Indicators of Male Fertility, Family Formation, and Sexual Behavior

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In the past, most of the focus of fertility-related research as well as research into the well-being of children, has focused on the mother-child dyad. Little attention has been paid to the role of males in conceiving and raising children, including their intentions and attitudes about becoming fathers, their relationships with the mothers of their children, and their relationships with their children, or the absence of such relationships. To date, we have no institutionalized mechanism for collecting data on male fertility and sexual behavior. Yet, having indicator data to describe patterns and monitor trends among males would be useful for both policy and research purposes; such data are necessary to show which indicators affect outcomes of importance to both groups.

The goal of this paper is to outline the types of indicators of male fertility and fatherhood informative for researchers and policy makers with interest or concerns regarding child well-being. How well men perform as fathers is often closely linked to the circumstances under which they become fathers. Thus, we need to develop indicators to inform us about how men become fathers--that is, how men behave as sexual beings.

The use of indicators is common and quite visible in economics; in the other social sciences, indicators do not drive policy as conspicuously, perhaps because they are not produced as regularly or systematically as economic indicators. But we suggest in this paper that the indicators we list below should be produced regularly and predictably, so that policy makers will have reliable descriptive information available when they need to monitor trends, track sub-group differences, and inform policy development.

We define an indicator as a measure of a behavior or attitude that traces status or well-being across population groups over time, across groups, and/or across geographic areas. Indicators are descriptive and are not intended to be explanatory. Indicators of male fertility should meet several criteria (see Moore, 1995, for a discussion). They should:

1. assess male fertility and fatherhood across a broad array of outcomes, behaviors and processes;
2. have very high coverage of the population or event being monitored and data collection procedures should be rigorous and consistent over time;
3. cover both teenage and adult males;
4. have consistent meaning across socioeconomic and cultural subpopulations;
5. anticipate future trends and social developments, and
6. be geographically detailed, at the national, state and local levels;
7. be comparable in meaning over time; and
8. allow the tracking of progress in meeting societal goals regarding male fertility, fatherhood, and family formation.

In addition, it is critical that indicator data be made available in a timely way. Stale
numbers are far less useful for tracking trends than are up-to-date or recent data.

Indicators may be derived from surveys, censuses, vital statistics, or administrative records. Data for indicators on sexual behavior and fertility often come from household surveys. However, administrative data represent another crucial source. For example, data on births come from the vital statistics system. All existing sources should be used to the extent practical. To control the costs of data collection, existing surveys and record systems should be analyzed to produce indicators whenever possible. In fact, a significant amount might be learned by analyzing or modifying existing sources. However, even when all existing sources are fully utilized, more will need to be done.

In order to lend some useful structure to this enterprise, we are dividing indicators into two groups. The first group consists of indicators that measure behaviors that are related to male fertility and family formation. The second group is comprised of indicators that describe attitudes towards various aspects of male fertility and family formation. This is a somewhat artificial division, but one that is hopefully useful to make in terms of thinking about what indicators are important to understanding male fertility and family formation.

To organize this discussion, we have categorized indicators of both behavior and attitudes into four broad and overlapping areas. They are:

1. sexual behavior,
2. contraception,
3. pregnancy and pregnancy resolution,
4. marriage and cohabitation, and
5. fatherhood/child rearing (attitudes only).

The sexual behavior category includes sexual history, partner characteristics and non-voluntary sex. The contraception category addresses frequency of use, types of contraception and the circumstances in which different types of contraception are used. Much of the focus of the indicators in the pregnancy and pregnancy resolution category is on unintended and mistimed pregnancies (there may be a lack of agreement between partners on this issue) and the roles and responsibilities of males when such a pregnancy occurs. Desirable indicators of marital and cohabitation histories and attitudes towards both arrangements under different situations are discussed in the next category. Last, indicators of the roles of fathers in their children’s lives and attitudes towards these roles, under a variety of living arrangements, are addressed in the children/fatherhood category.

Because resources are finite, not all of these indicators can, or perhaps should, be produced. At this time, we have chosen to not prematurely eliminate any indicators, but rather to present a broad list of indicators for discussion. Table A summarizes a more limited set of indicators identified as high or medium in priority during a meeting of the indicator subgroup.
INDICATORS OF BEHAVIOR

Several general issues must be kept in mind when devising and testing potential indicators of sexual, fertility and family formation behavior. These are personal topics and different words and phrases can connote different meanings and affect how respondents answer questions, which in turn affect understanding on the part of the respondent, their willingness to answer truthfully, and their ability to answer accurately. Therefore, careful wording of questions is essential.

Second, because of the sensitivity of many questions, the issue of self-administered versus interviewer-administered questions must be resolved for different topics and survey populations.

Third, the time periods covered in questions must be appropriate. When asking about a particular behavior, the length of time covered must be considered to develop questions that will elucidate accurate information.

A fourth issue is concerns the continuity of the indicator. Although continuity over time is crucial, so is the need to develop new and better measures. This need must be weighed against the need to repeatedly ask exactly the same questions over time. This issue also arises with administrative data, where improvements in data collection are desirable and yet at the same time undermine our capacity to track trends.

Another issue that must be addressed is the frequency of data collection. Five-year intervals may not be very timely, while annual data collections may be too costly. While collecting data every two years may also not be financially feasible, it would be useful to have data at two-year intervals. Failing that, collecting indicator data every three years may be both economically feasible and frequent enough to track trends on a timely basis.

A sixth issue concerns the statistical significance of data. A primary goal of gathering indicator data is to track trends over time. Therefore, it is important to be aware of the margin of error. When this margin is too large, it may not be possible to determine the direction or slope of the time trend of a particular indicator within an acceptable level of confidence. This issue is pertinent to all survey data, not just that collected on males.

Seventh, there is the issue of informant. Since fertility surveys are already conducted among women, one potential source for some of these male data is through the spouse or partner. However, the fact that males report more sexual partners than do women (Smith, 1991; Laumann, et al., 1994) indicates that such data may be problematic. Although information on sensitive behaviors and on attitudes must come from the men themselves, it is worth exploring the possibility that some demographic data on men might be obtained from women. Nevertheless, since some information must be obtained directly from men, the methodological challenges that surround getting representative samples of males must be addressed.
Another potential source of data is the vital records system. Less information is collected about the father than the mother, and item completion levels are low. For example, the age of the father is not provided in 16 percent of cases. Also, four states do not ascertain the marital status of the child’s parents, and no states obtain the cohabitation status of unmarried parents, as is done in Puerto Rico. In addition, these questions on marital status could be added to the CPS, although the lack of recent continuity in the fertility supplements of the CPS is a cause of concern. To obtain the greatest benefit from CPS data, a regular schedule of data collection is needed.

Finally, the representativeness of survey data for males must be considered. Most surveys are household-based. This may not be the best way to construct a representative sample of males, as many men live in a non-household situation. For example, individuals who are in the military or who are incarcerated are almost universally ignored in fertility-related surveys of women. While this may not pose significant issues of representativeness when surveying females, given that most persons in these two populations are male and that both the military and prisons have high percentages of minority men and men from lower socioeconomic backgrounds, it is critical to include these groups in surveys of males.

Age may be another issue affecting representativeness. Most sexual behavior and fertility surveys of females focus on the 15 to 44 year old age group, since this represents the average reproductive lifespan of women. Therefore, for reasons of comparability, it makes sense to target this age group for men as well, although men older than 44 years are typically fertile. Under certain circumstances, it may make sense to target a core age group of men, ages 18-34. One reason for this would be limited financial and other resources. Another reason may be the desire to focus on lifetime behavior, and limit questions to younger individuals to reduce recall bias. On the other hand, older men may be partners of younger women, so that a limited age range may fail to include an important group of men.

Clearly, a number of substantive and methodological issues need to be considered as efforts move forward to enhance our understanding of male sexual and fertility behavior.

1. Sexual Behavior

Sexual behavior is a rather broad topic; in an effort to make it less unwieldy, the discussion of sexual behavior indicators will be approached using a sexual history framework. Included in this framework are age at first intercourse, number and characteristics of partners, marital and cohabitation histories, contraceptive use, non-voluntary sex, and sexual activity in the past year, including most recent incidence of sexual intercourse.

Indicators of sexual history should begin with age at first sex. Number of partners during the last year is a high priority measure; of slightly lesser importance is number of lifetime partners. Indicators that measure the seriousness or longevity of sexual relationships with different partners would also be informative. Lower priority indicators of males=younger years
would include dating history and the timing and content of sex education.

Also along these lines, indicators are needed that describe males’ sexual partners, including gender, ages of partners, their race and ethnicity, marital status, relationship to the partner, previous sexual experience (including number of births), and such socioeconomic characteristics as education, employment status, income, country of birth and duration of residence in the U.S., religion and religiosity. This information is particularly important for males’ current partners, and slightly less important for previous partners. Furthermore, it is likely that information about current partners would be more reliable than that reported for past partners. Currently, the 1995 NSFG contains information on most of these characteristics for the male partners of female respondents. Information of this sort in conjunction with indicators of various sexual behaviors and contraceptive use would almost surely prove illuminating in the effort to more fully understand male fertility. (A caveat must be kept in mind however. The data gathered about males through surveys of females may not be representative of the male population, but rather of the partners of a representative group of females. On the other hand, females may report on male partners who are unlikely to be captured in surveys of males, either because they are in prison, in the military, or have no fixed address.)

The issue of sexual orientation or gender of sexual partners is also pertinent. While men who only have sex with men are, for all intents and purposes, not relevant to the goal of gathering information about male fertility and family formation, men who have sex with both men and women may put their female partners at higher risk for exposure to HIV (and therefore expose children of these couples to HIV) than men who have sex exclusively with women. Similarly, ascertaining the types of sexual behaviors in which men engage may be important to know because different sexual acts carry different risks. Only vaginal intercourse carries a risk of conception, while anal intercourse is associated with higher risk of transmission of HIV from male to female. Other forms of sexual activity are of interest only insofar as they are related to fecundity.

Indicators of forced sex and sexual molestation may be approached from two viewpoints. First, while girls and women are more likely to be the victims of rape and molestation, the incidence among boys is high enough, and the possible consequences serious enough, to warrant careful measurement. Thus, youths and adults should be asked if they ever experienced any type of sexual molestation, at what ages these events occurred, how often they occurred and who molested them. Second, males should be asked whether they have ever forced or pressured a woman to have sex against her will. This area is complex as another person’s will may be difficult to perceive. Moreover, any act that could be construed as a crime is inevitably going to be under-reported. However, it is important to start gathering this type of information as women report that less than voluntary sex is a relatively common occurrence. Insofar as sexual and power relationships between men and women are related to male fertility and the consequences of this fertility, the topic deserves to be explored in more detail. Gathering information on this topic from men will be particularly challenging as little is known about how to achieve good response rates and how to get valid, interpretable data. An area of sexual behavior which may
overlap a great deal with the issue of forced sex is that of the use and abuse of alcohol and other drugs in conjunction with sex.

Substance use is related to the lowering of inhibitions and the impairment of judgment. Therefore, alcohol and drugs are probably often associated with individuals engaging in sex that they would normally not have engaged in, had they not been inebriated or high. Such circumstances could include having sex with someone they do not know, not using contraception, or putting themselves or their partner in a potentially physically threatening situation. Individuals who combine substance use with sexual activity may be putting themselves at greater risk of negative outcomes, including an unintended pregnancy, an STD, or being guilty of, or a victim of, an unwanted sexual encounter. Indicators of whether respondents have been under the influence of alcohol and/or drugs while engaging in sex ever or in the past year would potentially contribute to explaining sexual behavior that seems irrational or against the best interests of respondents. Although the use and abuse of alcohol and other drugs in conjunction with sex is an important research question, it is complex and may be beyond the scope of an indicator.

While it is important to collect sexual history data, sexual behavior indicators should generally focus on sexual activity in the past year because the recency of events should lead to more accurate reporting by respondents. In addition, it provides a more comparable duration of exposure. These considerations apply to all areas of sexual activity, including the number of times respondents had sex, the number and characteristics of partners, and the circumstances under which sex took place. Indicators that describe respondents’ most recent sexual experience may be representative of their general sexual experience and behavior and it may be easier for respondents and result in more accurate reporting to focus on the most recent incident. In addition, it provides a common unit of exposure, compared to the past year, a time when exposure may vary substantially across persons.

2. Contraception

Contraceptive use is, of course, intimately intertwined with sexual history. While it is routine now to ask females about their contraceptive history, there is less data for males. Nevertheless, it is considered a high priority to start gathering contraception information from men. While in one sense, contraception indicators gathered from male respondents would focus on male forms of contraception -- condoms, male sterilization and withdrawal, males can also be asked what forms of contraception their partners used. Male reports, however, would potentially be compromised by lack of knowledge on the part of males of the type of contraceptive their partners used, as well as whether they indeed did use any contraception. Nevertheless, we think that men should be asked, Did you use condoms or some other kind of birth control the last time you had sex? Did you know whether your partner was using birth control before you had sex? (If yes) Do you know what method she was using? Methodological work might examine the level and accuracy of knowledge that males display on this topic.

Indicators of contraceptive use should contain information on the type(s) of
contraceptives used by the male and/or his partner at first sex and at most recent intercourse. A lower priority indicator would measure types of contraception used during specific time periods of males’ lives, such as adolescence and young adulthood, to explore age and cohort patterns for this indicator. Although data can be compared to surveys of women, it must be acknowledged that the quality of these data would be questionable because large proportions of men, particularly unmarried men, do not have complete knowledge of the birth control methods used by their partners. Yet, the size of the Alon’t know@ category would be as informative to researchers as the reports regarding methods.

Another aspect of contraceptive use that would be of secondary importance is how males report both whether and how they talked about birth control with their sexual partners. Indicators that measure types of partners and relationships could be tabulated in conjunction with data on the discussion and negotiation about contraception to further our understanding of the circumstances and the outcomes of these actions. Before good quality data can be gathered on this topic, methodological work, including qualitative studies such as focus groups that include both males and couples, must be conducted to better understand how to ask these topics. Finally, data on payment for contraception might illuminate our understanding of the male role in fertility in different types of relationships, although it would be of secondary priority.

3. Pregnancy and Pregnancy Resolution

Among pregnancies leading to births, the number and timing of pregnancies is a reliable and standard measure of female fertility. However, data on abortions continues to be poor. For example, information on pregnancies leading to births, and births themselves from the 1995 NSFG is good, but data on abortions cannot be used for indicators. This problem promises to be even larger for males. Administrative data, such as vital statistics information, while useful for many purposes, does not allow us to statistically link males and abortion.

Although data from males on the number, timing and resolution of the pregnancies males are responsible for are crucial for an understanding of male fertility and sexual behavior, there is a dearth of understanding on how to obtain accurate and complete information about pregnancy and pregnancy resolution from men. This is an area in which methodological work is much needed. Under some circumstances, men may not know that they are responsible for a pregnancy and are therefore unable to report it. Even when confidentiality is guaranteed, an additional source of under-reporting may be men’s unwillingness to report a known pregnancy. Nevertheless, even given this limitation, such questions should be asked of men to ascertain, at the very least, their known fertility.

Each conception has four possible outcomes: a pregnancy can end in a miscarriage; it can be terminated through abortion; it can result in a live birth, or in a stillbirth. Furthermore, when the result is a live birth, the mother may either keep the baby or give it up for adoption. Although miscarriage and stillbirth are not the result of conscious decisions, abortion and whether a baby is kept by the parents or put up for adoption are conscious decisions. With each reported
pregnancy, indicators that describe the resolution of the pregnancy and the male role in that resolution are needed. Males' input into the decision about how a pregnancy was resolved should be measured, as should their level of agreement with the outcome, possibly using a scale measure. It is also useful to know the number of partners by whom males have children as this has repercussions for the resulting offspring.

4. Marriage, Cohabitation and Non-cohabiting Sexual Relationships

On-going sexual relationships can take several forms. Couples may be legally married, they may cohabit but not be legally married, or they may have a sexual relationship but each partner maintains a separate residence. Marital, cohabitation and non-cohabitation relationship histories should be collected from males. Marital histories should include data on the number and duration of marriages, age at first marriage, whether the current marriage was preceded by cohabitation with the respondent's spouse, and whether a marriage followed a conception or birth. The demographic and socioeconomic characteristics of current spouses should be gathered from male respondents. Similarly, cohabitation histories should include information on number, duration and timing of cohabitations, whether conceptions or births occurred prior to, or during cohabitation, and whether cohabitation with a partner led to marriage. It is also important to know the socioeconomic characteristics of males' current cohabiting partners. Parallel information should also be gathered on non-cohabiting sexual relationships.

Marriage may be a sensitive topic for some males because of the issues of child support and alimony. The current state of knowledge on whether reliable marital and cohabitation histories can be collected from men leaves much to be desired; the limits of what males can and will report are not known.

One fundamental step would be including a question on cohabitation on birth certificates. The informant could be asked (as in done in Puerto Rico) whether the mother is married or unmarried, and if unmarried, whether the mother is living with a man. In this way, we could ascertain whether the resulting child is living with one or two parents when it is born.

INDICATORS OF ATTITUDES

The connection between attitudes and behaviors is not clear-cut. There is debate among social scientists about whether attitudes influence behavior, and if they do, in what way. While global attitudes may not influence specific behaviors, more narrow and personally-focused attitudes do predict behavior (Jahoda & Warren, 1968). Moreover, there have been tremendous changes in attitudes about marriage, fertility and fatherhood (Thornton, 1995), which have tracked closely with behavior, making it advisable to gather information on males' attitudes and opinions towards the topics related to male fertility.

As with the behavioral indicators outlined above, the creation and use of attitudinal indicators require that several issues be addressed. As noted for questions about behaviors, the

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context of questions that ask about attitudes is crucial. Context includes the wording of questions, the order of questions within a survey, and whether the questions are self-administered or interview-administered. Self-administered surveys are more likely to elicit respondent's true attitudes than interviewer-administered surveys, particularly on sensitive topics. In addition, self-administered questionnaires can also be less expensive.

The second issue that should be dealt with is whether the attitudes measured are personal or general attitudes. For example, should questions about abortion or cohabitation query how respondents' attitudes would shape their own behavior on such issues or tap their beliefs about what is right for society in general? In this discussion, we will assume that we are asking about how their attitudes would shape their own behavior, not those of men in general.

A third issue concerns the strength or depth of respondents' feelings about a particular issue. While respondents may produce an answer to an attitudinal question when prompted via an interview or questionnaire, the topic may or may not be salient in respondents' lives, and these attitudes may be strongly or loosely held.

1. Sexual Behavior

Males' attitudes toward sexual behavior are potentially important in understanding that behavior. Although not easy to gather, collecting indicator data concerning the circumstances under which sexual activity is acceptable or allowable should be a priority. These circumstances might include whether a male would seriously consider having intercourse with married or unmarried women, women of different ages, someone he just met, and so on. Attitudes towards non-voluntary sex and allowable levels of coercion or persuasion are equally important; however, it is likely that this information will be difficult to gather. It would be useful, whenever appropriate, to ask parallel questions of males and females so that attitudinal trends of the sexes can be compared over time.

2. Contraception

The measurement of males' attitudes towards contraception can generally be considered of medium priority. When collected, indicators should cover two overlapping areas. The first area is males' opinions of their responsibility for preventing pregnancy; indicators should capture attitudes about both males' and females' roles. Attitudes about use of methods and about who pays for birth control (particularly among unmarried couples) also ought to be measured. The second area is males' attitudes towards specific contraceptive methods. While particular attention should be given to examining attitudes towards male-based methods -- condoms, male sterilization and withdrawal -- males' feelings about female-based methods also ought to be measured.

3. Pregnancy and Pregnancy Resolution

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Accurate measures of male attitudes about when, and under what circumstances, pregnancy is desirable are needed to increase our understanding of fertility. In particular, males should be asked whether they would consider fathering a child out of wedlock. Men should also be asked whether they should have input on the decision of what to do when a pregnancy occurs, or whether the women should decide that for herself—including whether he would approve of his partner having an abortion or giving the baby up for adoption.

4. Marriage and Cohabitation

The measurement of men’s attitudes towards marriage should assess males’ opinions about the ideal and acceptable circumstances under which people should marry, including the ages, fertility status, and economic situations of their partners. Attitudes towards cohabitation should also be measured, including whether cohabitation before marriage is preferable and acceptable and whether partners with children should cohabit or marry. Attitudes about marriage after conception and after childbirth may affect or reflect social changes in pregnancy resolution behavior.

5. Fatherhood

Finally, males’ attitudes towards children may affect sexual and fertility behavior. Indicators might include basic opinions such as the ideal number of children and the best age to become a father. In addition, opinions about what constitutes a father’s responsibility to his children are important. Comparable questions about the scope and depth of mothers’ responsibilities towards their children would be important in understanding how males approach decisions about fertility and marriage. Regarding child support, informative measures may include attitudes towards when child support should be obligatory—including such factors as whether he and the mother were married, whether he is allowed to see the children, whether he had any control over the decision to continue the pregnancy, and so on.

POPULATION SUB-GROUPS

It is often informative to divide a population of interest into subgroups and make comparisons across these groups on a variety of indicators or factors. In developing indicators of male fertility and fatherhood, several sociodemographic stratifiers promise to aid our understanding of the entire population. These categories include the males:

1. age,
2. marital status,
3. race/ethnicity,
4. education,
5. income,
6. employment status,
7. parity,
8. number of children in the household and their relationship to the male.

Men in each of these groups are expected to behave differently in the areas of male fertility and fatherhood and to hold different attitudes towards these topics. For example, adolescents are predicted to have caused fewer pregnancies and have fewer children than older men. It is also likely that younger men and single men will have different attitudes towards acceptable sexual behavior and marriage than older men and married men. It is also probably safe to predict that many measures of fertility-related behaviors and attitudes will vary across the different socioeconomic categories listed above. However, it will also be informative to determine which indicators do not vary by age, marital status, race/ethnicity, SES, or fatherhood status.

EXISTING SOURCES OF INDICATOR DATA

A number of these indicators have been included in past surveys that either focused on males or included males and females. For example, the General Social Survey (GSS) interviews adults, both men and women, on their attitudes towards abortion, cohabitation, and the ideal number of children. The GSS also contains questions on number of sex partners during various time periods, the gender of those partners and whether they were steady or non-steady partners. Both the National Survey of Families and Households (NSFH) and the National Longitudinal Survey of Youth (NLSY) include items on fertility such as the timing and number of births, and whether births were unwanted or unintended. Both also contain items from which marriage and cohabitation histories can be constructed. The National Survey of Adolescent Males (NSAM) includes both general and partner-specific sexual and contraceptive histories, pregnancy histories and some information about fatherhood, as well as measures of attitudes towards contraceptive responsibility, sex, cohabitation, abortion, children and gender role identity for a sample of young males. Although the NSFG is a survey of women, it can be used as a proxy source of information on male demographic characteristics and wantedness of pregnancies by males. The Survey of Income and Program Participation (SIPP) has collected data on the number of children men have ever fathered and marital histories for both men and women since 1984. Detailed information on household relationships among persons living together also permit identifying the number of children, stepchildren, and adopted children currently living with men.
References


### Indicators of Male Fertility, Family Formation and Sexual Behavior

#### Sexual Behavior

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#### Contraception

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  timing of pregnancies  
  resolution of each pregnancy | **High Priority Indicators**  
  abortion |
| **Medium Priority Indicators**  
  male≠ role in pregnancy resolution  
  male≠ level of agreement with resolution | **Medium Priority Indicators**  
  pregnancy intendedness  
  circumstances under which pregnancy is desirable |
| number of partners male has children with | **Low Priority Indicators**  
  factors that should affect pregnancy resolution  
  role male should play in pregnancy resolution  
  adoption |
### Behaviors

**High Priority Indicators**
- number of marriages
- current marital status
- ever married before
- age at first marriage
- characteristics of current spouse
- current marriage preceded by cohabitation
- current marriage followed conception
- current marriage followed birth

- number of cohabitations
- currently cohabiting
- age at first cohabitation
- characteristics of current partner
- current cohabitation followed conception
- current cohabitation followed birth

- number of non-cohabiting relationships
- currently in non-cohabiting relationship
- age at first non-cohabiting relationship
- characteristics of current partner
- conception within non-cohabiting relationship
- birth within non-cohabiting relationship

**Medium Priority Indicators**
- duration of each marriage

### Attitudes

**High Priority Indicators**
- best age to marry
- ideal circumstances to marry
- acceptable circumstances to marry
- cohabitation

### Fatherhood

**High Priority Indicators**
- importance of becoming a parent
- value of children
- consider having a child while unmarried
- best age to become a father
- father responsibility
- mother responsibility
- child support