Effects of the Reaching Married Adolescents program on contraceptive use and intimate partner violence and the role of male engagement: Results of a cluster RCT among married adolescent girls and their husbands in Dosso, Niger

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Background

The West African Francophone country of Niger has among the highest prevalence of girl child marriage (age at marriage <18 years) in the world,[1,2] which, combined with very low contraceptive use, has resulted in the country also having the highest adolescent fertility globally.[3] The Reaching Married Adolescents (RMA) program focuses on increasing use of modern contraceptive methods via community-based activities (household visits and small group discussions) with married adolescent girls and young women (AGYW) and their husbands. Strategies to increase knowledge and improve attitudes and norms regarding contraceptive use in this gender-synchronized approach are complemented by those engaging men and women to challenge traditional gender norms and adopt attitudes supportive of gender equity. Significance of this cluster RCT is heightened based on the inclusion of a population-based sample and their dyadic nature of the data (i.e., linked data collected separately from wives and their husbands), allowing assessment of the effect of male engagement in the intervention on key female-reported outcomes (e.g., contraceptive use and experiences of intimate partner violence).

Intervention

In an effort to increase use of modern spacing contraception among married adolescent girls (ages 13-19 years) and their husbands in the Dosso region of Niger, Pathfinder International implemented Reaching Married Adolescents (RMA), a community-based, gender-synchronized (i.e., program elements are offered to both male and female participants) program that includes household visits to individuals, single-sex small discussion groups, and village-level dialogues intended to increase contraceptive knowledge, improve attitudes and norms (i.e., social expectations) supportive of contraceptive use, and increase use of modern contraceptives. Gender equitable attitudes and norms, particularly those regarding the role of women and girls in decision-making regarding contraceptive use, were also promoted.

Gender-matched trained community health workers (CHWs) conducted household visits for both married adolescent girls and their husbands. Household visits to married adolescent girls included 12 monthly visits consisting of information and counseling on healthy timing and spacing of pregnancies and access and use of modern contraceptive methods. Household visits to husbands were also monthly and involved discussion of these same topics. Selected female community members served as "mentors" and were trained to facilitate small groups for married adolescent girls, which were held twice monthly. Content delivered in these groups included general health and life skills, reproduction anatomy and health, use of modern contraceptive methods to accomplish healthy timing and spacing of

pregnancies, gender norms that impede contraceptive use and female autonomy, couples' communication regarding fertility decisions, and gender-based violence. Small groups for husbands were led by trained male community members, were held monthly, and focused on these same topics. Community dialogues were convened by two trained facilitators each month at the village-level to engage community gatekeepers and key influencers (e.g., traditional and community leaders, parents and in-laws) in creating an environment supportive of healthy timing and spacing of pregnancies and contraceptive use among married adolescents girls and their husbands.

Research Design

Evaluation of the effects of RMA was conducted via a 4-arm cluster RCT, with arms representing the control condition (i.e., receiving no RMA activities) and three intervention conditions: 1) household visits only, 2) small group sessions only, and 3) household visits and small group sessions. Participants were recruited from 48 villages selected from the Dosso, Doutchi, and Loga districts (16 villages per district) in the Dosso region of Niger. Each district was randomly assigned to an intervention condition. The 16 villages were randomly selected among those meeting inclusion criteria: 1) having at least 1000 permanent inhabitants; 2) primarily Hausa or Zarma-speaking (the two major languages of Niger); and 3) have received no intervention specific to contraceptive use or gender equity. Within each district, four of the 16 villages were randomly assigned to the control condition. Within each of the selected villages, 25 households inclusive of a married female adolescent aged 13-19 years and her husbands were randomly selected from a list of all such households generated with the assistance of the chief of that village. Additional participant eligibility criteria included: 1) being Hausa or Zarma speaking; 2) not planning to move away from the village in next 18 months; 3) not planning to travel away from the village for more than 3 months during that period; and 3) not being sterilized. Research assistants visited the randomly selected households to confirm eligibility; those not meeting these criteria were replaced by a household randomly selected from those remaining of the list.

Surveys were conducted verbally with participating wives and husbands separately in locations deemed to provide audio privacy; questions were administered using tablet computers in either Hausa or Zarma by sex-matched trained research assistants, and required 40-60 minutes to complete. Ethics review boards of the University of California, San Diego School of Medicine and the Niger Ministry of Health approved all study protocols.

Data were collected at two time points: May through July 2016 (baseline; T1) and April through June 2018 (23-month follow-up; T2). At baseline, surveys were collected from 1072 female participants of the 1218 eligible adolescent wives (88.0% female participation), 968 of whom provided survey data at T2 (90.3% female retention); 1080 of 1227 eligible husbands completed surveys at baseline (88.0% male participation), of whom 773 participated in data collection at T2 (71.6% male retention). There were no difference in retention rates across study arms, but female baseline participants were more likely to be missing at T2 data if they were nulliparous at T1 ($p=0.02$) or if their husband was polygamous ($p=0.06$). Men were more likely to be missing at T2 data if they were younger age ($p=0.09$), if their wife had not attended school ($p=0.01$), and if they reported having spent more than 3 months away from the village in the past year at T1 ($p<0.001$).

Outcome Measures

To assess current use of modern contraceptives, women were first asked whether they had ever done anything to delay or limit their number of pregnancies. Those answering in the affirmative were then asked about whether they had ever used each of the following methods: IUD, injectable, implant, contraceptive pill, male condom, female condom, emergency contraception, and lactational amenorrhea (LAM). Those answering yes to having ever used one of these modern methods were then asked if they were using this method currently. Current use of modern contraceptives was defined as a response of 'yes' to any question about current use of any of these methods. Eight items from the DHS domestic violence module[4] were utilized to assess adolescent wives' experiences of physical and sexual violence from their husbands during the prior 12 months. Female participants were asked whether their current husband had ever: a) pushed her, shaken her or thrown something at her; b) slapped her; c) twisted her arm or pulled her hair; d) hit her with his fist or something that could hurt her; e) kicked her, dragged her, or beat her up; or f) choked her or tried to burn her. They were also asked whether their husband had physically forced them to have sexual intercourse when she did not want to, or to perform any other sexual acts she did not want to. If a participant answered 'yes' to an item, they were asked whether this behavior has occurred in the past 12 months. Past year IPV was defined as a response of 'yes' to one or more of the questions regarding occurrences in past 12 months. Protocols incorporated World Health Organization's guidelines for conducting research on violence against women[5] (e.g., only one woman or girl per household was asked these questions, men were not asked these questions, and audio privacy was provided) to protect the safety and confidentiality of women and girls participating in the study.

Data analyses

Changes over time in intervention arms relative to the control condition were assessed using a difference-in-difference logistic regression approach, using mixed-effects models with nested random effects based on clustering at the village level. Equivalent linear regression models were subsequently constructed for significant findings for clearer interpretation of coefficient results. Baseline demographic characteristics were included as fixed effects in outcome models if they were associated with treatment or with female loss to follow-up in Fisher's exact tests at $p<0.20$. Fixed effects thus included baseline values of wife age, wife age at marriage, age difference between wife and husband, wife education, husband education, wife parity, husband polygamy, husband migration for more than three months of the previous year, and household asset ownership. All models also included time (baseline or follow-up), treatment arm, district, and a time-treatment interaction term. Individuals nested within villages were included as random effects.

To assess the role of husband engagement, we constructed models including a 3-level indicator of male participation in either household visits or small groups, time, and a time-participation interaction term. These models were restricted to only those arms that received the corresponding intervention activity (e.g., group session involvement was assessed only among the arm receiving only group sessions and the arm receiving both group sessions and home visits). As male and female involvement were hypothesized to be correlated, we also sought to understand the impact of female engagement. We tested comparable models of female involvement, again using a 3-level engagement indicator, time, and time-female engagement interaction. To assess the joint effect of intervention engagement, particularly the additional impact of male engagement after taking into account female engagement, we

constructed a combined model that controlled for both male & female involvement. All models assessing engagement controlled for the same demographic characteristics as the outcome models above.

Results

There was substantial increase in reported current use of modern contraceptives (i.e., IUD, injectable, implant, pill, male condom, female condom, emergency contraception, or lactational amenorrhea) over the study period for the total study population. Modern contraceptive use among non-pregnant women increased from 17% to 29% among control participants and from 10% to 41% among intervention participants. Relative to the control arm, there was a significantly larger increase in reported current use of modern contraceptives among those in intervention villages. In logistic regression models, women had significantly higher odds of modern contraceptive use at follow-up than control in those villages receiving only household visits (AOR 5.38, 95% CI 2.39-12.09, p<0.001) and those receiving both forms of intervention (AOR 4.41, 95% CI2.02-9.64, p<0.001). Women in the villages receiving only group sessions did not have significantly different odds of modern contraceptive use relative to control (AOR 1.74, 95% CI 0.85-3.55, p=0.13). From the corresponding linear regression models, among those villages receiving only household visits, use increased by an additional 19.4% (9.2-29.6%, p<0.001) relative to control and among those receiving both forms of intervention, use increased by an additional 20.3% (10.0-30.7%, p<0.001) relative to control. In pairwise comparisons, both arms that included household visits produced greater effects than the arm including only small groups (ps<0.05). All analyses of current contraceptive use excluded women who were currently pregnant.

Non-engagement in the intervention was more common for men than women; 30% of men and 7% of women did not participate in the intervention(s) assigned to their study arm. High male involvement for home visits was defined as four or more household visits (32% of men in corresponding arms); high female involvement for home visits was seven or more visits (58% of women in corresponding arms). High male involvement for group sessions was defined as attendance of four or more group sessions (32% of men in corresponding arms); high female involvement for group sessions was six or more group sessions (62% of women in corresponding arms). Male & female intervention participation levels were not highly correlated (home visit dose r=0.11, group session dose r=0.22).

Analyses of the role of male engagement in increasing current use of modern contraceptives found that in the home visits only arm, relative to wives whose husband attended no household visits, women whose husband attended at least one home visit experienced significantly greater increases in current contraceptive use (AOR 6.9, 95% CI 1.4-35.2, p=0.02). When broken down by dose of attendance, only those wives whose husbands attended four or more home visits experienced significantly greater increases in current contraceptive use (AOR 9.0, 95% CI 1.26-64.2, p=0.03); attending one to three home visits was not associated with additional increased contraception use (p=0.11). The comparable linear regression model suggests that wives whose husbands attended four or more home visits in the home visits only arm saw an additional 23% increase in current contraceptive use relative to those whose husbands attended none (95% CI 4-41%, p=0.02). In a direct comparison of high to low home visit attendance in this arm, there was no significant difference in increases in contraceptive use for high relative to low visit attendance (p=0.8). No significant relationship between male visit participation and current contraceptive use was observed in the combined interventions arm (ps>0.60). No level of male participation in small group sessions resulted in a significant change regarding their wives' current

contraceptive use in either the arm with small group sessions only or the combined intervention arm (ps>0.20).

Due to low non-participation by females, parallel analyses of female engagement were limited to comparisons between low and high engagement. High level of home visit attendance was not associated with increased uptake of modern contraceptives relative to low visit attendance in either home visit arm (ps>0.10). Dose of female group session attendance was also not associated with increase contraceptive uptake in either group session arm (ps>0.80).

When both female and male engagement were taken into account, the significant effects of male involvement remained in the home visits only arm. High male visit participation was associated with significantly higher odds of modern contraceptive use in this arm after controlling for female visit participation level (AOR 11.6, 95% CI 1.5-88.4, p=0.02). In this combined engagement model, high wife visit engagement was also associated with significantly higher odds of current modern contraceptive use (AOR 6.6, 95% CI 1.2-35.6, p=0.03). The corresponding linear regression model suggests that women attending seven or more home visits had additional increases in modern contraceptive use of 18% relative to women attending six or fewer visits (95% CI -2-34%, p=0.03) and that husband's attendance of four or more visits was associated with an increase in use of 21% relative to husband non-attendance (95% CI 2-40%, p=0.03).

Unlike modern contraceptive use, a clear trend over time in reports of physical or sexual intimate partner violence was not observed in the overall study population. At baseline, 6.9% of control and 9.5% of intervention wives reported violence from their husbands in the past 12 months; at follow-up, 11.7% of control and 9.2% of intervention wives reported the same. Relative to those in the control arm, and accounting for demographics & clustering as in the analyses for current modern contraceptive use, women participating in the group sessions only arm had significantly lower odds of reporting past year IPV (AOR 0.35, 95% CI 0.14-0.89, p=0.03), as did women in the arm with both forms of intervention (AOR 0.40, 95% CI 0.17-0.95, p=0.04). Women receiving only household visits had no significant difference in report of past 12 month IPV relative to control (AOR 1.40, 95% CI 0.52-3.78, p=0.5). From the corresponding linear regression models, women in the arm receiving group sessions only reported decreases in IPV over time relative to controls of 8.3% (95% CI -15.6—0.9) and women receiving both forms of intervention reported decreases in IPV of 8.1% (95% CI -15.4—0.8%, p=0.03) relative to controls. In pairwise comparisons, both arms that included small group sessions produced greater effects than the arm including only home visits (ps<0.01).

Analyses of the role of male engagement in reducing husband-perpetrated partner violence found that there were no significant associations between presence or level of male involvement in the intervention and reduction in IPV. There was also no significant association between level of female participation in the intervention and this effect.

Discussion

RMA, a community-based and gender synchronized program to promote use of modern contraceptives and gender equity among married adolescent girls and their husbands in Niger, results in both increased contraceptive use and reduced husband-perpetrated spousal violence. This is the first rigorous evaluation of a program of this kind in this high-need national and demographic context (i.e., married adolescent girls in Niger), and the first to demonstrate such improvements among this population. A

final wave of data collection will then be conducted at 39 months post-baseline to assess whether currently observed effects are sustained.

Different program modalities and content appear to result in improvements in contraceptive use vs. improvement in safety of married adolescent girls from partner violence. Household visits, with or without small groups, resulted in greater improvements in contraceptive use than small groups alone. However, household visits did not result in reductions in husband-perpetrated spousal violence; only programming inclusive of small groups resulted in reductions of such violence. It may be that groups, particularly men's groups, which focus on gender equity result in shifts in gender norms regarding the acceptability of spousal violence. Groups allow for both social comparison and support to facilitate such norms shifts. Household visits, on the other hand, provided personal, private and confidential contraceptive education and counseling, which may be a more powerful mover of individual contraceptive behavior.

The effects of husband engagement in RMA also differed based on outcome, and lend support to the mechanisms proposed above. Men's engagement in small groups did not affect their wives' use of modern contraceptives, but men's participation in at least four household visits did result in significant additional gains in contraceptive use.

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