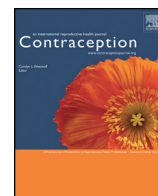




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Pregnancy scares and change in contraceptive use

Heather Gatny*, Yasmin Kusunoki, Jennifer Barber

University of Michigan, Institute for Social Research, 426 Thompson Street, Ann Arbor, MI 48170, USA

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ABSTRACT

Objective: We examined whether the experience of a “pregnancy scare” is related to subsequent changes in contraceptive use that increase the risk of unintended pregnancy.

Methods: We used data from the Relationship Dynamics and Social Life (RDSL) study, which interviewed a random, population-based sample of 1003 young women weekly for 2.5 years. We used multivariate regression models to predict the effect of experiencing a pregnancy scare on change in contraceptive use.

Results: We found pregnancy scares are associated with changes in contraceptive use that increase the risk of pregnancy. Experiencing a pregnancy scare is related to discontinued contraceptive use, change from consistent to inconsistent use of contraception, and change from a more effective to a less effective method of contraception. We also found pregnancy scares are associated with continued inconsistent use of contraception.

Conclusions: Our findings suggest that the experience of a pregnancy scare does not serve as a “wake-up call” to start using contraception, to start using it consistently, or to switch to a more effective method to reduce the risk of unintended pregnancy. Instead, contraceptive use after a pregnancy scare typically remains the same or worsens.

Implications: Clinicians should be aware that young women who have experienced pregnancy scares may be at increased risk of unintended pregnancy, relative to young women who did not experience a pregnancy scare.

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1. Introduction

The rate of unintended pregnancy in the United States remains persistently high [1], and is unlikely to decrease without new policy or interventions. In particular, a more comprehensive understanding of the precursors of unintended pregnancy is essential to formulate new approaches that reduce the unintended pregnancy rate [2]. This study explores one possible pathway – the relationship between experiencing a pregnancy scare and subsequent changes in contraceptive use.

The term “pregnancy scare” describes when a woman who wants to avoid pregnancy believes she is pregnant, but later learns that she is not. According to national surveys, more than half of young women experience a pregnancy scare [3,4]. Women from less advantaged backgrounds are more likely to experience a pregnancy scare than those from more advantaged backgrounds [5], and the demographic correlates of pregnancy scares are similar to the demographic correlates of unintended pregnancy [5,6]. Furthermore, experiencing a pregnancy scare is strongly associated with subsequent unintended pregnancy, independent of background factors [5,7].

Although it seems possible that a pregnancy scare would be a “wake-up call” to start using contraception or to switch to a more effective method, the positive association between a pregnancy scare and later

unintended pregnancy does not support this theory. Or, if a pregnancy scare is in fact a “wake-up call”, any improvement in contraceptive use is only temporary. It could even be that experiencing a pregnancy scare increases pregnancy desire, or increases tolerance of an undesired pregnancy, so that women become less likely to use contraception or more likely to switch to a less-effective method. That is, even women who wanted to avoid pregnancy quickly adjust their feelings to be more positive about pregnancy when they think they are probably pregnant, and those feelings remain positive to some degree even after they realize they are not actually pregnant. Of course, there is also the possibility that experiencing a pregnancy scare is not related to any change in contraceptive use at all.

In this study we estimate the effect of experiencing a pregnancy scare on subsequent changes in: (1) contraceptive use; (2) consistency of contraceptive use; and (3) effectiveness of the contraceptive method used.

2. Methods

We use data from the Relationship Dynamics and Social Life (RDSL) study, which interviewed a random, population-representative sample of 1003 young women ages 18–19, residing in a Michigan county. The RDSL study selected women from the state driver’s license and personal identification card databases. Professional interviewers conducted a 60-min face-to-face baseline survey between March 2008 and July 2009.

* Corresponding author. Tel.: +1 734 615 3560.
E-mail address: hgatny@umich.edu (H. Gatny).

Women then participated in a 2.5-year follow-up study consisting of brief weekly online or telephone surveys about contraceptive use, relationships, and pregnancy. The follow-up study concluded in 2012 and yielded 58,594 weekly interviews. The response rate for the baseline interview was 84%, 99% of baseline respondents participated in the follow-up study, and 75% participated for at least 18 months. Of the 953 women who completed more than one follow-up interview, 604 (63%) completed their final interview at 900 or more days after enrollment (2.47 years). The study was approved by the University of Michigan's Institutional Review Board.

In this study, we analyze the weeks in which women had sexual intercourse. The result is an analytic sample of 16,737 interviews with 702 women. We compare change in contraceptive use between interviews *with* an intervening pregnancy scare and change in contraceptive use between adjacent interviews that were completed *without* an intervening pregnancy scare. That is, change in contraceptive use from the interview *before* a pregnancy scare to the interview *after* a pregnancy scare is compared to typical week-to-week change in contraceptive use. We use the interview before the scare because a young woman's recent discovery that she might be pregnant may have affected her contraceptive use leading up to the report of the pregnancy scare. We use the interview after the scare in order to measure immediate change in contraceptive use. However, we also conducted sensitivity analyses using the interviews at the second, third, and fourth weeks after the scare. These analyses were necessary because we do not know exactly when it became clear to the respondent that she was not really pregnant, and there is the possibility that it takes women longer than 1 week to adjust their contraceptive use in reaction to a pregnancy scare.

2.1. Dependent variables

2.1.1. Change in contraceptive use

Each week, respondents were asked "did you use or do anything that can help people avoid becoming pregnant, even if you did not use it to keep from getting pregnant yourself?" Based on this question at the before and after interview (or Week 1 and Week 2 in the comparison group), respondents were coded as (1) continued use (use before, use after); (2) discontinued use (use before, no use after); (3) continued non-use (no use before, no use after); or (4) began using (no use before, use after).

2.1.2. Change in consistency of contraceptive use

Each week, respondents who used a contraceptive method were asked "did you or your partner(s) use some method of birth control every time you had intercourse (even if you are not trying to prevent pregnancy)? This could be a method you mentioned earlier, or a method you haven't mentioned such as condoms, pills, or another method." Based on the response to this question provided in both weeks, respondents were coded as (1) continued consistent use (consistent before, consistent after); (2) became inconsistent (consistent before, inconsistent after); (3) continued inconsistent use (inconsistent before, inconsistent after); or (4) became consistent (inconsistent before, consistent after).

2.1.3. Change in effectiveness of contraceptive method used

Each week, respondents who used contraception were asked a series of yes/no questions regarding their use of specific contraceptive methods. These methods included non-coital types (birth control pills, birth control patch, NuvaRing, Depo-Provera or any other type of contraceptive shot, Implanon or another contraceptive implant, IUD, or avoidance of sex during a time of the month that the respondent could get pregnant) and coital types (condom, diaphragm or cervical cap, spermicide, female condom, or withdrawal). For this study, we combine the contraceptive methods into the following mutually exclusive categories, listed from more to less effective: (a) IUD, implant, or Depo-Provera (referred to as LARC/Injectable hereafter), (b) birth

control pills, birth control patch, or NuvaRing (referred to as Pill/Other Hormonal hereafter), (c) condom only, and (d) withdrawal only. Contraceptive methods were included in the more effective pregnancy-prevention category when multiple methods were reported (e.g., weeks of condom and birth control pills were grouped as Pill/Other Hormonal). Based on the contraceptive method at the before and after interview (or Week 1 and Week 2 for the comparison group), respondents were coded as (1) switched to more effective method; (2) switched to less effective method; or (3) continued same method or effectiveness. Change in dual method use is also accounted for in this measure. That is, a respondent that used the same method is coded as switched to a more or less effective method if a second method was added or subtracted.

2.2. Independent variables

2.2.1. Pregnancy scare

Each week, respondents were asked about their pregnancy status, and were coded as "not pregnant," "probably not pregnant," "probably pregnant," or "pregnant." "Pregnant" is defined as a positive pregnancy test (self-reported). An uncertain reply of "probably not pregnant" or "probably pregnant" that was not subsequently confirmed by a pregnancy test (or, eventually, a birth, miscarriage, or abortion) is considered a "pregnancy scare" if the pregnancy was not desired. The variable is dichotomous where 1 = pregnancy scare and 0 = otherwise.

Note that we used two weekly time-varying prospective questions to define when women were at risk of undesired pregnancy. The first question asked respondents how much they wanted to get pregnant during the next month. The second question asked respondents how much they wanted to *avoid* getting pregnant during the next month. Both questions used a response scale from 0 to 5. All pregnancy scares occurred to respondents during weeks when they reported anything other than the strongest desire to become pregnant and the weakest desire to avoid pregnancy. We also conducted sensitivity analyses with a stricter definition of undesired where pregnancy scares could occur only to women with the weakest desire for pregnancy and the strongest desire to avoid pregnancy. Another sensitivity analysis uses a version of the same two questions above, but in reference to the respondent's current partner.

2.2.2. Respondent characteristics

The RDSL study measured sociodemographic and other personal characteristics during the baseline interview. We created dichotomous variables from these measures. We coded respondents who reported a high school grade point average (GPA) at or greater than one standard deviation below the mean as having a low high school GPA.

2.3. Data analysis

First we calculated descriptive statistics for the independent variables at the respondent level for the total sample, as well as two subsamples: women who never experienced a pregnancy scare and women who experienced a pregnancy scare. We calculated the descriptive statistics for the dependent variables at the week level for the total sample and the two subsamples: weeks without a pregnancy scare and weeks with a pregnancy scare. Next we used regression models to estimate the effect of experiencing a pregnancy scare on change in contraceptive use reported before and after the pregnancy scare. We used two dichotomous dependent variables (logistic regression) indicating change in: (1) contraceptive use; (2) consistency of contraceptive use; and (3) a trichotomous variable indicating whether respondents switched to a more effective method, switched to a less effective method, or continued using the same method/a method of approximately the same effectiveness. Because person-weeks are the unit of analysis, and they are nested within women, all analyses were conducted using Stata/SE 15.1 with the cluster option, which adjusted the

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