

# Pregnancy intentions—a complex construct and call for new measures

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**Objective:** To estimate the prevalence of unintended pregnancies under relaxed assumptions regarding birth control use compared with a traditional constructed measure.

**Design:** Cross-sectional survey.

**Setting:** Not applicable.

**Patient(s):** Nationally representative sample of U.S. women aged 15–44 years.

**Intervention(s):** None.

**Main Outcome Measure(s):** Prevalence of intended and unintended pregnancies as estimated by [1] a traditional constructed measure from the National Survey of Family Growth (NSFG), and [2] a constructed measure relaxing assumptions regarding birth control use, reasons for nonuse, and pregnancy timing.

**Result(s):** The prevalence of unintended pregnancies was 6% higher using the traditional constructed measure as compared with the approach with relaxed assumptions (NSFG: 44%, 95% confidence interval [CI] 41, 46; new construct 38%, 95% CI, 36, 41). Using the NSFG approach, only 92% of women who stopped birth control to become pregnant and 0 women who were not using contraceptives at the time of the pregnancy and reported that they did not mind getting pregnant were classified as having intended pregnancies, compared with 100% using the new construct.

**Conclusion(s):** Current measures of pregnancy intention may overestimate rates of unintended pregnancy, with over 340,000 pregnancies in the United States misclassified as unintended using the current approach, corresponding to an estimated savings of \$678 million in public health-care expenditures. Current constructs make assumptions that may not reflect contemporary reproductive practices, so improved measures are needed. (Fertil Steril® 2016; ■:■-■. ©2016 by American Society for Reproductive Medicine.)

**Key Words:** Pregnancy intentions, unintended, unplanned pregnancy

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**M**ore than half of pregnancies in the United States are reported to be unintended (approximately 51%) (1–6), though a recent study reports a decline over the past several years with current rates being at a historic low of 45% (7). Unintended pregnancies include those that are mistimed, unplanned, or unwanted, and as such they are quite

broadly defined (1, 2, 8). Recent statistics suggest that efforts to reduce unintended pregnancy have been successful as measured by rates (7, 9). But measurement of the concept of pregnancy intention and what these statistics may indicate in light of the inherent limitations to current measurement approaches have not been thoroughly discussed (8, 10–18).

As well, the public health implications of these declining rates are unclear when the evidence relating pregnancy intention to pregnancy outcomes is weak (9, 19–23).

Current definitions of intention assume that pregnancy is a conscious decision. However, given the complex emotional, psychological, and cultural factors at play, often behaviors do not align with intentions (10, 14, 24–26), and intentions may change over time (27–29). Indeed, many women express ambivalence regarding their pregnancy intentions (30–33), and formulating plans for a pregnancy may seem unrealistic for many women as they do not perceive themselves as having reproductive control (34). Health-care providers may also have different perspectives

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regarding whether a couple is prepared for a pregnancy (35–37), given that providers often want couples to conform to normative ideals regarding timing of pregnancy. Moreover, though the terms “unplanned” and “unintended” are often used interchangeably for pregnancies, careful attention to terminology is important as the wording of questionnaires regarding pregnancy intention has been found to affect a woman’s assessment of her own pregnancy (38–40).

Given the complexities in measuring pregnancy intention and the lack of broad application of new measures that more fully capture the multidimensional construct of pregnancy intention (e.g., timing, planning, wantedness, etc.) (10, 14, 41, 42), there is a need to understand how the assumptions underlying current measures may impact estimates of unintended pregnancies and whether varying constructs result in the same reliable estimate of unintended pregnancy. Thus, our objective was to estimate the prevalence of intended, mistimed, and unwanted pregnancies using the widely cited traditional construct defined by the National Survey of Family Growth (NSFG 2006–2010) as compared with a constructed measure relaxing three assumptions regarding birth control use. Specifically, using the new measure, [1] women not using birth control because they wanted to become pregnant are now classified as intended regardless of the timing of the pregnancy; [2] women not using birth control who reported they did not mind becoming pregnant are now classified as intended; and [3] women who stopped using birth control to become pregnant are now classified as intended regardless of timing.

## MATERIALS AND METHODS

### Design and Study Population

The study population included 12,279 women aged 15–44 years who participated in the 2006–2010 cycle of the NSFG (43–45). The NSFG is designed to collect data from a national sample of reproductive-age women in the United States, and is based on a nationally representative, multistage, area probability sample drawn from 100 primary sampling areas across the country. Interviewing takes place on a continuous basis across the cycle, as field staff rotate each quarter across primary sampling areas to generate a nationally representative sample over the course of the cycle. The overall response rate was about 78%. Details of the study design and survey assessments have been described in detail elsewhere (44–46). The NSFG survey was reviewed and approved by the Research Ethics Review Board of the Centers for Disease Control and Prevention and the National Center for Health Statistics, and a similar board at the contracting organization at the University of Michigan (46).

### Data Collection and Assessment of Pregnancy Intention

In-person interviews were conducted in households across the United States by trained interviewers using computer-assisted

interviewing techniques for data collection. Information was obtained regarding contraception, infertility, marital status, pregnancy outcomes, and other health information ([http://www.cdc.gov/nchs/nsfg/nsfg\\_questionnaires.htm](http://www.cdc.gov/nchs/nsfg/nsfg_questionnaires.htm)).

For this study, the following definitions were used to define the prevalence of intended, mistimed (occurring sooner than the woman wanted), and unwanted pregnancies consistent with the format used for the NSFG constructed measure (2). Specifically, Figure 1 displays a simplified flowchart that outlines the participant flow for categorizing pregnancy intentions and highlights where we relaxed certain assumptions for the new construct. It is important that women are asked different questions regarding pregnancy intentions based on their previous responses to questions related to birth control use (which includes all forms of contraception including withdrawal, rhythm method, etc.) and that these questions differ by the recency of the pregnancy (began within the past 3 years or longer than 3 years from the interview).

As indicated by the first node on Figure 1, women are asked questions regarding their birth control use. Depending on whether they report birth control use the month of or the month after the pregnancy began they are then asked further questions. Women who did not report birth control use are then asked whether they were not using birth control with the intent to become pregnant. If women respond affirmatively, they are considered to have an intended pregnancy unless they report that the pregnancy occurred sooner than they anticipated (some of these women may later report that the reason why they did not use contraception was because they did not mind becoming pregnant). Only the women who were not using birth control but reported that they did not stop using it to become pregnant are asked if they ever wanted to have another baby. If they did not want another baby, they are classified as unintended (some of these women may later report that the reason why they did not use contraception was because they did not mind becoming pregnant). If they respond that they did want another baby, they are asked regarding the timing of the pregnancy to determine intention—if the pregnancy occurred too soon, it is unintended (some of these women may later report that the reason why they did not use contraception was because they did not mind becoming pregnant); otherwise, it is intended. Of note, this classifies all pregnancies that occurred later than planned as intended.

Women who report birth control use for both the month of and the month after the pregnancy began are then asked follow-up questions regarding the type of method and whether they ever wanted to have another baby. Further questions are then asked regarding the timing of the pregnancy to distinguish a mistimed pregnancy. Women who reported stopping birth control before pregnancy are then queried about whether they stopped to become pregnant and if so whether the timing was too soon; those with pregnancies occurring too soon are unintended; otherwise, they are intended. Only those women who report that they did not stop birth control to become pregnant are asked directly whether they ever wanted another baby; those responding negatively are unintended, and those responding

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