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The Association between Men's Gender Attitudes and Contraceptive Communication and Use in Marriage in Rural Maharashtra, India

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Abstract:	Background: Previous literature suggests that men reporting more equitable gender attitudes are more likely to use condoms, but there is a paucity of data evaluating whether these attitudes are associated with family planning more generally. Methods: Using cross-sectional dyadic survey data from young married couples from rural Maharashtra, India (N=989), we assessed the associations between men's gender role attitudes and a) spousal contraceptive communication and b) contraceptive use by type (none, traditional, condoms, pills, or IUD), with this outcome based on wives' data. Findings: Men with more gender-equitable attitudes were more likely to use condoms (ARRR=1·03, 95%CI 1·00-1·06, p=0·07) and to discuss family planning (AOR=1·05, 95%CI 1·03-1·07, p<0·001) with their wives, after adjusting for socio-demographics, parity, and intimate partner violence. There was no association between gender-equitable attitudes and other types of contraception. Interpretation: While gender-equitable attitudes among men may facilitate condom use and family planning communication in marriage, they do not appear to be linked with greater likelihood of use of more effective types of contraceptive use. This suggests that males supportive of gender equity may take greater responsibility for family planning vis a vis a less effective contraceptive, condoms, in the absence of more effective short-acting contraceptives for men.

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Abstract

Background: Previous literature suggests that men reporting more equitable gender attitudes are more likely to use condoms, but there is a paucity of data evaluating whether these attitudes are associated with family planning more generally.

Methods: Using cross-sectional dyadic survey data from young married couples from rural Maharashtra, India (N=989), we assessed the associations between men's gender role attitudes and a) spousal contraceptive communication and b) contraceptive use by type (none, traditional, condoms, pills, or IUD), with this outcome based on wives' data.

Findings: Men with more gender-equitable attitudes were more likely to use condoms (ARRR=1·03, 95%CI 1·00-1·06, p=0·07) and to discuss family planning (AOR=1·05, 95%CI 1·03-1·07, p<0·001) with their wives, after adjusting for socio-demographics, parity, and intimate partner violence. There was no association between gender-equitable attitudes and other types of contraception.

Interpretation: While gender-equitable attitudes among men may facilitate condom use and family planning communication in marriage, they do not appear to be linked with greater likelihood of use of more effective types of contraceptive use. This suggests that males supportive of gender equity may take greater responsibility for family planning vis a vis a less effective contraceptive, condoms, in the absence of more effective short-acting contraceptives for men.

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Key words: Gender attitudes, family planning, contraceptive communication, male engagement, Gender-Equitable Men Scale

Research in Context

Evidence before this study

Researchers have long recognized the importance of engaging men in family planning, in ways that are supportive and respectful of their female partners. Interventions which aim to improve gender-related norms and attitudes are one key strategy for male engagement, with the assumption that more equitable norms will lead to greater support for contraceptive communication and use. We searched PubMed for peer-reviewed articles reporting on 'masculinity' or 'gender' 'norms' or 'attitudes' and 'contraceptive use' or 'contraceptive communication' (and related key terms). We found extensive research from the field of HIV indicating that greater masculinity norms and attitudes are associated with lower male condom use, and that gender-transformative interventions that target restrictive masculinity norms are effective in increasing male condom use. Prior studies from India have also shown that men's attitudes about gender equity are positively associated with condom use to prevent HIV. However, there was little research examining associations between men's reported gender attitudes and other types of contraceptives, condom use for contraceptive reasons, or contraceptive communication with partners.

Added value of this study

This is the first study to our knowledge to examine men's gender equitable attitudes and their association with contraceptive use (for many times of contraception) and contraceptive communication with their partners. We find that more gender equitable attitudes were associated with greater condom use and greater contraceptive communication, but found no association with other forms of contraceptive use.

Implications of all the available evidence

Our study, along with prior evidence, suggests that men's gender-related attitudes are important predictors of condom use. Our study expands upon prior research to also demonstrate and association between these attitudes and contraceptive communication, and to

demonstrate a null relationship between gender equitable attitudes and other use of other forms of contraception. These findings suggest that incorporation of gender equity considerations, and the use of gender-transformative intervention approaches, are valuable for increasing contraceptive utilization but not alone sufficient to enourage increased uptake of a range of effective methods.

Introduction

Globally, family planning (FP) programs have facilitated women's access to and utilization of contraception.[1] In India, which has maintained a publicly supported family planning program since 1952, the majority of women of childbearing age use some form of contraceptive.[2] However, contraceptive practice in India largely remains non-use of modern contraceptives until the couple has achieved their desired number and sex of children, and then use of female sterilization.[2] India has seen no change in the prevalence of unintended pregnancies for more than a decade,[2-5] and unintended pregnancy and shorter inter-pregnancy spacing (<24 months) increases maternal and infant mortality risk.[6] In the past five years, government efforts have sought to improve expansion of contraceptive options and use, particularly for those couples with no children or one child, to reduce unintended pregnancies and to improve inter-pregnancy spacing.[7]

Gender equity in family planning interventions is important to improve contraceptive use, particularly in a context with traditional gender norms.[8] Interventions that disrupt gender norms have been effective in improving contraceptive uptake among young married couples.[9] Researchers have touted gender-transformative programming (i.e. programming affecting gender norms) and family planning programs inclusive of male partners as an important means through which family planning can support normative shifts in contraceptive practices, but few evaluated programs have used this approach.[9-11] Fundamental to this approach is an understanding of whether and how male gender norms and attitudes are associated with family planning behaviours among young married couples. This study seeks to examine this issue among young husbands in the context of rural India, where spacing contraceptive use and male engagement in family planning remain low.[12-15]

Prior research from India assessing gender roles and contraceptive use has focused on men's attitudes toward acceptability of marital violence as an indicator of men's masculinity ideology. These studies show significant associations between less accepting attitudes on marital violence and marital contraception use, reversible contraceptive use, and male desire

for larger families.[16-18] Research examining the association between men's masculinity norms in India shows an association between less traditional norms and desire for more sons as well as IPV, associations with contraceptive use were not tested.[19] This research also shows variation in masculinity norms, with urban men less likely than rural men to report traditional norms.[19]

Promotion of contraceptive use and reduction of IPV require prioritization in Maharashtra, making this context an important one in which to study these issues. In Maharashtra, the state in which our study took place, 64% of women report use of modern contraception, dominated by female sterilization (49% of women), with an additional 10% reporting condom use. Use of other methods is low, and the majority of women report never having had counselling with a family planning provider.[20] Previous district level estimates also showed that only 25% of non-sterilized women of childbearing age use modern contraception in the study area.[21] One in six men (16%) in the state endorse the statement that contraception is women's business and thata a man should not have to worry about it.[20] Though state-level indicators reflective of gender equity are largely better than national averages (for example, lower sex ratio at birth, higher literacy), there are still persistant harmful gender norms, such as those supportive of violence against women. In Maharashtra, 26% of ever-married women have experienced physical or sexual violence and 13% have experienced any form of emotional violence committed by their husband; 44% of women and 36% men report that a husband is justified in hitting or beating his wife under some circumstances.[20] There is also a strong preference for sons in the state; about three-quarters of women and men report wanting to have at least one son.

For more than 25 years, researchers have recognized the importance of engaging men in family planning, in ways that are supportive and respectful of their female partners who will have to bear the physical efforts of pregnancy and childbirth.[22] More recent evidence further highlights the growing interest of men as users of contraception, particularly in the form of condom use, and the inadequacy of existing family planning programs in terms of reaching and engaging men effectively.[23] The HIV pandemic heightened examination and engagement of men for

condom use; extensive research from the field of HIV has found that masculinity norms and attitudes are associated with lower likelihood of male condom use, and gender-transformative interventions that target restrictive masculinity norms are effective in increasing male condom use.[24] Studies from India have shown that men's attitudes about gender equity are positively associated with condom use to prevent HIV.[25-27] However, there is little research examining associations between men's reported gender attitudes, particularly as they relate to masculinity attitudes, and other types of contraceptives or contraceptive communication with partners.

This study assesses the association between men's gender attitudes and a) spousal family planning communication and b) use of contraceptives by type, among young married couples in rural Maharashtra, India. We hypothesize that couples where men have more gender-equitable attitudes, compared to those who have less equitable attitudes, have a higher probability of use of diverse types of modern contraceptives and are more likely to engage in couple communication about family planning. We include communication as an indicator of male engagement in family planning. These findings can offer important insight into the importance of male gender attitudes, and the community level norms that may reinforce them, as targets for gender-transformative family planning interventions with men.

Methods

Sample and Recruitment

This study utilizes a cross-sectional analysis of baseline survey data from married young couples participating in the CHARM2 [Counselling Husbands and wives to Achieve Reproductive health and Marital equity] family planning evaluation trial, conducted in the rural Junnar district of Maharashtra, India.

CHARM2 is a counselling intervention that aims to increase uptake of contraceptives, prevent unintended pregnancy, and decrease interpersonal violence. Couples who were not currently married or cohabiting in the village for at least the last three months, or who were using a permanent contraceptive method (female or male sterilization), were not eligible to participate in the study. The CHARM2 study is described in greater detail elsewhere.[28]

Data were collected from couples who were eligible and recruited into the CHARM2 study, in which the wife was aged 18-29 years, and no infertility or sterilization was indicated for either spouse (N=1,201 couples). Participants were recruited from households from 20 geographic clusters, based on primary health centre catchment areas, and were randomized at the cluster level into intervention and control conditions prior to the study. The sample for the current analyses were restricted to those couples in which the women did not self-report current pregnancy (e.g. women who were actively pregnant at time of survey; women who delivered within the prior three months were included) and for which all outcome and independent variable data were available. We thus excluded 212 of 1201 couples, where either wife was pregnant (n=199) or where husband was missing GEMS score (n=9). We utilized a categorical FP use by type outcome variable; as only n=4 women were using an uncommon FP type (all using injectable contraception), inclusion as a separate category was not analytically feasible and these four couples were also dropped from analyses. No husbands were missing responses for FP discussion with wife. This resulted in a final analytic sample of N=989 couples.

Data Collection and Procedure

Data was collected between September 2018 and June 2019 by trained field research investigators. In-person gender-matched interviews were carried out using electronic tablets with couples (husband and wife separately) who consented to the interviews. The length of survey was estimated to 40 minutes per interview. Privacy was ensured and maintained throughout the survey interview, which was carried out at the participant's home. Self-report data was collected on socio-demographics, marital history, sexual and reproductive health matters including family planning, gender based violence, and mental health. Data quality and fieldwork were monitored by trained field coordinators and Indian Council of Medical Research/National Institute for Research in Reproductive Health (ICMR-NIRRH) research staff. No monetary incentives were offered for participation.

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), the Population

Council Institutional Review Board (#EX2018012, initial approval 7/16/2018), and the 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 time of baseline survey. The interviewers documented the receipt of written informed consent on individual consent forms.

Survey Measures

Outcome Variables

Current family planning method use was assessed based on women's report of type of contraceptive method used in past three months. Though men were also asked questions of contraceptive method use, female reports were considered more reliable and were less likely to be missing; women may also have used some methods (e.g. pills, IUD) without their male partner's knowledge. Though we did not directly assess recent covert FP use, 3% of women reported covert FP use at some point in their lifetime. This yielded too small cell sizes to allow for analyses on covert use as an outcome.

Responses were categorized into five categories: none, traditional (withdrawal/rhythm method), condoms, oral contraceptive pills (OCPs), and intrauterine device (IUD). Use of any other method was very low (total n=4, all injectable contraceptive users), so only the above method types were included. For women who reported use of more than one modern method in the prior three months (n=6), they were categorized based on the most effective method used (IUD first, OCP second, condom third). Women who reported both use and discontinuation of contraception in the prior three months (n=14) were classified based on the method used rather than classified as non-users.

Couple's family planning discussion was assessed via a single Yes/No item, which was asked to men as whether they discussed with their wife what to use or do to prevent or stop a pregnancy in the past three months. Though this item was asked of both women and men, male response on dependent variables was utilized as the focus of this paper was on male attitudes, which was asked only of men.

Independent Variable

Men's attitudes towards gender norms were assessed using the previously well-established 24-item Gender-Equitable Men Scale (GEMS) (see Appendix Table 1 for full scale).[29-31] Items in the scale include: "A man should have the final word about decisions in his home," "It is important that a father is present in the lives of his children, even if he is no longer with the mother," "A man needs other women, even if things with his wife are fine," "Men are always ready to have sex," and, "I would be outraged if my wife asked me to use a condom." Responses on a 3-point scale were measured: 1-don't agree, 2-partially agree, and 3-agree (responses were reverse coded for seven indicated items, noted in Appendix Table 1). The scale has been previously validated as a continuous measure in the Indian and other developing country contexts. The reliability analysis for this study population showed a Cronbach's alpha value of 0·70, suggesting that it is a moderately reliable scale for current sample. The items were summed together (range 24-72), with a higher score indicating greater support of gender-equitable norms among men.

Sociodemographics and Fertility-related Covariates

Additional variables included as covariates from survey data were men's age (continuous), women's age (continuous), men's education (none or primary, secondary or more), women's education (none or primary, secondary or more), women's caste (General, Scheduled Caste/Scheduled Tribe/Other Backward Class [note that these are official government designations[20]]), household Below Poverty Line card holder (Yes/No), parity (0, 1, 2+), and women's report of any intimate partner violence including physical, sexual, or emotional in the past 12 months (Yes/No). We also present descriptive statistics on couple age difference, but do not include this in adjusted models due to collinearity with husband and wife ages. We included demographics known to be associated with contraceptive use in India.[2,32] We also controlled for IPV as a potential mediator since it may be associated with both traditional gender norms and contraceptive outcomes.[33,34]

Data Analysis

Descriptive statistics for the GEM scale were calculated, and cross tabulated with each of the two outcomes, using ANOVA for the categorical outcome (Type of FP method use), and t-test for the dichotomous outcome (FP discussion). We then conducted bivariate comparisons of outcomes and GEMS score with sociodemographic characteristics. We then constructed unadjusted and adjusted multinomial logistic regressions for the categorical current family planning method use outcome, and unadjusted and adjusted binary logistic regressions for the binary family planning discussion outcome. As an additional post-hoc analysis, we also examined the association between GEMS score and IPV. We examined and did not find evidence of multicollinearity in adjusted models, and thus we retained all variables in adjusted models. Significance was set at $p<0{\cdot}05$ for all comparisons and 95% confidence intervals (CIs) are reported throughout. All analyses were conducted using STATA 15.1.

Results

Outcomes and gender equitable attitudes score summary statistics

In this sample, the majority of women (61%, n=604) reported currently using a family planning method, comprised of 23% (n=231) reporting traditional methods (withdrawal and rhythm), 25% (n=252) condoms, 9% (n=89) IUD, 3% (n=32) OCPs (see Table 1). The majority of men (61%, n=605) reported having a discussion with their wives on what to use or do to prevent/stop a pregnancy within the past three months. Mean gender-equitable norms (GEMS) score was 54·3 (SD 6·2) in the sample.

Bivariate comparisons of outcomes by gender equitable attitudes score

Men's attitudes towards gender-equitable norms scores differed significantly across types of FP method used ($p=0{\cdot}01$); average GEMS score was highest (most equitable) among condom users (mean GEMS score 55·3). Average GEMS score was also higher (more equitable) among those who discussed vs. those who did not discuss FP in the past three months with their wife (55·0 vs 53·3, $p<0{\cdot}001$).

Bivariate comparisons of outcomes and gender equitable attitudes score by sociodemographic characteristics

There were statistically significant differences in FP method use by women's age, men's age, women's caste, and women's parity. Condom users were the oldest group on average (24·6 for women, 30·3 for men), while non-users of FP methods were the youngest group on average (23·3 for women, 28·9 for men) (ps<0·001). Women from Scheduled Tribes, Scheduled Castes, or Other Backwards Classes were more likely than those not in such classes to use no FP method (45% vs 36%, p=0·003). Nulliparous women were more likely to be using no FP method than multiparous women (70% vs 33%, p<0·001). Similarly, there were statistically significant differences in recent FP discussion by women's age, men's age, and women's parity. Couples who had recently discussed FP were older on average (24·4 vs 23·6 years for women p<0·001; 29·8 vs 29·3 years for men p=0·04). Nulliparous women were less likely than multiparous women to have recently had a discussion about FP (36% vs 71%, p<0·001). Most demographic characteristics were significantly associated with GEMS score (see Table 2); age and education were positively associated with GEMS score, while higher parity, BPL card ownership, and IPV history were negatively associated with GEMS score.

Unadjusted and adjusted regression analyses

Unadjusted multinomial logistic regression showed that with each point increase in GEMS score (e.g. more gender-equitable attitude) among men, there was a 4% increase in the relative risk of condom use compared to no use of FP (95%CI 1·01-1·06, p=0·01) (see Table 3). Adjustment for socio-demographic characteristics, parity, and IPV slightly attenuated these effects (ARRR=1·03, 95%CI 1·00-1·06, p=0·07). There was no significant association between GEMS score and use of other types of FP methods. Unadjusted logistic regression showed that higher GEMS score among men was significantly associated with greater odds of spousal discussion of family planning in the past three months (OR=1·05, 95%CI 1·03-1·07, p<0·001). Adjustment for socio-demographic characteristics, parity, and IPV did not modify these effects (AOR=1·05, 95%CI 1·03-1·07, p<0·001). Results from our post-hoc exploration of GEMS and IPV suggest that higher GEMS score among men was associated with slightly but statistically significantly lower odds of IPV (e.g. any IPV AOR 0·96, 0·93-0·98) (see Appendix Table 2). In seeing that GEMS

score was only significantly associated with condom use, we hypothesized that this association might be explained at least partially by increased communication, and thus we conducted additional post-hoc analyses to explore this issue. We examined the extent to which inclusion of marital communication modified the observed effects. GEMS score was not significantly associated with the condom category of the types of FP use in adjusted logistic regression models controlling for communication (AOR 1·02, 95% CI 0·99-1·05) (results not shown).

Discussion

We find that men's gender attitudes are significantly associated with spousal contraceptive communication and use in this rural setting. However, the association with contraceptive use was only seen for condoms; we found no such association with other forms of contraceptives. These findings suggest that gender role ideologies may support male involvement in contraceptive decision-making, communication, and use, but that this male engagement is tied primarily to reversible male-controlled FP. In the absence of more effective reversible contraceptives that men can use, we thus see male engagement primarily in less effective contraception (condoms). These findings reinforce ongoing calls for better male contraceptive options, and at the same time suggest that gender-equity focused programs to engage males in FP may best support effective FP use by including female partners as well.

These findings are consistent with prior research that suggests more equitable gender norms are linked to modern contraceptive use, and in particular, condom use. While several studies have shown that men's attitudes about gender equity are associated with condom use to prevent HIV,[25,26] Mishra et al also explored whether the relationship held true outside the HIV context and found that among FP users, men with more gender-equitable attitudes were more likely to use condoms.[27] A study of a gender-equity focused family planning program engaging males in rural India also found that the significant effects of the program on contraceptive use were primarily explained by significant increases in condom use.[28] Research focused on men's gender attitudes and female-controlled modern methods indicate no significant association between these.[27]

Post-hoc analysis also suggests that communication does not mediate the relationship between men's masculinity ideologies and contraceptive use outcomes. The lack of findings related to spousal communication on contraceptive use is somewhat disconcerting, as we do not want support for male engagement in contraceptive use to inadvertently reinforce male control over women's contraceptive use. Sexual and reproductive rights should maintain women as central – and in fact the priority over male partners – with regard to use of contraceptives and fertility decision-making, as they ultimately bear the burdens and responsibilities of reproduction. These data do not allow us to understand the context of contraceptive use sufficiently, nor the mechanisms through which masculinity ideologies may affect contraceptive use. These norms may be a marker for less traditional ideologies generally, and a greater openness to new ideas, such as male responsibility via condom use. But do they necessarily align with greater engagement with women and recognition of the importance of women being the primary decision-makers of choice and timing regarding reproduction. Inclusion of qualitative data and mixed methods analyses to understand the dynamics of contraceptive use in marriage may help offer insight beyond what can be provided in this quantitative study.

While it is ultimately unsurprising that men's attitudes are more strongly related to use of methods they control themselves than to methods controlled by their partner, this finding has programmatic implications for the use of gender-transformative approaches with the goal of uptake of highly effective modern contraceptives. More specifically, the findings support male engagement in family planning and addressing traditional male gender role norms supportive of male dominance, as these likely affect male support and use of contraceptives in rural India. We also found that men's gender-equitable attitudes were positively associated with spousal communication about FP. However, communication alone does not ensure equitable FP decision-making. For example, studies in Ethiopia and Tanzania have found that even when FP-related communication is taking place within a relationship, male partners were the final decision makers with regards to whether and how to use family planning.[35,36] In such settings, male engagement in family planning that simultaneously avoids reinforcing dominant gender

roles in decision-making is needed,[37] and programs which directly address gender attitudes and norms may be one way to achieve this aim.

This study contributes to the current understanding of gender equity norms and contraceptive use in rural India, but must be viewed in light of several limitations. The study is limited to a sample of young husbands and non-sterilized wives in a single district of rural Maharashtra, and thus, generalizability of study findings may be more limited to rural India or other similar lower resource settings. In this context, condoms and pills are available at no or low cost from the public health system, and findings from this study may not be reflective of places where cost burdens can prohibit use of these contraceptives. This study is cross-sectional; while there is theoretical justification as to why more equitable gender norms would lead to more desirable FP outcomes, we cannot presume causality from these findings. Small cell sizes by type of contraceptive may also be a concern; while no associations between gender-equitable norms and contraceptive pill use were found, our findings are limited by a small number (n=32) of pill users and further research on the relationship between attitudes and pill use is warranted.

Conclusion

This study contributes to our understanding of the association between men's gender attitudes and contraceptive use and communication. Findings extend extensive prior work documenting the association between these attitudes and condom use by also showing their association with contraceptive communication but not with other types of contraceptives. These findings suggest that gender equity focused FP programs which aim to increase effective method utilization and which include men must consider how to provide these programs in ways that support both male engagement and women's control of more effective method use. Such findings reinforce the value of couple-level and gender-synchronized interventions to ensure that women's engagement and control remain central in gender-transformative family planning programming.[11,38] Additionally, development of more effective reversible contraceptives for men would allow males who are engaged in FP decision-making to be able to effectively take responsibility for contraceptive use when it is the couple's goal. Ultimately, men's gender-

equitable attitudes may contribute to discussion and utilization of family planning, but full realization of these outcomes may be hindered by availability of male-controlled methods and lack of female agency in FP decision-making and control.

Author contributions: MG led conceptualization and execution of this study and created the first draft of this paper with AD. AD led analyses with support from NJ; MG, AD, and NJ directly accessed and verified all underlying data reported in the manuscript. SB, MB, NS, JS, and SA are co-Investigators and AR is Primary Investigator on the trial from which data for this study were gathered, and contributed substantially to interpretation of findings. All authors contributed substantive review and revision of the final manuscript; all authors had full access to study data and accept responsibility to submit for publication.

Conflict of interest: The authors declare no conflicts of interest.

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Data availability statement: Data used in this study is available upon reasonable request to the corresponding authors.

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Table 1: Family planning method use and discussion of family planning frequencies by sociodemographic characteristics of married couples in baseline sample from CHARM2 in rural Maharashtra, India (N=989).

Variable	Overall, n (%)	Type of family planning method use					p-value	Discussion on family planning		p-value
		None	Rhythm/Withdrawal	Condoms	Pills	IUD		Yes	No	
Total (N, %)	*989 (100)*	*385 (38·9)*	*231 (23·4)*	*252 (25·5)*	*32 (3·2)*	*89 (9·0)*		*605 (61·2)*	*384 (38·8)*	
		Mean (SD)	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**		**Mean (SD)**	**Mean (SD)**	
GEMS score	54·32 (6·17)	54·02 (6·17)	54·28 (6·25)	55·32 (5·83)	54·50 (6·64)	52·85 (6·42)	**0·01**	54·98 (6·05)	53·29 (6·23)	**<0·001**
GEMS score (categorical)							**0·02**			**<0·001**
Low (24-40)	16 (1·62)	8 (2·08)	5 (2·16)	0 (0)	2 (6·25)	1 (1·12)		6 (0·99)	10 (2·60)	
Medium (41-56)	597 (60·36)	241 (62·60)	139 (60·17)	141 (55·95)	15 (46·88)	61 (68·54)		341 (56·36)	256 (66·67)	
High (57-72)	376 (38·02)	136 (35·32)	87 (37·66)	111 (44·05)	15 (46·88)	27 (30·34)		258 (42·64)	118 (30·73)	
Women's age, years	24·07 (2·94)	23·31 (2·95)	24·02 (2·83)	24·64 (2·99)	24·22 (2·59)	23·84 (2·67)	**<0·001**	24·40 (2·86)	23·56 (2·99)	**<0·001**
Men's age, years	29·61 (3·68)	28·92 (3·75)	30·00 (3·31)	30·31 (3·98)	29·44 (2·07)	29·67 (2·74)	**<0·001**	29·80 (3·60)	29·31 (3·81)	**0·04**
		n (%)	**n (%)**	**n (%)**	**n (%)**	**n (%)**		**n (%)**	**n (%)**	
Women's education							0·30			0·57
No education or Primary	144 (14·56)	67 (46·53)	31 (21·53)	32 (22·22)	5 (3·47)	9 (6·25)		85 (59·03)	59 (40·97)	
Secondary or higher	845 (85·44)	318 (37·63)	200 (23·67)	220 (26·04)	27 (3·20)	80 (9·47)		520 (61·54)	325 (38·46)	
Men's Education							0·52			0·08
No education or Primary	138 (13·95)	57 (41·30)	36 (26·09)	28 (20·29)	6 (4·35)	11 (7·97)		75 (54·35)	63 (45·65)	
Secondary or higher	851 (86·05)	328 (38·54)	195 (22·91)	224 (26·32)	26 (3·06)	78 (9·17)		530 (62·28)	321 (37·72)	
Caste							**0·003**			0·32
General	672 (67·95)	242 (36·01)	165 (24·55)	167 (24·85)	27 (4·02)	71 (10·57)		404 (60·12)	268 (39·88)	
SC/ST/OBC*	317 (32·05)	143 (45·11)	66 (20·82)	85 (26·81)	5 (1·58)	18 (5·68)		201 (63·41)	116 (36·59)	
Below Poverty Line card holder**							0·38			0·86
Yes	244 (24·70)	107 (43·85)	51 (20·90)	59 (24·18)	9 (3·69)	18 (7·38)		456 (61·29)	288 (38·71)	
No	744 (75·30)	278 (37·37)	180 (24·19)	192 (25·81)	23 (3·09)	71 (9·54)		148 (60·66)	96 (39·34)	
Parity							**<0·001**			**<0·001**
0	104 (10·52)	73 (70·19)	17 (16·35)	14 (13·46)	0	0		38 (36·46)	66 (63·46)	
1	552 (55·81)	203 (36·78)	132 (23·91)	146 (26·45)	15 (2·72)	56 (10·14)		332 (60·14)	220 (39·86)	
2-4	333 (33·67)	109 (32·73)	82 (24·62)	92 (27·63)	17 (5·11)	33 (9·91)		235 (70·57)	98 (29·43)	
Any IPV (physical, sexual, or emotional)							0·11			0·14
Yes	213 (21·54)	76 (35·68)	60 (28·17)	47 (22·07)	5 (2·35)	25 (11·74)		121 (56·81)	92 (43·19)	
No	776 (78·46)	309 (39·82)	171 (22·04)	205 (26·42)	27 (3·48)	64 (8·25)		484 (62·37)	292 (37·63)	

Note: Excluded 212 couples from 1,201 where either wife was pregnant (n=199) or using an uncommon FP type (n=4, all using injectable contraception), or where husband was missing GEMS score (n=9). No husbands were missing responses for FP discussion with wife. P values are calculated from chi^2 test for categorical and t-test or ANOVA for continuous variables.

* SC: Scheduled Caste, ST: Scheduled Tribe, OBC: Other Backward Class

** Missing for 1 couple

Table 2: Unadjusted bivariate associations of socio-demographics with men's attitudes towards gender norms (GEMS score) among married couples in baseline sample from CHARM2 in rural Maharashtra, India (N=989).

Socio-demographics	**Unadjusted**	
	β Coef. (95% CI)	*p value*
Men's age	0·14 (0·04, 0·24)	0·008
Women's age	0·23 (0·10, 0·36)	0·001
Couples' age difference	-0·01 (-0·13 - 0·12)	0·929
Men's education		
No education	ref	ref
Secondary or high school	3·77 (2·68, 4·86)	<0·001
Women's education		
No education	ref	ref
Secondary or high school	1·84 (0·76, 2·93)	0·001
Caste		
None/Other	ref	ref
SC/ST/OBC	-0·09 (-0·92, 0·73)	0·826
Below Poverty Line card holder		
No	ref	ref
Yes	-1·44 (-2·33, - 0·55)	0·002
Parity		
None	-0·31 (-0·98, 1·60)	0·640
1	ref	ref
2+	-1·01 (-1·85, -0·18)	0·018
Any intimate partner violence		
No	ref	ref
Yes	-1·80 (-2·73 -0·86)	<0·001

Table 3: Unadjusted and adjusted regression between men's attitudes towards gender norms (GEMS score) and use of types of FP methods (multinomial logistic regression), and FP discussion (binary logistic regression) among married couples in rural Maharashtra, India (N=989).

	Unadjusted		**Adjusted**	
Type of family planning method used				
	RRR (95% CI)	*p value*	*ARRR (95% CI)*	*p value*
None	Ref		Ref	
Traditional	1·00 (0·98-1·03)	0·62	1·01 (0·98-1·04)	0·56
Condoms	**1·04 (1·01-1·06)**	**0·01**	**1·03 (1·00-1·06)**	**0·07**
Pills	1·01 (0·95-1·07)	0·67	1·02 (0·96-1·09)	0·44
IUD	0·97 (0·93-1·01)	0·11	0·97 (0·93-1·01)	0·16
Family planning discussion with wife				
	OR (95% CI)	*p value*	*AOR (95% CI)*	*p value*
No	Ref		Ref	
Yes	**1·05 (1·03-1·07)**	**<0·001**	**1·05 (1·03-1·07)**	**<0·001**

Note: Adjusted for men's age, women's age, men's education, women's education, caste, Below Poverty Line card holder, parity, any intimate partner violence.

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Supplementary Material

3. Appendix Tables.pdf