



Original article

With Pills, Patches, Rings, and Shots: Who Still Uses Condoms? A Longitudinal Cohort Study

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 A B S T R A C T

Purpose: To describe women's condom use patterns over time and assess predictors of dual method use 12 months after initiating hormonal contraceptives.

Methods: We conducted a prospective cohort study among women aged 15–24 years initiating oral contraceptive pills, patch, ring, or depot medroxyprogesterone and attending public family planning clinics. Participants completed questionnaires at baseline and 3, 6, and 12 months after enrollment. We used multivariable logistic regression to assess baseline factors associated with dual method use at 12 months among 1,194 women who were sexually active in the past 30 days.

Results: At baseline, 36% were condom users, and only 5% were dual method users. After initiation of a hormonal method, condom use decreased to 27% and remained relatively unchanged thereafter. Dual method use increased to a peak of 20% at 3 months but decreased over time. Women who were condom users at baseline had nearly twice the odds of being a dual method user at 12 months compared with nonusers (adjusted odds ratio [AOR] = 2.01, 95% CI: 1.28–3.14). Women who believed their main partner thought condoms were "very important," regardless of perceived sexually transmitted infection risk or participant's own views of condoms, had higher odds of dual method use (AOR = 2.89, 95% CI: 1.47–5.71).

Conclusions: These results highlight a potential missed opportunity for family planning providers. Providers focus on helping women initiate hormonal methods, however, they may improve outcomes by giving greater attention to method continuation and contingency planning in the event of method discontinuation and to the role of the partner in family planning.

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 IMPLICATIONS AND
 CONTRIBUTION

In our efforts to increase the use of hormonal contraceptives, condom use suffers and contraceptive continuation is not optimal. This study highlights the large need for effective interventions to improve long-term condom and contraceptive use among adolescent and young adult women and their partners.

Between 1996 and 2006, pregnancy rates among teenaged women (aged 15–19 years) in the United States decreased by nearly 33%, yet as of 2006 (the most recent year for which data are available) an estimated 82% of these were unintended [1–3]. Sexually experienced teens and young adults have unintended

pregnancy rates more than twice the national figure (69 per 1,000) for sexually active women of childbearing age, with the highest rates (162 per 1,000) among 18–19 year olds [4]. In addition to disproportionately high rates of unintended pregnancy, women aged 15–24 years also experience high rates of sexually transmitted infections (STIs). Although comprising only 25% of the sexually active population, teens and young adults are responsible for more than half of gonorrhea infections and nearly 75% of chlamydia infections [5]. Unintended pregnancy and STIs remain high, despite widespread use of contraceptives.

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Between 2006 and 2010, more than 86% of never-married female teens and 93% of never-married male teens had used a contraceptive method at last sex. Of this, condom use accounted for 75% and 52% by men and women, respectively [1].

Dual method use, defined as the use of a contraceptive method plus condoms, has been promoted as an effective way to mitigate the burden of both unintended pregnancy and STIs in teens and young adults. Although the prevalence of dual method use among teens has been found to be as high as 20%, when young adults are included, dual method use is as low as 8.3% [1,6]. Our understanding of factors associated with increased dual method use is very limited. Much of the prior research on dual method use has been cross-sectional, which is inadequate to assess the temporal relationship between factors that might contribute to dual method use [7–10]. In addition, few studies have been designed to analyze continued condom use at the time that women initiate hormonal contraception. Finally, many prior studies have been hampered by methodological flaws, including small sample sizes [7,9–12], differing lengths of follow-up for women using different methods [12], inconsistent definitions of dual method use including ineffective methods such as abstinence or withdrawal [7], and inconsistent definitions of discontinuation (discontinuation of condoms or the hormonal method), limiting the inferences to be drawn and generalizability of this prior research [13].

We examined condom use patterns over time in a large cohort of high-risk young women initiating hormonal contraception, including relatively newer contraceptive methods not previously studied: the transdermal patch and the vaginal ring. Additionally, we sought to identify predictors of dual method use over a 1-year period to inform strategies for increasing dual method use.

Materials and Methods

Subjects

Data for this study were collected as part of a larger study on factors associated with method discontinuation and pregnancy among adolescents and young women initiating hormonal contraception; detailed description of the study methods are described elsewhere [14]. In the original cohort, women initiating hormonal contraceptives, either the pill, patch, ring, or depot medroxyprogesterone, were recruited from four Planned Parenthood clinics in Northern California (Vallejo, Richmond, East Oakland, and Hayward) between September 2005 and July 2008. The study was designed specifically to examine newer short acting hormonal method use and therefore women using other effective methods including long acting reversible contraceptive (LARC) methods at baseline were not enrolled. Women, however, could switch to any method including LARCs over the 1-year follow-up period, although few did this. Women who presented for reproductive health care were screened consecutively. Eligibility criteria included being between 15 and 24 years old, not married, able to read English or Spanish, not pregnant (self-report) or desiring pregnancy within the next year, and able to provide written informed consent and comply with study procedures. Women could not have previously used the method they were initiating at the visit. Research staff collected data from enrolled participants via self-administered electronic questionnaires at baseline and 3, 6, and 12 months. All participants provided written informed consent. Given that

minors can consent to contraceptive services in California without parental consent and that attempting to obtain parental consent could have compromised the adolescents' guarantee of confidential services, parental consent was not required. The study was approved by the Committee on Human Research at the University of California, San Francisco.

Measures

The primary outcome measure was dual method use at 1 year. Dual method use was defined as condom use plus an effective contraceptive method. Effective contraceptive methods included the pill, patch, ring, implant, or IUD. Effective contraceptive method use was determined from questions about method used at last sex and continued use of the hormonal method initiated at baseline. Women were considered condom users if the percent of time they reported using a condom divided by the number of times they reported having sex in the past 30 days was equal to or greater than 80%. We based our definition of a condom user on evidence from a recent cohort study that demonstrated that using a proportion of protected acts (number of times a condom was used divided by the number of vaginal sex acts during a typical month in the past 3 months) was more predictive of pregnancy incidence than other measures (since last visit, at last sex, or frequency measure), although no one method was most predictive of STI/HIV incidence [15].

Independent variables considered for the analysis included those found to be associated with dual method use in previous studies as well as variables informed by the Health Belief Model, which states that individuals weigh the costs and benefits of a health-related behavior before attempting behavior change, and the Theory of Planned Behavior, which takes into account subjective norms around the behavior based on attitudes of individuals close to the person [16,17]. We grouped variables into the following categories: sociodemographic characteristics, reproductive history, and attitudes toward condom use.

Sociodemographic characteristics collected at baseline included age, neighborhood income, race and ethnicity, education, and employment status. Sexual and reproductive history measures included prior pregnancies and STIs, partner concurrency (having sex with a man other than main partner), and length of time they had sex with their main partner (0–3 months, 4–6 months, 7–12 months, >12 months, and no sex yet). Perceived STI risk in the next 3 months was measured on a Likert scale (not at all likely, a little likely, somewhat likely, very likely, don't know). Participant's beliefs toward condom use were derived from responses to a series of questions with answers on a Likert scale. The items were "Condoms should always be used, even if the girl uses birth control like the pill, patch, ring, or the shot" and "A girl does not need to use condoms if she gets checked at the clinic often" (responses for both questions included: strongly agree, agree, neither, disagree, and strongly disagree). Assessment of the attitudes of the woman and her partner toward condoms was obtained from the following questions: "How important do you think it is for your main partner to use condoms when he has sex with you? FOR HIM is it..." and "How important is it for YOU to use condoms when you have sex with your main partner?" (responses included: not at all important, somewhat important, very important, and don't know). For women who reported condom use at last sex, reason for condom use was also asked (responses included: STI prevention, pregnancy prevention, both, or don't know).

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