Original article

Associations of Age at Marriage With Marital Decision-Making Agency Among Adolescent Wives in Rural Niger

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ABSTRACT

Purpose: Child marriage is associated with multiple adverse health and social outcomes. Although evidence suggests that child marriage is associated with reduced participation in personal and household decisions for women, less is known about the association between age at marriage and decision-making among married adolescent girls. This study assesses associations between adolescents’ age at marriage and two dimensions of decision-making (participation and satisfaction) in the high early marriage prevalence settings of Niger.

Methods: Cross-sectional data from a cluster-randomized control trial of a community-level program to increase the use of modern contraceptives among married adolescents in the Dosso region of Niger were analyzed. Multiple logistic regression models were used to determine the association of age at marriage with married girls’ participation in and satisfaction with decision-making processes.

Results: More than half of married adolescents (N = 796) were married before reaching the age of 15 years. Older age at marriage was associated with adolescents’ increased participation in decisions related to economics (adjusted odds ratio: 1.23; 95% confidence interval: 1.05–1.43) and health-care access (adjusted odds ratio: 1.18; 95% confidence interval: 1.01–1.40), but not with greater reported satisfaction with their control over these decisions.

Conclusions: The study suggests that marrying as a very young adolescent places girls in an even more disadvantaged position regarding decision-making than marrying at an older age.

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Niger has the highest prevalence of child marriage (marrying before reaching the age of 18 years) globally, with 76% of women of ages 20–24 years married before the age of 18 years; nearly 40% of these marriages occur before 15 years of age [1,2]. This high rate of child marriage in Niger is driven by its high poverty levels, lower education rates, especially female education rate,
social norms, and inequitable gender norms [3–5]. With no significant reduction in child marriage rates over the last 25 years [6], the Niger population, especially girls and women, continues to face multiple harmful effects of child marriage.

Previous studies show that women who get married at an early age face adverse health, nutrition, educational, and economic consequences. Child marriage is highly associated with early pregnancy, which has numerous negative health impacts for both the woman/girl and her children [7–10]. Specific health impacts of child marriage include a higher risk of complication during pregnancy and childbirth [7], maternal mortality [8,9], poor infant health and infant mortality [10], and depression [11,12]. Girls and women who marry as children are also more likely to face intimate partner violence and related health impacts [13,14]. The negative impact of child marriage on female education has been widely documented. Studies show that marrying as a child increases the likelihood of girls dropping out of schools and reduced enrollment in secondary or higher education [15–17]. Child marriage has negative economic impacts via reducing women’s labor force participation and lower earnings for women workers [18,19].

Research has also established links between early marriage and women’s individual agency. As defined by Kaber (1999), the agency includes individuals’ or groups’ ability to define their goals and act upon them and is often operationalized as individuals’ ability to participate in decisions concerning their goals [20]. Research shows that women who get married at an early age have a lower ability to participate in decisions regarding personal matters, including reproductive health [21–23]. In addition, they are often not included in important household decisions [18,24]. While there is some evidence for the association between child marriage and women’s lack of participation in decisions concerning personal and household matters, not much is known about how the age of marriage (very young vs. older adolescents) relates to such decision-making ability among married adolescent girls (also called adolescent wives in this article).

The present study extends the measures for assessment of decision-making to include satisfaction with the level of participation that married adolescent girls have in decisions across the domains of economic decisions, freedom of movement, and health-care access. The inclusion of satisfaction measures is important to further our understanding of agency related to decision-making because it may reflect the desires and aspirations of women and girls. Combined with actual participation, satisfaction with control over decisions may extend our understanding of agency in this context.

Niger, with its highest levels of not just child marriage (less than 18 years) but also early child marriage (less than 15 years), is a key setting to extend the state of knowledge on how marrying at a very young age relates to multiple aspects of agency among married adolescent girls.

Methods

Data

Data for the analysis were collected as part of a cluster-randomized control trial of Reaching Married Adolescents — multiple community-based approaches to expand access to modern contraceptive methods among married adolescents in the Dosso region of Niger. The cluster-randomized control trial used a four-arm design with two-stage random sampling. The first stage sampling involved a random selection of 16 villages from each of the three districts in the Dosso region — Dosso, Doutchi, and Loga — having at least 1000 inhabitants and whose residents spoke either Hausa or Zarma (the two dominant languages in the Dosso region). The second stage sampling involved a random selection of 25 households from each of the selected villages based on a listing of married adolescent girls provided by the village head. The eligibility criteria for adolescent girls included (1) between 13 and 19 years of age (baseline), (2) married, (3) fluent in Hausa or Zarma, (4) not having plans to move away in 18 months after the baseline study or plans to travel for more than six months during that time, (5) not currently sterilized, and (6) willing and able to provide informed consent. Further details of the research design have been described elsewhere [25]. The present study used cross-sectional data collected 40 months after baseline during October–November 2019 (District and study arm are included in all analytic models.). Participants provided verbal informed consent before survey participation. Study protocols were reviewed and approved by the Research Ethics Board of the Niger Ministry of Health and the University of California San Diego School of Medicine Institutional Review Board.

Trained, gender-matched, and fluent French- and Hausa- and/or Zarma-speaking research assistants (RAs) collected quantitative data from participants using face-to-face interviews. The RAs first approached the selected households to introduce the study and confirm the presence of an eligible married adolescent girl in the household. In compliance with the local customs, the RAs took permission from male heads of households before approaching married adolescent girls. Households with no eligible married adolescent girl or no response in three visits were replaced by a randomly selected household from those not selected through the initial round. At baseline, a total of 1072 participants completed the interviews, out of which 823 participants completed the survey at 40 months of follow-up (retention rate = 77%). Of these 823 participants, 27 were married at the age of 18 or 19 years and were, therefore, excluded from the study sample (final analytic sample = 796). Interviews took 40–6 minutes to complete and were conducted in a private location chosen by participants using preprogrammed tablet devices.

Measures

The study outcomes included six variables measuring two aspects of agency — participation and satisfaction related to decision-making. Each aspect was measured across the three domains: household spending, freedom of movement, and health-care access. Specifically, items assessed perceived participation in decision-making regarding the expenditure of their husband’s earnings; her visiting family, relatives, and friends; and her access to health care. Each of the aforementioned variables was coded as “Adolescent wife alone or jointly” versus “Someone else” based on wife’s response to the following questions: (1) “Who usually makes decisions about how your husband’s earnings (money or goods) will be used?”, (2) “If you should visit your family, relatives, or friends who makes that decision?”, and (3) “Who usually makes decisions about health care for yourself?”. Similarly, satisfaction with decision-making control regarding these same concerns (husband’s earnings, visiting others, and health-care access) was based on the wife’s response to the following questions: (1) “Are you satisfied with
the level of control you have over decisions about how your husband’s earnings (money or goods) will be used?”, (2) “Are you satisfied with the level of control you have over decisions about health care for yourself?”, and (3) “Are you satisfied with the level of control you have over decisions about you visiting family, relatives, or friends?” with responses coded as “Always/usually” versus “Never/rarely.”

In addition, across each of the three areas of decision-making, participants were categorized into four groups, including (1) respondent decides alone or jointly and is always/usually satisfied, (2) respondent decides alone or jointly and is never/rarely satisfied, (3) respondent does not decide and is rarely/never satisfied, and (4) respondent does not decide and is always/usually satisfied.

Respondent’s age at marriage in years was used as the predictor. Age at marriage was categorized (before 15 years and 15–17 years) to correspond to early adolescent marriage and later adolescent marriage to describe the sample. However, age at marriage was considered as a continuous variable in models to conserve variance. Covariates used in the analysis included participants’ current age, the age difference between a wife and her husband, parity, wives’ and husbands’ education level, husbands’ number of wives, and household asset score. While study arm and district were not the covariates of interest, they were included in the analysis to adjust for any contextual differences due to the study design. Participants’ current age and the age difference between them and their husbands were captured as continuous variables in completed years. Parity was categorized as none/no birth, one birth, and two or more births. Wives’ and husbands’ education were categorized as any modern schooling, only Quranic education, and no schooling. Husbands’ number of wives was categorized as one or more than one. The household asset score was calculated as the sum of items owned by the household. This score ranged from 0 to 6. The study arm was categorized into four categories based on the intervention received, including (1) home visit only, (2) small group discussion only, (3) both home visit and small group discussion, and (4) control arm. The variable for district represented the three districts covered in the study: Loga, Doutchi, and Dosso.

Analysis

Descriptive statistics, including means and percentages, were used to describe the sample. Simple logistic regression models were used to assess crude associations (odds ratio and 95% confidence interval [CI]) of outcome variables with predictor and covariates. Multiple logistic regression models adjusted for covariates were used to further assess the relationship (adjusted odds ratio [AOR] and 95% CI) between age at marriage and decision-making outcomes. These multiple logistic regression models included the treatment arm and district to adjust for any contextual difference due to the study design. However, we did not interpret the association of outcome with these variables because these are not the predictor of interest. Covariates were tested for multicollinearity using variance inflation factor analysis. The data missingness due to loss to follow-up was addressed by including the factors associated with nonresponse rate (parity, age difference between husband and wife, and asset score) as covariates in all adjusted models. We also conducted a post-hoc exploratory analysis with age at marriage as a categorical variable (married before 15 years and 15–17 years) in the multiple logistic regression models described previously. These post-hoc analyses were conducted to explore if girls married before and after a cutoff age of 15 years have different decision-making agency outcomes. Data were analyzed using STATA 16.0 software (StataCorp, College Station, TX).

Results

On average, respondents married at the age of 14.0 years, with more than half marrying before reaching the age of 15 years (60.2%). More than one-third (35.5%) of the respondents had no children, and similar fractions had one (34.7%) or two or more children (29.8%). Around half (47.4%) of married adolescents in the sample had never attended any school (Table 1).

The study found that less than one-fifth (18.5%) of participants reported that they are involved in decisions around the expenditure of their husbands’ earnings; however, 68.5% percent reported that they are always/usually satisfied with the level of control that they have over such decisions. A little more than one-third (34.3%) of the participants reported that they participate in decisions regarding their visits to family, relatives, and friends, and the majority (77.1%) reported satisfaction (always/usually) with the control they have over such decisions. While only 15.2% of participants reported involvement in decisions regarding their health-care access, almost three-quarters (73.0%) reported satisfaction with the level of control over such decisions. Around half of the respondents reported that they do not participate in these decisions but are always/usually satisfied under such conditions (52.3% for decisions about husbands’ earnings; 44.9% for decisions about visits to family, relatives, and friends houses; and 59.1% for decisions regarding health-care access) (Table 1).

The variance inflation factor analysis did not find multicollinearity among the covariates. The results from unadjusted and adjusted logistic regression models with economic outcomes show that every additional year of age at marriage is associated with greater participation in decision-making around husband’s earnings (AOR: 1.28; 95% CI: 1.09–1.51). However, age at marriage was not associated with adolescent wives’ satisfaction with the level of control they have over decisions about husbands’ earnings (Table 2).

Models of mobility outcomes show that age at marriage is not associated with either adolescent wife’s participation in or satisfaction with control over decisions regarding their visits to family, relatives, and friends. However, adolescent wives who had two or more children were more likely to participate (alone or jointly) in decisions regarding their visits to family, relatives, and friends than those who had no child (AOR: 2.04; 95% CI: 1.20–3.46). Also, adolescent wives whose husbands attended any modern school were less likely to be satisfied with the level of control they have over mobility decisions than those whose husbands did not attend any school (AOR: .60; 95% CI: .39–.93) (Table 3).

As shown in Table 4, similar to models of economic outcomes, age at marriage was associated with increased odds of an adolescent wife’s participation in decisions regarding their health-care access, but not with their satisfaction with the level of control over such decisions. For higher age at marriage, wives were more likely to participate in decisions regarding their health-care access (AOR: 1.18; 95% CI: 1.01–1.40).

Age at marriage as a categorical variable (married before 15 years and 15–17 years) in the post-hoc analysis (results not
Discussion

More than half of the participants (60.2%) in the present study of married adolescents in rural Niger reported being married in early adolescence, i.e., at the age of 14 years or younger. This rate of very early child marriage is higher than that reported for West and Central Africa (33.3%) [1], likely due to the rural context of the study. This sample is also characterized by low participation levels in economic and health-care access decisions (e.g., 18.5% participate in decisions related to the expenditure of husbands’ earnings; 15.2% participate in decisions related to accessing health care), as compared to that reported in studies of other African countries (45%–75%) [26].

In this assessment of how child marriage relates to adolescent wives’ agency, we found that older age at marriage is associated with increased participation in decision-making (for economic outcomes and health-care access) but not with their satisfaction with the level of control over these decisions. While other studies have reported similar findings in different contexts [18,24], the findings from the present study are novel because of the setting of Niger, a country with extremely high rates of not just child marriage but also early child marriage (below 15 years). Also, while other studies have compared outcomes for girls and women marrying as a child (before 18 years) versus as an adult (18 years or above), the findings from the present study show

shown in tables) was not associated with any of the study outcomes.
that within this sample of those married before the age of 18 years, the likelihood of participation in major decisions increases with older age at marriage.

The study did not find any association between participants’ age at marriage and satisfaction with the level of control over economic, mobility, and health-care access decisions. The finding that most adolescent wives are satisfied with the level of control over decisions irrespective of their participation hints toward adolescents having lower expectations to be involved in such decisions. In a community with strong gender norms supportive of husbands and not wives making decisions, adolescent wives may not expect to have any say in the decision-making process.

### Table 2
Results from logistic regression models for economic outcomes

| Predictor | Participation in decisions regarding husband’s earnings-alone/jointly versus someone else | Satisfaction with the level of control over decisions about husband’s earnings-always/usually versus never/rarely |
|-----------|---------------------------------------------|-------------------------------------------------------------|
|           | ORa (95% CI) | AORb (95% CI) | ORa (95% CI) | AORb (95% CI) |
| Age at marriage (in years) | 1.14* (1.03–1.27) | 1.28* (1.09–1.51) | 1.02 (0.93–1.11) | 1.05 (0.92–1.19) |
| Participant’s current age | .95 (0.87–1.04) | 1.14 (0.96–1.35) | .99 (0.92–1.06) | 1.07 (0.93–1.22) |
| Age difference between husband and wife | .99 (0.95–1.03) | .99 (0.95–1.04) | .98 (0.95–1.01) | .97 (0.93–1.05) |
| Parity at baseline | | | | |
| None | Ref | Ref | Ref | Ref |
| 1 birth | .79 (0.51–1.12) | .69 (0.42–1.14) | 1.02 (0.71–1.47) | 1.00 (0.65–1.52) |
| 2 or more birth | .88 (0.56–1.36) | .76 (0.40–1.45) | .83 (0.57–1.20) | .80 (0.46–1.37) |
| Wife’s education level | | | | |
| No schooling | Ref | Ref | Ref | Ref |
| Any modern | .90 (0.60–1.35) | .77 (0.49–1.21) | 1.18 (0.84–1.64) | .96 (0.67–1.39) |
| Quranic only | 1.09 (0.65–1.79) | 1.02 (0.57–1.84) | 1.32 (0.85–2.06) | .87 (0.52–1.46) |
| Husband’s education level | | | | |
| No schooling | Ref | Ref | Ref | Ref |
| Any modern | .90 (0.59–1.37) | .94 (0.60–1.47) | 1.01 (0.71–1.43) | .90 (0.62–1.32) |
| Quranic only | .85 (0.50–1.45) | .79 (0.45–1.42) | 1.26 (0.81–1.96) | 1.09 (0.67–1.77) |
| Husband’s number of wives | | | | |
| One | Ref | Ref | Ref | Ref |
| More than one | .88 (0.50–1.55) | .82 (0.42–1.61) | .80 (0.51–1.24) | .99 (0.57–1.72) |
| Household asset score | 1.11 (0.95–1.30) | 1.11 (0.94–1.32) | .99 (0.87–1.14) | .98 (0.86–1.13) |

*Significance at 0.05 level.
AOR = adjusted odds ratio; CI = confidence interval; OR = odds ratio.
* Results indicate OR from a separate model for each variable as predictor.
* Results indicate AOR from one model with age at marriage as predictor and all the other variables as covariates, including study arm and district.

### Table 3
Results from logistic regression models for mobility outcomes

| Predictor | Participation in decisions regarding visits to family’s, relatives’, and friends’ house-alone/jointly versus someone else | Satisfaction with the level of control over decisions about visits to family’s, relatives’, and friends’ house-always/usually versus never/rarely |
|-----------|-------------------------------------------------------------|-------------------------------------------------------------|
|           | ORa (95% CI) | AORb (95% CI) | ORa (95% CI) | AORb (95% CI) |
| Age at marriage (in years) | 1.02 (0.94–1.11) | 1.02 (0.90–1.16) | 1.03 (0.94–1.13) | 1.05 (0.90–1.22) |
| Participant’s current age | 1.02 (0.95–1.09) | 0.95 (0.83–1.09) | .99 (0.92–1.08) | 1.06 (0.91–1.23) |
| Age difference between husband and wife | 1.01 (0.98–1.04) | .99 (0.95–1.02) | .99 (0.96–1.02) | .97 (0.93–1.01) |
| Parity at baseline | | | | |
| None | Ref | Ref | Ref | Ref |
| 1 birth | 1.28 (0.90–1.83) | 1.42* (0.94–2.14) | .86 (0.58–1.28) | .81 (0.51–1.29) |
| 2 or more birth | 1.47** (1.02–2.13) | 2.04** (1.20–3.46) | .94 (0.62–1.42) | .90 (0.49–1.67) |
| Wife’s education level | | | | |
| No schooling | Ref | Ref | Ref | Ref |
| Any modern | .96 (0.70–1.33) | .89 (0.62–1.27) | 1.20 (0.83–1.75) | 1.15 (0.76–1.76) |
| Quranic only | .88 (0.57–1.34) | .72 (0.44–1.19) | .90 (0.57–1.44) | .65 (0.37–1.14) |
| Husband’s education level | | | | |
| No schooling | Ref | Ref | Ref | Ref |
| Any modern | .83 (0.59–1.16) | .81 (0.56–1.16) | .66** (0.44–0.99) | .60** (0.39–0.93) |
| Quranic only | .83 (0.54–1.26) | .67* (0.42–1.07) | 1.00 (0.60–1.68) | .89 (0.50–1.57) |
| Husband’s number of wives | | | | |
| One | Ref | Ref | Ref | Ref |
| More than one | 1.43 (0.93–2.20) | 1.48 (0.88–2.51) | 1.23 (0.73–2.10) | 1.49 (0.77–2.89) |
| Household asset score | 1.10 (0.97–1.25) | 1.08 (0.94–1.24) | 1.07 (0.92–1.24) | 1.06 (0.91–1.25) |

**Significance at 1/0.05 level.
AOR = adjusted odds ratio; CI = confidence interval; OR = odds ratio.
* Results indicate OR from a separate model for each variable as predictor.
* Results indicate AOR from one model with age at marriage as predictor and all the other variables as covariates, including study arm and district.
They may be satisfied with a minor or no role. Previous studies have found evidence suggesting that, within the context of inequitable gender norms, girls and women may internalize these inequitable norms [18], which can explain lower expectations among adolescent wives. Also, inequitable gender norms have been found to be adopted by young people before reaching adolescence [24]. A previous ethnographic study in Niger [4] found that obedience from a current or prospective wife is the most common trait expected by young men, indicating a social norm supportive of male dominance in any decision-making process. The same study found that most girls and young women agree with gender inequitable attitudes such as "A woman should never question her husband’s decision even if she disagrees" (97% of adolescent wives agree with this statement).

The study also found that adolescent wives whose husbands attended modern school were less likely to be satisfied with their level of control over mobility decisions than adolescent wives whose husbands did not attend any school. An inverse relationship between a household member attending modern school and satisfaction might be explained by modern education exposing household members (including adolescent wives) to more gender-equitable attitudes, leading adolescent wives to feel less satisfied with their exclusion from the personal and household decision-making processes. While no study has assessed the association between wives’ satisfaction with decision-making and husbands’ education, prior studies have found that women with more educated husbands than themselves have a lower level of marital satisfaction [27,28].

The current findings extend the limited evidence around the association of child marriage and decision-making agency among married adolescent girls in Niger. More than half of the girls married during very early adolescence and girls who married at a younger age have lower participation in household decisions than those who married during older adolescence. These findings indicate the need to design policies and programs to delay the age of marriage to improve agency among married women. There is a need for programs that start working with communities, including boys and girls, at a very early age to change inequitable gender norms. The focus on changing gender norms is required to delay marriage and improve agency related to decision-making among married adolescent girls. As child marriage is a norm rooted in a complex web of other gender norms and beliefs, policies and programs need to focus on changing a broad range of norms regarding the roles and rights of women and girls. Efforts to change such gender norms may be informed by previous studies demonstrating the impact of changing legislation and social policies and of social and behavior change communication approaches [29,30].

The current findings of high satisfaction with the low levels of control over decisions, regardless of age at marriage, support the existence and women’s internalization of powerful social norms regarding gender roles [4,24,31,32], specifically the exclusion of young wives from decisions. Qualitative research in this area to increase understanding of the meaning of satisfaction with limited participation or control over decisions (and other inequitable gender roles), and how girls’ early marriage can affect their satisfaction in different contexts involving varying levels of positive or negative gender norms, is called for. One hypothesis to be explored is whether this high level of satisfaction results from lower expectations among girls and women to participate in household decisions because of the internalization of inequitable gender norms. Such qualitative studies can help refine the measure for assessing married adolescent girls’ agency related to decision-making and improving the understanding of how child marriage relates to both participation and satisfaction in different gender norm contexts.

The association of age at marriage with the study outcomes disappears when the age at marriage is categorized as before

| Predictor | Participation in decisions regarding health-care access-alone/jointly versus someone else | Satisfaction with the level of control over decisions about health-care access-always/usually versus never/rarely |
|-----------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Age at marriage (in years) | 1.09 (97–1.22) | 1.03 (94–1.12) |
| Participant’s current age | 1.02 (93–1.12) | 1.00 (93–1.08) |
| Age difference between husband and wife | .98 (94–1.02) | 1.00 (97–1.03) |
| Parity at baseline | | |
| None | Ref | Ref |
| 1 birth | 1.78** (1.13–2.81) | 1.22 (.83–1.78) |
| 2 or more birth | .88 (.52–1.50) | .91 (.62–1.33) |
| Wife’s education level | | |
| No schooling | Ref | Ref |
| Any modern | 1.27 (.85–1.91) | 1.13 (.79–1.61) |
| Quranic only | .41** (.19–.84) | .84 (.59–1.31) |
| Husband’s education level | | |
| No schooling | Ref | Ref |
| Any modern | .80 (.52–1.24) | 1.04 (.72–1.49) |
| Quranic only | .57* (.31–1.02) | 1.29 (.81–2.05) |
| Husband’s number of wives | | |
| One | Ref | Ref |
| More than one | .90 (49–1.64) | 1.22 (.74–2.00) |
| Household asset score | .86 (.73–1.03) | .98 (.85–1.12) |

*Significance at .1/0.05 level.
AOR = adjusted odds ratio; CI = confidence interval; OR = odds ratio.
1 Results indicate OR from a separate model for each variable as predictor.
2 Results indicate AOR from one model with age at marriage as predictor and all the other variables as covariates, including study arm and district.
15 years and 15–17 years (in the post-hoc analysis). This indicates that the cutoff age of 15 years is not relevant in this study context and that age at marriage has an incremental effect throughout the marital age range (13–17 years) on married adolescents’ household decision-making agency.

Several limitations of the present study design should be considered when interpreting the findings. The study was conducted in rural communities in Niger which have extremely high levels of child marriage, and therefore, the results likely do not generalize to other contexts where child marriage rates are low. The study did not include unmarried adolescent girls of similar age, limiting the ability to make comparisons of study participants with girls/women in these groups. The sampling frame for the study was developed by asking the village head to list all married adolescent girls in the village. This approach might lead to the exclusion of participants because of biases held by the village head. However, this approach was required, as no other more reliable source of data was available. The study used self-reported data, which may be subject to social desirability biases, particularly in reporting dissatisfaction with decision-making control.

Because the data analyzed are cross-sectional, causality cannot be assumed. The study had a high attrition rate (23%) which might have introduced some bias in the sample. However, we analyzed the data to identify factors associated with missingness and included these factors (parity, age difference between husband and wife, and asset score) to minimize the bias.

These results highlight the need for delaying child marriage, including very early child marriage, in the context of Niger. Delaying child marriage may be key to increasing decision-making agency among young women after marriage. Programs and policies guided by existing evidence-based models may help in achieving this goal. In addition, qualitative research is required to understand the meaning and role of girls’ and women’s satisfaction with the level of participation in household decision-making, as this may explain understanding about decision-making agency.

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