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Influence of school support on early marriage experiences and health services utilization among young orphaned women in Zimbabwe

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Abstract

School support programs reduce school dropout, early marriage and early pregnancy for a majority of young orphaned women. We used a mixed methods approach to examine why these programs are less effective for a significant minority by exploring their influence on marriage and health services utilization. Participants were from a randomized controlled trial (RCT) testing school support as HIV prevention. Half as many intervention as control participants had been married; married intervention participants had one more year of education compared to married control participants. Receiving school support did not appear to improve health-related factors. Pregnancy was among the most common reasons for marriage across both groups. The greatest benefit of school support appears to be in delaying marriage and pregnancy while increasing educational attainment.

Reducing child marriage (i.e., marriage before age 18) and adolescent pregnancy is essential for improving the sexual and reproductive health as well as the social and economic well-being of adolescent girls. There is increasing evidence that conditional school support programs can increase educational attainment and reduce school dropout, early marriage and early pregnancy for a large majority of adolescent females, including orphans (Baird, Garfein, McIntosh, & Ozler, 2012; Duflo, Dupas, Kremer, & Sinei, 2006; Hallfors et al., 2011; Hallfors et al., 2015; Luseno et al., 2014). However, the programs are less effective for a significant minority, and few studies have examined the reasons why. In this paper, we use a mixed-methods approach to address this gap in the literature by examining whether and how school support affects pathways to marriage, experiences with marriage, and use of maternal and child health services among young orphaned women who participated in a randomized controlled trial (RCT) testing school support as HIV prevention in Zimbabwe.

Although child marriage has declined globally since the 1990s, it remains high in many sub-Saharan African countries where an estimated 40% of young women ages 20–24 are married before age 18 (Clark, Bruce, & Dude, 2006). Often husbands of these adolescent girls are

older and have other wives, both of which are indicators of increased risk for sexually transmitted infections, including HIV (Babalola, 2011; Chapman et al., 2010; Nour, 2006). Adolescent girls are also likely to be in arranged marriages and to have less sexual and reproductive decision-making and negotiating power with their husbands (Clark et al., 2006). Many are forced to drop out of school bringing to an end any hopes of acquiring knowledge and skills to increase their chances of earning an income (Clark et al., 2006). In Zimbabwe, the median age at first marriage among women aged 20–49 years is 19.7 years, with 31% reporting marriage by age 18 (Zimbabwe National Statistics Agency [ZIMSTAT] & ICF International, 2012) and 23% of female adolescents age 15–19 years currently married (Remez, Woog, & Mhloyi, 2014).

Early marriage is also strongly associated with childbearing in adolescence. In Zimbabwe, the median age at first birth among women aged 25–49 years is 20 years with 22% giving birth by age 18 (ZIMSTAT & ICF International, 2012). Social norms in Zimbabwe strongly disfavor pregnancy and childbirth outside of marriage (Remez et al., 2014). Thus, marriage is often a consequence of adolescent pregnancy with childbirth occurring early within marriage (World Health Organization [WHO], 2006).

Because of their young age, childbirth is risky for adolescent girls and their babies, especially for first time mothers. These risks include maternal mortality and morbidity, which is higher in adolescent mothers compared to older women (Nour, 2006; WHO, 2006). Infant mortality and morbidity, preterm birth, low birth weight and asphyxia are also significantly higher among infants born to women under age 20 compared to older women (Nour, 2006; WHO, 2006). These high rates of mortality and morbidity may be, in part, due to immature physical structure, low utilization rates of maternal and child health services, and low education levels among adolescents (Chaibva, Roos, & Ehlers, 2009; Magadi, Agwanda, & Obare, 2007; Perez, Zvandaziva, Engelsmann, & Dabis, 2006; Rai, Singh, Kumar, & Singh, 2013; Rai, Singh, & Singh, 2012; Reynolds, Wong, & Tucker, 2006).

Among adolescent girls in sub-Saharan Africa, older age and orphan status are important risk factors for child marriage, pregnancy, school dropout and HIV (Birdthistle et al., 2008; Chae, 2013; Hallfors et al., 2013; Luseno, Zhang, Rusakaniko, Cho, & Hallfors, 2015; Operario, Underhill, Chuong, & Cluver, 2011; Palermo & Peterman, 2009). Orphans defined by UNICEF (2006) as one or both parents deceased are more likely than non-orphans to have lower educational attainment because they tend to start school late, repeat at least one grade, and/or attend school irregularly (Birdthistle et al., 2009; Guo, Li, & Sherr, 2012; Pufall et al., 2014). Because orphans are more likely to progress slowly through school and to be old for their grade level, they have an increased likelihood of dropout, marriage, and pregnancy since all are highly correlated and strongly related to increasing age (Grant & Hallman, 2008; Hallfors et al., 2015).

In this study, we extend a conceptual framework proposed by Jukes, Simmons, and Bundy (2008) to examine several premises related to the potential benefits of school support. First, since young orphaned women who received school support were less likely to miss school due to lack of fees (Iritani et al., 2015), even those who do marry will have higher levels of education than those who did not receive support. Second, because of their greater exposure

to education, young married women who received school support will be more motivated, able and likely to use maternal and child health services such as HIV testing, family planning and child immunization. Third, receipt of school support changes the social and sexual networks of orphaned adolescent girls, leading to marriage with husbands who have more education and higher SES. This in turn, is expected to lead to happier marriages with more resources within the marriage and better health practices for both husbands and wives. Understanding how school support influences marriage partnerships, experiences with marriage, and attitudes toward and use of health services among married adolescent orphans provides an important ancillary level of evaluation data for these interventions.

Methods

Setting and Parent Study

Data were collected in Manicaland Province, Zimbabwe from October 2012 through November 2013. Participants were from a rural sample of girls who had participated in a RCT that began in 2007. Detailed information about the RCT design, intervention and findings are presented elsewhere (Hallfors et al., 2011; Hallfors et al., 2015). The RCT was designed to test a structural HIV prevention intervention of providing school support to orphan (one or both parents deceased) girls. We used the Social Development Model (Catalano & Hawkins, 1996) as the conceptual framework for the structural intervention. On the basis of this model, we posited that keeping orphan girls in school would provide them with structure, supervision, and access to caring pro-social adults. In so doing, HIV risk behaviors would be reduced, and sexual and reproductive outcomes improved for this vulnerable population group. Having lost one or both parents, orphans, especially orphan girls, are at a distinct disadvantage in navigating the risks of adolescence. Previous studies provided evidence of the importance of pro-social, caring adults as key determinants of positive behavioral outcomes among adolescents in the United States (Jessor, Turbin, & Costa, 1998; Kirby, 1999; Resnick et al., 1997). In our study, all orphan girls who were enrolled in 6th grade in one of the 26 participating primary schools were invited and agreed to participate in the intervention trial (N=328). Participating schools were randomly assigned to either the intervention or control study condition. Students in intervention schools received school support, including payment of their school fees, uniforms, exercise books, and other school supplies (e.g., pens, soap, underpants, and sanitary napkins). In addition, a female teacher who was trained by the study to be a “helper” monitored participants’ school attendance and assisted with solving attendance problems. The study continued offering school support as the intervention students matriculated into secondary school. Students in control schools received no school support at the beginning of the RCT but, after positive effects of the intervention were demonstrated (Hallfors et al., 2011), those still attending school were offered school fees payments beginning in 2011. Although some control participants who were interviewed for this study received school fees support for 1–3 terms and then dropped out of school to get married, we continue to refer to them as the control group in this paper.

Participants

Eligible participants for the present marriage study were those who were married by the Wave 5 survey data collection for the parent study (March through June 2012), who had taken the 2012 survey and had provided signed consent for continued study participation, and who were willing to participate in the interviews. A total of 287 (88%) of the original 328 RCT participants took the 2012 survey. There were 44 married participants at the 2012 Wave 5 survey and 35 were interviewed for this study. Nine eligible individuals were not interviewed because either we could not locate the participants (8 cases) or make contact because the husband's family refused (1 case).

Data collection

Participation was voluntary. Prior to beginning the interview, all participants provided informed signed consent to be interviewed. Semi-structured interviews were conducted in the respondent's home by trained team members who are Zimbabwean. A female interviewer and female research assistant attended the interview session together. Interviewers read the questions to the respondent by following an interview guide and followed up with probes as needed to ensure the question was answered. Interviews took about 60 – 80 minutes and were conducted in the local language of Shona. A male research associate who had set up the interview was available to socialize with the husband or family members present at the time of the interview in order to ensure privacy for the respondent. Participants received \$10 as compensation for their time. The research assistant took notes in shorthand in Shona during the interviews and prepared a transcript. The transcript included a paragraph containing an overall impression of the household and living situation. The transcript was translated into English, and the interviewer made corrections to the transcript. The first four interviews served as pilot interviews. The PI met with the interview team, gave feedback and further training, and fine-tuned the interview procedures. The PI reviewed all transcripts asking for any clarification that was needed and also monitoring for participant safety.

Research staff received ethics training for the study from the in-country Consortium PI. The institutional review boards of the Pacific Institute for Research and Evaluation (PIRE) and the Medical Research Council of Zimbabwe (MRCZ) approved study procedures.

Measures

The interview guide included questions about influences to get married, children, church affiliation and attitudes, sexual relationships outside of marriage, family planning, HIV testing, child immunization, schooling, life plans, and demographic, marital, and family life characteristics. In addition to open-ended questions, we included multiple-choice items in the interview. *Amount of resources compared to others* measured how participants' resources compared to "others I know in my church and community" on an ordinal scale (i.e., less, the same, or more). *Marriage happiness compared to others* similarly measured participants' perception of their marriage happiness compared to others on an ordinal scale (i.e., less happy, same, or happier). Interviewers also asked each participant to report her age as at her last birthday, her age at marriage, whether her marriage was monogamous or

polygamous, number of living children, number of child deaths, her occupation, her husband's age, her husband's highest level of education and her husband's occupation.

Type of job, from the questions on occupation, were classified and numerically ranked as: skilled (4), student (3 if advanced, 2 if basic secondary), semi-skilled (2), unskilled (1), with consideration given to the type of work and highest level of education achieved. For example, we ranked self-employed after completing secondary school and/or professional courses as skilled, domestic work (housewife or housemaid) with primary education or less as unskilled, domestic work with more than primary education as semi-skilled, all construction and farming work regardless of level of education as semi-skilled, and unemployed as unskilled.

The qualitative interviews were supplemented by survey measures collected at Wave 5, including: *Condition* (intervention or control), *Ever married* (either currently or had ever been married or living with a man), *Ever pregnant* (either currently pregnant or had ever given birth or had a miscarriage, abortion, or stillbirth), *HIV Status* (measured by biomarkers; see Luseno et al., 2014 for details of biomarker data collection and analysis), *HSV-2 Status* (also by biomarker measure), *meals per day* (a measure of SES, using the question: "How many meals do you have in a day?"), *Go without food on some days* (another measure of SES, using the question: "Are there some days you go without food?"), and *Wife Years of Schooling* [with a possible range of 5 (if they dropped out in Grade 6) to 10 (if they finished their 3rd year in high school)].

Data analysis

Researchers first read all 35 transcripts to identify common themes and develop codes. Codes were then applied to all interview transcripts and analysis conducted using thematic content analysis (Schreier, 2014) whereby patterns in the data were identified, and similarly coded data organized into groups. Inter-rater reliability for qualitative coding across each theme ranged from 80% to 100%. Where discrepancies occurred, the researchers discussed, clarified codes as needed, and came to final consensus. Coded qualitative data were grouped and frequencies of the quantitative survey variables were calculated by RCT condition for comparison. Comparisons did not include analyses of statistical significance because of the small sample size; our interest was in observing trends. Representative, verbatim quotes were selected to illustrate key findings.

Results

Description of Sample

In the wave 5 parent study survey, 18 (11%) in the intervention group reported having ever married compared to 29 (24%) in the control group (see Table 1). Among those who reported marriage, only two intervention and three control group participants did not report pregnancy, while among those who were pregnant, only three intervention and two control group participants did not report marriage.

The 35 young married women interviewed for this study were aged 17–26 years. Thirteen (37%) were in the intervention group and 22 (63%) in the control group (see Table 2).

Twenty (57%) participants in our study had more than primary school education [Note: It takes 7 years to complete primary schooling (Grade 1–7) and 6 years to complete secondary schooling (Form 1–6) in Zimbabwe. Students take national exams after 7 years of primary school and at 4 years (“O” Level exams taken in Form 4) and 2 years (“A” Level exams taken in Form 6) of secondary school]. Eight (23%) were married at or below age 15 years, 18 (51%) between ages 16 and 17 years, and 9 (26%) at age 18 years or older. The mean number of years of marriage was 2.46, with a range of 1–5 years. The age difference between husband and wife was five years or more for 24 (69%). All but two of the participants reported having at least one child. The mean number of children per participant, not including current pregnancies, was 0.91, with a range of 0–2 children. Five participants had lost a child at birth. All the participants were members of a Christian church.

Differences were observed in participants’ education and employment by condition, but not in husbands’ education and employment. As shown in Table 3, intervention group participants had, on average, completed almost one more year of education (8.23 years) compared to those in the control group (7.36 years). Eight participants in the intervention group (62%) said that they were students or working in skilled or semi-skilled jobs and five said they were working in unskilled jobs. Control group participants, however, were distributed equally between the two categories.

Also, although more common among control group participants, a majority of participants in both study groups said their husbands were employed in jobs classified as skilled or semi-skilled (9 husbands of intervention group participants [77%] vs. 19 husbands of control group participants [86%]).

Reasons for marriage

We identified seven reasons for marriage, with some similarities and differences observed by condition. These reasons were because of pregnancy; by choice or for love; being (or fear of being) chased away after staying out beyond curfew and/or being seen with a boyfriend; poverty or lack of fees; being coerced into or given away in an arranged marriage; mischief, childish behavior or “just happened,” and; ill treatment at home. Overall, the most important reason for marriage was pregnancy with 10 participants (3 intervention and 7 control) reporting this was why they got married:

I fell pregnant when I was still in school so I had to elope before my family members discovered it to avoid troubles. I could have been beaten by my mother.
(*Intervention group participant, married at age 17*)

Another frequently mentioned reason for marriage was out of “choice” or “love” (3 intervention and 4 control participants). Among intervention participants who got married out of choice, one said, “I was not bright in school so I decided that going to school was just wasting resources. I never passed any subject. I dropped out of school and decided to marry” (*married at age 17*) and another said, “I was not going to school so I thought it was better for me to get married” (*married at age 19*).

Similarly, control group participants who got married out of “choice” and “love” did so because they were not in school and to start a family. However, one control participant said she got married to avoid being given away in an arranged marriage:

[My] sister who was married died. After a year, [my] father and brother were arranging that I go and stay with the late sister’s husband. I discussed the issue with my boyfriend and we then agreed that I elope. [I] wanted to stay with a man of my choice. *(Control group participant, married at age 16)*

Another major reason for marriage, especially among control group participants was anticipation of or actually being chased away because of staying out past curfew or being seen with a boyfriend (1 intervention and 5 control participants):

I went to see my boyfriend and we were together until it was very dark. When I got home my mother chased me away. She told me to go back where I was so I went to my boyfriend. He agreed to marry me and he took me to his family home. *(Control group participant, age 18, married at age 16)*

In addition to marriage due to pregnancy and out of choice, three intervention participants also reported being coerced or given in an arranged marriage:

I had no intention but people keep on pressurizing me. I resisted but they kept on coming and putting pressure on me. My husband’s relatives and not anyone from our family [influenced me to marry]. Especially my husband’s young brother he came and told me that his brother had phoned to say I should be at their place on that same night. My sister and my aunt who was taking care of me [did not want me to get married].... They come and take me from my boyfriend’s place and my husband’s brother would come and took me back to their house until my aunt and sister got tired and left me there. *(Intervention group participant, married at age 16)*

Although none reported being coerced or forced into marriage, poverty and lack of fees was an important reason for marriage among control participants but not intervention participants:

I had no one to buy me clothes. My boyfriend offered to buy some clothes for me and I accepted. He asked me to go and fit the clothes from his room. He came and persuaded me to have sex. I told him that I was no longer going home since I had lost my virginity. *(Control group participant, married at age 17)*

There was no one who was paying for my school fees so I decided to get married. *(Control group participant, married at age 21)*

Suggesting impulsive decision-making as is often exhibited by youth, three (2 intervention and 1 control) participants reported that their marriage “just happened”, was “mischief” or was “childish”. Finally, two participants, one from each condition, said they got married because they were being treated poorly by family members:

My uncle and aunt were ill treating me and locked me in the gate and told me that I was no longer going back to school. I got a chance to run away. *(Intervention group participant, married at age 16)*

Quality of Marriage

We found that control group participants had better quality marriages but may have had fewer resources than those in the intervention group. Married women in the control group were more likely to say that they perceived their marriages to be happier than others compared to intervention group participants. Although it is possible that with time more of the marriages could turn into polygamous unions, at the time interviews were conducted for this study, only two participants were in polygamous marriages and both were in the intervention group. No differences were observed between the two groups in whether participants thought they had fewer, the same or more resources than others in their community. However, slightly fewer intervention group participants compared to control group participants (38% vs 45%) reported going without food on some days and intervention group participants reported having 2.62 meals per day compared to 2.45 meals per day among those in the control group.

In Zimbabwe, traditional or unregistered customary law marriages are distinct from monogamous and polygamous marriages, which are recognized, registered, and entered into under the Marriage Act and Customary Marriages Act, respectively, of the general law (Chirawu, 2006). While traditional marriages are recognized under customary law they are not under general law and thus tend to be informal and unstable. As an indication of the unstable “informal” traditional unions many of the young women in our study had entered into, two participants in the control group and three in the intervention group said they were separated from or abandoned by their husbands:

I am no longer staying with my husband. When I was due to give birth, I was asked to go to my parents' home since it was my first pregnancy. When I gave birth no one came to take me and the baby. I decided to go on my own and find that my husband had moved from where we used to stay. I went to his parents and they asked me to go back to my parents' home and I was supposed to check if he had left a message for me there. I knew it was a way of getting rid of me so I never followed up with him. I later met his friend who told me that he is staying with a new wife. (*Intervention group participant, married at age 18*)

I decided to go back to my family when my daughter passed away because I felt I was being treated unfairly since my in-laws would not allow me to go back to school while their son was in school. I also felt that my husband no longer loved me because he would come with other girls at home and introduce them to his parents [as his] girlfriends. I stayed at home for few months and looked for a job as a housemaid. Now my ex-husband is persuading me to go back to him and I have informed him that if he loves me he has to take me through a white wedding. We are neighbours at our rural home so whenever I took off and go home he will ask me to forgive him. (*Intervention group participant, married at age 16*)

Regretting Marriage

A majority of participants in both groups talked about how they wished they had done things differently, that marriage prematurely ended their opportunities for education and skill development, and that there would have been advantages to postponing marriage. Eighteen

women in the control group (82%) and eight in the intervention group (62%) said that they would have delayed marriage and stayed in school:

... I should have finished my O' level and look for a job and married when I have a professional course. (*Control group participant, married at age 17*)

I could have continued with my studies up to form 4 and if I had passed I would have trained as a teacher and if I had failed I would have gone to a vocation college to train as a dressmaker. (*Control group participant, married at age 16*)

In contrast, four intervention participants, compared to none in the control group, said they would have delayed marriage and gotten a job.

Six control (27%) and three intervention participants (23%) said that they would not have done things differently with most indicating that marriage had improved their lives, they were happier than before marriage, and their husbands supported them.

Health Status and Attitude Toward and Use of Maternal and Child Health Services

There were two HIV positive cases found in this sample; one in each condition. However, of the five HSV-2 positive cases, 4 were in the intervention group. All five HSV-2 positive participants had husbands who were 5 or more years older than them (Zhang et al., unpublished manuscript). Although all participants approved of HIV testing as illustrated below, not all of them had been tested to learn their status. Five intervention group participants, including the two in polygamous marriages, and three control group participants said they had never been tested for HIV:

It is important so that you can plan properly for the future of your kids and also so that one of you is HIV positive will not be able to spread to the other. (*Intervention group participant, married at age 15*)

It is important so that if one if HIV positive will no spread to the partner and also you can get medication for free from the clinics. (*Control group participant, married at age 21*)

Out of 35 participants, 29 had at least one living child (11 intervention and 18 control), five had a deceased child (2 intervention and 3 control), and three were currently pregnant (all controls). Proportionately, control participants reported more positive attitudes toward and higher utilization of health services compared to intervention group participants. A majority in both groups approved of or had their children immunized. These women saw the value of protecting their children against preventable diseases:

During our Friday [church] meetings, we are encouraged to go to the clinic for immunization of the babies. It is important because your child will be protected against diseases. Every month I go to Marange clinic with my son for baby clinic. My son has been immunized. (*Control group participant, married at age 17*)

A larger proportion of control group participants (82%) approved of or were using a family planning method compared to intervention group participants (62%). Many of these women talked about contraceptive use as important for their own and their children's physical, psychological and social health:

Personally believe in taking contraceptives to allow the baby to grow before the next [pregnancy]. The church encourages family planning. During the [church] meetings for women we are encouraged to have a manageable number of children so that we will have a happy life and be able to take care of them. Also get teachings from clinics. (*Control group participant, married at age 16*).

An important note on contraceptive use is that out of all 35 participants, only one in the control group reported using condoms, the one method known to protect against both unintended pregnancy and HIV. While some participants said they were not using contraceptives because they were trying to have a child, others in very conservative indigenous churches did not use contraceptives for religious reasons and instead relied on prayers for protection or practiced abstinence until they were ready for another baby:

I do not prefer the family planning methods that are available in clinics. We have our own method in church. You will go to the prophets and tell them the period you want before expecting another child they will pray for you and you will not be pregnant for that period. When my baby will be six months old, I will go to the prophets so that they will pray for me. (*Intervention group participants, married at age 17*)

If you do not want to be pregnant you will avoid sex. The husband will go to other women until you are ready to have another baby. We are not allowed to go to clinics or hospitals. (*Intervention group participant, married at age 15*)

Discussion

In this study, we explored marriage among young orphaned women in rural eastern Zimbabwe who participated in an RCT to test whether school support reduces HIV and related risk factors, including marriage and school dropout. As expected, married intervention participants had, on average, about one more year of schooling than control participants. However, despite greater education, intervention participants were somewhat less likely to engage in family planning and child immunization than married women from the control group. Intervention group wives were just as likely to experience a child death as control wives. They and their husbands were also less likely to have voluntarily been HIV tested to know their status and were found more likely to be HSV-2 positive compared to control participants.

Our conceptual framework also posited that providing school support would lead to different social and sexual networks for intervention group girls, resulting in exposure to boys and men who were better educated and of a higher socio-economic status. However, we found no difference in level of education or type of occupation between men marrying intervention vs control group participants. Average age of husbands was also similar. Intervention group wives reported slightly better food security than those in the control group but perceptions of having resources compared to others was virtually identical between wives in each condition, and a larger proportion of control group wives reported higher than average perceived happiness in their marriage.

How should we interpret these findings? First, it is important to note that a much smaller percentage of intervention participants (11%) compared to control participants (24%) had ever married. School support was found to significantly reduce early marriage among orphan adolescents over both a two-year period and a five-year period in the main effects study (Hallfors et al., 2011; Hallfors et al., 2015). However, even when orphaned girls are offered comprehensive school support, some proportion of them still choose to drop out of school and marry, many for the same reasons as the control group. As expected, more control group participants mentioned a lack of school fees as a reason for dropping out, but surprisingly, intervention group members were more likely to report having felt coerced into marriage. Advancing age was a strong predictor of marriage independent of condition (Hallfors et al., 2015) and certain religious sects are also associated with early marriage in Zimbabwe (Hallfors et al., 2013) and may have over-ridden the beneficial effects of the intervention.

No clear patterns emerged from our data to explain why married intervention participants were more likely to report being unhappy in marriage compared to control participants. It is possible that for intervention participants, marriage did not turn out to be what they expected. Instead, some found themselves in difficult polygamous marriages, struggling with infidelity or abandonment, or working to support the family. Responses from a majority of participants in both groups suggested they regretted their decision to get married but could see no recourse at the time of the interview. The intervention group participants, in particular, after realizing that they had wasted an opportunity to have schooling costs paid, may have felt that had they made a different choice, they could have attained a higher level of schooling or received training in a skill, thereby improving their lot in life.

HSV-2 infection was higher among married intervention participants suggesting poorer sexual health outcomes in this group compared to those in the control group. This finding, which suggests higher exposure to sexually transmitted infection (STIs) among married intervention participants (most likely from their husbands), implies that school support may not result in safer sexual networks or greater ability to negotiate for safe sex for young women. All the women with a diagnosis of HSV-2 in this study were married to older husbands, which has been shown to be an important risk factor for STIs among young women (Beauclair, Kassanjee, Temmerman, Welte, & Delva, 2012; Zhang et al., unpublished manuscript).

Although we did not find differences by condition in the use of maternal and child health services, most participants in both groups expressed positive attitudes toward and reported high utilization of HIV testing and maternal and child health services. A major reason for marriage among young women in our study was unintended pregnancy suggesting a lack of access to contraceptive methods among unmarried women. We found contraceptive use surprisingly high, however, with many of the young married women reporting that they were using pills. A few were using an implant or injectable. As suggested by Remez et al. (2014), this may be because contraception tends to be more available to young married women than unmarried ones in Zimbabwe. Of important note, however, is that only one participant reported using the male condom which may speak to the challenges young women have in negotiating condom use with their husbands (Remez et al., 2014).

Although most of the study participants reported using child health services, we found a high number of child deaths in our sample. This is a major public health concern. These deaths provide further evidence of the high rate of child mortality among adolescent mothers. Many of our study participants were members of indigenous religious groups, such as Apostolic sects, that do not sanction use of western medical services (Ha, Salama, Gwavuya, & Kanjala, 2014). The child deaths may have occurred among those who were members of the most conservative groups that rely heavily on faith healing and prayers for protection rather than child immunization and medical treatment. Earlier in the parent study, two married Apostolic study participants died in child birth (Hallfors et al., 2011).

Policy implications from our study include confirmation of previous findings that school support reduces early marriage, pregnancy and school dropout among young orphan women. However, the large number of young women who said they got married because they were pregnant indicates an urgent need for proven sexual and reproductive health programs for unmarried adolescents and young women to prevent unintended pregnancies and subsequent child marriages. Finally, policymakers and program developers should include religious groups in discussions about acceptable strategies to improve adolescents' sexual and reproductive.

Limitations include the relatively small sample size available for this study. Mixed methods data are from 35 young married Shona women who participated in an RCT in rural eastern Zimbabwe testing whether school support reduces HIV risk among female adolescent orphans. Our findings cannot be generalized to urban orphans, those of other ethnic groups (e.g., Ndebele), or young non-orphaned women in Zimbabwe or other cultural, economic and social settings. Nevertheless, this study is unique in that it uses rare trial data to examine marriage among adolescent orphan girls, a large and highly vulnerable group in rural Zimbabwe.

School support programs reduce child marriage among female adolescent orphans, with its attendant health risks of early child bearing. However, there is need for further research to improve the synergies between schooling, and sexual and reproductive health services for this vulnerable population. Additionally, there is a need to better understand and address prevailing cultural factors within the Zimbabwean rural context that continue to support child marriage while discouraging schooling for girls.

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Table 1Parent study wave 5 sample characteristics ($N = 287$)

<u>Characteristic</u>	<u>Intervention group</u>	<u>Control group</u>
	<i>N</i> (%)	<i>N</i> (%)
Wave 5 sample	161 (56)	126 (44)
Ever married	18 (11)	29 (24)
Ever pregnant	19 (12)	28 (22)
Ever married and never pregnant	2 (1)	3 (2)
Ever pregnant and never married	3 (2)	2 (2)

Table 2Sample characteristics (*N* = 35)

Characteristic	<i>N</i> (%) / Mean (range)
Group	
Intervention	13 (37)
Control	22 (63)
Highest level of education	
More than primary education	20 (57)
Primary education or less	15 (43)
Age at interview	19.06 (17.00–26.00)
Age at marriage	
Married at or below age 15 years	8 (23)
Married between ages 16 and 17 years	18 (51)
Married at or above age 18 years	9 (26)
Number of years married	2.46 (1–5)
Age difference between respondent and husband	
0–4 years	11 (31)
5 or more years	24 (69)
Number of living children	0.91 (0–2)
Participants with children who died at/after birth	5 (14)

Table 3

Participants' and husbands' socio-demographic information

	Intervention (N = 13)	Control (N = 22)
	N (%) / Mean (Range)	N (%) / Mean (Range)
Participant information		
Participants' number of years of education completed	8.23 (6.00–10.00)	7.36 (6.00–9.00)
Participants' type of job		
Skilled/semi-skilled/student	8 (62)	11 (50)
Unskilled	5 (38)	11 (50)
Participants' age	18.85 (18.00–21.00)	19.18 (17.00–26.00)
Participants' age at marriage	16.62 (15.00–19.00)	16.95 (13.00–23.00)
Husband information		
Husbands' number of years of education completed	10.38 (7.00–12.00)	10.41 (3.00–13.50)
Husbands' type of job		
Skilled/semi-skilled/student	9 (77)	19 (86)
Unskilled	3 (23)	3 (14)
Husband's age	26.77 (21.00–49.00)	26.04 (19.00–37.00)