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The Influence of Couple Characteristics and Context on Modern Contraceptive Use in Two Indian States

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Paper Prepared for
Population Association of America Annual Meeting
Boston, MA
April 2004

Acknowledgements
We would like to thank Dr. Shireen Jejeebhoy for her introduction to the data set, and comments on an earlier version of the paper. We would also like to thank Dr. Michelle Hindin for her suggestions and guidance in the analysis. And finally, thanks are due to the Bill and Melinda Gates Institute at the Johns Hopkins University Bloomberg School of Public Health for their ongoing support to the first author during the analysis and write-up of this paper.

Background

The importance of surveys of couples to understand the links between reproductive intentions and behaviors is highlighted increasingly in the literature (Dodoo 1993, Kritz 1999, Thomson and Hoem 1998, Thomson 1997). The increase in studies assessing a spousal fertility intention as well as that of the couple can be attributed to a number of reasons. First, the advent of the HIV/AIDS epidemic resulted in a number of surveys with men and women in sub Saharan Africa, making data more readily available since the 1980s (Becker and Costenbader 2001). Second, these surveys, in turn, highlighted the differences in the role of male partners in the couple's overall fertility decisions, as well as the explanatory power of male fertility desires on reproductive behaviors including contraceptive use (Ezeh 1995, Dodoo 1993). Third, the availability of data, and subsequent analysis on a range of reproductive health attitudes and behaviors for both husbands and wives, have indicated the value of using couple data over focusing on women's responses alone, to accurately predict reproductive outcomes of interest (Becker 1996, Dodoo 1993). Other studies explored the levels of concordance and discordance between husbands and wives and found differences in the effects on fertility related intentions and behaviors (Miller et al. 2001, Koenig et al. 1984, Jejeebhoy 1989 & 2002, Vlassoff & Vlassoff 1978, Razzaque 1999, Miller et al. 1996). The importance of couple studies was further reinforced by the public acknowledgement in the Conference on Population and Development in Cairo (1994) where the role of male partners in family planning and reproductive health decisions was given prominence. Finally, the relative stabilization of contraceptive prevalence rates in developing countries, despite repeated efforts to improve outreach of family planning services to women, has forced program planners and researchers to rethink their outreach programs.

Literature Review

Overviews of couple studies (Becker 1996, Mason and Malhotra 1987), as well as a review of more recent work, indicate two broad approaches to handling couples' data. In the first, individual spouses serve as the unit of analysis. These studies focus on the relative influence of husbands' and wives' reproductive desires and intentions on related behaviors (Bankole 1995, Miller et al. 2001, Koenig et al. 1984, Jejeebhoy 1989 & 2002, Vlassoff

1978, Razzaque 1999, Miller et al. 1996, Mason 2000, Becker 2001). In the second set of studies, the couple is taken as the unit of analysis. The spouses' responses are matched, and couple level variables reflecting joint fertility intentions are assessed against specific reproductive behaviors (Lasee and Becker, Kritz 1999, Salway1994, Dodoo 1995). Each type of analysis has its usefulness for programs and policy; separately and together they further our understanding of how individual intentions within a couple and couple level factors influence reproductive behaviors.

The literature now includes a number of studies highlighting the concordance/ discordance within couples on reproductive preferences and behaviors, and the relative influence of these factors on fertility behaviors. A review of studies using the first approach, discussed above, indicates that no single trend in the association between the relative influences of spousal intentions and characteristics on reproductive outcomes. For instance, a study examined interspousal differences in family size and composition preferences among Indian couples, and found high levels of agreement between husbands' and wives' reports of family size preferences, desired sex composition of children and future fertility desire (Jejeebhoy and Kulkarni 1989). Another study, however, (Dodoo1994) using 1988 Ghanaian DHS highlights significant levels of disagreement in fertility intention and desires between husbands and wives. Not surprisingly, Mason and Smith (2000), in their study on relative influences between husbands and wives in five countries in Asia, found that husbands control their wives' contraceptive use in communities characterized by unequal gender relations. Ezeh (1993) found that husbands' characteristics have a stronger influence on reproductive outcomes than that of their wives in Ghana. And using similar data, Salway (1994) found that wives' attitudes and preferences, rather than their husbands', had a stronger association to contraceptive use among couples in Ghana. Jejeebhoy's (2002), comparative study between husbands' and wives' reports on the wife's autonomy in India, indicated that husbands over reported on all dimensions of their wives' autonomy compared to their wives own reports.

More recent studies, using the couple as the unit of analysis, attempt to explain certain reproductive behaviors within the context of couple-level decision-making and contextual

factors such as fertility intentions, communication between spouses, education, region, and ethnicity (Lasee and Becker, Kritz 1999, Salway1994, Dodoo 1995). Overall, agreement within a couple of their desire for no more children has a positive influence on contraceptive use. However, where there is disagreement, in some studies, husbands' desires indicate a stronger association than their wives' (Kritz 1999) and in others, the reverse holds true (Salway 1994, Lasee and Becker 1997, Dodoo 1993). Almost all the studies provide evidence of a strong association between couple discussion about family planning use and either the intention to use or actual use of contraception (Lasee and Becker 1997, Salway 1994, Dodoo 1993, Kritz 1999). Couple studies from countries in Africa, specifically Ghana and Kenya, dominate the literature (Dodoo 1993 & 1995, Ezeh 1993, Kritz 1999, Lasee and Becker 1997, Salway 1994, Miller 2001). These studies have highlighted a significant level of disagreement between women and their partners on reproductive goals and the relative influence of each partner's attitudes on reproductive behaviors. And have been especially meaningful in improving our understanding of reproductive behaviors and outcomes in contexts of polygamy and wide disagreement within couples on reproductive goals.

To date, few studies from Asia have assessed either couple characteristics or the influence of each spouse's desires on fertility related behaviors. A review of studies that use multiple data underscores this gap (Mason and Taj 1987, Podhisita 1997-98, Becker 1996). Becker and Costenbader (2001) compare spousal reports of contraceptive use across 23 countries of which only two are from Asia: Pakistan and Bangladesh. Similarly, Poshisita analyses data from four South and South-east Asian countries of a total of eleven studies. Among studies conducted in Asia, Vlassoff and Vlassoff (1978) explore the gender bias in the discordance of fertility reports in rural India, whereby men are more likely to misreport reproductive events compared to women; this disparity increases with age. Koenig et al. (1984:298), state that the inconsistencies in reports of contraceptive use by husbands and wives in India are a direct result of "under reporting of actual contraceptive use by wives". More recently, Mason and Smith (2000) present findings from a comparison of husbands' and wives' fertility goals and related behavior in five Asian countries. The availability of data from the Survey on the Status of Women and Fertility (Mason and Smith 2000) has

generated a number of studies including those that compare husbands' and wives' influences, and women's autonomy on reproductive goals within Asia (Jejeebhoy 2002, Jejeebhoy and Sathar 2001, Morgan et al 2000, Ghuman 2003). Despite the availability of these data, few studies examine the influence of joint characteristics of husbands and wives on reproductive health behavior in Asia.

In this paper, we assess the influence of couple and individual characteristics on current contraceptive use in India. We also use this opportunity to explore the influence of context variables such as state and religion on contraceptive use. In doing so, this paper will contribute to the existing literature by highlighting the influence couple characteristics and context on current modern contraceptive use in India.

Data

This paper utilizes a subset of data from the Survey on the Status of Women and Fertility (SWAF)[1], a comparative study of the relationship between women's status and autonomy on fertility in five countries in South and South-east Asia. The SWAF-India data provide an opportunity to assess the influence of couple agreement on fertility desires and discussions about family planning use on current contraceptive use in the south Asian context. The data also allow us to assess the effect of context (such as religion and state of residence) on this relationship. The contextual factors are important because each one reflects a dimension of diversity within the Indian subcontinent. For example, both state and religion provide insight into the relative influence of the social and cultural context. The data also allow us to test key assumptions that link contraceptive use to religion, and to consider the effects of economic and social context on contraceptive use.

Data were collected in India during 1992-93, and include couples in Hindu and Muslim communities in two states: Uttar Pradesh in the north and Tamil Nadu in the south (Jejeebhoy 1993, unpublished report). Uttar Pradesh and Tamil Nadu were identified because they represented the opposite ends of the social and demographic spectrum within

[1] Data and related information on the SWAF five-country study are available at http://www.pop.upenn.edu/swaf

India. Specifically, given the original purpose of the data was to explore effects of women's status on fertility behaviors, these states were chosen because of their representation of the difference in women's status in the country. The primary sampling units in each state were districts. Two districts (one economically well developed and the other not) within each of these states were purposively sampled using a set of economic criteria (see Jejeebhoy 1998, Morgan et al. 2000, Jejeebhoy and Sathar 2001), allowing for comparisons of socio-economic and religious differences. Coimbatore district is ranked 1 on an economic development index of 21 districts in Tamil Nadu, and Ramnathpuram is ranked 18. Similarly, Meerut is ranked second on the economic development index and Pratapgarh is ranked 51 of a total of 63 districts in Uttar Pradesh. A subdistrict within each district was similarly purposively selected, and clusters of contiguous villages were randomly selected. In randomly identified households within these clusters, currently married women aged 15-39 were also randomly selected to be interviewed (Jejeebhoy 1998; Jejeebhoy and Sathar 2001). Husbands of the eligible female respondents were identified, and also interviewed. Of a total of 1, 842 eligible women interviewed, 1660 husbands were also interviewed, resulting in a sample of 1660 matched couples. The sample is comprised of approximately equal numbers of Hindus and Muslims in the two states.

Setting

Tamil Nadu and Uttar Pradesh differ greatly in social and demographic indicators. Tamil Nadu is in south India and is characterized by low birth rates, low death rates and low fertility rates (International Institute for Population Sciences 1995, Gandhigram Institute and International Institute for Population Sciences 1994, Jejeebhoy 1998). The state also boasts high rates of male and female literacy, and relatively high work participation rates among women compared to the national average. The 1992 National Family Health Survey for Tamil Nadu (Gandhigram Institute and International Institute for Population Sciences 1994) notes that the state scores better than the national average for India on almost every indicator (Table 1). Literacy, fertility and life expectancy as well as sex ratios in Table 1 indicate a more equal gender context than the rest of India. Uttar Pradesh, on the other hand, is the largest and most densely populated state in India, with the

majority of the population residing in rural areas (Table 1). Uttar Pradesh (Lucknow University, and International Institute for Population Sciences 1994) fares poorly on the demographic and social factors, and unlike Tamil Nadu, falls consistently short of the national average on every indicator. From Table 1, it is clear that both men and women are disadvantaged in Uttar Pradesh compared to those in Tamil Nadu, and the women have a much lower status in society as evidenced by the relatively low sex ratios, literacy levels and life expectancy compared to the men.

In economic terms, however, Tamil Nadu and Uttar Pradesh are not as far apart as they are on the demographic and social indicators. Uttar Pradesh is largely agricultural and has a limited industrial base. The state was ranked third (1992-93) of 26 in per capita production of food grains in India, and the average annual per capita income was about Rs. 1,508 and about 37% of the rural population and 27% of the urban population lived below the poverty line in 1991(International Institute for Population Sciences 1995). Tamil Nadu's per capita income in 1990-91 was about Rs. 1, 965, and it was estimated that about 40% of its rural population and 20% of its urban population live below the poverty line. Tamil Nadu is considered one of the more developed states in India, although 61% of its workforce is engaged in agriculture (International Institute for Population Sciences 1995).

Methodology

The outcome of interest is current modern contraceptive use. Given that the timing of sterilization is not available, the original sample of 1660 women and their husbands is restricted further to couples in which neither spouse is sterilized, and the wife does not report being infecund or pregnant or unsure of her pregnancy status at the time of interview. In all, 674 couples were excluded of whom 451 (67%) reported one partner was sterilized, 167 women (25%) reported being pregnant or unsure, and 56 (8%) women reported being infecund. The restricted sample consists of 986 currently married couples at risk of pregnancy.

In exploring the effects of couple desires and characteristics on reported modern temporary contraceptive use in the restricted sample of 986 couples, two levels of couple

characteristics are tested: the first involves a set of background characteristics for the couple such as number of living children, couple education and, religion and state. The second is a set of constructed variables created by linking responses of husbands and wives to the same questions in order to establish agreement in spousal reports on reproductive intentions. The constructed variables include agreement between couples on their desired fertility. Reports of discussion about family planning use and the number of children to have were included separately for husbands and wives. Among background characteristics, a categorical variable for couple education was constructed using formal years of education reported by both husbands and wives. The outcome of interest is current modern temporary method use rather than all temporary method use because the majority of couples using a temporary method report using a modern temporary method (83%). Another reason for limiting the outcome of interest to modern temporary method use was to determine the affects of fertility desire and discussion about family planning on modern method use.

Since sterilized couples make up about 27% of the total sample of 1660 couples, a comparison of the two groups (sterilized and non-sterilized couples) was conducted to determine differences between them. Table 2 highlights some expected and some unexpected differences between the two groups. As expected, women and men who are sterilized are older than those who are not and have been married longer. Mean years of education do not differ significantly between the two groups: on average, women, regardless of sterilization, have completed 3 years of schooling, and men have completed 5 years of schooling. Differences do exist between these two groups regarding number of living children and number of sons; as expected, sterilized couples are more likely to have a higher number of living children and more sons than those who are not sterilized.

The percent who discuss preferred number of children among sterilized couples and non-sterilized couples is about the same, there is a substantial difference in discussions about family planning use among sterilized couples (89% of men and women report ever discussed) and non sterilized couples (approximately 50% of men and women so report). And finally, religion and state show some differences. Among sterilized couples, a higher

proportion of couples live in Tamil Nadu (70%) compared to Uttar Pradesh (30%). While non-sterilized couples are equally likely to be either Hindu or Muslim, a higher proportion of sterilized couples are Hindus (about 62%).

- *Contraceptive use*

Given the high level of agreement on contraceptive use between spouses, women's reports are used as a proxy for the couple. Women's reports are used, despite some discrepancy, because women report use of more effective methods such as the IUD and the pill. The maximum difference between spousal reports involves temporary methods that are episode specific (condom), and therefore, could be more prone to reporting error. The dependent variable for contraceptive use is restricted to use of a temporary modern method. The variable is coded "1" for all those who report use of the IUD, the pill or condoms, and "0" for those who report no use of any of those methods or use of a traditional method.

- *Couple agreement on fertility desire*

A variable reflecting couple agreement on their fertility desires was created using matched information from each spouse's response to the question "Do you want to have any more children?" The matched responses were then divided into three categories: 1) both spouses agree they want more children (reference category); 2) both spouses agree they do not want more children; and, 3) the spouses disagrees about wanting more children. The last category includes couples in which the husband does not want more and those in which the wife does not want more children. These categories were collapsed due to the small sample size in each.

- *Discussion within the couple regarding family planning use and the number of children to have*

Both women and men were asked if they discuss fertility and non-fertility related issues with their spouses. Fertility related issues include discussions on how many children to have and whether to use birth control. Non-fertility related issues involve discussions on what to spend money on and happenings in the community. Specifically they were asked, "Do you and your husband (wife) ever talk alone with each other about…?" If the

respondent answered affirmatively, they were then asked the frequency of the discussion. The responses were coded: (1) no, never; (2) not very often or, (3) often discuss. Women and their husbands' responses regarding discussions on fertility related issues were collapsed into two responses: ever discussed or never discussed. For women and men, the discussion variable is dichotomous coded "0" if the he/ she reports no discussion occurred and "1" if he/ she reports a discussion occurred. A similar procedure was followed to create a variable to reflect reports on whether they ever discussed the number of children to have with their spouse.

- *Husband and wife education*

In order to create a couple-level education variable, husbands' formal years of schooling was matched with their wives'. A variable that reflects the couple's education was favored over individual spousal levels in order to highlight how individual educational levels interact at the couple level to affect contraceptive use, as was done by Lasee and Becker (1997). In interviews with women and men, each was asked, "How many years of formal schooling have you completed?" The variable on couple education comprises two categories that reflect those couples in which 1) both or one spouse has no education (reference category) and 2) both spouses have at least a primary level education. Additionally, given the high correlation between the couples' educational level and their ownership of assets, education was used as a proxy for the economic context.

- *Woman's Autonomy*

As mentioned earlier, the data were originally collected to assess the impact of the social context and women's autonomy on reproductive outcomes in Asia (Mason and Smith 2000, Jejeebhoy report unpublished 1998, Jejeebhoy 2002). Three autonomy measures were recreated for this analysis focusing on women's reported mobility, access to resources and economic decision-making authority (Jejeebhoy 2002, Mason and Smith 2000).

The *index for mobility* was developed based on the assumption that women who have more mobility tend to have more exposure and are better able to access information and services,

including family planning. The mobility index covered women's responses to five questions on whether they can visit places inside and outside their village. The index is the sum of each woman's answers to the five questions, and ranges from 0 to 5. Hence women who score 0 are those who report they cannot go alone to any of the places listed and those who score 5 say that can go alone to each of the venues listed. Similarly, two indices to reflect women's reports of their *access to economic resources* and *economic decision-making authority* within the household were constructed. The former ranges from 0-4, and is the cumulative sum of a woman's response to four questions that cover different dimensions of access to resources. The latter ranges from 0-6, and accounts for the woman's involvement in all the decisions listed, as well as if she was the main decision maker. Both were included in the analysis because each highlighted a dimension of autonomy. For instance, it was felt that women who have access to economic resources have the wherewithal to act on their desires, and this is especially pertinent to contraceptive use. Similarly, if a woman reports authority in economic decision-making it is expected that she will also have a say in fertility decisions.

- *Number of living sons*

The number of living children and number of living sons reflect the parity of the woman and family formation patterns. However, since the variables are highly correlated, we include number of living sons instead of number of living children in the analysis. This decision was made because sons in the south Asian context, especially in rural areas, continue to be perceived as a source of support and prestige. In addition, number of sons is utilized rather than ideal number of children because 1) in low literacy settings it is difficult to determine whether the concept of ideal family size reflects a true desire or a norm; and 2) in societies where son preference is dominant, it is usually the gender composition of the children that is an effective predictor of fertility behavior. Also, data from India indicate that women with more sons are more likely to use a contraceptive method at every parity level compared to those with no sons (International Institute for Population Sciences 1995, Arokiasamy 2002).

- *Contextual Factors: Religion and State*

Since the data were originally collected to explore the effect of the gender context on reproductive intentions and behaviors, an attempt was made to interview equal numbers of respondents from differing social and economic contexts. In this analysis, a key question is whether and how the socioeconomic context affects current contraceptive use, net of all other factors. State and religion are included in the analysis as proxies for the social and cultural contexts of the respondents. Given the design of the study, rather than include state and religion separately in the model, a categorical variable representing each religion in each state was included. The variable consisted of four categories: (1) Hindus in Tamil Nadu (reference category); (2) Muslims in Tamil Nadu; (3) Hindus in Uttar Pradesh and, (4) Muslimes in Uttar Pradesh.

As a first step, husbands' and wives' responses on various dimensions of fertility related desires and behaviors are compared to assess levels of agreement and accuracy within the couple. Next, stratified two-by-two tables are used to explore the influence of couple characteristics and contextual factors on the outcome of interest. Based on the results from the stratified tables, bivariate logistic regressions were conducted to determine the significant predictors of modern temporary method use. Multivariate logistic regression analyses included only those variables significant at $p< 0.05$ level in the bivariate analyses. The significant covariates were divided into three blocks: socio-economic and demographic characteristics, desire and discussions, and women's autonomy. Each of these sets of covariates was included in a model to assess their effect on modern temporary method use, controlling for religion and state. Thereafter, the blocks were combined starting with the socio-economic variables, then the desire and discussion covariates, and finally each of the autonomy indicators were included separately. At every point in the block building process, religion and state were included as the control. A final step involved including an interaction term between age and each of the autonomy indicators to determine their effects.

A number of interaction terms were also tested such as the interaction between couples' desire for an additional child and their discussion of family planning use; women's age and the three dimensions of autonomy (mobility, access to economic resources and economic

decision-making authority). While none of these interaction terms were significant at the bivariate level controlling for religion and state, only the interaction term of woman's age and economic decision-making authority was found to be significant in the final model. All analyses were done using STATA/SE version 8.0 (StataCorp 2003).

Results

Tables 3A and 3B present the percentage distribution of 986 couples at risk of pregnancy by their individual and joint background characteristics, respectively. Women, on average, are 5 years younger than men: however, a little less than half the sample of both men and women are less than 24 years old (41% of women and 39% of men). Although over half the women (56%) have no formal years of education, about 43% of men have a secondary or higher level of education. Men have almost twice the number of years of formal education as women (2.6 years for women and 5.6 years for men). Fifty-eight percent of the couples live in the north Indian state of Uttar Pradesh and 42% in Tamil Nadu in south India. Among the couples, 56% are Muslim and 44% Hindu.

A higher percentage of men compared to women report wanting an additional child (54% of men and 48% of women, $p<0.001$). Overall, men compared to women report significantly higher levels of communication on non-reproductive issues. While 97% of men report discussing money with their wives, only 85% of women report the same ($p<0.001$). Similarly while 86% of men report discussing community events with their spouses only 54% of women report the same ($p<0.01$). There is not much difference in the reports of men and women regarding discussion on the number of children to have (about 85% of women and 84% among men) and family planning use (53% of women and 50% among men) with their spouse. An almost equal percentage of women and men report no contraceptive use (84% of women and 83% of men) and, among those that do report use, the method specific percentages are similar. Where there is a discrepancy (information not shown) men tend to report more use of male control methods such as condoms and withdrawal where their wives report no method use. Women, on the other hand, report slightly higher use of the IUD and the pill, where their husbands report no method use. The percentage of modern temporary method use in this sample is much higher than that

reported by the NFHS-1 in either state (13% in this sample compared to between 6.1% - 6.8% in Uttar Pradesh and Tamil Nadu, respectively) (Gandhigram Institute of Rural Health and Family Welfare Trust and International Institute for Population Sciences 1994, Lucknow University, and International Institute for Population Sciences 1994). The differences between men's and women's education level and discussions about community events and money are significant ($p<0.001$).

Agreement between Spousal Reports

Husbands and wives have almost perfect agreement on reports of the number of children ever born (kappa 0.96). Spouses, when asked if they want an additional child, also have substantial agreement (kappa 0.70): forty one percent of the couples agree that they want an additional child and 44% agree they do not want an additional child. Overall, 15% of all couples have discordant fertility desires, however, among these couples more husbands than wives want an additional child. Husbands' and wives' reports of current contraceptive use (kappa 0.93) and method specific use indicate high levels of agreement; 13% of husbands and wives report current use of a temporary modern method.

Agreement between spouses on their patterns of discussion is much lower than their future fertility desire and current contraceptive use. While agreement is particularly low for all reports on their discussions with one another, agreement is higher on discussion of fertility related issues such as number of children to have and whether to use family planning (kappa 0.18 and 0.23 respectively) compared to discussions on non-fertility related issues such as money and community activities (kappa 0.08 and 0.07).

Accuracy of Spousal Proxy Reports

Data (not shown) comparing one spouse's perceptions of her/his partner's desires with the partner's expressed desire is especially relevant to determine whether spousal reports of partners' desires reflect their own desires, the true desire of the spouse, or a social norm. In this data set, we are able to compare spouses' proxy reports with the partners' expressed desire for an additional child. Husbands' proxy reports of their spouse's desire for an additional child, so compared, highlight a high level of accuracy (kappa 0.70); wives'

proxy reports do not reveal such high levels of accuracy (kappa 0.59). These findings are similar to those of Becker (1995) in his review of couple studies. Husbands' and wives' proxy reports of their spouses' desire closely reflect their own desire for another child (kappa for husbands is 0.92 and for wives 0.69), and are higher than the actual reports of either spouse's own desires.

The effect of contextual factors on contraceptive use

Two-by-two tables are used to explore the relationship of each of the contextual variables on contraceptive use. Chi-square results indicate no significant differences in the relationship between religion and modern contraceptive use, and between state and contraceptive use overall. Given that Uttar Pradesh and Tamil Nadu vary greatly on social and demographic indicators, stratified analyses are used to explore the relationship of religion on contraceptive use within each state. Table 4A shows the very different distribution of education by religion in the two states, although differences in the percentage distribution of education by religion become minimal when the data are combined across the two states ($p=0.160$). Hindu couples are more than twice as likely to be educated compared to Muslim couples in Uttar Pradesh ($p<0.001$). In Tamil Nadu, a reverse trend is seen in the relationship between religion and educational status ($p<0.001$). In the latter, in 67% of Muslim couples both spouses have some education compared to only 44% of Hindu couples.

In both states, the percentage of couples using modern contraception by education, religion and state (Table 4B) shows that although overall use is low, couples in which both spouses have some education are twice as likely or more to use a method as those with little or no education ($p<0.001$). In Uttar Pradesh, Hindus are more likely to use a contraceptive method compared to Muslims ($p<0.001$), in Tamil Nadu, Muslims more likely than Hindus ($p<0.001$). Muslims overall do not appear to have very different rates of contraceptive use than Hindus. However, these totals mask the major differences within the states shown above in the percentage educated, which appears to be a more significant factor than religion. Additional analyses assessing contraceptive use by religion stratified by educational level show no difference in contraceptive use within each level of education.

However, analyses comparing contraceptive use by educational level stratified by religion reveal significant differences in use by level of education within each religion (Tables not shown).

Women's Autonomy and modern temporary contraceptive use

Exploratory analyses reveal that the autonomy variables are, as expected, correlated with one another and with certain socio-demographic characteristics such as education, asset ownership and age. The most striking association is the interaction between age and autonomy on modern temporary method use. To further understand this relationship, we stratified the analyses by age controlling for religion and state (Figure 1). The findings from this analysis indicate that each of the autonomy variables is significantly and positively associated with modern method only among younger women. That is, women 24 years or younger are more likely to report temporary modern method use if they also report higher economic decision-making authority and higher mobility, controlling for both state and religion ($p<0.05$). In the case of access to economic resources, this association is also seen with women between 25 and 29 years ($p<0.05$). Consistently, we find that among women 30 years or older there is no relationship between measures of autonomy and modern temporary method use.

Determinants of modern temporary contraceptive use

Table 5 presents the results of the bivariate and multivariate logistic regression analyses of couple and contextual characteristics on temporary modern method use. Results from the bivariate analyses indicate that couples in which one or both spouses do not want an additional child have a higher likelihood of reporting modern temporary method use compared to those couples in which an additional child is wanted. Similarly, reported discussion about family planning use by either women or men indicates a positive and significant relationship with modern temporary method use. The level of education of a couple also exerts a positive influence. For example, couples in which both spouses have a primary or higher education are more likely to report modern temporary method use compared to those in which neither or one spouse has no education (OR=3.19, $p<0.001$). The number of living sons has a positive effect on modern method use. Among individual

characteristics, the wife's age, the husband's age and the wife's reported access to economic resources each have a positive and significant association with reported use of modern temporary methods. The bivariate regression results for temporary modern method use indicate similar findings to those of all temporary (modern and traditional) method use (results not shown).

In the multivariate model, controlling for other factors, reports on discussion about family planning use by either the respondent or the husband with their spouse has the strongest association with modern temporary method use, compared to those who report no discussion. However, men's reports on discussion about family planning use are stronger predictors of modern temporary method use than women's reports (OR=4.7 for men's reports and OR=3.5 for women's reports, ($p<0.001$. Fertility desires also have a significant association to modern method use: couples who agree they want no more children are more likely to use a modern temporary contraceptive method (OR=2.96; $p<0.001$) compared to those who agree they want more children. Also, among spouses with discordant fertility desires, the likelihood of using a modern contraceptive method is higher compared to those couples who want more children (OR=2.54; $p<0.01$).

In the full model, a couple's education also has an association with contraceptive use; couples in which both spouses have at least a primary level education are much more likely to report use of a modern method (OR=3.31; $p<0.001$) compared to those in which one or both spouses have no education, controlling for contextual and demographic factors. The religion and state variable while depicting a positive association is not a significant predictor of modern temporary method use in the controlled model. Both woman's age and economic decision-making authority were included in the final model, along with the interaction term. All three covariates were significantly associated with modern method use ($p<0.01$), controlling for other factors. Women who reported a higher economic decision-making authority were much more likely to also report modern temporary method use, controlling for other factors (OR=3.02, $p<0.01$). However, a higher age was marginally associated with method use (OR=1.09, $p<0.01$). The interaction term indicates that women with higher decision-making authority and higher age are marginally less

likely to report modern method use (OR=0.96, p<0.01) compared to younger women with less decision-making authority. Determinants that have significant associations with all contraceptive use have a stronger association when modern temporary method use is the outcome (see Table A in Appendix for comparative results).

Discussion

In this paper, we seek to identify the influence of individual and joint characteristics of spouses on modern temporary contraceptive use as well as the influence of the social context. Despite the high levels of concordance within couples, we find that temporary modern method use is relatively low even among couples wanting to limit childbearing. The low level of modern temporary method use is not surprising given that the cornerstone of the Indian family planning program has been sterilization, and the majority of couples depend on female sterilization to limit child bearing once they have attained their desired family size (International Institute for Population Sciences 1995, Rajaretnam and Deshpande 1994). The over dependence on permanent contraceptive methods, however, needs to be reconsidered as more young people enter into their reproductive years and expanding contraceptive use to fit the needs for both spacing and limiting births will increasingly become relevant.

Unlike earlier studies (Kritz 1998 & 1999; Ezeh 1993 & 1997; Dodoo 1994 & 1995; Salway 1994, Vlassoff and Vlassoff 1978, Koenig et al. 1984), we find substantial agreement between husbands and wives on number of children ever born, the desire for an additional child, contraceptive use, and discussion about number of children to have. There are also high levels of agreement within couples on their desire for an additional child. The concordance levels among couples in this sample are particularly interesting given that these same levels do not hold between spousal reports on discussions regarding fertility and non fertility related issues. One might argue that these high levels of concordance are a reflection of the level of unequal gender relations in this society, where women report fertility preferences and behaviors that reflect their husbands' desires rather than their own. Podhisita (1997-98) makes a similar observation based on his examination of data regarding gender decision-making in family formation across a diverse group of

countries. However, Mason et al. (2000:304) in their analysis of the five country SWAF data note that there is no "consistent relationship between the degree of the gender stratification … and the level of husband-wife agreement" regarding desire for additional children.

As hypothesized, factors such as agreement on future fertility desire and discussion of family planning use each has a significant and strong independent association with contraceptive use, controlling for all other factors. The positive effect between fertility desire and method use indicates that concordant couples are much more likely to use a method to achieve their desire. Even among those couples who disagree, there is a positive and significant association on contraceptive use. These findings are consistent with those in the literature (Ezeh 1993, Thomson and Hoem 1998, Dodoo 1993). These findings also highlight how the strength of fertility intentions within a couple (in this case, concordance and discordance within couples regarding desire for an additional child) affects contraceptive use in these settings, controlling for all other factors (Bankole 1995).

Discussion within couples about family planning use reported by either spouse in our study exhibits the largest odds ratio predicting temporary modern contraceptive use in both the bivariate and multivariate models. The positive and significant association between communication and contraceptive use is well documented in couple and individual spousal studies (Lasee and Becker 1997, Kritz 1998, Dodoo 1995, Salway 1994). However, like other studies mentioned above, whether husbands and wives discuss family planning use before or after they adopt a method cannot be determined from this data. The lack of causal direction also reflects a continuing discussion in the literature (Dodoo 1995, Salway 1994, Becker 1996, Podhisita 1997-98). In addition, questions on discussion between spouses need to be more specific to capture the depth, frequency and timing of the discussions in order to assess whether there is a causal link to contraceptive use (Salway 1994, Lasee and Becker 1995, Podhisita 1997-98, Kritz 1999). A recent study using longitudinal data from Navrongo, however, demonstrates that discussion on family planning use precedes contraceptive use; providing a clearer understanding of the pathway by which communication between spouses affects behavior (Bawah 2002).

One of the main aims of this study is to determine how contextual factors influence contraceptive use. The effect of social context on contraceptive use, as represented by state of residence and religion, is important in India where diverse communities and contexts coexist. Often behaviors are thought to be a function of religion rather than the broader economic and social contexts of people's lives; fertility and reproductive related behaviors are especially prone to this interpretation (Morgan et al. 2000). The data provide us an opportunity to test the role of context, specifically religion and state, on modern temporary method use. Our findings from the multivariate analyses suggest that religion and state do not have significant associations with modern temporary method use when factors such as educational levels, woman's economic decision-making authority, spousal discussion about family planning use, and fertility desire are controlled for in the model. Our exploratory analyses (Table 4B) underscore this fact, suggesting that couple education level attenuates the difference in temporary modern contraceptive use by religion in each state. In addition, in the process of model building we found that most of the effect of religion and state on modern temporary method use seen in the bivariate model, is attenuated with the inclusion of couple education and husband's reports of discussions about family planning use (results not shown).

While we expected to find a significant association between context and contraceptive method use, our findings are not surprising given that the outcome is modern temporary method use. NFHS-1 results indicate that the percentage of women using modern temporary methods in both Tamil Nadu and Uttar Pradesh is relatively low and about the same, and that most of this use is among younger women. In addition, about 40% of the women (and men) in our sample are 24 years or younger; therefore, we can assume that in both states most couples are still in the early stages of family formation. The implications for policy makers and program planners interested in furthering use of temporary modern methods is twofold given the findings from our study. One, there is limited temporary method use across the social and cultural contexts in India; other studies have attributed the low levels of use to a lack of demand, and the limited promotion and availability of methods (Rajaretnam and Deshpande 1994). Two, couple characteristics such as

educational level and husband's reports of discussion about family planning use are significant predictors of modern temporary method use, and need to be considered when promoting programs to encourage the use of modern temporary methods.

The findings from both exploratory and regression analyses highlight a complex relationship between the three dimensions of the autonomy– mobility, access to economic resources and economic decision-making authority – and modern temporary method use. A few striking patterns emerge that are useful for further discussion on issues related to measurement, interaction and prediction of these factors on reproductive behaviors such as contraceptive use. While the autonomy variables are significantly associated with the modern temporary method use among younger women, when the analysis is stratified by women's age, this significance is attenuated in the final model. However, only when the interaction term between age and woman's economic decision-making authority is included in the final model, all three variables (economic decision-making authority, woman's age and the interaction term) are significantly associated with contraceptive use. While both age and economic decision-making have an expected positive association with modern method use, the negative effect of the interaction term, of age and economic decision-making authority, on modern temporary method use might exist for a number of reasons including the stage of family formation among women at those ages. Within the Indian context, as a large proportion of sterilization occurs among women 27 years and older, the association of the interaction term with modern temporary method use makes sense. We believe, as others have shown, that autonomy does play a role in women's ability to access and use modern temporary methods (especially at younger ages), and that the relationship between autonomy and modern temporary method use is complex (Hakim et al. 2003, Dharmalingam and Morgan 1996). Further, this relationship is mediated by a number of background factors that work in tandem to shape women's autonomy as well as to influence the formation of their fertility intentions, enable them to have discussions with their spouses, and facilitate their use of modern contraceptive methods (Jejeebhoy and Sathar 2001).

Limitations

There are some limitations that hamper our ability to understand the effects of couple characteristics on contraceptive use in this sample. First, our sample was reduced almost by half by eliminating all couples that report being sterilized because the timing of sterilization was not recorded in the survey. Therefore, including sterilized couples in our analysis would have biased our understanding of how current discussion regarding family planning use affects actual use. If timing of sterilization had been available, it would have been interesting to determine how context, fertility desire and discussion regarding family planning use affects modern temporary and permanent method use in these two settings. Second, no information was collected on spacing desire among couples wanting an additional child. Use of modern temporary methods has particular salience to spacing a birth; hence data on this aspect would have helped us understand whether couples are currently more likely to use a modern method to achieve their spacing intention. Third, as the sample size was small, we were unable to establish whether the characteristics of the husband or wife are stronger predictors of modern temporary method use among couples with discordant fertility desires, discordant reports on discussion about family planning use, as well as different educational backgrounds. This type of analysis would have been extremely useful in determining how the gender context influences the outcome of interest in this setting. And finally, the cross sectional nature of the study prevents us from determining the causal pathway between the expressed fertility desire and discussion about family planning use and temporary modern method use.

Conclusion

In this paper, a high level of agreement within couples on their communication about reproductive issues is highlighted. In addition, the effects of couple agreement on fertility desire, spousal reports on family planning discussion, education and women's autonomy on modern temporary method use, controlling for state and religion, are noted. The analysis also draws attention to the important mediating effect of education on the relationship between religion and method use within and across the two states. What is clear from the results is that couple level analysis provides a better understanding of how

agreement and disagreement within couples and contextual factors influence current contraceptive use. In future, however, couple studies will need to consider new questions that better assess the barriers couples encounter in realizing their fertility intentions. In doing so, policies and programs can begin to bridge the gap between intentions expressed by the couples and their reproductive behaviors by providing targeted interventions focused on enabling them to realize their fertility desires.

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Table 1: Demographic Indicators for Uttar Pradesh, Tamil Nadu and India

Index	Uttar Pradesh	Tamil Nadu	India
Population (1991)	139,112,287	55,858,946	846,302,688
Population Density (pop/ sq. km) 1991	473	429	273
Percent Urban (1991)	19.8	34.2	26.1
Percent Literate (1991)			
Male	55.7	73.8	64.1
Female	25.3	51.3	39.3
Total	41.6	62.7	52.2
Exponential Growth Rate	2.27	1.43	2.14
Total Fertility Rate	5.1	2.2	3.6
Sex Ratio at Birth 1991 (1000 males)	879	974	927
Infant Mortality Rate (1992)	98	58	79
Life Expectancy			
Male	54.1	60.8	58.1
Female	49.6	60.8	59.1
Couple Protection Rate (1992)	33.7	57.3	43.5

Source: 1992-93 National Family Health Survey Data for India (International Institute for Population Sciences 1995), Tamil Nadu (Gandhigram Institute and International Institute for Population Sciences 1994), and Uttar Pradesh (Lucknow University and International Institute for Population Sciences 1994).

Table 2: Percent Distribution of Couples by Background Characteristics and Sterilization Status[@]

	Not Sterilized Couples (N=986)		Sterilized Couples (N=451)	
	Women	**Men**	**Women**	**Men**
Age				
>24	40	15	9	0.2
25-29	25	25	21	9
30-34	18	20	36	18.2
35-39	17	18	34	29
40+	-	22	-	43
Education				
None	56	26	51	25
1-5 (primary)	28	30	35	38
6+ (secondary or more)	16	43	14	37
Discuss Family Planning Use				
Never	47	50	11	10
Not often	43	40	72	72
Often	9	10	17	18
Discuss Number Of Children				
Never	15	16	11	11
Not often	61	64	70	67
Often	24	20	19	22
Desired Fertility				
Want more children	48	54	1	1
Don't want more children	52	46	99	99
State				
Tamil Nadu (826)	42		70	
Uttar Pradesh (834)	58		30	
Religion				
Muslim (821)	54		38	
Hindu (826)	46		62	
Duration Of Marriage				
0-5	32		4	
6-10	24		20	
11-20	35		61	
21+	8		15	
Number Of Children Alive				
0	15		1	
1	21		2	
2-3	33		57	
4+	31		40	
Number Of Sons Alive				
0	31		8	
1	33		31	
2+	36		61	

[@] couples in which wife reported being infecund (56) or currently pregnant or unsure of pregnancy status (167) are excluded from this table.

Table 3A: Percent Distribution of Individual Characteristics of Husbands and Wives (N=986) [@]

	Wife		Husband	
	%	(N)	%	(N)
Age				
>24	41	(397)	39	(392)
25-29	25	(246)	21	(203)
30-34	17	(173)	18	(173)
35+	17	(170)	22	(218)
Education				
None	56	(550)	27	(260)
1-5 (primary)	28	(281)	30	(299)
6+ (secondary or more)	16	(155)	43	(427)
Discuss Money				
Ever	85	(840)	97	(958)
Never	15	(146)	3	(28)
Discuss Community Events				
Ever	55	(538)	86	(848)
Never	45	(448)	14	(138)
Discuss Number of Children to Have				
Ever	85	(837)	84	(832)
Never	15	(149)	16	(154)
Discuss Family Planning Use				
Ever	53	(522)	50	(492)
Never	47	(464)	50	(494)
Fertility Desire				
Want an additional child	48	(476)	54	(533)
Do not want an additional child	52	(510)	46	(453)
Current Contraceptive Use				
No	87	(855)	86	(851)
Yes (modern temporary methods)	13	(131)	14	(135)

[@]Excluding couples reported sterilized or those where wives reported being pregnant, unsure of pregnancy status or infecund.

Table 3B: Percent Distribution of Joint Characteristics of Couples (N=986) [@]

Characteristics	%	(N)	Kappa
Age			
H & W </= 29	40	(392)	
W</=29 & H>/= 30	25	(251)	
H & W >/= 30	35	(343)	
Education			
Neither spouse has any education	22	(215)	
One spouse has none, other has primary or higher	38	(380)	
Both spouses have at least a primary education	40	(391)	
Discuss Money			
Ever	84	(823)	
Never	1	(11)	0.08
Disagree	15	(150)	
Discuss Community Events			
Ever	48	(478)	
Never	8	(78)	0.07
Disagree	44	(430)	
Discuss Family Planning Use			
Ever	32	(318)	
Never	29	(290)	0.23
Disagree	39	(378)	
Discuss Number Of Children			
Ever	74	(730)	
Never	5	(47)	0.18
Disagree	21	(209)	
Desired Fertility			
Agree: Want more children	41	(408)	
Agree: Don't want more children	44	(431)	
Disagree: Husband wants more	10	(102)	0.70
Disagree: Wife wants more	5	(45)	
Current Contraceptive Use			
Agree: Yes (modern temporary methods)	13	(126)	
Agree: No	86	(846)	0.93
Disagree	1	(14)	
State & Religion			
Tamil Nadu Hindu	20	(195)	
Tamil Nadu Muslim	22	(220)	
Uttar Pradesh Hindu	26	(252)	
Uttar Pradesh Muslim	32	(319)	
Duration Of Marriage			
0-5	32	(321)	
6-10	24	(238)	
11+	38	(427)	
Number Of Children Alive			
0-1	36	(352)	
2-3	33	(328)	
4+	31	(306)	
Number Of Sons			
0	31	(304)	
1	34	(334)	
2+	35	(348)	

[@]Excluding couples reported sterilized or those where wives reported being pregnant, unsure of pregnancy status or infecund.

Table 4A: Percentage Distribution of Couples by Educational level, Religion and State

Husband and wife education	Uttar Pradesh			Tamil Nadu			Total		
	Muslim	Hindu	Total	Muslim	Hindu	Total	Muslim	Hindu	Total
Neither spouse or one has no education	83 (264)	60 (150)	73 (414)	33 (72)	56 (109)	44 (181)	62 (336)	58 (259)	60 (595)
Both spouses have at least a primary level education	17 (55)	40 (102)	27 (157)	67 (148)	44 (86)	56 (234)	38 (203)	42 (188)	40 (391)
Total (N)	100 (319)	100 (252)	100 (571)	100 (220)	100 (195)	100 (415)	100 (539)	100 (447)	100 (986)
Significance Level	p<0.001			p<0.001			p=0.160		

Table 4B: Percentage of Couples Using Modern Contraception by Education, Religion and State

Husband and wife education	Uttar Pradesh			Tamil Nadu			Total		
	Muslim	Hindu	Total	Muslim	Hindu	Total	Muslim	Hindu	Total
Neither spouse or one has no education	8.7 (264)	9.3 (150)	8.9 (414)	6.9 (72)	4.5 (109)	5.5 (181)	8.3 (336)	7.3 (259)	7.9 (595)
Both spouses have at least a primary level education	16.4 (55)	30.4 (102)	25.5 (157)	21.6 (148)	13.9 (86)	18.8 (234)	20.2 (203)	22.9 (188)	21.5 (391)
Total (N)	10.3 (319)	17.9 (252)	13.5 (571)	16.8 (220)	8.7 (195)	13.0 (415)	12.8 (539)	13.9 (447)	13.3 (986)
Significance Level	p<0.001			p<0.001					p<0.001

Table 5: Bivariate and Multivariate Odds Ratios of Effects of Husbands' and Wives' Joint and Individual Characteristics on Reported Use of Modern Family Planning Methods (N=986)[@]

	Bivariate Odds Ratios	Multivariate Odds Ratios
Couple Characteristics		
Fertility Desire		
H/W agree want more children	1.00	1.00
H/W agree do not want more children	4.42 (2.78 – 7.03) ***	2.96 (1.64 – 5.36) ***
H/W disagree	3.29 (1.80 – 6.02) ***	2.54 (1.29 – 5.00) **
Discussion on Family Planning Use		
Wife reports no discussion with husband	1.00	1.00
Wife reports discussion with husband	5.33 (3.31 – 8.59) ***	3.53 (2.11 – 5.91) ***
Husband reports no discussion with wife	1.00	1.00
Husband reports discussion with wife	6.90 (4.21 – 11.32) ***	4.74 (2.77 – 8.09) ***
Discussion on Number of Children [Φ]		
Wife reports no discussion with husband	1.00	n.a.
Wife reports discussion with husband	2.68 (1.33 – 5.39) **	
Husband reports no discussion with wife	1.00	n.a.
Husband reports discussion with wife	2.19 (1.15 – 4.17)*	
Couple Education		
Both or one spouse has no education	1.00	1.00
Both have at least a primary education	3.19 (2.17 – 4.68) ***	3.31 (2.08 – 5.29) ***
Number of Sons	1.21 (1.06 – 1.38)**	n.a.
Religion and State		
Tamil Nadu Hindu	1.00	1.00
Tamil Nadu Muslim	2.12 (1.15 – 3.90) *	1.87 (0.94 – 3.72)
Uttar Pradesh Hindu	2.28 (1.26 – 4.12) **	1.92 (0.85 – 4.32)
Uttar Pradesh Muslim	1.17 (0.63 – 2.16)	2.10 0.91 – 4.88)
Individual Characteristics		
Wife's Age (years)	1.06 (1.03 – 1.09) ***	1.09 (1.03 – 1.16) **
Wife's Mobility (Index 0-5)	1.04 (0.94 – 1.15)	n.a.
Wife's Access to Economic Resources (Index 0-4)	1.44 (1.08 – 1.93) *	n.a
Wife's Economic Decision-making Authority (Index 0-6)	1.01 (0.89 – 1.15)	3.02 (1.39 – 6.57) **.
Age * Economic Decision-making Authority	n.a.	0.96 (0.94 – 0.99) **
Husband's Age (years)	1.04 (1.01 – 1.06) **	n.a.

*p<0.05/ **p<0.01 / ***p<0.001

[@]Excluding couples reported sterilized or those where wives reported being pregnant, unsure of pregnancy status or infecund.

n.a. Variable was not included in the final multivariate logistic regression model.

[Φ] neither variable was significant in the full model, therefore, neither was not included in the final model.

APPENDIX

Table A:

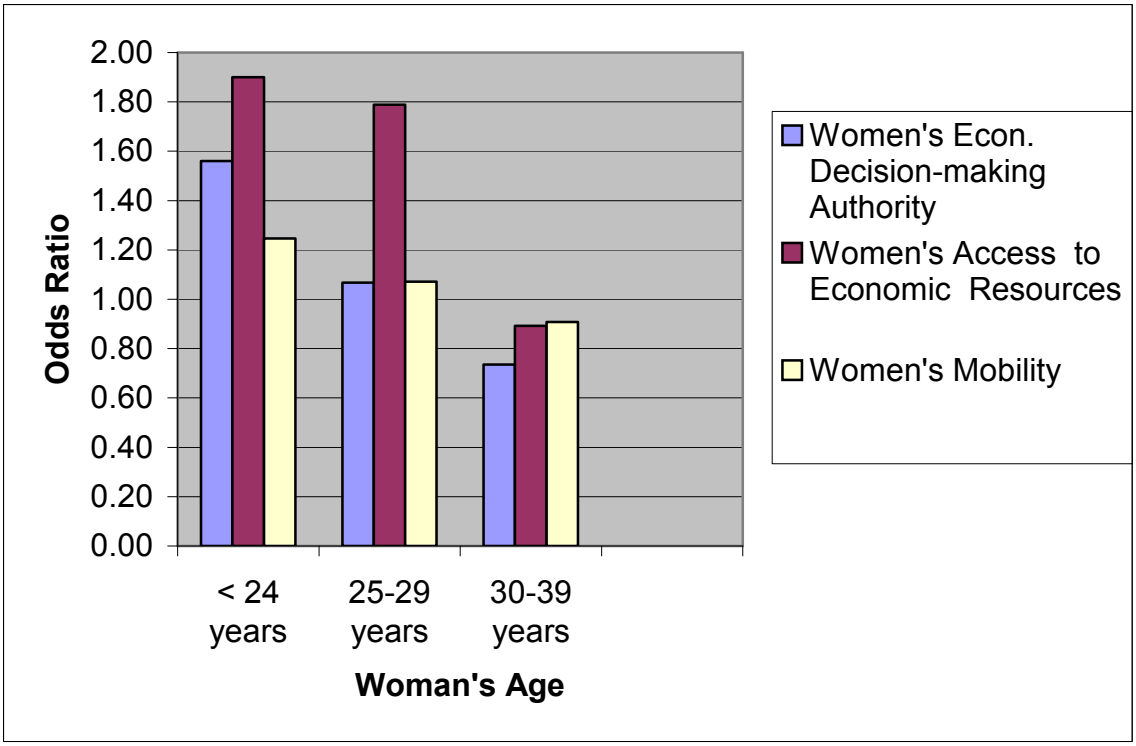
Comparison of Multivariate Odds Ratios of Effects of Husbands' and Wives' Joint and Contextual Characteristics on Reported Use of Modern versus All Temporary Family Planning Methods (N=986)[@]

	All Temporary Method Use	Modern Temporary Method use
Couple Characteristics		
Fertility Desire		
H/W agree want more children	1.00	1.00
H/W agree do not want more children	3.20 (1.85 – 5.34) ***	2.96 (1.64 – 5.36) ***
H/W disagree	2.05 (1.08 – 3.89) ***	2.54 (1.29 – 5.00) **
Discussion on Family Planning Use		
Wife reports no discussion with husband	1.00	1.00
Wife reports discussion with husband	3.38 (2.13 – 5.37) ***	3.53 (2.11 – 5.91) ***
Husband reports no discussion with wife	1.00	1.00
Husband reports discussion with wife	4.30 (2.67 – 6.92) ***	4.74 (2.77 – 8.09) ***
Couple Education		
Both or one spouse has no education	1.00	1.00
Both have at least a primary education	2.74 (1.79 – 4.21) ***	3.31 (2.08 – 5.29) ***
Religion and State		
Tamil Nadu Hindu	1.00	1.00
Tamil Nadu Muslim	1.71 (0.91 – 3.20)	1.87 (0.94 – 3.72)
Uttar Pradesh Hindu	2.14 (1.02 – 4.50) *	1.92 (0.85 – 4.32)
Uttar Pradesh Muslim	1.95 (0.90 – 4.22)	2.10 0.91 – 4.88)
Individual Characteristics		
Wife's Age (years)	1.08 (1.02 – 1.13) **	1.09 (1.03 – 1.16) **
Wife's Economic Decision-making Authority (Index 0-6)	2.56 (1.26 – 5.22) *	3.02 (1.39 – 6.57) **
Age * Economic Decision-making Authority	0.97 (0.94 – 0.99) **	0.96 (0.94 – 0.99) **

*p<0.05/ **p<0.01 / ***p<0.001

[@]Excluding couples reported sterilized or those where wives reported being pregnant, unsure of pregnancy status or infecund.

Figure 1: Odds Ratios of Modern Temporary Method Use in Tamil Nadu and Uttar Pradesh by Women's Autonomy, stratified by Age (controlling for religion and state)



Odds Ratios of Modern Contraceptive Method Use by Women's Autonomy stratified by Age, controlling for state and religion (p-values)`

	Women's Econ. Decision-making Authority		Women's Access to Economic Resources		Women's Mobility		Number of Women
< 24 years	1.56	(p<0.05)	1.9	(p<0.05)	1.25	(p<0.05)	397
25-29 years	1.07	(p=0.707)	1.79	(p<0.05)	1.07	(p=0.518)	246
30-39 years	0.74	(p<0.05)	0.89	(p=0.637)	0.91	(p=0.237)	343