Individual and Couple-Level Factors Associated with Mistimed and Unwanted Pregnancies in Bangladesh

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Abstract
This study explores the factors associated with unintended pregnancies that occurred to 2,249 couples who participated in the 1999-2000 Bangladesh Demographic and Health Survey. Women who reported use of a modern family planning method were significantly more likely to categorize their last pregnancy as mistimed or unwanted, and their current pregnancy as unwanted. Women were also more likely to characterize their last birth as mistimed if they had a daughter versus a son. The findings from the women's status variables confirmed the multidimensional nature of this concept, showing disparate relationships with the reporting of a mistimed versus an unwanted pregnancy. Some measures, such as women's literacy and age at marriage, showed the expected associations with respect to unwanted pregnancies. Other variables, such as husband's literacy and husband's opinion regarding women's decision-making, contradict the central hypothesis that women with higher status would be more likely to prevent unintended pregnancies.

Bangladesh is often cited as a demographic success story, having increased contraceptive prevalence (CPR) from 10% in 1965 to 54% in 2003, and decreased the total fertility rate (TFR) from just under seven births per woman in the 1970's to a current level of 3.6 births per woman. Compared to its South Asian neighbors, Bangladesh has the highest contraceptive prevalence rate and one of lowest fertility rates in the region, second only to India and Myanmar, each with a TFR of 3.1. (Population Reference Bureau, 2003)

However, the 1999-2000 Bangladesh Demographic and Health Survey (BDHS) results show that more than one-third of all births in Bangladesh are unintended – 19% were mistimed (wanted later) and 14% were unwanted.(National Institute of Population Research and Training (NIPORT), Mitra and Associates (MA), and ORC Macro (ORCM)) Additionally, the TFR has hovered around 3.3 for the past decade and is estimated to be 50 percent higher than it would be if unwanted births were avoided.(Mitra SN, et al., 1994, Mitra SN, et al., 1997, National Institute of Population Research and Training (NIPORT), Mitra and Associates (MA), and ORC Macro (ORCM))

Unintended pregnancy has been linked to a variety of negative health outcomes. Although some studies are limited by study design issues and lack of controls for potentially confounding variables, other studies have used more rigorous designs and analyses to document an association between unintended pregnancy and adverse health outcomes for both mother and child.

Studies from the United States, Europe, and developing nations have shown that unintended pregnancies are associated with adverse birth outcomes, underutilization of prenatal care, decreased levels of breastfeeding and increased levels of neonatal and child morbidity and mortality.(Eggleston E, Tsui AO, Kotelchuck M, 2001, Joyce TJ, Kaestner R, Korenman S, 2000, Kost, K., D. J. Landry and J. E. Darroch, 1998, Eggleston E, 2000, Magadi MA, Madise NJ, Rodrigues RN, 2000, Marston, C. and J. Cleland, 2003, Dye TD, Wojtowycz MA, Aubry RH, Quade J, Kilburn H, 1997, Bustan MN, Coker AL, 1994, Frenzen PD, Hogan DP, 1982, Montgomery MR, LLoyd CB, Hewett PC,

Heuveline P, 1997) In addition, children born from unwanted pregnancies are more likely to suffer from short-term and long-term consequences to their physical and mental health, including decreased nutritional status, a greater likelihood of experiencing physical abuse and neglect, decreased self-esteem and social skill development, and lower levels of educational attainment.(Marston, C. and J. Cleland, 2003, Montgomery MR, LLoyd CB, Hewett PC, Heuveline P, 1997, Sidebotham, P. and J. Heron, 2003, Zuravin SJ, 1991, Axinn, William G., Jennifer S. Barber and Arland Thornton, 1998, Baydar N, 1995, David HP, Dytrych Z, Matejcek Z, Schuller V, 1992) Other studies conducted in the United States show that women who report their pregnancies as unintended are more likely to continue negative health behaviors such as smoking and drinking alcohol during pregnancy, and are less likely to adhere to positive health behaviors such as taking vitamins and prenatal supplements. (Altfeld, Susan, Arden Handler, Dee Burton and Leatrice Berman, 1997, Hellerstedt WL, Pirie PL, Lando HA, Curry SJ, McBride CM, Grothaus LC, Nelson JC, 1998, Rosenberg, K. D., J. M. Gelow and A. P. Sandoval, 2003)

The reasons and mechanisms behind the differential health outcomes for intended versus unintended children are not well documented; however, anthropological fieldwork has contributed to the understanding of this phenomenon. Ethnographic evidence from Brazil, Nepal, and Guatemala reveals the differential allocation of resources and care to particular children as a means of survival for families in dire circumstances.(Levine NE, 1987, Scrimshaw SCM, 1978, Scheper-Hughes N, 1984) "Ethnoeugenic selective neglect" occurs when families must make a choice of which child or children that they can feasibly invest in given severely limited resources within the household.(Scheper-Hughes N, 1984)

In light of the evidence of the multiple consequences of unintended pregnancy for children and families, this study examines the individual and couple-level factors that are associated with the wives' characterization of her last pregnancy or birth as mistimed or unwanted. Previous studies have focused on individual factors that contribute to unintended pregnancy, focusing mostly on the sociodemographic characteristics of the mother. In this study information from the husbands is included, as well as measures of women's status, to help explain the characteristics association with unintended pregnancy. In addition, couples are grouped based on their reproductive status to control for differences in the reporting of pregnancy intention and the timing of the survey within the couples' reproductive lifespan.

BACKGROUND

Factors associated with unintended pregnancy

Individual factors influencing unintended pregnancy have been documented in several studies, most of which have been conducted in the United States. Sociodemographic characteristics of the mother, such as older age, minority ethnic group, unmarried or separated marital status, lower education, lower income, and higher parity have been associated with unintended pregnancy. (Green, D. C., J. A. Gazmararian, L. D. Mahoney

and N. A. Davis, 2002, Kost K, Forrest JD, 1995, Henshaw SK, 1998, Forrest JD, 1994) Developing country studies in Africa and Latin America have similar findings. Higher parity, remote residence, lower income, and older maternal age were all found to be correlated with unintended pregnancy.(Eggleston E, 1999, Magadi, M. A., 2003)

Factors that contribute to unintended pregnancy extend beyond the level of the individual, however, and include those at the level of the couple, the community, and the society. A woman's access to and ability to use contraceptives to prevent an unintended pregnancy is dependent on her status and power within her community and within her marriage. As described by Safilios-Rothschild, a woman's status refers to "women's overall position in the society while power refers to women's ability to influence and control at the interpersonal level." (Safilios-Rothschild C, 1982) A society's kinship, political, and religious systems affect the distribution of social and economic power of women in relation to men; an unbalanced distribution may decrease the overall status and power of women within the society, resulting in practices such as son preference and in the limitation of social, educational, and economic options for women. (Cain M, Khanam SR, Nahar S,, 1979)

Several studies have investigated the role that women's status and power have upon fertility outcomes and contraceptive use. Researchers have found a negative relationship between fertility and proxy measures of women's status such as maternal education, wife's mean age at marriage, mean spousal age difference, and participation in wage-earning activities. (Dyson T, Moore M, 1983, Abadian S, 1996, Jejeebhoy, S. J., 1995) Other studies have investigated fertility decision-making and bargaining between marital partners, finding that couples in which the wife has more decision-making power, has more mobility, and is free from the threat of violence are more likely to use contraception and to have lower fertility than other women. (Bankole, Akinrinola, 1995, Bankole, Akinrinola and Susheela Singh, 1998, Ezeh, Alex Chika, 1993, Hindin MJ, 2001, Thomson, Elizabeth, Elaine McDonald and Larry L Bumpass, 1990)

METHODS

The data analyzed in this paper come from the 1999-2000 BDHS conducted by the National Institute for Population Research and Training (NIPORT), Mitra and Associates (MA), and ORC Macro (ORCM).(National Institute of Population Research and Training (NIPORT), Mitra and Associates (MA), and ORC Macro (ORCM)) Similar to the surveys conducted in 1993-94 and 1996-97, the 1999-2000 BDHS collected information from both women and men on sociodemographic characteristics, maternal and child health, fertility preferences, and contraception. For the 1999-2000 BDHS, additional questions were added to the male and female surveys regarding household decision-making and responsibilities, violence, and women's mobility.

A total of 10,268 households were selected using a two-stage sampling design, yielding 10,544 interviews with ever-married women age 10-49. In addition, every third household was chosen to administer the male survey to all currently married men age 15-59 living within those households. A total of 2,249 couples were interviewed in the

1999-2000 BDHS, representing the households in which both the wife and husband were present, eligible, and agreed to be interviewed.

Dependent Variable

The DHS question regarding pregnancy intention asks all women who have given birth within the last five years to retrospectively assess their pregnancy intention at the time they became pregnant, requiring a recall of several months to several years, depending on the date of their most recent pregnancy or birth: "At the time you became pregnant did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?" Women who were pregnant at the time of the survey were asked a similar question. Pregnancies and births were considered 'mistimed' if the woman stated that she wanted to wait until later, and 'unwanted' if she did not want to have any (more) children at all. All pregnancies and births were coded as 0 for 'wanted then' (reference category), 1 for 'mistimed', and 2 for 'unwanted'. As shown in Table 1, 50% of currently pregnant women stated that their current pregnancy was 'wanted then,' compared to 62% of women who were reporting on a pregnancy that led to their most recent birth within the last five years.

Similar to the findings from Ecuador by Eggleston, preliminary analyses revealed that the factors associated with mistimed pregnancies were different from those associated with unwanted pregnancies.(Eggleston E, 1999) Additionally, other studies on unintended pregnancy have shown that the timing of the fertility preference measurement may influence the characterization of a pregnancy or birth.(Rosenzweig MR, Wolpin KI, 1993) Several studies have shown that women are less likely to report their last birth as 'unwanted' in retrospective reports, especially over a longer duration of time.(Magadi, M. A., 2003) Given these considerations, a multinomial logistic regression was conducted to determine the potentially disparate factors that are associated with mistimed and unwanted pregnancies among three groups of couples: 1) couples who were pregnant at the time of the survey, 2) couples who had at least one birth in the last five years, and 3) couples who did not have a birth in the last five years.

Explanatory Variables

As shown in Table 1, the explanatory variables employed in the multivariate analyses included sociodemographic and household characteristics for the wife and husband, as well as variables associated with women's status and power.

The sociodemographic and household characteristics included age, wife's religion (Islam versus Hindu/other), place of residence (urban or rural), socioeconomic status, and number of living children. The husband's religion was excluded from the multivariate model since it is highly correlated with their wife's religion (98.5% of couples were of the same religion). A continuous socioeconomic status variable was created based on the natural log of the weighted mean of a sum of household possessions (e.g., cot, radio, phone, etc.) and household amenities (type of floor and toilet facility). Levels ranged

from 0 to 4.8 on a log scale and were internally consistent in their measure of SES (Cronbach's alpha = 0.82).

The women's status and power variables were extracted from both the men's and the women's surveys. Variables obtained solely from the women's survey included: age at first marriage, current work status of the wife, sex of the last birth, whether she reported ever having a terminated pregnancy (miscarriage, abortion/menstrual regulation, or stillbirth), and if she's ever discussed family planning with her partner. Additionally, information from the wife's survey includes membership in any microcredit organization (e.g., Grameen Bank, BRAC) and household decision-making (reports having 'a say' in no or some versus all of six household decisions). Included from the men's survey was his attitude regarding wife beating (reports beating as justified in any one of four scenarios) and the husband's opinion regarding a woman's decision-making power (reports that a woman should have 'a say' in no or some versus all of four household decisions). Both men's and women's surveys were used to include variables for the wife's and husband's literacy (a dichotomous variable distinguishing between cannot read/reads with difficulty versus reads easily), ever use of modern family planning, as well as the age difference between the husband and wife.

Hypothesis

Based on the existing literature regarding women's status and power and unintended pregnancy, it is hypothesized that women with higher status and power will be more likely to avoid an unwanted or mistimed pregnancies, and will therefore be less likely to characterize their last pregnancy leading to a birth or their current pregnancy as unintended. To test this hypothesis, the aforementioned sociodemographic, women's status and power variables are incorporated as independent variables to determine their association with mistimed and unwanted pregnancies and births.

Data Analysis

For this analysis, three groups of couples were identified: Group 1: Couples who had not had a birth in the last five years (n=956), Group 2: Couples who are not currently pregnant but who have had at least one birth in the last five years (n=1,116), and Group 3: Couples who were pregnant at the time of the survey (n=177).

Chi-squared and ANOVA tests were conducted to compare wives' and husbands' characteristics across these three groups. For those with pregnancy intention data (Groups 2 and 3), bivariate and multivariate multinomial logistic regressions were conducted to determine the association between individual and couple-level factors and the odds of reporting a mistimed or unwanted pregnancy.[1]

[1] Since 250 couples were residing with other couples within this sample, the regression models include a control for any intrahousehold similarities by clustering at the household level, providing more robust standard errors.

The multivariate analysis is comprised of variables that were statistically significant for either mistimed or unwanted pregnancies/births based on the bivariate models, in addition to those that were considered important controls for both individual-level and couple-level analyses. For example, although the age of husband and wife are correlated, both age variables are included to control for the age difference between husband and wife, a predictor associated with decreased decision-making power, and potential association with the outcome variable.(Cain M, 1984) The multinomial logistic regression results are displayed as odds ratios, relative to the reference group.(Hosmer D, Lemeshow S, 1989)

RESULTS – BACKGROUND CHARACTERISTICS

Table 1 provides a comparison of the three groups of women: those without a birth in the last five years are compared to those with a birth in the last five years but not currently pregnant (Group 2), and those currently pregnant at the time of the BDHS (Group 3). Overall tests for statistical significance were conducted using Chi-square tests and comparisons between groups (Groups 2 and 3 to Group 1) were assessed for statistical significance using Bonferroni tests.

Sociodemographic and Household Characteristics

As compared to women who reported not having a birth in the last five years, women who reported a birth or were currently pregnant were younger, had younger husbands, were more likely to be Muslim, have lower socioeconomic status, and have fewer living children. Women who were currently pregnant at the time of the survey were also more likely to live in rural areas, as compared to women who did not have a birth in the last five years.

Women's Status and Power

As compared to the other two groups, the couples without a birth in the last five years contained a higher proportion of couples in which there was less than a five year age difference had a higher proportion of literate husbands, and wives who were currently working. Women who had a birth in the last five years were married at an older age and were less likely to have ever had a terminated pregnancy. This group was also more likely to have ever discussed family planning with their husband and to have a husband who believes that wife beating is justified in one or more situations, as compared to those without a birth in the last five years.

Couples without a birth in the last five years were more likely than couples in the currently pregnant group to have used modern family planning methods, as reported by both men and women. A greater proportion of wives from the group without a birth in the last five years reported decision-making in all domains covered by the DHS, as compared to the other two groups. Also, a significantly greater proportion of husbands from this group supported women's decision-making, as compared to husbands whose wives were pregnant at the time of the survey.

RESULTS – MULTIVARIATE ANALYSES

The next phase of the analysis explores the factors associated with mistimed or unwanted pregnancies. Bivariate associations were explored as a preliminary step, and multivariate models are presented to determine the independent and joint effects of each of the covariates. Two sets of multinominal models were explored. Table 2 shows the factors associated with mistimed or unwanted pregnancies among women who had a birth in the last five years but were not pregnant at the time of the survey (Group 2) as compared to women who reported that they wanted the pregnancy then. Table 3 shows the factors associated with mistimed or unwanted births among women who were pregnant at the time of the survey (Group 3) as compared to women who reported that they wanted the pregnancy then.

Sociodemographic and Household Characteristics

Among women who had a pregnancy in the last five years (Group 2), the wife's sociodemographic characteristics are more associated with not wanting more children while the husband's sociodemographic characteristics are more significantly associated with mistimed pregnancy. These associations are, in general, weaker for the currently pregnant group. Older maternal age was significantly associated with the reporting of an unwanted pregnancy in Group 2 (OR = 1.44). Conversely, older paternal age was associated with women being less likely to report the pregnancy as mistimed (OR = 0.95). Based on the significance tests from the bivariate models (data not shown), SES was the only household characteristic included in the two final models. After adjustment, the only significant association was found in Group 3. Higher SES was associated with a nearly three-fold likelihood of categorizing their pregnancy as mistimed.

The number of living children was highly associated with both mistimed and unwanted pregnancies in both groups. Within Group 2, the odds of reporting an unwanted pregnancy increased nearly two-fold for each living child (OR = 1.95); for mistimed pregnancies the effect size was slightly smaller, but was significantly higher with higher parity pregnancies (OR = 1.67). Within Group 3, higher parity was marginally associated with increased odds of a mistimed pregnancy (OR = 1.86) and highly associated with increased odds of an unwanted pregnancy (OR = 4.46). Within Group 2, women whose last birth was female were more likely to report this birth as mistimed versus wanted then (OR = 1.37), holding other factors constant.

Women's Status and Power

Within both groups, female literacy was associated with a lower likelihood of reporting a pregnancy as unwanted (Group 2: OR = 0.63; Group 3: OR = 0.14), and for Group 3 was associated with being more likely to report the pregnancy as mistimed (OR = 3.06); however, none of these associations were significant at the $p<0.05$ level. Women with literate husbands were significantly more likely to characterize their last pregnancy as mistimed (OR = 1.58). Older maternal age at first marriage was associated with a lower likelihood of reporting an unwanted pregnancy for women in Group 2 (OR = 0.89) and of reporting a mistimed pregnancy in Group 3 (OR = 0.70). In both groups, women who reported ever using family planning were nearly four times as likely to characterize their

last pregnancy as unwanted (Group 2: OR = 3.98; Group 3: OR = 3.77). For women in Group 2, ever use of family planning was also associated with reporting the pregnancy as mistimed (OR = 1.51).

Among the remaining women's status variables, the effects are not consistent, nor are they significant at the $p<0.05$ level, perhaps due to small sample sizes. For Group 2, the husband's belief that wife beating is justified and a woman having 'a say' in all six of the domains were both found to be related to a lower likelihood of a pregnancy being reported as unwanted (OR = 0.66 and 0.67, respectively). Conversely, the wife's membership in at least one microcredit group was associated with reporting a mistimed pregnancy (OR = 1.41), while the husband's belief that women should have a say in all 4 domains was associated with reporting the pregnancy as unwanted (OR = 1.58). The relationships found within Group 3 are consistent with those from Group 2, with respect to wife beating and woman's decision-making variables. For husbands who believe that wife beating is justified in one or more situations, his wife is less likely to characterize her pregnancy as unwanted (OR = 0.23). Women who have a say in all 6 domains are less likely to consider their current pregnancy mistimed (OR = 0.33).

DISCUSSION AND CONCLUSIONS

Situated in the intermediate stage of the fertility transition, Bangladesh is at the highest risk for unintended pregnancies and its associated consequences due to the lag between the desire for a smaller family size and the adoption and consistent use of contraception. (Bongaarts J, 1997) Given that the continued progress of Bangladesh in the fertility transition and in reducing the level of unintended pregnancy is dependent upon couples achieving their fertility preferences, it is essential to investigate factors that inhibit or enable individuals, as well as couples, in implementing their reproductive intentions.

Bangladesh is a country that has rapidly progressed through the fertility transition, despite concurrent improvements in socioeconomic and development indicators. (Caldwell JC, E-Khuda B, Caldwell B, Pieris I, Caldwell P,, 1999) It currently ranks among the most impoverished countries in the world, with nearly one-half of its 135 million inhabitants living below the poverty line. (World Bank, 2002) The lag in social and economic development is particularly pronounced for Bangladeshi women. In a 25 country comparative study of women's status conducted by DHS, Bangladesh ranked second to last based on measurements of relative poverty status, household headship, and female employment and education relative to their partners. (Kishor S, Neitzel K, 1996) The cultural and religious practice of *purdah,* while intended to uphold and protect the family's honor, also limits the economic and social mobility of Bangladeshi women by restricting their movement within the local compound or *bari* and by limiting the economic and social activities in which women can participate. (Mandelbaum DG, 1988, Cain M, Khanam SR, Nahar S,, 1979) There is evidence that gender roles and norms are changing in Bangladesh, especially with the advent of micro-credit programs and garment industry employment. (Schuler, S. R. and S. M. Hashemi, 1994, Kabeer N, 1997) There is concern, however, that a backlash of violence may ensue against women who break with tradition, especially within communities in which a normative change has

not occurred. (Koenig, M. A., S. Ahmed, M. B. Hossain and A. B. Khorshed Alam Mozumder, 2003, Schuler, S. R., S. M. Hashemi, A. P. Riley and S. Akhter, 1996)

It is within the context of these two dynamic processes – the change in women's status and the fertility transition – that the hypothesis was formed for this investigation: Women with higher status and power will be more likely to avoid an unwanted or mistimed pregnancy, and will therefore be less likely to characterize their last birth or pregnancy as unintended. As shown by the results in Tables 2 and 3, the effects of the women's status variables on unintended pregnancy are mixed, highlighting the differential effects of the measurements that comprise 'women's status and power,' as well as mistimed versus unwanted births. Some measures, such as women's literacy, age at marriage, and household decision-making, had the expected effects with respect to unwanted pregnancies. Other variables, however, such as husband's literacy, ever use of modern family planning, and husband's opinion regarding women's decision-making contradicted the hypothesis.

As hypothesized, literate women in both groups were less likely to characterize their current pregnancy or last birth as unwanted; however, currently pregnant, literate women were more likely to consider their births mistimed. This finding indicates that, contrary to the hypothesis, women's status and power may differentially affect the characterization of a mistimed versus an unwanted pregnancy. Women with higher status may be more likely to voice their reproductive intentions and to characterize their last birth or pregnancy as *mistimed*, yet they may also be more likely to achieve their fertility intentions by effectively using contraception to prevent an *unwanted* pregnancy or birth. Findings from other studies support these two mechanisms: female education and literacy have been shown to affect fertility through a decrease in the reported ideal family size, as well as through increasing utilization of reproductive and contraceptive services. (Jejeebhoy, S. J., 1995, Abadian S, 1996)

Ethnographic evidence from Bangladesh supports a possible relationship between higher status and increased reporting of mistimed pregnancies. Traditional cultural norms encourage wives, particularly new wives, to prove their fertility immediately after marriage, with many couples never broaching the topic of family planning or contraception until after the birth or conception of their first child. (Blum L, 2004, Aziz, KM Ashraful, 1985) Often, the pressure to conceive does not subside until after the birth of the first child or completion of childbearing. More empowered women may feel that the timing of their pregnancies is within their 'calculus of rational choice,' even amidst this pressure to bear children. (Simmons R, Mita R, 1995) This shift has been noted within the 3 most recent DHS surveys, showing that the younger cohorts of women are more inclined than older cohorts to initiate family planning use at lower parities. (National Institute of Population Research and Training (NIPORT), Mitra and Associates (MA), and ORC Macro (ORCM))

The spousal age gap was associated with the reporting of mistimed births. As shown in Table 2, the inclusion of both the wife's and husband's age variables indicates that as the age gap increases, the wife is less likely to characterize her pregnancy as mistimed. A

larger spousal age difference, as shown in other studies, has been associated with decreased status, furthering the hypothesis that more empowered women are more likely to classify a pregnancy as mistimed. (Abadian S, 1996, Cain M, Khanam SR, Nahar S,, 1979) Longitudinal data that followed young women would allow for a further test of this hypothesis, to determine whether more empowered young women would eventually be more successful in *preventing* a mistimed pregnancy relative to their 'less empowered' peers.

In addition to the effects of female literacy, the likelihood of reporting a mistimed birth was also associated with the husbands' literacy. This relationship was seen in both the bivariate model and in the multivariate model, indicating that even after controlling for other sociodemographic characteristics such as the wife's literacy, the husband's literacy had a significant effect. As argued by Basu, an important determinant of intentional fertility decline is "the husband-wife team's united ability to manipulate the environment," highlighting the importance of assessing each partner's characteristics and relative influence in studies on fertility outcomes, as well as emphasizing development initiatives that contribute to both men's and women's social and economic development. (Basu AM, 1999)

Women who reported a later age at marriage and greater decision-making power were *less* likely to report a mistimed pregnancy or unwanted birth; however, women with husbands in favor of greater female decision-making power were *more* likely to report an unwanted birth. Jejeebhoy argues that women who marry later may be higher status, with respect to decision-making, economic, and physical autonomy, than those who marry earlier. (Jejeebhoy, S. J., 1995) However, in a study by Balk, women who married later were less likely to be mobile and to hold less progressive attitudes. (Balk D, 1994) These mixed findings illustrate the complex, multidimensional nature of women's status and power and the difficulty in using cross-sectional proxy measures, such as those employed within the DHS, to appropriately measure and characterize women's empowerment and the associated effects on fertility outcomes. (Malhotra A, Schuler SR, Boender C,, 2002) Studies conducted within South Asia have also pointed out the difficulties of measuring women's status, considering that the ideals of autonomy and 'empowerment' are varied, are attained through different means, and take on different meanings depending on each cultural context.(Amin S, 1997, Balk D, 1994)

Additional difficulties arise when attempting to measure women's status from the perspective of both partners. In this study, the interpretation of women's status according to their husbands' attitudes is complex to interpret. For example, women whose husbands supported wife-beating in one or more occasions were less likely to report an unwanted birth. A woman whose husband supports wife-beating may not feel that she has decision-making power with respect to the number and timing of children, or she may be less likely to claim that any child is 'unwanted' if providing offspring, particularly sons, may equate to greater status and prestige within her household and community, as is suggested by other studies (Das Gupta M, 1995, Cain M, Khanam SR, Nahar S,, 1979). Many surveys, including the DHS, do not ask the same questions of both women and men, and in some cases, there is evidence that men and women may respond quite

differently to the questions that are asked of both. (Jejeebhoy, Shireen J, 2002, Koenig, Michael A, G B Simmons and B D Misra, 1984)

Similar to studies conducted in Ecuador and Kenya, these findings show that women who report unwanted births and pregnancies are also more likely to have used modern methods of family planning. Since these results are limited due to their cross-sectional nature, it is impossible to determine the causality of this finding. Women who have experienced unintended pregnancy may be more likely to adopt modern contraceptive methods. Conversely, as was found for Ecuadorian women, Bangladeshi women who reported unwanted births and pregnancies may have been more likely to have used a modern method prior to their pregnancy. Forty-nine percent of contraceptive users in Bangladesh discontinue within 12 months of starting use, often citing side effects as their reason for discontinuation. (National Institute of Population Research and Training (NIPORT), Mitra and Associates (MA), and ORC Macro (ORCM)) Additional qualitative and quantitative investigations have described the toll that contraception side effects have taken on Bangladeshi women, forcing them to constantly switch between methods or abandon contraceptive methods altogether, thereby increasing their risk for one or more unintended pregnancies.(Khan, M. A., 2003, Blum L, 2004, Rashid, S. F., 2001)

Additionally, for couples who had a birth within the last five years, births that resulted in female children were more likely to be classified as mistimed versus wanted then. There is extensive evidence of son preference within Bangladesh.(D'Souza S and Chen LC, 1980, Koenig, M. A. and S. D'Souza, 1986) However, more recent studies have documented a shift in societal norms towards a more balanced family composition, finding that the highest contraceptive use rates and lowest fertility occurs among women who have one daughter, as well as at least one son. (Chowdhury, A. I., R. Bairagi and M. A. Koenig, 1993) Considering the ongoing changes in the norms regarding family size and composition in Bangladesh, the characterization of a birth as ‘unwanted’ or ‘mistimed’ may be highly dependent on the timing of the fertility preference questions and the specific family composition of the respondents.

Several limitations should be considered when interpreting the findings from this study. First, as mentioned previously, the DHS pregnancy intention question relies on the retrospective assessment of the wanted status of the current pregnancy and of the last live birth that occurred within the past 5 years. There are two limitations with this measurement: 1) the potential for women to rationalize an unwanted pregnancy when retrospectively reporting on the wanted status of that child, and 2) the exclusion of terminated or aborted pregnancies, those that were most likely to be unwanted. (Rosenzweig MR, Wolpin KI, 1993) Though there is evidence of rationalization bias within other studies of pregnancy intention, after controlling for the age of the child, there was no evidence in this investigation that the classification of births varied significantly over time. (Bankole, Akinrinola and Charles F Westoff, 1998)

Second, pregnancy intention is based on the woman’s report alone. The omission of husband data prevents researchers and policymakers from knowing the husband’s fertility

preferences, as well as how the combined preferences of the husband and the wife are negotiated and translated into actual childbearing practices. Reports of couple concordance with respect to fertility preferences range from 50% to 90% throughout the world, with 85% of couples in agreement in Bangladesh. (Becker, Stan, 1996) Despite high agreement, however, a local study by Razzaque and a multi-country study by Mason and Smith found that the husband's fertility desires were most likely to be fulfilled, especially within more gender-stratified societies such as Bangladesh. (Mason, Karen O. and Herbert L. Smith, 2000, Razzaque A, 1999) As these studies show, eliciting pregnancy intention information from wives alone may not adequately represent the pregnancy intentions of the couple. Studies that incorporate the husband's fertility preferences would better describe unintended pregnancy from the perspective of each partner, as well as the couple unit.

Third, the group of currently pregnant women was included as an attempt to control for potential rationalization bias; however, the small sample size of this group limits the ability to detect significant differences, especially within a multinomial model. Despite this limitation, however, the differentiation between groups was useful in identifying the predictors of unintended pregnancy that were unique to each group. Clearly longitudinal data are needed to sort out the complex associations observed and would enable the contextualization of fertility preferences and its associated predictors, as well as in helping to establish causality. For Bangladesh especially, a country in which there has been a rapid decrease in the ideal family size, prospective data could contribute significantly to understanding the dynamics of unintended pregnancy and providing direction for future programmatic intervention efforts.

Despite the limitations, however, this analysis contributes to the literature by providing information on both the individual and the couple-level influences on unintended pregnancy. Many of the predictors of unintended pregnancy for the wives are different than for those of the husbands, emphasizing the influence that each partner has on the occurrence of unintended pregnancy. Whereas the wife's report of higher decision-making power is associated with a lower likelihood of reporting an unwanted birth, the husband's support of a woman's decision-making power is correlated with a higher likelihood of reporting an unwanted birth. These differences highlight the differential impact that both partners within the couple may have upon pregnancy intention, as well as illustrating the complexity of the pathways that influence pregnancy intention and assessment of wanted status of births and pregnancies. Given that the continued progress of Bangladesh through the fertility transition is dependent upon couples achieving their fertility preferences, it is essential to develop programmatic and policy interventions that will enable individuals, as well as couples, to implement their reproductive intentions.

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Table 1: Percentage and mean levels of characteristics of couples who did not have a birth in the last five years, couples who had at least one birth in the last five years, and currently pregnant couples[2]

Variable name	Group 1: No birth in last 5 years, not currently pregnant	Group 2: At least 1 birth in last 5 years, not currently pregnant	Group 3: Currently pregnant	Number of Couples
Sociodemographic and Household Characteristics				
Wife's age (mean)	34.3 years	26.0 years***	24.1 years***	2249
Wife's religion	83% Islam	88% Islam**	93% Islam**	2247
Husband's age (mean)	43.0 years	35.5 years***	34.2 years***	2249
Place of residence	33% urban	30% urban	23% urban*	2249
SES (natural log) (mean)	2.4	2.1***	2.0***	2224
Number of living children (mean)	2.9	2.6***	1.7***	2249
Women's Status and Power				
Less than 5 years age difference between husband and wife	26%	19%***	15%*	2249
Wife's literacy	50% literate	49% literate	46% literate	2247
Husband's literacy	60%	55%*	47%**	2249
Age at first marriage (mean)	14.7 years	15.1 years**	14.9 years	2249
Wife currently working	22%	17%*	14%*	2249
Sex of last birth: female	44%	46%	50%	2063
Wife ever had a terminated pregnancy	26%	20%**	24%	2249
Wife's ever use of modern family planning	76%	76%	59%***	2249
Husband's ever use of modern family planning	80%	80%	71%*	2249
Ever discussed family planning with husband	33%	50%***	30%	2248
Wanted pregnancy then	--	62%	50%	1293
Husband believes wife beating is justified in ≥1 situation	31%	37%*	35%	2129
Wife is a member in at least 1 group	23%	25%	20%	2242
Woman has a say in all 6 domains	38%	31%*	27%*	2180
Husband believes women should have a say in all 4 domains	75%	72%	66%*	2248

*** $p \leq 0.001$ ** $p \leq 0.01$ * $p \leq 0.05$ † $p < 0.10$

[2] Significance levels are based on comparisons between Group1 and the other two groups using chi-square tests.

Table 2: Adjusted odds ratios from multinomial logistic regression of women reporting mistimed and unwanted pregnancies among couples who had at least one birth in the last five years (Group 2) (n = 1,037)

Variable name	Mistimed vs. wanted then	Wanted no more vs. wanted then
Sociodemographic and Household Characteristics		
Wife's age	0.92	1.44*
Wife's age^2	1.00	0.99*
Husband's age	0.95**	1.00
Hindu or other religion	0.65	0.59
SES (natural log)	1.08	0.88
Number of living children	1.67***	1.95***
Women's Status and Power		
Previous birth was female	1.37*	1.23
Wife is literate	0.89	0.63†
Husband is literate	1.58*	1.29
Wife's age at first marriage	1.05	0.89*
Wife's ever use of modern family planning	1.51*	3.98***
Husband believes wife beating is justified in ≥ 1 situation	0.81	0.66†
Wife is a member in at least 1 group	1.41†	1.02
Woman has a say in all 6 domains	0.94	0.67†
Husband believes women should have say in all 4 domains	0.95	1.58†

*** $p \leq 0.001$ ** $p \leq 0.01$ * $p \leq 0.05$ † $p \leq 0.10$

Table 3: Adjusted odds ratios from multinomial logistic regression of women reporting mistimed and unwanted among currently pregnant couples (Group 3) (n = 155)

Variable name	Mistimed vs. wanted then	Wanted no more vs. wanted then
Sociodemographic and Household Characteristics		
Wife's age	0.91	0.88
Husband's age	1.00	1.06
Hindu or other religion	0.90	1.18
SES (natural log)	2.82*	1.89
Number of living children	1.86†	4.46***
Women's Status and Power		
Wife is literate	3.06†	0.14†
Husband is literate	0.59	0.41
Wife's age at first marriage	0.70*	1.01
Wife's ever use of modern family planning	1.98	3.77*
Husband believes wife beating is justified in ≥ 1 situation	0.71	0.23†
Wife is a member in at least 1 group	0.76	1.12
Woman has a say in all 6 domains	0.33†	3.45
Husband believes women should have say in all 4 domains	2.20	1.44

*** $p \leq 0.001$ ** $p \leq 0.01$ * $p \leq 0.05$ † $p \leq 0.10$