of future sexual behavior [36], in this study we focus on estimating the effects of the SUUBI intervention on adolescents' attitudes toward sexual risk–taking behaviors.

Before we delve into the attitudes toward sexual risk–taking behavior question, however, we need to point out that because all school-going children are exposed to health education (including AIDS-focused education) through a national curriculum, one would expect no statistical difference in HIV knowledge between the two study groups. Indeed our baseline HIV Knowledge measure consisting of 13 items about HIV infection and prevention mechanisms, with sample items such as the following: ''HIV can be passed by an infected person even though that person is not feeling sick,'' ''Using a condom will lessen the chance of getting AIDS,'' ''If you are really healthy, then exercising daily can prevent getting HIV,'' revealed no significant differences between the means of the two groups. In addition, gender disaggregated analysis demonstrated that girls in the control

Table 1
Gender differences in sociodemographic characteristics of experimental and control conditions

Key characteristics	Control mean (SD) or %			Treatment mean (SD) or %		
	Boys (n = 70)	Girls (n = 78)	t/χ^2	Boys (n = 55)	Girls (n = 83)	t/χ^2
Mean child age, years	13.77 (1.6) (1.31)	13.50 (1.36)	−.91	14.07 (1.52)	13.70 (1.2)	−1.24
Average no. of people in household	6 (SD = 2)	6 (SD = 2)	.21	7 (SD = 3)	6 (SD = 3)	−1.96
Average no. of children in household	3 (2)	3 (1)	−.21	4 (2)	3 (2)	−.85
Father not living	55 (79%)	68 (88%)	2.08	43 (78%)	64 (78%)	.05
Mother not living	42 (62%)	42 (54%)	.67	37 (67%)	45 (54%)	2.03
Both parents not living	45 (40%)	32 (41%)	.09	25 (46%)	26 (31%)	1.9
Caregiver self-employed	55 (80%)	45 (58%)	7.68**	29 (53%)	50 (60%)	.63
Female caregiver			7.51			13.5*
Biological mother	25 (36%)	29 (37%)		13 (24%)	45 (54%)	
Stepmother	2 (3%)	3 (4%)		1 (2%)	3 (4%)	
Grandmother	25 (36%)	34 (44%)		23 (42%)	21 (25%)	
Aunt	10 (14%)	10 (13%)		12 (22%)	11 (13%)	
Sister	2 (3%)	2 (3%)		2 (4%)	1 (1%)	
No woman	6 (9%)	0 (0%)		4 (7%)	2 (2%)	
Male caregiver			3.85			9.13
Father	16 (23%)	19 (24%)		16 (29%)	30 (36%)	
Stepfather	1 (1%)	1 (1%)		0 (0%)	0 (0%)	
Grandfather	7 (10%)	11 (14%)		8 (15%)	13 (16%)	
Uncle	3 (4%)	8 (10%)		13 (24%)	7 (8%)	
Brother	3 (4%)	2 (3%)		3 (6%)	2 (2%)	
Other	1 (1%)	0 (0%)		1 (2%)	0 (0%)	
No male present	39 (56%)	37 (47%)		14 (26%)	31 (37%)	

* $p < .05$,** $p < .01$.

group did not statistically differ in their HIV knowledge (mean score 9.4) from girls in the treatment group (mean score 9.8), and boys in the control group (mean score 11.0) had a similar HIV knowledge score as boys in the treatment group (mean score11.3).

In regard to attitudes toward sexual risk–taking behavior, students were asked to report their opinion on 6 items (e.g., ''I believe it's OK for people my age to have sex with someone they've just met,'' ''I believe it's OK for people my age to have sex with someone they love,'' ''I believe it's OK to have sex without protection with someone you know''). For each item, a statement was read to the participant, who was then asked to rate the degree to which they agreed or disagreed with the statement on a scale of 1–5. The total score on this particular measure was in the range of 6–30. A higher score indicated a more favorable attitude toward sexual risk–taking behaviors, and a low score indicated more protective attitudes.

Data analysis

Tram and Cole [37] have argued that the analysis of potential moderators is crucial for correct interpretation of intervention outcomes. Accordingly, we examine gender as a moderator of treatment effects of SUUBI intervention. Specifically, we test for differences in treatment outcomes based on the gender of child that should be considered when examining which adolescents within the experimental group benefited the most from their participation in SUUBI. We construct a $2 \times 2 \times 2$ analysis of variance [Gender (boy vs. girl) by Treatment group (control vs. experimental) by Time (wave 1 vs. wave 2)] model, with time of measurement being treated as a repeated measures factor. Because of randomization at school level, participant observations from the same school could be correlated, which would violate the assumption of independence of observations [38]. Therefore, to control for school effects, we treat the school identification variable as a random effect. We fit the three-way interactions model to the attitudes toward sexual risk–taking outcome variable using the mixed model procedure in SAS 9.2. The model was diagnosed to meet the assumptions of normality of residuals and a constant variance across levels of the predicted values. We control for sociodemographic characteristics that demonstrated significant relationships to attitudes toward sexual risk–taking behavior, namely, age, gender, and employment status of the primary caregiver. The highest-order statistically significant interaction was further decomposed using tests of effect sizes. We examined marginal mean values to determine the direction of the relationship.

Results

Sociodemographic characteristics

As indicated in Table 1, with the exception of employment status of caregivers, there were no observable significant gender differences within the control group. Within the experimental group, boys and girls differed significantly only according to the type of female caregiver.

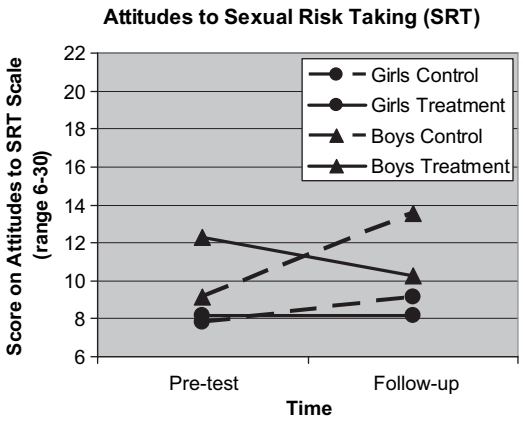

Figure 1. Gender differences in sexual risk–taking outcomes.

Gender differences in savings outcomes

The AMND for boys was equivalent to $7.26 (standard deviation = $2.56), whereas girls saved $6.72 (standard deviation = $1.92). The median AMND for girls and boys was $5.01 and $5.70, respectively. Three girls (of 83) and nine boys (of 55) did not save. There were no statistically significant differences by gender in AMND. Girls and boys saved at comparable rates.

Attitudes toward engaging in sexual risk–taking behaviors

Overall, the intervention demonstrated a beneficial effect on attitudes toward sexual risk–taking behaviors (Time by Treatment interaction is statistically significant $F[1,266] = 40.36$, $p < .05$, partial eta-squared =.13). Furthermore, results presented in Figure 1 indicate that gender moderates the effect of the SUUBI intervention on attitudes toward sexual risk–taking behaviors (Time × Treatment × Gender interaction is statistically significant, $F[1,266] = 16.1$, $p < .001$, partial eta-squared = .06). Both girls and boys in the control condition demonstrated an increased ''approval'' of risky sexual behaviors. Specifically, the score for girls in the control condition increased from 7.73 (at pretest) to 9.19 (at 10-month follow-up) and increased for boys in the control group from 8.9 (at pretest) to 13.43 (at 10-month follow-up). Different trends were observed within the experimental group, whereas the score for girls in the experimental group remained unchanged from 8.28 (at pretest) vs. 8.25 (at 10-month follow-up), the boys in the experimental group reported a significant decrease in approval of risky sexual behaviors from 12.44 (at pretest) to 10.29 (at 10-month follow-up). This finding suggests that SUUBI intervention may have increased boys' protective attitudes towards sexual risk–taking behaviors but probably did not benefit girls in an equivalent way. Given the fact that girls in the control group actually became more accepting of risky sexual behaviors at the 10-month follow-up, yet girls in SUUBI intervention group maintained their original degree of protective attitudes, the intervention appears to have benefited girls in SUUBI intervention, but probably in a different way and to a lesser extent than for their male counterparts.

Discussion and Implications

Findings partially support the hypothesis that gender has a moderating effect on SUUBI study outcomes. SUUBI, as a combined intervention, worked better for boys than girls in improving attitudes toward sexual risk–taking behaviors. That said, both boys and girls in the SUUBI intervention group benefited relative to their same-sex counterparts assigned to the control group, although the intervention, overall, seems to have had a moderate or smaller effect for girls.

Gender equality in savings outcomes

Adolescent girls and boys saved comparable amounts. This probably means, among other things, that caregivers who contributed most of the funds in CSAs deemed it a good idea to support female children in trying to save money and attain further education. This may indicate that caregivers perceive both saving money and pursuit of secondary education to be as desirable for girls as for boys. This finding is consistent with the fact that, in Uganda, gender inequality in education is relatively low compared to several African countries. Moreover, the government encourages all children, regardless of gender, to attend primary school through universal primary education policy.

Gender differences in attitudes toward sexual risk–taking behaviors

Given the premises of asset theory, one would predict that the economic opportunities offered by SUUBI would increase orphaned adolescents' capacity to envision the future with optimism and would lead to increases in educational aspirations and protective attitudes. Results from this study show that although girls saved comparable amounts to boys, they did not experience equally protective improvements in attitudes toward sexual risk–taking behaviors: girls in the control condition became less protective and more lenient toward sexual risk–taking attitudes during the study period than their counterparts in the experimental condition. Thus, although gender disparity is evident in the study results, the program is nevertheless associated with a moderate effect for girls' attitudes toward risk–taking behavior when compared with their same-sex counterparts in the control condition.

Keeping this in mind, and considering the open forms of gender discrimination in local cultures that place girls at higher HIV risk than their male peers, particularly early marriage to older men in the face of economic hardship [39], the results from this study indicate that future research should consider testing the effect of a gender-specific empowerment component.

Finally, given the fact that attitudes toward sexual risk–taking behavior improved considerably for male participants

in the experimental group, future research may consider testing strategies that work in groups to build consensus across genders about what behavior is acceptable, in the hope that male participants who develop greater protective attitudes might ''show'' their female counterparts that such protective behavior is acceptable to at least some of their male peers.

Conclusion

The findings of this study provide essential knowledge regarding the benefits of an economic empowerment approach in the care and support for orphaned adolescents within a family setting. In this particular case, adolescent girls saved as much as boys and maintained slightly more protective attitudes toward sexual risk taking than their female peers in the control condition. Interestingly, the largest disparity in outcomes was manifest between boys and girls in the experimental condition. In spite of comparable levels of savings, boys developed much greater improvements in protective health attitudes than girls over the course of the intervention. Future research should investigate the possibility that adolescent girls might be able to develop equally large improvements in protective attitudes toward sexual risk taking through additional components that address gendered social norms, particularly with regard to sexual decision making. Overall, results indicate that a combined, health-promoting economic empowerment intervention has the potential to yield important benefits for both adolescent boys and girls.

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