The Path Less Taken:
Use of Contraception and Abortion over the Life Course in Madhya Pradesh, India

Kerry MacQuarrie[†]

Jeffrey Edmeades[‡]

Christine MacAulay[§]

Laura Nyblade[‡]

Anju Malhotra[‡]

Abstract: Numerous studies have found that significant proportions of women who wish to delay or stop childbearing nonetheless do not use contraception, even when available. This study explores this apparent contradiction, using data on the desire to regulate fertility, contraceptive use and abortion over the reproductive life courses of 2,444 women in Madhya Pradesh, India. We illustrate the ways in which unmet need is generated at different points in the life course by exploring the multi-step pathways that women follow from childbearing desires to subsequent fertility behavior. We find that, at any point of the life course, less than 8% of women who want to regulate fertility actually use contraception effectively. Barriers to contraception persist across the life course, though the composition of those barriers changes. Abortion is more frequently used to resolve unintended pregnancies later in the life course than earlier, and most frequently by women who used contraception. (149 words)

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[†] Corresponding author: Kerry MacQuarrie, Department of Sociology, University of Washington, Condon Hall 223D, Box 353340, 1100 NE Campus Parkway, Seattle, WA 98195-3340. Email: kerry10@u.washington.edu. Phone: 206-450-3857. Fax: 206-543-2516

[‡] International Center for Research on Women, Washington, DC

[§] Woodrow Wilson Center for Public and International Affairs, Princeton University, Princeton, NJ

Introduction

The levels, causes, and consequences of women's unmet need for family planning has been a persistent concern in demographic research since the 1960's. Much of the early research on unmet need assumed that women would adopt contraception if it was widely available and the magnitude of unmet need was used as justification for strengthening family planning programs. Attention later turned to the structural or cultural barriers that impede contraceptive use. Four decades after the concept's emergence, unmet need remains a critical measure by which to assess women's ability to meet their reproductive goals and of family planning services' ability to meet their clients' needs. However, a significant body of research using the concept of unmet need has found that the relationship between stated fertility intentions and actual behavior is less clear than this approach implies (Bongaarts and Bruce, 1995, Campbell et al., 2006, Casterline and Sinding, 2000, Santelli et al., 2003, Yinger, 1998). In part, the lack of clarity on this relationship is due to the empirical approach taken by most of the studies in this area, which have typically relied on cross-sectional data that pool together different points in the life cycle (Jain, 1999, Casterline et al., 2003, Westoff and Bankole, 1998). As a result, this literature has largely overlooked the ways in which women's fertility and contraceptive desires, and the behavior resulting from these, unfold over the life course. Adopting this perspective requires researchers to view the interrelationships between reproductive desires and behaviors, including use of contraception and abortion, as part of a much more dynamic process where levels of unmet need vary depending on life course stage.

This paper takes advantage of a uniquely detailed dataset with information on women's reproductive desires, use of abortion and contraception, and reproductive outcomes over their

reproductive life courses to explore these relationships in Madhya Pradesh, India. We rely heavily on the insights of life course theory (Elder, 1977, Elder, 1983, Elder, [1974] 1999) in our analyses, which emphasize the importance of both accumulated experience and current context in shaping behavior. Based on this approach, we develop a detailed behavioral pathway model to explain how women move through multiple decision points/steps in their reproductive lives, including decisions on becoming pregnant, avoiding pregnancy, and ultimately determining pregnancy outcome. We then empirically explore the different pathways women take to individual reproductive outcomes using descriptive data on women's first, third, and fifth pregnancies, thus providing a range of experiences. Our focus is particularly on the factors that may account for apparent inconsistencies between stated desires to regulate fertility and subsequent behavior, and discuss these within the framework of life course theory. The results indicate that women's inability to regulate their fertility in alignment with their fertility desires is much greater than traditional measures of unmet need for family planning suggest. Unmet need persists across multiple points of the life course, though the particular barrier to contraceptive use varies. Abortion is more frequently used to resolve unintended pregnancies later in the life course than earlier, and most frequently by women who used contraception, followed by those who wanted to use contraception, but did not.

Background

Unmet need for family planning has been a mainstay of demographic approaches to understanding and improving women's reproductive health since the "KAP gap" was identified in knowledge, attitude, and practice surveys of the 1960's. Based on these findings, the field has

generally defined unmet need for family planning most simply as the proportion of fecund, sexually active women who want to limit or delay childbearing, but who are not using contraception (Becker, 1999, Bongaarts and Bruce, 1995, Casterline and Sinding, 2000, Yinger, 1998). Since then, a significant body of work in places as varied as Burkina Faso, Ghana, India, Kenya, Korea, Morocco, Nigeria, Sri Lanka, Taiwan, and the U.S. has found that fertility intentions are generally poor predictors of future fertility behavior (Roy et al., 2003, Santelli et al., 2003, Speizer, 2006, Vlassoff, 1990). Similarly, several studies in Bangladesh, India and Mozambique have found either fertility intentions or intentions to use contraception to be limited predictors of subsequent contraceptive use (Agadjanian, 2006, Bhatia, 1982, Roy et al., 2003). For both fertility and contraceptive use, this was particularly the case where structural or cultural barriers impede contraceptive use. That intentions do not perfectly predict outcomes[i] in many settings lends credibility to the utility of the concept of unmet need, but suggests that its determinants are also likely to vary, both between contexts and across time.

While much of the focus of the literature on unmet need has been on estimating the magnitude of unmet need and the implications for family planning services, such as the potential demand for services (Casterline and Sinding, 2000), demographers and other social scientists have also suggested a range of theories for why unmet need may occur. This literature has largely focused on the role of a wide range of barriers to contraceptive use in inhibiting women's adoption and use of contraception. While much of this literature has emphasized the importance of structural factors that influence the supply of contraceptives, such as cost, method mix, and physical availability (Bongaarts and Bruce, 1995, Campbell et al., 2006, Curtis and Westoff, 1996, Roy et al., 2003, Sathar et al., 2005), a substantial literature has also focused on cultural factors that

influence demand for contraception. Among these are lack of knowledge, family opposition, women's lack of decision-making, and health concerns figure prominently and often outweigh supply barriers (Casterline and Sinding, 2000, Campbell et al., 2006, Curtis and Westoff, 1996, Santelli et al., 2003, Sathar et al., 2005).

Despite the continued centrality of unmet need in fertility research, researchers have critiqued the concept for failing to capture the full complexity of women's non-use of contraception. Several have sought to extend the ways in which unmet is conceptualized to include a more diverse set of concerns. Reminding us that the motivation behind the concept of unmet need is assessing the degree to which women can avoid unintended pregnancies, some have argued that its measurement should include sexually active unmarried women, women using less efficacious methods of contraception, methods that are a poor fit for their reproductive goals, or methods with which they are dissatisfied (Casterline and Sinding, 2000, Dixon-Mueller and Germain, 1992, Yinger, 1998). More recent criticisms of the concept of unmet need have questioned whose unmet need—women's, men's, or couples'—is most relevant, and points to discordance between wives' and husbands' fertility desires as a possible reason women may not achieve their individual desires (Wolff et al., 2000, Agadjanian, 2006, Becker, 1999, Mason and Smith, 2000).

The application of the concept of unmet need to fertility regulation questions has also been inconsistent. For example, the literature regarding reasons for discontinuation of contraception is generally separate from the literature that examines reasons for non-use of contraception (Blanc et al., 2002, Senlet et al., 2001, Steele and Curtis, 2003, Ali and Cleland, 1999). Research in this area has usually focused on attributes of the discontinued method, in spite of discontinuation also

often being symptomatic of unmet need (Bongaarts and Bruce, 1995, Santelli et al., 2003, Yinger, 1998). Likewise, research on the reasons for abortion often has failed to take into account the presence or causes of unmet need. This is all the more puzzling given that unintended pregnancy—a likely outcome in the presence of unmet need—is the most immediate cause of abortion (Bankole et al., 1998).

One early extension of the definition of unmet need was to acknowledge an unmet need for spacing childbearing and alongside that for limiting fertility. Since this early development in the concept, decomposing total unmet need into unmet need for spacing and unmet need for limiting has become routine. This distinction brings into focus the importance of the life course stage and differentiates those who have completed their family formation from those at the onset or mid-point of their reproductive careers. The women in each category are likely to have significantly different fertility desires and contraceptive needs, with younger women focusing on spacing childbearing and older women on limitation. This has a number of implications for contraceptive use, particularly as it relates to the strength of the motivation to control fertility. A number of studies have found that motivations to use contraception (or abort a pregnancy) and the correlation between intention and behavior may be stronger for women who are older or who are approaching or have reached their desired family size (Rindfuss et al., 1996, Vlassoff, 1990, Bankole et al., 1998, Visaria et al., 2004, Westoff, 1990). As a result, research that fails to take how preferences and motivation changes over the life course is likely to either over or understate the effect of fertility desires on actual behavior.

A further limitation to existing research on unmet need is the static approach that has been taken by most studies, both in terms of how unmet need is conceptualized and in how it has been measured. From a conceptual standpoint, both contraceptive decisions and level of unmet need are often treated as only reflecting a woman's current situation, rather than as the result of a larger decision-making process that may involve multiple steps over time. Furthermore, while recognizing that unmet need may vary over the lifecourse, most research has examined it at single points in women's lives, making a full assessment of variation of unmet need across the reproductive life course difficult. Despite advances in the concept of unmet need, very few studies have sought to analyze unmet need over life course to determine at which stages or how much of women's lives are spent in a state of unmet need, and the calculation of unmet need remains a largely cross-sectional measure. The cross-sectional nature of our investigations into unmet need and of reasons for non-use of contraception in the presence of desires to regulate fertility may thus oversimplify the barriers to use and the manner in which behavioral decisions are made, and ultimately underestimate unmet need.

The static conceptualization of unmet need is reflected in the cross-sectional approach to measuring unmet need typically taken by research in this area. Measuring unmet need at single points in women's lives makes calculating a lifetime measure of unmet need impossible. In spite of the increasing availability of longtitudinal data, the exploration of the connection between unmet need and fertility regulation continues to be examined largely through a cross-sectional lens. This limitation poses numerous constraints on the type of analysis undertaken and thus the questions that can be answered. First, taking a cross-sectional view of unmet need makes approaching contraceptive behavior as the result of a complex decision-making process difficult,

as key elements and events influencing behavior may have taken place well in the past. Second, many of the events or decisions resulting in behavior are sequential in nature, meaning that simply listing them, as is often done in the case of barriers to contraceptive use, may understate the importance of particularly important events. As a result, existing studies may be presenting an oversimplified understanding of the reasons for non-use of contraception in the presence of desires to regulate fertility, failing to fully capture the barriers to use and the manner in which behavioral decisions are made. Ultimately, they may underestimate the level of unmet need, both at an individual and population level.

Demographic research on the levels, causes, and consequences of unmet need has therefore generally adopted the life course perspective only in a fragmentary manner. The majority of analyses of unmet need and related concepts continue to predominantly rely on cross-sectional data or adopt individual indicators of life course stage, such as age or parity. Important exceptions are three studies use panel data to examine unmet need over time (Casterline et al., 2003, Jain, 1999, Westoff and Bankole, 1998). These studies analyze compositional shifts and calculate net shifts into and out of a state of unmet need at two points in time, rather than focus women's life courses. Fewer studies take a more holistic life course approach that attempts to fully account for the influence of past and present experiences on behavior. Those that have based their approach on the framework of the life course have found evidence that contraceptive behavior is strongly influenced by life course stage, and that this effect is contingent on both current circumstances and past experiences (Edmeades, 2008, Rindfuss et al., 1996).

This paper seeks to contribute further to this body of research by exploring the context in which women formulate decisions and enact contraception and abortion behavior in accordance with their fertility regulation desires, using both a conceptual framework based on life course theory and a unique longitudinal dataset designed to collect information on use of contraception and abortion.

A Dynamic Framework for Understanding Contraceptive Use and Abortion Behavior over the Life Course

The analysis in this paper is guided by a framework that highlights several important features of the process through which women move from fertility desires to specific pregnancy outcomes (Figure 1). The framework is characterized by three important elements. Firstly, the framework applies to each interval between the initiation of sexual activity and first pregnancy, and then inter-pregnancy intervals from there on. As such, it captures both the recurrence of this process during each of these intervals, while at the same time, allowing for observation of variation across the intervals of a woman's life course. Secondly, we model the transition from fertility desires to actual outcomes conceptually as a series of decisions and actions, paying special attention to the sequential nature of the process. Thirdly, the framework makes explicit the mechanisms by which 'disconnects' between women's fertility desires and behaviors can occur. These disconnects represent key points in women's life courses that are more likely to result in unintended or mistimed pregnancies, a proportion of which may end in abortion. It is important to note that, at its core, this framework does *not* assume that a desire or intention to regulate

fertility, either through limiting or spacing childbearing, necessarily results in that fertility behavior, nor that the desire to use contraception is equated with actual contraceptive use.

---- Insert Figure 1 about here ----

The first potential disconnect between women's fertility intentions and actual contraceptive behavior is shown in the upper left corner of Figure One, where women may report wanting to space or limit fertility but do not wish to use a contraceptive method to achieve this goal (labeled Disconnect One). This disconnect may arise as the result of cultural or religious prescriptions against contraception, unease with the notion of using contraception, or normative pressures to continue/begin childbearing.

The second disconnect occurs as we move downward and to the right in the framework. Not all women who wish to regulate their fertility *and* wish to use contraception may find themselves able to use contraception (labeled Disconnect Two). This disconnect occurs, either because of a lack of decision-making authority, poor awareness of contraceptive options and availability, cost, poor access to contraception, or fear of side effects (or a combination of these). Finally, some women who do use a method of contraception may not be successful in using contraception consistently and effectively until such time as they desire to become pregnant or undergo sterilization (Disconnect Three). This may be because they may use contraception inconsistently, discontinue use at some point, or experience method failure.

If women experience any one of these three disconnects in a given interval, they may experience an unintended pregnancy, moving to the left on the pathway (shown in this figure as bolded, shaded boxes). In fact, of all the potential ways women may move through this pathway, only two endpoints (indicated by the un-shaded pregnancy boxes) represent outcomes in line with women's original fertility desires. The first is when women do not wish to delay or limit childbearing and proceed to pregnancy (upper left box); the second when women successfully use contraception until they wish to become pregnant or are sterilized (lower right box). Each of the other pathways to pregnancy indicates outcomes inconsistent with their desires.

The framework makes especially clear that decisions about contraception and decisions about abortion are not concurrent. Rather, the decision to abort a pregnancy temporally succeeds any decision about contraceptive use and occurs only once pregnancy has occurred. The tendency to terminate a pregnancy, then, is likely to vary based on which pathway women follow to pregnancy. In the following analysis, we build on this framework to examine *how* concordant or disconnected women are in each step of the pathway; *where* disconnects occur; *why* they arise; and *in which* pregnancies abortion results.

Setting

This study uses data from a survey conducted in 2002 in Madhya Pradesh, one of India's poorest states, with a population at the time of the survey of over 60 million, three quarters of whom resided in rural areas (International Institute for Population Sciences (IIPS) and Macro, 2001, Office of the Registrar General, 2001). The social and cultural environment regarding women's

reproductive health greatly restricts their access to and use of reproductive health services, including both contraception and abortion. As is the case in much of this region in India, women are frequently excluded from household decision making, including those related to their access to health services (International Institute for Population Sciences (IIPS) and Macro, 2001). Fewer than half of women surveyed in the state for the latest National Family and Health Survey reported that they usually participated in household decisions and only 36% in decisions regarding their own health (International Institute for Population Sciences (IIPS), 2008).

Early marriage (the median age at first marriage is approximately 16 years) and childbearing are common in Madhya Pradesh. Use of temporary methods of contraception is extremely low and fertility regulation is dominated by sterilization, which represented over 80 percent of total contraceptive use at the time of the survey (International Institute for Population Sciences (IIPS), 2008, International Institute for Population Sciences (IIPS) and Macro, 2001). Women are typically sterilized at an early age, with the median age at sterilization in Madhya Pradesh being between 26 and 27 years of age (International Institute for Population Sciences (IIPS) and Macro, 2001). Use of temporary contraceptive methods among women is rare, with only 4.7 percent of married women reporting use in 2000 (International Institute for Population Sciences (IIPS) and Macro, 2001). Prior research indicates high levels of unmet need for contraception in the state, particularly for spacing (Yinger, 1998). Current official estimates are that 11.8% of married women of reproductive age experience unmet need, down from 16% in 1999 (International Institute for Population Sciences (IIPS) and Macro, 2001, International Institute for Population Sciences (IIPS), 2008). At the time when this study was conducted, Madhya Pradesh's total fertility rate of 3.31 exceeded both the national rate (2.85) and the wanted total

fertility rate for the state of 2.4 (International Institute for Population Sciences (IIPS) and Macro, 2001)

Abortion has been legal in India since 1972 for a broad range of medical, social, and economic reasons. Official records indicate relatively low abortion rates in Madhya Pradesh, but there are strong indications that they are not fully capturing the situation with regards to abortion. The legal framework governing abortions requires that they be performed in registered government centers, of which there were only 300 in Madhya Pradesh in 1997, or roughly five per million people (Department of Family Welfare, 1998). As is the case elsewhere in India, the majority of abortions are performed outside of the legal system, either by unregistered health providers or by registered providers at an unregistered facility (Johnston, 2002, Jejeebhoy, 1996, Gupte et al., 1997, Khan et al., 1999, Bandewar, 2001)

Methodology

Data

The data used in this paper come from a retrospective, probability-based sample survey conducted in Madhya Pradesh in 2002. Respondents were selected using a stratified cluster sampling design. This involved first randomly selecting one district in each of Madhya Pradesh's six geographic regions, from which ten primary sampling units (PSU) were identified using probability proportional to size sampling, with purposeful oversampling of urban areas. Data are weighted to compensate for this survey design. In each PSU 40 eligible women were selected, with a maximum of one per household. Detailed information on every pregnancy

experienced was collected from 2,444 married women between the ages of 15-39 with at least one child[ii]. Pregnancy-specific information was also collected on a multiple contextual factors likely to affect contraceptive and abortion use. This results in a dataset with 11,610 pregnancy intervals, of which 9,127 have known outcomes. An interval may end with a birth, a miscarriage, an induced abortion, or sterilization of either the woman or her spouse. The remaining 2483 pregnancy intervals are open-ended, meaning that the woman continues to be at risk of pregnancy (i.e. neither she nor her partner is sterilized) or is currently pregnant.

The interview instrument applied an innovative "narrative" approach more commonly used in qualitative interviews to collect quantitative data on each of the woman's pregnancies, specifically eliciting detailed information on use of contraception and abortion (Malhotra et al., 2002). While the questionnaire and the response matrix were structured with preordered response categories, information was elicited by specially trained interviewers through a fluid and natural conversational flow, resulting in comprehensive record of each woman's reproductive life history. As a result, the dataset includes an exceptional level of contextual information of a type more often found in qualitative studies of abortion and contraception. Respondents were asked over 200 individual pregnancy-specific questions covering household circumstances, quality of relationships with family members, agency, knowledge, attitudes, access, and use of contraception and abortion.

Table One presents summary statistics for the women in our sample. Women, on average, married at close to 17 years of age and were roughly 28.5 years old at the time of the survey. Three quarters of our respondents lived in rural areas and are predominantly Hindu, reflecting

the overall residential population distribution of the state. As shown in Table One, the remaining indicators demonstrate the women in our sample to be relatively disadvantaged. Approximately 72 percent of women belong to a scheduled caste, scheduled tribe, or other backward caste. The majority have no or very little education and the standard of living is low. Influence in spending decisions is restricted for most of the respondents. While physical mobility is comparatively less restricted, only about a third of women experience few restrictions on their mobility.

---- Insert Table 1 about here ----

Analytical Approach

While our interest is in women's behavior over their reproductive life courses, the unit of observation in our analyses is the pregnancy interval, defined as the period of time between pregnancies. The first interval is the period between consummation of marriage and the first pregnancy. We first limit our analysis to the 11,307 intervals for which we have complete data on our variables of interest. By pooling these 11,307 intervals together, we are able to explore general patterns in reproductive behavior and the factors that shape it. Our subsequent analysis to examine variations over the life course is restricted to women's first (n=2,444), third (n=1,733), and fifth (n=687) intervals, as each of these represent distinct points in women's life courses.

We use the behavioral pathway described above to inform our analysis of the relationship between contraception and abortion, both in the aggregate and separately for the three intervals

at different stages of the life course. Descriptive statistics from our sample population demonstrate the proportions of women in this setting who follow each of the potential pathways suggested by the model. In doing so, we identify each apparent discrepancy between the individual steps in the contraception/abortion decision, explore the underlying reasons for these disconnects, and examine what proportion of women in each part of the pathway terminate a subsequent pregnancy with induced abortion.

Measures

Frequently, the presence of a barrier to contraceptive use is assessed in surveys through a single question, as with, for example, the Demographic and Health Survey's question regarding the reason of non-use of contraception. While this approach often permits reporting of more than one barrier, it may mistakenly imply that barriers preventing contraceptive use arise solely at single points in time, when in fact barriers may arise sequentially, one following another. In contrast, the adapted narrative approach underlying the quantitative survey used in this study provides data for each step of the behavioral pathway in Figure 1. The interval level data describe childbearing desires, desire to use contraception, contraceptive use and consistency of use, abortion attempts, and pregnancy outcomes, as well as a range of family and gender barriers to each of these actions for each pregnancy a woman reported.

Women's childbearing desires were captured through a direct question at the start of the interval as to whether women wanted a child then, later, or not at all, and a second question about the desired gap between children. We asked all women, regardless of their stated childbearing

desire, whether they wanted to do anything to delay or prevent pregnancy. The first disconnect was determined to be present when women answered affirmatively to the question on delaying or limiting childbearing but negatively to the question on desire to use contraception. Women also reported their impressions of their husbands' childbearing desires as well as whether they experienced pressure to have a child, generally, or specifically a son, from either their husband or in-laws, as these experiences may explain why women who wanted to limit or space their childbearing did not want to use contraception.

We also asked all women, both those who reported they wanted and did not want to take action to delay or limit pregnancy, whether they took action to do so and what they used. Options included a variety of traditional and modern contraceptive methods. For the purposes of this study, we defined contraceptive users as users of condoms, IUDs, pills, contraceptive foam, injectables, and sterilization. We identified women as experiencing the second disconnect when they reported wanting to take action to delay or limit pregnancy, but did not use a modern method of contraception. We asked non-contracepting women directly for the reasons why they did not use anything to prevent pregnancy and classified the available response options as follows:

Lack of knowledge or access: Did not know about contraceptives; Did not know where or how to get contraceptives; Contraceptives not available in the area; Provider turned her away.
Family opposition: Husband opposed; Family opposed.
Fear of side effects: Worried about side effects/health concerns.
Other reported reasons included breastfeeding and wanting a child soon.

We defined effective use of contraception as consistent use of one of the above mentioned methods until the time that a woman wanted to become pregnant (or, for women who were sterilized, who did not subsequently experience a pregnancy by the time of the survey). A woman was considered unsuccessful (the third disconnect) if she used contraception inconsistently, discontinued a method prematurely without adopting another method, or if she experienced method failure and became pregnant while using contraception.

Findings

Our data confirm the difficulties that women in this context face in effectively acting on their fertility regulation desires. Women reported wanting to space or limit their fertility in 52% of the intervals in the dataset, yet actually used contraception to effectively delay or prevent pregnancy in only 13.4% of all intervals—or only 23% of the 6,085 intervals in which they wanted to space or limit childbearing.

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Each of the three possible disconnects in the pathway was experienced by a substantial proportion of women, ranging from 14 to 58 percent (Figure 2). Interestingly, the largest disconnect (58%) is between fertility and contraceptive desires (Disconnect One), with women reporting wanting to use contraception to prevent the pregnancy in fewer than half (42%) of the intervals in which they reported wanting to limit or space childbearing. Discordant childbearing

desires and familial and social pressure to bear children are the primary factors responsible for this disconnect. In three quarters of intervals in which women wanted to limit or space childbearing, women believed their husbands did not. In nearly half of intervals (46%), women felt pressure to have a child.

Several other factors may also contribute to the size of this disconnect. First, the dominant role that sterilization plays in this context means that often the only time when use of contraception is considered is for ending childbearing permanently. Secondly, a combination of cultural prejudices against modern contraceptive methods, inaccurate information on contraception, a fear of side effects, both real and imagined, and poor experiences with contraception may deter women from wanting to use contraception despite a desire to limit or space their childbearing. Finally, some of these women may prefer to regulate their fertility through other means of pregnancy avoidance.

In intervals in which women both wanted to regulate their fertility and wanted to use contraception, 64% did use contraception while slightly more than a third (36%) did not do so. When women used contraception, they were usually able to do so successfully (i.e. consistently and effectively until they were either sterilized or wished to become pregnant); this third disconnect is the smallest of the three when all intervals are aggregated. To a significant extent, this is due to the contraceptive method mix used in this context, with sterilization used in about 80% of all intervals in which a contraceptive method was used. Yet, women failed to use contraception successfully in 14% of intervals where contraception was used. Contraception was discontinued in 9 percent of these intervals, and in 5 percent of women reported that the

contraceptive method failed. More than 92 percent of successful contraceptive users consistently and effectively used a single method, whereas 7.7 percent switched methods (most frequently to sterilization), but contracepted continuously.

These data illustrate how difficult it is for women in Madhya Pradesh to act in accordance with and achieve their initial childbearing desires. At each and every step of the pathway, there is attrition as women fail to make the next move on the path to successful fertility regulation. In total, contraception was used effectively in less than one quarter of the intervals where women had an expressed desire to space or limit childbearing. Most often, in the other three quarters of intervals, women experienced a pregnancy that was either unintended or mistimed, a situation potentially resolved through abortion. In the following section, we explore how the ability to regulate fertility and the factors preventing women from doing so vary over the life course. Finally, we examine how the proportion of pregnancies resulting at each failed step of the pathway that are ended in abortion.

Variations in the Pathway to Fertility Regulation over the Life Course

To explore the ways in which childbearing desires change over the life course and how these are related to contraception and abortion behavior, we examine the reproductive and contraceptive desires and behavior of women in three different phases of their family formation process: the first, third, and fifth pregnancy intervals. As illustrated in Figure Three, while there are striking similarities across the life course in the desire to regulate fertility, women at these different

points in their life course differ substantially in terms of their contraceptive desires and behaviors.

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Contrary to our initial expectations, we found relatively modest differences in the initial proportion of women who wanted to space or limit their childbearing across the three intervals, with an increase from 42 percent in the first interval to 49 percent by the fifth. This is interesting for several reasons. In particular, it suggests that much higher proportions of women than expected wanted to space or limit in the earliest pregnancy interval, suggesting that family planning policies focusing solely on fertility reduction may underserve women at the beginning of their reproductive lives. Secondly, it suggests that demand for family planning is reasonably constant across women's reproductive lives, rather than peaking at specific points. However, the *type* of demand does shift from being focused primarily spacing to being oriented towards fertility limitation, with obvious implications for the method mix selected. Of those who wish to space or limit, spacing is the near universal desire for women in the first interval. By the third interval, 30 percent of women wanting to limit or space childbearing are interested in limiting while 70 percent wish to space childbearing, and by the fifth interval, the desire to space or limit is nearly equal: 46 percent wish to limit and 54 percent to space childbearing. Surprisingly, the substantial need for temporary methods to facilitate spacing childbearing continues into later intervals, although many other women have completed their childbearing altogether.

In contrast to the relative stability of fertility regulation desires across the life course, there is considerable variation in the magnitude of the disconnect between this desire and that to use contraception. This disconnect is most marked in the first interval, where nearly 90% of women who report wanting to regulate fertility also report *not* wanting to use contraception. This proportion decreases markedly as women progress through their reproductive lives. Nonetheless, women who wanted to limit or space childbearing *and* use contraception were a distinct minority in every interval, rising to a modest 37% in the fifth interval.

The second disconnect—between desires to use contraception and actual use—is substantial in each of the intervals examined, though it differs in magnitude over the life course. In the first interval, nearly half (45%) of all women who reported wanting to use contraception did not go on to use a contraceptive method during the interval. In the third interval, the difference between desire and use is marginally smaller, with 58 percent of women who wanted to use contraception actually doing so. By the fifth interval, however, the percentage of women who actually used contraception among those who reported wanting to declined to 38 percent, meaning that nearly two-thirds of those who reported wanting to use contraception did not do so. These numbers indicate a pattern of selectivity in the women who progress to a fifth pregnancy interval, suggesting that the inability to act on fertility desires and high parities to some extent go hand in hand, perhaps due to high levels of disempowerment.

Among those who did use contraception, the ability to *successfully* use contraception until deciding to become pregnant or sterilized varied widely (between 45%-81%)over the intervals we examined. Very few women used contraception in the interval between marriage and their

first pregnancy, representing a mere 5.9 percent of women who wanted to regulate fertility. However, the women who did contracept in this first interval were far more likely (between 1.5 and 2 times more likely) to do so successfully than contraceptive users in later intervals. This finding is especially striking given that women in this interval are using temporary methods, not sterilization, the contraceptive method for which discontinuing use is impossible and method failure is highly unlikely. It is also an encouraging finding as it suggests that there may be a small group of women pioneering temporary methods in the early stages of their life course, and doing so successfully.

The Cumulative Effect of Barriers to Fertility Regulation

By the end of the pathway, only a small proportion of women who set out with a desire to space or limit childbearing were able to use contraception effectively until they desire a pregnancy. As seen in Figure Four, a full 92-95 percent of women in any given interval were unsuccessful in regulating their fertility in accordance with what they reported their desires to be at the beginning of the interval. This finding has several implications. First, the proportion of women whose needs go unmet is much larger than traditional measures of unmet need, which capture women only at a single point in time, would indicate. Second, the proportion of women who fail to reconcile their actions with their desires is remarkably static over the life course, suggesting that women experience a failure to realize their desires not at a single moment of their life time, but persistently and repeatedly over time.

---- Insert Figure 4 about here ----

Third, it is the stage of the pathway at which women fail to achieve their desires that shifts as women progress through their reproductive life courses. Overall, the original proportion of women wanting to regulate their fertility and the final proportion doing so is relatively static across the life course. Early on in their reproductive careers, women who want to regulate their fertility do not want to also use contraception and experience the first disconnect; whereas women in later intervals increasingly do want to use contraception but either do not use it, or not successfully. They experience disconnects farther along in the pathway. Thus, as one barrier is surmounted, women confront another. Ultimately, the overwhelming majority of women arrive at the same place: their desires to regulate fertility go unrealized.

Reasons for Disconnects

The above data indicate how few women successfully enact their initial desires. What is it, then, that explains the disconnects that women experience? How do women respond when the disconnects they experience in the pathway lead them to an unintended pregnancy? What proportion of these pregnancies are concluded with an abortion and how does that proportion vary by interval or by which disconnect women experience? We now turn our attention to these questions.

It is unlikely that this is the result of women not behaving as rational actors, but rather is due to a number of factors that stand in the way of their ability to realize their desires. Our data indicate that there are multiple barriers women may experience at each disconnect in the pathway.

Furthermore, as the composition of the disconnects women experience shifts over the life course, so too shift the barriers that women face for each disconnect. Women who did not want to use contraception despite an expressed desire to limit or space childbearing frequently reported differences between their own childbearing desires and those of others around them, as shown in Figure Five. In the first pregnancy interval, 64 percent of women reported that they thought their husbands did not want to limit or space childbearing at the time they did. This proportion increased to nearer 90 percent in the third and fifth intervals. Women also frequently reported feeling pressured to have another child. This pressure abated little (from 51% to 47%) over the intervals we analyzed. Interestingly, pressure for another child from in-laws decreased as women progressed through intervals, while that from husbands increased. Pressure specifically for a son was consistently high and accounted for the majority of pressure for a child in all intervals.

--- Insert Figure Five about here ---

Women who wanted to use contraception but did not do so generally reported experiencing several barriers to contraceptive use, although the reported reasons for non-use varied across their reproductive lives. In the earliest intervals, the most prominent barrier to use was a lack of knowledge about contraceptive options or where to obtain contraceptives. While the importance of these knowledge and access factors decline as women gain experience with reproductive issues, a significant proportion of women in the fifth pregnancy interval (14%) who wanted to use contraception still did not know how to obtain a suitable contraceptive method.

While knowledge and access barriers to contraceptive use decreased over women's reproductive life courses, opposition from family members to contraception and fear of side effects increased in importance. Family opposition was the most prominent reason for not using contraception throughout women's reproductive lives. It increases with pregnancy interval, rising from being reported as a significant barrier to contraceptive use by 44 percent of women who wanted to use contraception in the first interval to 56 percent in the fifth interval. Fear of side effects was relatively rarely cited as a reason for not having used contraception. This was particularly true for the first interval, where only eight percent of those who wanted to use contraception cited it as a reason for not doing so. The proportion of women reporting non-use due to fear of side effects increased modestly but steadily in higher pregnancy intervals, reaching 17 percent by the fifth interval.

Depending on the interval examined, unsuccessful use among contraceptive users ranged from 19% to 55%. Discontinuation and inconsistent use were more common in all intervals than was method failure, which was reported by between 4 and 12 percent of contraceptive users. Discontinuation accounted for anywhere between two thirds and three quarters of unsuccessful contraceptive use. This 'inverted U' shape of discontinuation across intervals is likely to be the result of increasing reliance on sterilization in the later intervals.

Experiences with Abortion

As we saw above, the particular disconnect women experience and the reasons for each disconnect vary across the life course. Regardless of which disconnect is experienced or the

reason for it, an equivalent proportion of women are unable to meet their initial fertility desires in each interval. The literature on abortion points out that unintended pregnancy is the most immediate cause of abortion (Bankole et al., 1998). Given that most women are directed through the pathway to endpoints in which they are likely confronted with an unintended pregnancy, the most common outcome in this context, how often and at what point of the life course are these pregnancies terminated by abortion? Does the use of abortion vary with the path by which women arrive at unintended pregnancy in any given interval or across intervals?

Almost without exception, abortion occurred rarely in the first interval of women's reproductive lives, with the notable exception of women who used contraception unsuccessfully in the first interval. Use of abortion is more frequently a feature of unintended pregnancies in the later rather than earlier intervals, as shown in Figure 6. With the exception of the distinctive first interval, abortion use is more closely related to the specific ways in which women navigate through their individual pathway than to the stage of women's life course.

----Insert Figure 6 about here ----

In all intervals, pregnancies ended in abortion more frequently among those women who wanted to use contraception, and did so, but were unsuccessful in their effort to control their fertility. Between roughly one quarter and one third of pregnancies to women in this situation were terminated by abortion. Abortion use was somewhat lower —but still sizable—among women who wanted to use contraception but did not in the third and fifth intervals. Far less common were abortions to women who did not want to use contraception in spite of a desire to limit or

space childbearing. The proportion of these pregnancies ending in abortion increased across intervals. Not surprisingly, women who did not want to limit or space their next pregnancy rarely aborted a pregnancy in any interval. For these women, pregnancy aligns with their initial fertility desires, one of only two locations on the pathway that this is the case.

Conclusions and Discussion

The findings of this study suggest that in Madhya Pradesh the vast majority of women who wish to regulate their fertility are unable to realize these desires. Most importantly, the inability to achieve fertility desires is strikingly high and stable across women's reproductive life course, indicating that the inability to achieve fertility desires is both an extensive problem for policy-makers and an enduring, life time issue for many women. The presence of disconnects in the pathway from desires to successful fertility regulation—and the barriers that explain these disconnects—persist across the life course. However, the composition of disconnects and related barriers shifts as women progress through their reproductive life course. In each step of the pathway, women may experience a different obstacle to progressing to the next step as the life course progresses, or may encounter barriers at the subsequent step that continue to preclude them from achieving their fertility desires. By and large, women find themselves no closer to their desires later than they do in the middle or early in their reproductive careers.

Additionally, assembling data on fertility desires, discontinuation and failure of contraception with abortion behavior in a sequential pathway suggests that the barriers to realizing intentions are much greater than would have been revealed by examining the situation at any cross-section

alone. The analyses demonstrate that disconnects between desires and outcomes are both persistent and repeated across the life course, rather than simply a feature of one life course stage alone. As such, a life course perspective reveals "unmet need," broadly conceived, to be greater than traditional, cross-sectional measures would indicate. For example, we found that 95% of married women with at least one child were unable to regulate their fertility as desired, while the Demographic and Health Surveys using the more narrow, formal definition of unmet need found this to be between 13 and 16 percent in the same region (International Institute for Population Sciences (IIPS) and Macro, 2001).

The ways in which women respond to their inability to effectively control their fertility also varies depending on life course stage. This is particularly the case for sterilization, which represents a clear decision to end fertility, and for abortion. In this study, abortion was more frequently used to resolve unintended pregnancies later in the life course than earlier, and most frequently by women who used contraception but unsuccessfully, followed by women who wanted to, but did not use contraception. This finding suggests that use of abortion reflects an underlying desire to control fertility that for multiple reasons is not being met through use of contraception. This conclusion is significant for a number of reasons, not least because it is far more efficient from a reproductive health perspective to take action to prevent unwanted pregnancies through use of contraception than through the use of abortion. This is particularly the case in developing countries, where abortion is often associated with high rates of morbidity and mortality and accounts for one in eight pregnancy related deaths worldwide (Ahman and Shah, 2007).

While these findings provide an important insight into the ways in which circumstances contrive to generate unmet need at the individual level, several limitations of this study should be taken into account when applying them more broadly. In particular, we are not able to address the effect of differences in the strength of fertility intentions and desires, which may influence the degree to which women are able to overcome barriers to contraceptive use (Speizer, 2006, Curtis and Westoff, 1996). We also do not address the ways other than use of modern contraception that women may attempt to control their fertility, largely because our research focus is why it is that women are unable to take advantage of effective, modern methods to control their fertility. Other studies have demonstrated that traditional method use and a variety of non-contraceptive means of pregnancy avoidance may contribute to women's attempts to regulate their fertility in some settings (Shedlin and Hollerbach, 1981, Tsui et al., 1991). The study also does not examine abortion attempts that do not result in completed abortions, or desire for abortion unaccompanied by an attempt. This omission reflects our focus on abortion as an outcome resulting from unmet need. However, it is entirely possible that some of the barriers preventing women from regulating their fertility through contraception may operate equally to prevent women from regulating their fertility through abortion. Finally, the data used in this study are retrospective, and therefore subject to recall bias in spite of efforts to reduce such bias by limiting the age range of our sample. However, this bias is likely to take the form of women reporting a pregnancy as wanted after having the child when it actually was unintended, therefore under rather than overstating the disconnect between desire and behavior.

This paper makes several contributions to research on unmet need. In particular, breaking down the connection between women's fertility desires and outcomes into its component parts, as done

in our pathway, allows for a more nuanced picture to emerge of how it is that women arrive at particular reproductive outcomes. This more dynamic approach continues the tradition of extending the concept of unmet need to include a greater understanding of women's needs and desires. Situating the study explicitly in a life course framework facilitates knowledge of how the experience with this pathway may vary over their reproductive lives, and highlights the advantages of using longitudinal data to explore these relationships. Finally, this approach enables a more holistic understanding of women's unmet need where women are observed to experience some degree of unmet need at multiple points in their life course. Future research in this area that adopts this approach can explore a number of questions, including developing more comprehensive measures of unmet need that take into account women's lifetime experiences, how the sequential ordering of fertility decisions take place, and what factors other than life course stage influence this process.

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[i] In contrast, intentions were found to be adequate predictor of contraceptive use in Morocco and of fertility in Malaysia (Curtis and Westoff, 1996; Tan and Tey, 1994).

[ii] The sample was restricted to married women because childbearing outside of marriage is rare in Madhya Pradesh. Given high rates of early marriage and strong norms against pre-marital sexual activity, interviewing unmarried women was not considered a reliable source of data. We restricted the sample to the 15-39 age range to reduce the potential for recall bias regarding details of the earliest reproductive events in a woman's history. Moreover, most women in Madhya Pradesh have completed their fertility by age 39. According to the NFHS-2, 95% of sterilizations occurred before the woman reached age 35 (IIPS and Macro, 2001).

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TABLES AND FIGURES

Table 1: Sample Profile (n=2448)

	Mean	Standard Deviation	Minimum and Maximum Values
Age	28.49	5.5	15-39
Age at Consummation of Marriage	16.85	2.9	6-34

	Percent
Residence	
Rural	77%
Urban	23%
Caste	
General Caste	28%
Scheduled Caste/Tribe	32%
"Other Backward Caste"	40%
Religion	
Hindu	94%
Muslim	4%
Other	2%
Education	
None	56%
Less than SLC	30%
SLC or Higher	14%
Socioeconomic Status	
Low	43%
Medium	36%
High	21%
Mobility	
Low	15%
Medium	54%
High	31%
Spending Decision-making	
Low	55%
Medium	23%
High	22%

Figure 1: Pathway to Fertility Regulation

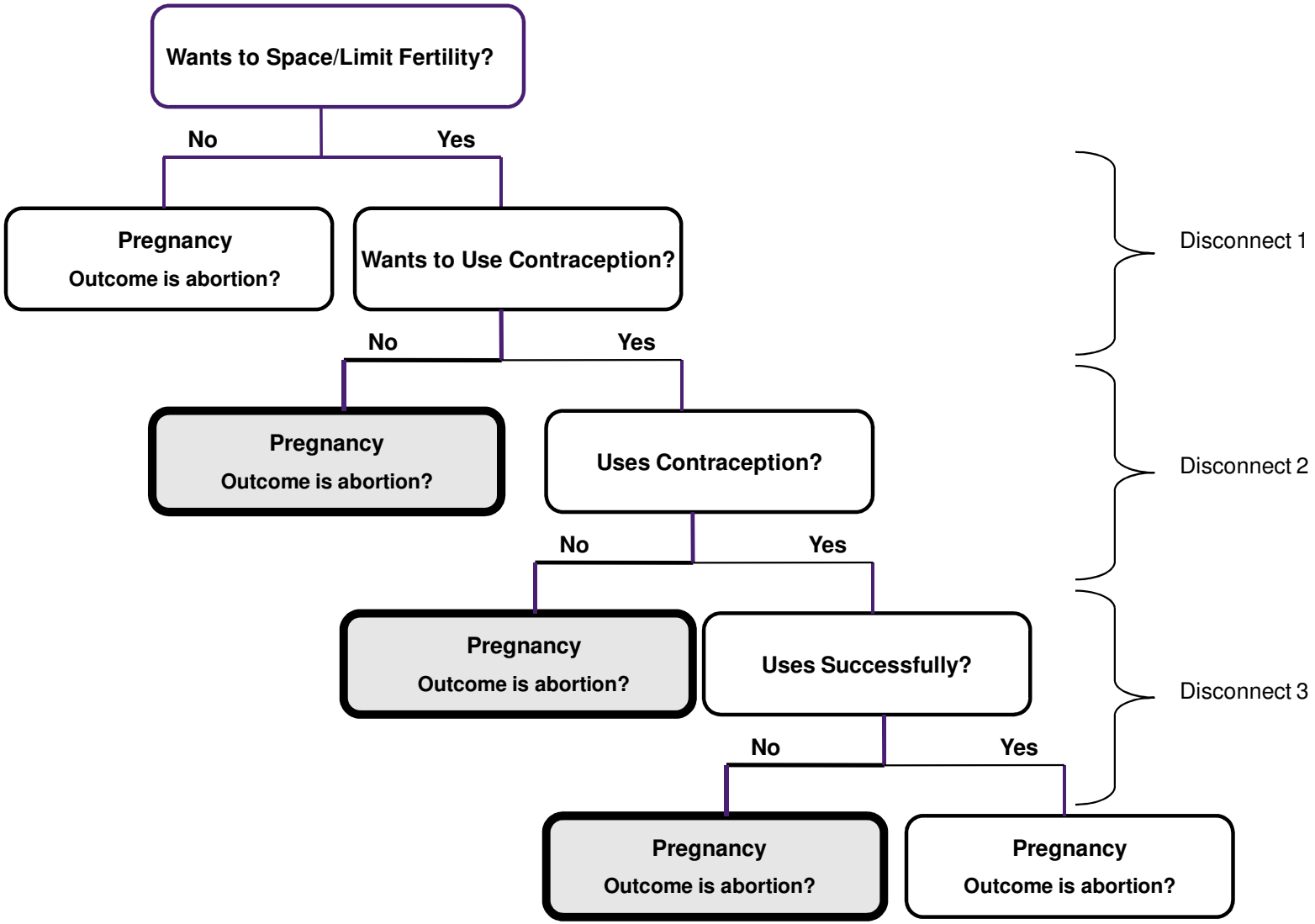


Figure 2: Pathway to Fertility Regulation—All Intervals

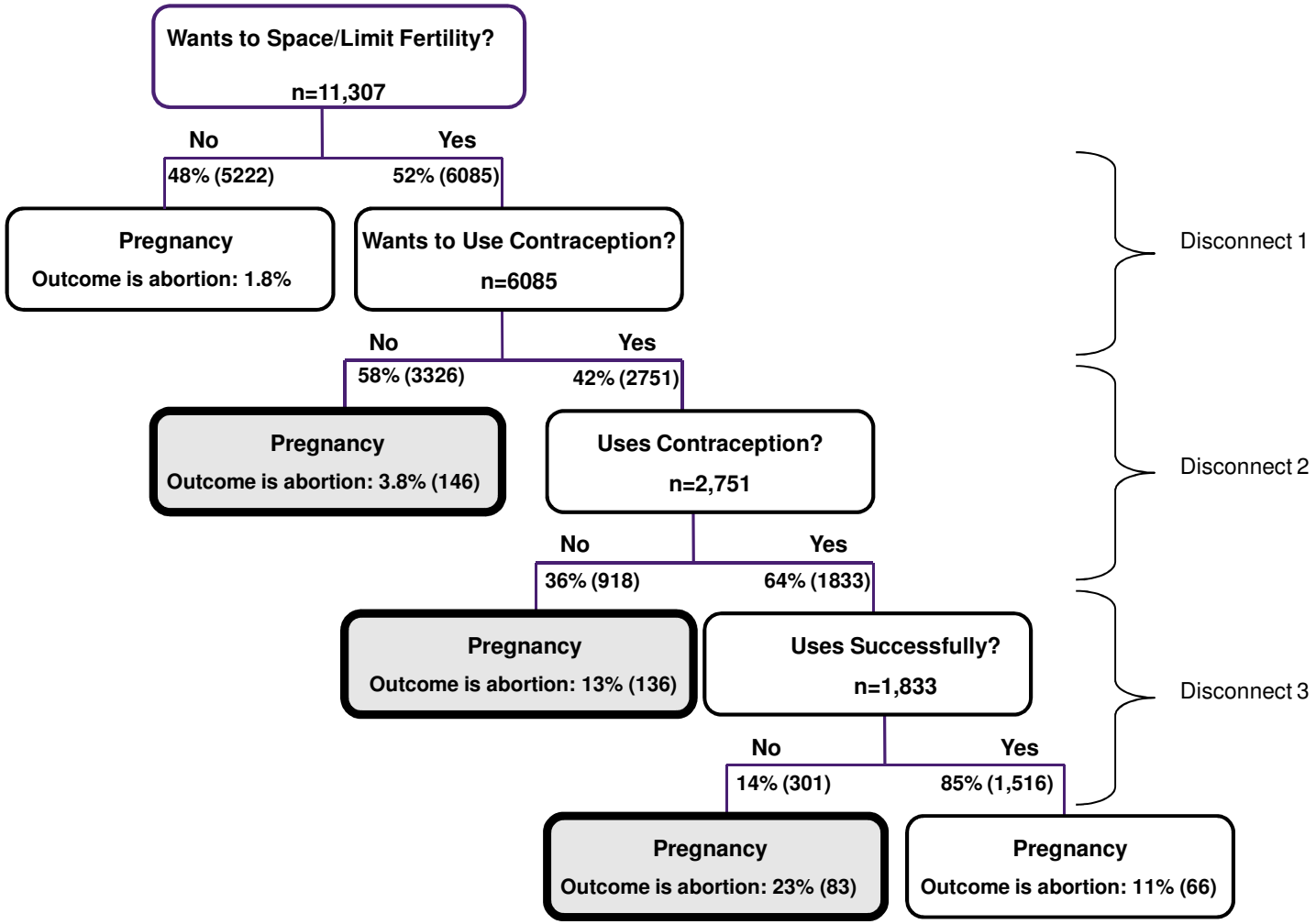
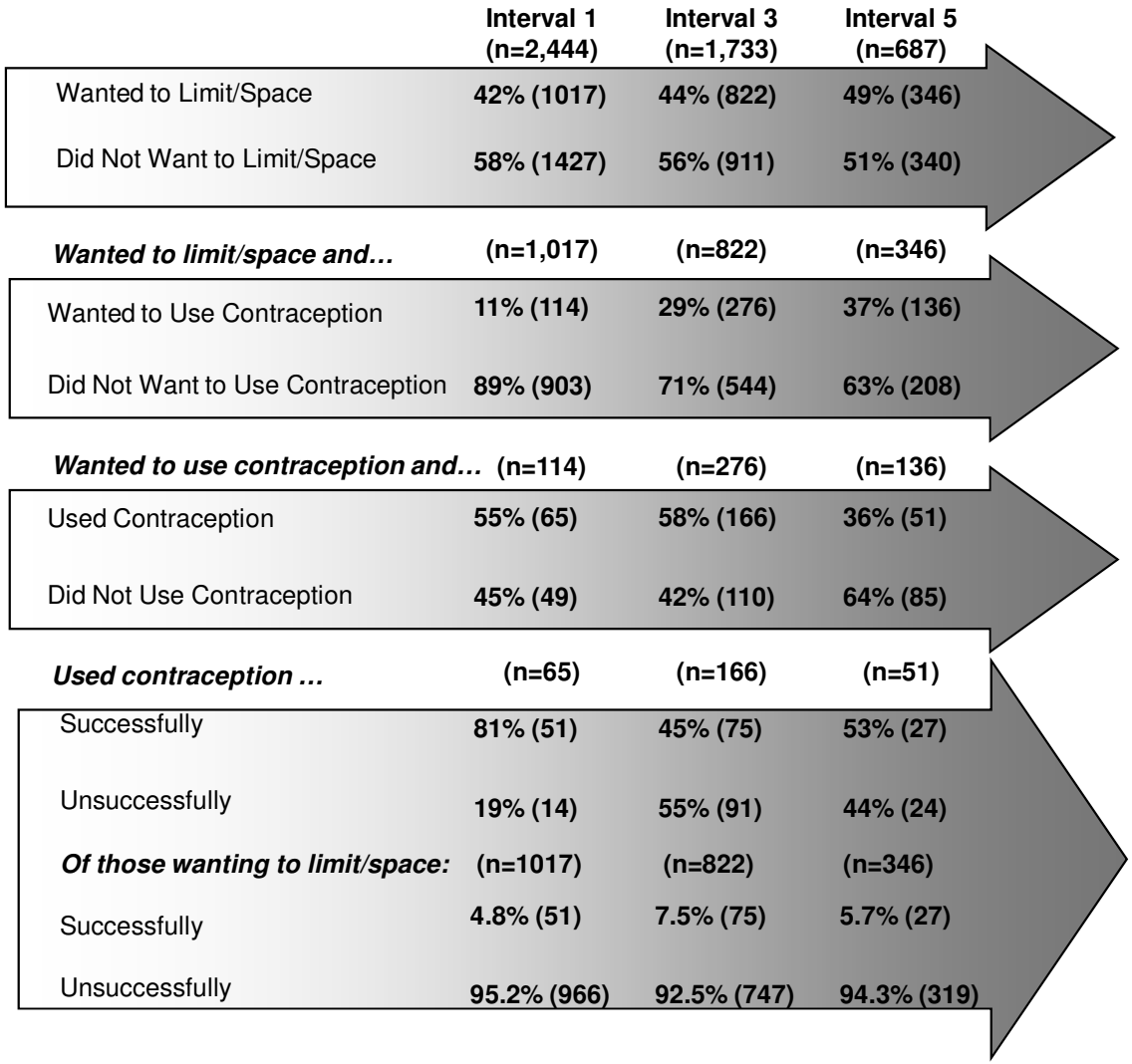


Figure 3: Disconnects in the Pathway to Fertility Regulation by Interval



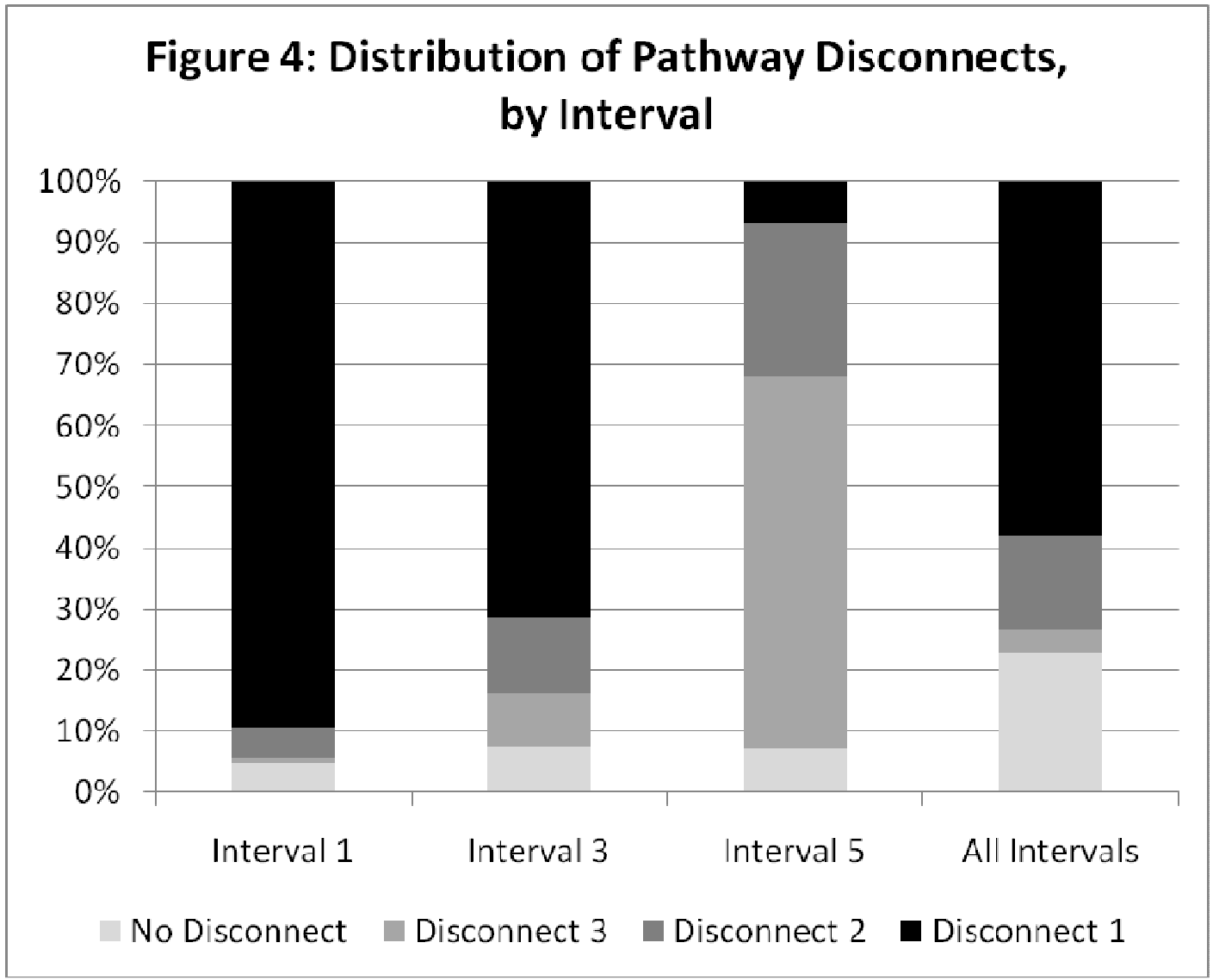


Figure 4: Distribution of Pathway Disconnects, by Interval
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Interval 1
Interval 3
Interval 5
All Intervals
No Disconnect
Disconnect 3
Disconnect 2
Disconnect 1

Figure 5: Reasons for Disconnects by Interval

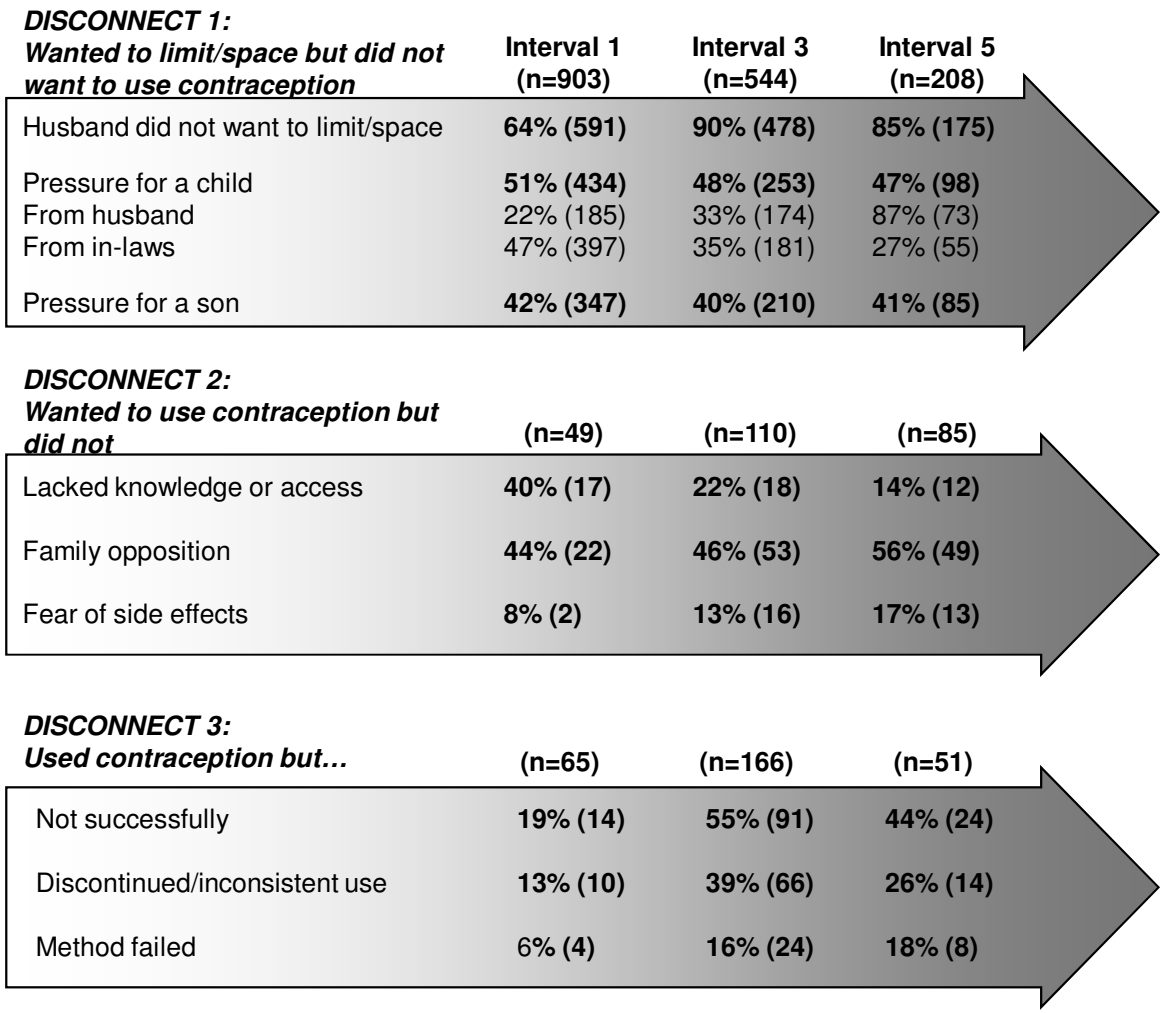


Figure 6: Proportions of Pregnancies Aborted at Each Pathway Endpoint by Interval