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December 1, 2022

**Construct Validation of Women's Marital Agency Measure and a Test of Its Association
with Contraceptive Self-Efficacy (CSE)**

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health
2022

Abstract

Construct Validation of Women's Marital Agency Measure and a Test of Its Association with Contraceptive Self-Efficacy (CSE)

By Hilawit Gebrehanna

Women's empowerment is one of the most critical global targets for overcoming poverty and ensuring well-being; however, measuring this concept remains a challenge. This study validated assessments of marital agency as a component of women's empowerment in response to the need for concrete quantitative measures for key problems (child marriage and forced marriage) of Sustainable Development Goal 5.3, the elimination of all harmful practices, including child, early, and forced marriage (IAEG-SDGs, 2017). This study analyzed baseline survey data from CHARM2, an evaluation of a gender-synchronized family planning intervention in India that included a measure of marital choice piloted in prior research ([McDougal et al., 2018](#); [Raj et al., 2014](#)). Construct validity was evaluated by testing the associations between marital agency measures (choice of partner and choice of marital timing) and measures of disempowerment in marriages. Disempowerment indicators considered are marital practices and experiences that can impose restraint on women's autonomy at marriage or immediately after (e.g., child marriage) and those that may be implicated over time (e.g., IPV). Comparisons were made using Fisher's exact test for categorical variables and k-sample equality-of-median test for continuous variables. Finally, a multiple regression analysis was used to examine the relationship between marital agency and another instrumental agency indicator, contraceptive self-efficacy (CSE). Limited agency in the choice of partner was significantly associated with having an arranged marriage, child marriage, dowry payments, and lower marital quality. The choice of marriage timing was associated with all these outcomes and purdah practice. Neither indicator achieved significance in its correlation with IPV or marital happiness. The second analysis of the marital agency indicators and CSE was not significant. The construct analysis findings indicate that marital agency measures are valid and can be used in future studies as tangible measures of forced marriage. However, the weak association between marital agency and IPV, marital happiness, and CSE indicates that marital agency has a more substantial effect on women's empowerment at marriage than over time in marriage, implying the need to investigate further how other empowerment resources and domains interplay in affecting the level of women's agency over time in their marriages.

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Introduction

The problem

In November 2018, the UN General Assembly reaffirmed its commitment to end child, early and forced marriage by 2030, with a resolution co-sponsored by 116 nations representing all world regions (UN, 2018). The child and early marriage components of this target can be readily monitored, given the availability of age at marriage, through Demographic and Health Surveys and UNICEF's Multiple Indicator Cluster Surveys, which are nationally representative surveys collecting these data across more than 100 low- and middle-income countries at regular intervals. In contrast, forced marriages lack clear measurement guidance and monitoring data. Studies on forced marriage tend to assess some of its most egregious forms, such as via physical threats, kidnapping, trafficking, or pressured marriage to one's rapist to protect family "honor" (Becker et al., 2017; Esthappan et al., 2018; Seff et al., 2019; Stockl, Kiss et al., 2017). These are not standard questions in national surveys, nor do they assess what may be a more normalized phenomenon indicative of "forced marriage," and one very much related to child and early marriage, namely, the absence of female engagement and agency in marital decision-making.

In the context of India, a country with over 95 million girls aged 10-17 and a 27% prevalence of child and early marriage, family control or influence over women and girls' marital decision-making remains a norm (International Institute for Population Sciences (IIPS) & ICF, 2017; McDougal et al., 2018; Raj et al., 2014; United Nations (UN), 2019). Evidence also demonstrates the intergenerational transmission of these norms in India, from fathers to sons and from mothers to daughters (Raj et al., 2014). Data from the India Human Development Survey 2011-12 found that 45% of married women in India were not consulted on the selection of their marriage partner and/or timing of their marriage, and only 5% of married women had independent control over their

marital decision-making (Desai, 2017). Certainly, there can be important value from family input for partner selection and the timing of marriage, but such involvement should not supersede women's agency in deciding who and when to marry. As has been seen with child marriage (McDougal et al., 2018; Raj, 2010), undermining women and girls' agency regarding the timing of marriage may compromise a woman's autonomy in marriage, leaving her more vulnerable to violence and reproductive coercion from her husband and in-laws.

In India, after marriage, women have to negotiate their positions with their spouses or other men and senior women, especially their mothers-in-law (Sahu et al., 2016). Decision-making, including the reproductive and family planning well-being of women, lies in their relationship with these key family members (Mumtaz & Salway, 2007). From an empowerment perspective, women's ability to exercise their agency when entering a marriage can define the power they have to negotiate the subservient position they are automatically assigned in their future household. Because choice is at the center of the multidimensional concept of empowerment (Kabeer, 1999), substantiating its relationship with other concepts that cumulatively construct empowerment and well-being is imperative.

Empowerment refers to a transformative process and outcomes in the private and public domains (Edmeades et al., 2018), whereas agency refers to a given person's degree of involvement or realization of preference to be involved in different courses of action (Drydyk, 2013). Building on the framing of empowerment as a comprehensive construct that entails agency as one component, this study aims to promote an understanding of the role of agency in the process and outcome stages of empowerment. Considering agency as one's ability to make strategic life choices (Kabeer, 1999), this study analyzes marital choice to substantiate other processes and outcome elements of empowerment in marriage.

Significance of the study

Few studies have examined women's involvement in choosing who and when to marry them. A quantitative measure for marital agency is not standard, though evidence suggests that it is measurable in terms of choice of marital timing and partner selection (Desai, 2017; Raj et al., 2014). As such, this study examined the associations between variables of marital choice and marital characteristics and experiences in marriage, aiming to validate marital choice as an agency measure. Moreover, by exploring how choice can cumulate to influence immediate marriage experiences and, over time, other expressions of agency in one's reproductive needs, the study will contribute to the conceptualization of agency and empowerment in the reproductive health sphere.

Research objectives and hypothesis

This study assessed the construct validity of marital agency, with women being the primary decision-makers of whom and when they marry, as it relates to outcomes that are theoretically related to control or lesser control. We tested whether marital choice, as an element of agency, is consistent with theoretically derived expectations of autonomy and can be interpreted as a manifestation of other dimensions of empowerment in the characteristics of one's marriage and one's experiences of practices (purdah and dowry) and violence within the marriage. To further explore the relative importance and prediction of marital agency intention for other empowerment outcomes, particularly reproductive health, a multiple regression analysis was conducted with contraceptive self-efficacy (CSE).

Hypothesis 1: Marital agency will inversely correlate with the characteristics of and experiences in one's marriage (arranged marriage, child marriage, dowry payment, purdah, poor marital quality, and intimate partner violence (IPV)).

Hypothesis 2: Marital choice will be positively associated with contraceptive agency after controlling for sociodemographic factors, education, age at marriage, caste, and religion.

Materials and Methods

Data source

We analyzed baseline survey data from women in a cluster-randomized controlled trial to evaluate CHARM2 [Counseling Husbands and wives to Achieve Reproductive health and marital equity], a gender-synchronized gender-transformative family planning intervention for young married couples. The details of the study setting and design have been published elsewhere (Dixit et al., 2019). Trained research staff recruited a randomly selected subsample of eligible couples in the rural Pune District of Maharashtra, India, from September 2018 to June 2019. Couples were eligible for study inclusion if the wife was aged 18-29 and neither member of the couple was infertile or sterilized; eligible couples also needed to have resided together for at least three months and not have plans to migrate in the two years subsequent to recruitment.

Of 1,756 eligible couples approached for participation, 1,201 (68%) participated in the study at baseline. As some questions relating to marriage were asked about their first marriage, while others were asked about their current marriage, the sample analyzed was limited to women who had only been married once to allow the inclusion of all marriage-related variables. Nine women who married twice were excluded from the analysis, resulting in a final analytic sample of 1,192.

All baseline data were collected by trained study staff and were sex-matched with the participants. Private interviews were conducted with husbands and wives separately in the local language of Marathi. All participants were provided with information regarding available local family planning services through the public health system and information regarding local services for domestic

violence, regardless of their responses to the domestic violence items in the survey. Surveys assessed participant demographics, marital age, involvement in marital decision making, family planning behaviors, and marital relationship indicators, including violence.

Ethical considerations

Ethical approval for this study was obtained from the National Institute for Research in Reproductive Health Ethics Committee (#270/2014, initial approval 11/12/2018), Population Council Institutional Review Board (#EX2018012, initial approval 7/16/2018), and University of California San Diego Institutional Review Board (#161797, initial approval 1/19/2017; #190167, initial approval 4/12/2019). Written informed consent was obtained from all respondents at the baseline survey. The interviewers documented the receipt of written informed consent on the individual consent forms. Furthermore, the Emory University Institutional Review Board determined that this secondary data analysis using de-identified data was not a human subject research.

Measures and analysis

Marital agency

Based on prior formative research for this study, as well as other studies on marital choice in India, including a quantitative measure focused on attitudes rather than behavior (McDougal et al., 2018; Raj et al., 2014), the marital agency measure was constructed with two items: partner choice and choice of timing of marriage. Cognitive interviews were conducted with 20 participants to pilot test these items and ensure that they were understood correctly by the participants before taking them into the field. Female respondents were asked: 1) “Who was the primary person to decide

whom you married?” 2) “Who was the primary person to decide when you should get married?”. The response options were self, mother, father, brother, sister, aunt, uncle, grandmother, grandfather, community leader, religious leader, or other individual. Responses were dichotomized to indicate whether the woman or someone else was the primary decision-maker for 1) who to marry and 2) when to marry.

Marital characteristics

Women were also asked about their type of marriage - arranged, love without parents' consent, or love with parents' consent. In arranged marriages in India, parents and the family of the bride will typically choose a spouse based on caste, religion, social and economic status, education, and physical characteristics of the bride and groom, but her consent may or may not be sought. She might even be the primary decision-maker among her parents' selections in these cases, so we cannot presume arranged marriage to be indicative of a lack of choice. To address this gap, women were asked if they were *forced to marry* via a single yes/no item. These items were included for descriptive purposes to highlight their limitations in assessing marital choices.

Variables of construct validity

Age of marriage was asked directly of female respondents; this has been shown to yield accurate reporting in this context (Raj, 2017). *Child marriage* was indicated if the wife's age at marriage was younger than 18 years (the legal age for the marriage of women in India). *Dowry payment* and the practice of *purdah*, both traditional practices related to marriage, were asked directly as yes/no questions. Dowry is an illegal practice that includes nuptial payment in the form of gifts or money from the bride's family to the groom and his family. Purdah refers to the veiling or covering of the

head and face, especially practiced by young newly married women. These measures were adapted from previous national surveys conducted in India (Desai, 2017; IIPS, 2018).

Marital satisfaction and safety

Marital satisfaction and safety were assessed via items related to marital quality, happiness, and marital violence; the exact items are included in Appendix Table 1. *Marital quality* was assessed via an 8-item scale (adopted from Spanier, 1976) on contentment (Cronbach alpha=.42) in various aspects of marriage, as well as by a single separate summary item ‘Which best describes the degree of happiness of your relationship?’ Responses for 7 of the 8-item measure questions were a 6-point scale of frequency ranging from never to all the time, as well as a 5-point assessment of relationship outlook. Individual marital quality scores were summed to create an aggregate score with an interval ranging from 1 to 20. Correlation evaluations assessed whether the marital quality score was below or above the median score (42). Marital happiness was assessed using a single item on a 5-point scale ranging from extremely unhappy to extremely happy. *Marital violence* was assessed using six items on physical abuse and two items on sexual abuse within the past 12 months taken from India’s National Family Health Survey (IIPS, 2018). Response options were ‘often’, ‘sometimes’, ‘not at all,’ and ‘never in our relationship’. All responses were dichotomized as yes/no and dichotomized as any past year of marital violence.

Variable of associative analysis

Contraceptive self-efficacy

To assess contraceptive self-efficacy, respondents completed a 5-point scale that indicated the extent of their agreement with four statements that assessed how confident they felt about communicating and having control over their contraceptive needs. The scale demonstrated high

internal consistency and reliability, with a Cronbach's alpha of 0.73. Individual scores were summed to create the aggregate score, with an interval ranging from 1 to 20. Using the median score (17) as the cut-off point, CSE scores were dichotomized for logistic regression analysis, which predicted the probability of having below or above the median score.

Age at marriage, education level, caste, and religion were identified as confounders. Respondents were asked about all four variables directly as single items. In the analysis, age at marriage and religion were left in their original response forms; caste was dichotomized to identify minorities (Scheduled caste), and education was summarized in four categories: Uneducated, primary, secondary, and higher.

Analysis

All variables included in the study were descriptively summarized. Construct analysis was employed to validate marital agency measures, a method that typically requires the examination of correlations between a measure of a construct and several other measures that should theoretically be associated with it (Westen & Rosenthal, 2003). Accordingly, all seven variables were assessed against the marital choice measures, comparisons of categorical outcomes were assessed using Fisher's exact tests, and continuous measures were compared via k-sample equality-of-medians tests. Multiple logistic regression models were fitted using marital agency variables as the primary predictors of CSE. In the model, dummy variables are created to make the comparison for the categorical variables clear; different levels of education are compared with no education, and for religion, people who follow Hinduism, Buddhism, and Muslims are compared with Jain. Demographic and socioeconomic variables that are known to be associated with the intrinsic agency of a woman making choices entering marriage were included as confounders (sociodemographic factors, education, age at marriage, caste, and religion). Logistic regression

was used to evaluate whether choice variables adjusted for confounders determine individuals' probability of scoring above or below the median CSE score (17). Data were analyzed using SAS, and statistical significance was set at $P < 0.05$.

Results

A minority of women (16%) reported that they were the primary decision makers in partner selection for marriage. Most commonly, uncles (30%) and fathers (21%) were primary decision-makers. An even smaller percentage of women (9%) reported that they were the primary person to decide when to marry; fathers were the most common decision-makers of marital timing (66%). Importantly, very few women reported that they were forced to marry (1%, $N=16$). Rather, 81% of the sample had an arranged marriage, 7% reported being married for love, and 12% reported being married for love with parental consent.

Table 1. Characteristics of the sample ($N=1192$)

Variables	Percentage, median, SD, min, max
Variables of construct analysis	
Marriage partner primary decision maker (self)	15.5%
Marriage timing primary decision maker (self)	9.4%
Marriage type	
Arranged Love marriage Love with parents' consent	80.87% 7.13 % 12%
Child marriage	17.53%
Dowry	12.42%
Purdah practice	9.65%
Marital quality score	Median=42 SD=3.3 Min=5.21 Max=47
Happiness level	little/extremely unhappy= 14.26% very/extremely happy= 85.74%
Physical or sexual violence (IPV)	11.25%
Variables of logistic association analysis	
Contraceptive Self Efficacy Score	Median = 17 SD=2.5 Min=4 Max=20
Education	
Uneducated Primary Secondary Higher	1.26% 8.31 % 37.92% 52.52%
Caste (Scheduled)	10.7%
Religion	
Hindu Muslim Christian Buddhist	92.37% 6.29% 1.01% 0.34%

Age at marriage	Median=19 SD=2.33 Min=13 Max=27
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Marital agency in the choice of partner and timing of marriage were strongly correlated (Tetrachoric $r = 0.81$). Both marital agency indicators were strongly and significantly associated with having had an arranged marriage which was reported by 2% of women who were the primary decision-makers for who to marry and 95% of women who were not ($p < 0.001$), 26% of women who were the primary decision-makers for when to marry, and 87% of women who were not ($p < 0.001$) (See Appendix Table 1). Child marriage was significantly associated with lack of marital agency. among women who were not the primary decision-makers for whom to marry (19% vs. 9%, $p < 0.001$), as well as women who were not the primary decision-makers for when to marry (19% vs. 7%, $p = 0.002$). There was a significant difference in the proportion of dowry payments among women who were not primary decision makers in the choice of whom to marry (14% vs. 3%, $p < 0.001$) or when to marry (13% vs. 3%, $p < 0.001$). Similarly, purdah was significantly more frequent for women who were not the primary decision-maker when to marry (10% vs. 3%, $p = 0.01$), although a significant difference was not observed for primary decision-maker of marriage timing (10% vs. 6%, $p = 0.11$). Women who were the primary decision-maker for whom they married were more likely to report that they were very or extremely happy in their relationship compared to women who were not the primary decision-maker (48% vs. 37%, $p = 0.02$); there was no significant association between marital timing and happiness in marriage. Women were more likely to have median or above-median marital quality scores if they were the primary decision makers for who to marry (62.7% vs. 51%, $p = 0.004$) and when to marry (62.50% vs. 51.85%, $p = 0.037$). There was no significant association between marital violence experience and being the primary decision-maker for who to marry ($p = 0.06$) or when to marry ($p = 0.21$).

In the logistic models, the odds of above-median CSE for marital choice were positive, partner (OR=1.04), and timing (OR=1.23), both of which indicated increased odds of having above-median CSE for primary decision-makers. However, neither of the marital choice variables was statistically significantly related to CSE, and the increased odds of partner choice were small. People with secondary and higher education had significantly increased odds of having a contraceptive self-efficacy score above the median. Similarly, controlling for marital choice, education, caste, religion, and a one-year delay before marriage was found to significantly increase the odds of having a CSE score above the median by 5 %. However, caste and religion were not significant.

Table 3. Regression parameter estimates for the odds of having a median CSE score (N=119)

	Adjusted Odds			Adjusted Odds
Partner choice	1.04 (0.75-1.44)		Timing choice	1.23 (0.81- 1.85)
Primary education Vs no education	1.89 (0.39-9.03)		Primary education Vs no education	1.90 (0.40 - 9.09)
Secondary education Vs no education	4.80 (1.06-21.79)		Secondary education Vs no education	4.83 (1.06 - 21.91)
Higher education Vs no education	8.40 (1.84-38.24)		Higher education Vs no education	8.34 (1.83 - 37.98)
Caste (Scheduled)	0.95 (0.62-1.42)		Caste (Scheduled)	0.94 (0.62 - 1.43)
Hindu Vs Jain	0.91 (0.12-7.00)		Hindu Vs Jain	0.95 (0.12 - 7.38)
Muslim Vs Jain	0.57 (0.07-4.61)		Muslim Vs Jain	0.59 (0.07 - 4.87)
Buddhist Vs Jain	0.90 (0.08-9.82)		Buddhist Vs Jain	0.94 (0.09 - 10.38)
Age at marriage	1.05 (1.00-1.11)		Age at marriage	1.05 (1.00 - 1.11)

Discussion

The most cross-referenced definition, based on empirical and practical reflections, describes women's empowerment as a transformation constituted by their agency that emerges when changed perceptions allow them to make their own choices (Tandon, 2016). In this study, women were significantly less likely to take the lead in their marriage decision-making process (16% chose

their partner and 9% the time) than other family members, mainly fathers and uncles. These findings extend prior research from India, revealing that 45% of women had no decision-making input on marriage, and the other 50% reported decision-making with family about their marriage (Desai, 2017); the vast majority of women are often not the final or primary decision makers on their marriage. This impeded agency is confirmed in the analysis by anticipated correlations with all anticipated disempowering marriage characteristics in the study. The demonstrated importance of women's primary role in marital decisions indicates that improving women's position in the power dynamics of their households and public spheres post-marriage requires a concomitant concern with the measurement of agency at the start of the marriage.

Marital agency indicators are also strongly associated with arranged marriage. Both choice of partner and choice of marital timing also remained consistent with outcomes that have been found to be associated with delayed and loved marriages, such as marital quality (Raj, 2010; John et al., 2019; Jejeebhoy et al., 2013). This further substantiates the measure, corroborating inferences drawn from other studies that have identified child marriage (Abdullah et al., 2015; Singh & Anand, 2015) and marriage type as primary markers of women's disempowerment (Jejeebhoy et al., 2013). Therefore, it is rational to assert that the premise for conceptualizing other items as an index of empowerment can consistently be applied to agency indicators, making agency an equal and alternative means of measurement as the empowerment domain under consideration fits. This expands our perception and approach toward gender transformative research that has been lacking a tangible approach to the measurement of forced marriage in response to the international community prioritization of ending children and early and forced marriage by 2030 (UN, 2018).

The few studies that have explored marital choice in shaping women's marital experiences quantitatively have focused on spousal selection; however, readiness to enter marriage was presented as a determining factor for empowerment in qualitative analysis (John et al., 2019). Readiness to marry has largely been neglected in quantitative examinations. In this study, the paired agency measure considers both the choice of timing and the partner. While it confirms the positive effect of self-selection of a spouse on better interspousal communication and greater marital stability (Xiaohe & Whyte, 1990; Hamid et al., 2011), it also reveals situations in which both or either choice can be relevant measuring outcomes. When and who to marry were found to be the determinants of marriage type, child marriage, dowry payments, and marital quality. In addition, purdah is found to be significantly correlated with the choice of timing of marriage.

Another finding to note is from the multiple regression that education is a significant protective factor supporting marital choice, confirming the notion that education is a key resource that strengthens women's bargaining power and control (Kabeer, 1999; Khan & Awan, 2011; Biswas, 2017), and that higher education has a more substantial implication on women's empowerment (Malik & Courtney, 2011). Marital agency correlations with measures of disempowerment in a marriage that can be observed over time, such as IPV, marital happiness, and CSE, were found to be weaker than those at marriage or immediately after such child marriage or purdah practices. This indicates the need for further investigation on how other empowerment resources and domains interplay with each other in shaping the level of women's agency over time in their marriages.

An important lesson captured by analyzing forced marriage in this study is that there needs to be a cautious articulation of forced marriage in research and programs when we decide to use the term

directly or dissect it into a single or set of concepts, such as assessing choice with emphasis on the primary decision-making role and/or final decision-making role or using arranged marriage as a direct translation of forced marriage. In this study, forced marriage was reported by only 1% of the sample although the vast majority indicated that they did not have primary decision-making authority over who to marry (84%) or when to marry (91%). Among those who chose their partners, 43% reported marrying for love and 55% indicated that they sought parental consent while marrying for love. Similarly, among those who chose the timing of their marriage, 55% said they were married for love and 19% indicated marrying for love with parental consent. First, the proportional discrepancy between forced and arranged complements arguments that criticize the interchangeable usage of these two terms, as well as attempts to evaluate arranged marriage separate from the dual perspective of arranged versus autonomous (Tahir 2021). Second, further classifications in the responses of marriage type among those who made their marital choices further confirm that marriage continues to be a family affair in much of India (Desai 2017; Tahir 2021). This magnifies the importance of research and programs for women and girls to avoid contradicting traditions of marriage participation by the family but to support them in knowing, voicing, and being heard about their marriage choices (Desai, 2017; Tahir, 2021). Here, it's important to note marital agency in this study was evaluated through the item that asked for only the 'primary' decision maker, which may be too restrictive a categorization for a decision that can be made more collectively in this context, so items may benefit from including both any involvement in decision-making as well as separately assessing primary decision-making.

Furthermore, all measures were based on self-reporting and subject to recall bias and social desirability. Cross-sectional data preclude the assessment of causality. Although quantitative measures offer an important way of understanding and tracking progress at scale, they cannot

provide a nuanced understanding of the complexity of decision-making offered by qualitative evidence. For example, qualitative data suggest that girls in difficult circumstances such as humanitarian crises, economic insecurity, or family violence may self-select to marry, even at a young age and without parental permission, for emotional, economic, or sexual security (Knox, 2017; McDougal et al., 2018). While not ideal, this is indicative of some agency, and thus we do not view this as “forced” marriage in the way that absence from marital decision-making would indicate. Nonetheless, given the limitations of the context in which decisions are made, this can be viewed as an act of restricted agency. From the data in this study, we cannot know what transpired in the decision-making process and what forms of agency were and were not possible or used.

Conclusion

This study validated assessments of marital agency as a component of women's empowerment in response to the need for concrete quantitative measures for key problems (child marriage and forced marriage) of Sustainable Development Goal 5.3, the elimination of all harmful practices including child, early, and forced marriage (IAEG-SDGs, 2017). This study was able to verify the associations between marital agency measures and other empowerment indicators that are theoretically expected to correlate based on women's empowerment research and practice. These findings are also similar to those observed for child marriage (Abdullah et al., 2015; Raj, 2010; Singh & Anand, 2015), reinforcing the need for a growing practice of choice and a simultaneously expanding enabling environment as the two factors that can substantially affect a gender-equitable society. (Abdullah et al. 2015). Therefore, a comprehensive measure of marital agency is important for understanding women's empowerment at the individual level and its implication in a collective agency where women expand to pursue shared visions (Yount et al., 2020).

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Appendix Table 1. Decision-maker status in marriage and association with related measures and outcomes (N=1192)

	Who to marry			When to marry		
	Primary decision-maker	Not primary decision-maker	<i>p</i>	Primary decision-maker	Not primary decision-maker	<i>P</i>
<i>N (%)</i>	<i>185 (15.5)</i>	<i>1007 (84.5)</i>		<i>112 (9.4)</i>	<i>1080 (90.6)</i>	
Marital choice						
Who to marry						<0.001
Primary decision-maker	--	--		82 (73.2)	103 (9.5)	
Not primary decision-maker	--	--		30 (26.8)	977 (90.5)	
When to marry			<0.001	--	--	
Primary decision-maker	82 (44.3)	30 (3.0)		--	--	
Not primary decision-maker	103 (55.7)	977 (97.0)				
Marital characteristics						
Marriage type			<0.001			<0.001
Arranged marriage	4 (2.2)	960 (95.3)		29 (25.9)	935 (86.6)	
Love marriage with parent's consent	80 (43.2)	5 (0.5)		62 (55.4)	23 (2.1)	
Love marriage	101 (54.6)	42 (4.2)		21 (18.7)	122 (11.3)	
Forced marriage			0.15			0.39
Yes	0 (0)	16 (1.6)		0 (0)	16 (1.5)	
No	185 (100)	991 (98.4)		112 (100)	1064 (98.5)	
Construct validity						
Age at marriage			0.51			0.94
Below or equal median age (<=19)	101 (54.6)	576 (57.2)		64 (57.1)	613 (56.8)	
Above median score (>19)	84 (45.4)	431 (42.8)		48 (42.9)	467 (43.2)	
Child marriage			<0.001			0.002

Yes	16 (8.7)	193 (19.2)		8 (7.1)	201 (18.6)	
No	169 (91.3)	814 (80.8)		104 (92.9)	879 (81.4)	
Dowry payment			<0.001			<0.001
Yes	6 (3.2)	142 (14.1)		3 (2.7)	145 (13.4)	
No	179 (96.8)	865 (85.9)		109 (97.3)	935 (86.6)	
Practice purdah			0.14			0.006
Yes	12 (6.5)	103 (10.2)		3 (2.7)	112 (10.4)	
No	173 (93.5)	910 (89.8)		109 (97.3)	968 (89.6)	
Marital quality						
Median marital quality score			<0.001			0.02
Below or equal median score (≤ 36)	70 (37.8)	528 (52.4)		44 (39.3)	554 (51.3)	
Above median score (>36)	115 (62.2)	479 (47.6)		68 (60.7)	526 (48.7)	
Happiness with marriage			0.02			0.79
Extremely/A little unhappy	7 (3.8)	70 (7.0)		6 (5.4)	71 (6.6)	
Happy	90 (48.6)	562 (55.8)		59 (52.7)	593 (54.9)	
Very/Extremely happy	88 (47.6)	375 (37.2)		47 (42.0)	416 (38.5)	
Physical or Sexual IPV			0.17			0.36
Yes	16 (8.6)	125 (12.4)		10 (8.9)	131 (12.1)	
No	169 (91.4)	882 (97.6)		102 (91.1)	949 (87.9)	
Reproductive coercion			0.02			0.13
Yes	6 (3.3)	85 (8.5)		4 (3.6)	87 (8.1)	
No	178 (96.7)	920 (91.5)		107 (96.4)	991 (91.9)	

Appendix Table 2. Items used in scale or summary measures

	Chronbach α
Marital quality	0.78
<i>Options for following questions: All the time, most of the time, more often than not, occasionally, rarely, never</i>	
In general, how often do you think that things between you and your husband are going well?	
Do you confide in your husband?	
How often do you and your husband quarrel?	
How often do you and your husband get on each other's nerves?	
Do you ever regret that you married?	
How often do you or your husband leave the house after a fight?	
How often do you discuss or have you considered divorce, separation, or terminating your relationship?	
<i>Options for following question: I want desperately for my relationship to succeed, and would go to almost any length to see that it does; I want very much for my relationship to succeed and will do all I can to see that it does; It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed; It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going; My relationship can never succeed, and there is no more that I can do to keep the relationship going.</i>	
Which one of the following best describes how you feel about the future of your relationship?	
Marital violence	0.83
<i>In the last 12 months... Options: Often, Sometimes, Not at all, Never in our relationship</i>	
Has your husband slapped you?	
Has your husband twisted your arm or pulled your hair?	
Has your husband pushed you, shook you or thrown something at you?	
Has your husband kicked you, dragged you or beat you up?	
Has your husband choked you or tried to burn you on purpose?	
Has your husband threatened to attack you with a knife, gun or any other weapon?	
Has your husband physically forced you to have sexual intercourse with him?	
Has your husband forced you to perform any sexual acts when you did not want to?	
Contraceptive Efficacy	0.74
How sure are you that you could bring up the topic of family planning with your husband?	
How sure are you that you could tell your husband that you wanted to use family planning?	
How sure are you that you could use family planning?	
How sure are you that you could use family planning, even if your husband did not want to?	

