Knowledge of, Attitudes Toward, and Stage of Change for Female and Male Condoms Among Denver Inner-City Women

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ABSTRACT *Despite availability for a decade and documented acceptability among some groups of women for the method, female condom use is still rare. We surveyed 198 young women (15–25 years old) living in the inner city of Denver about their knowledge of, attitudes toward, and practices regarding female and male condoms. Most (75%) women had ever considered using male condoms; 32% had ever considered using female condoms; and use of either was sporadic. We examined predictors for being in either precontemplation or a later stage along the change continuum at both the bivariate and multivariate levels. Our findings suggest that African Americans and younger women are more likely to contemplate using female condoms. Both lack of knowledge and positive attitudes toward female condoms in this sample suggest that programs designed to raise awareness and knowledge of female condoms while improving their image are needed.*

KEYWORDS *Female condoms, STD prevention, Pregnancy prevention.*

INTRODUCTION

First approved for use in the United States in 1993, the female condom is a female-controlled barrier contraceptive that provides women an alternative to male condoms for controlling fertility and preventing sexually transmitted disease (STD).^{1–6} Female condoms have effectiveness rates for pregnancy and STD that are similar to those of other barrier methods.^{6,7}

The female condom has detractors who consider it expensive and difficult to find in grocery and drugstores; awkward, uncomfortable, and unattractive.^{8–11} Re-

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search has shown that health providers may impede promotion of female condoms because of their own biases against the method.¹²

Women who have used or have been introduced to the female condom have had a somewhat different experience. They indicate that female condoms allow them more control in STD prevention decision making and allow them to protect themselves without needing male partner acquiescence.¹²⁻¹⁶ Women in research studies of female condoms have shown that they will try female condoms multiple times and, in doing so, become more comfortable with the method over time¹⁷⁻¹⁹; they will improve attitudes toward the method²⁰; and they will become skilled in negotiating female condom use with partners.²¹⁻²³ A recent study demonstrated that women given ample supplies of female condoms and counseling on their use had no more incident STD than women given supplies of male condoms.²⁴ Brothel workers in Thailand used female condoms when they were made available, and such use was attributed to a corresponding increase in the proportion of protected sex acts and lower incidence of STDs.³ If women have used condoms or diaphragms in the past, they have been shown to have greater comfort using female condoms.²⁵

Researchers have advocated the use of social science theory to better elucidate approaches for increased condom use.²⁶⁻³¹ Prochaska and DiClemente³⁰ unified many components of these theories in a transtheoretical model for behavior change, indicating that change is a process and each of these variables can be influenced at different stages of the process. These stages include precontemplation, when a person is not considering change; contemplation, when change is under consideration; ready for action, when a person is preparing to implement a change; action, when the change is recent but implemented; and maintenance, when a change has been in place for a sustained period. Prochaska and colleagues showed that perceived cons of a behavior change exert a strong influence earlier in the process of change and that later in the process, the perceived pros, or benefits of change, are a more powerful influence in multiple behaviors, for example, smoking, weight loss, and sexual behavior such as condom use.³¹

However, researchers theorize about the process leading to adoption of behavior; all agree that knowledge about the importance of a behavior must be present. Therefore, strategies to increase knowledge are critical. Social marketing is one such strategy that has been effectively employed to promote male condom use.³²⁻³⁴

The majority of research on condom use published to date has been on male condoms rather than female condoms. We need a more thorough body of research on knowledge of, attitudes toward, and use of female as well as male condoms. In this article, we document these factors, along with differences in stage of change for female condoms compared to male condoms among a sample of racially and ethnically diverse women aged 15 to 25 years in Denver, Colorado.

Under a cooperative agreement with the Association of Teachers of Preventive Medicine and the Division of Reproductive Health at the Centers for Disease Control and Prevention, we have developed a social marketing campaign to promote the use of female and male condoms as viable options for pregnancy and STD prevention among young women living in the inner city of Denver, Colorado. In this first phase of the study, we collected data using a self-administered survey to document knowledge about, attitudes toward, and use of female and male condoms among these young women.

METHODS

Study Population

A cross-sectional sample of 198 young women between the ages of 15 and 25 years was recruited from Denver Health and Hospital Authority Community Health Centers (satellite clinics offering primary care in neighborhood settings in Denver) (N = 76), the central Denver Planned Parenthood clinic (N = 59), and community venues such as recreation centers and afterschool clubs (N = 63). Cooperation from recruitment sites was obtained before the data collection began. In these settings, female recruiters from the Denver Health study team approached persons who appeared eligible for the study (i.e., English-speaking females between the ages of 15 and 25). Among the 242 persons approached, 4 women were ineligible because they did not meet the age criteria and 8 because they spoke no English. Of the 230 eligible young women, 32 refused to complete the self-administered survey, for an 86% participation rate. The main reason given for refusal was lack of time. Women were offered a \$25 coupon for a local store for completion of the survey. Young women completed the survey at the time and place of recruitment. Data collection for phase 1 took place over two months in the summer of 2000.

The study protocol for all study phases was reviewed and approved initially in 2000 by the Colorado Multiple Institution Review Board as well as the institutional review boards at the Centers for Disease Control and Prevention, AMC Cancer Research Center, and Planned Parenthood. Review boards authorized a waiver of parental consent for participants under age 18. Those under age 18 were encouraged to talk with a parent or guardian about their participation prior to enrollment. Participants were asked to sign documents asserting they gave their informed consent (assent for those under 18) to participate in each phase of the study. The protocol was reviewed annually thereafter by all four review boards.

Self-Administered Surveys

Data were collected with a self-administered, structured, confidential survey at the same site where each participant had been recruited. Names were obtained on the consent form but not the survey, and these two documents were stored separately. The survey took 15 to 20 minutes to complete. The survey covered male condoms, female condoms, and included a module on attitudes toward condom use that covered both male and female condoms. All participants had heard of male condoms, and all completed the module on male condoms. Only women who had heard of female condoms were asked to answer the questions related to female condoms.

Statistical Methods and Measurements

Survey data collected were input into Epi Info version 6.0³⁴ and exported to SAS version 6.19³⁵ for analysis.

We examined differences in stage of change for male and female condom use and participant characteristics using cross-tabulations and chi-square analyses. We then developed a multiple logistic regression model to examine the relationship between participant characteristics and stage of change for condom use. In this analysis, stage of change was dichotomized into categories of precontemplation versus at least contemplation.

Participants were asked their age, race/ethnicity, whether they were currently working, whether they were in school and how many years they had attended school, and how much disposable income they had on a monthly basis. Because we asked

women to “check all that apply” when identifying their race/ethnicity, we analyzed race/ethnicity in logistic regression analyses by limiting analyses to women who only checked one category (i.e., white, African American, Hispanic/Latina, Asian, Native American, Pacific Islander). Women were also asked to indicate whether they were currently in a sexual relationship and their pregnancy intentions. We measured pregnancy intentions by asking how definite their plans were for a pregnancy in the next 2 years (coded on a 1–5 scale from “I am definitely not planning to have a child,” to “I am definitely planning to have a child”).

Stage of change (first for female, then for male condom use) for each respondent was assessed by asking about intention to use the method in the next 30 days, intention to use in the next 6 months, and use during the past 6 months. We developed this staging tool using guidelines proposed by Prochaska and DiClemente.³⁰ We considered precontemplation as no intention to use the method and contemplation as intention to use the method but not within a specified time frame. Preparation was intention to use the method in the next 30 days, and action was use of the method for 6 months or less. Maintenance we considered as use for more than 6 months.

RESULTS

The mean age of participants was 19.7 years; most were employed and not in school (Table 1). On average, women had completed 11.3 years of formal education. Twenty-four women identified with two or more racial and ethnic categories.

Although 90% of subjects had heard of the female condom, less than two thirds (60%) had ever seen any information on the method, and just over half had seen one (Table 2). Only 5% had ever used one. Three fourths of the young women were in the precontemplation stage of change for female condom use; less than 2% had used this method in the previous 3 months.

By contrast, nearly all of the participants had heard of male condoms, seen information about them, and had seen them; 88% had ever used one (Table 2). Slightly more than one third of the young women were in precontemplation, and 50% had used this barrier method at least once within the previous 3 months.

We examined the relationships between stage of change for female and male condoms and participant characteristics (Table 3). For the purposes of the logistic regression, stage of change for both male and female condom use was dichotomized into precontemplation versus contemplation or higher because of the skewed distribution. In bivariate analysis, older women were less likely to at least contemplate using the male condom (odds ratio [OR] = 0.89, 95% confidence interval [CI] 0.81–0.98). Trends were observed ($P < .10$) for African Americans and Latinas to be more likely to contemplate or use the male condom, and those in a sexual relationship to be less likely.

Women were significantly more likely to be beyond the precontemplation stage of change for female condoms if they were African American (OR = 7.35, 95% CI 2.12–25.54) or Latina (OR = 4.32, 95% CI 1.37–13.68) compared to white women. Women were less likely to contemplate the use of the female condom if they were older (OR = 0.88, 95% CI 0.79–0.99) or in a sexual relationship (OR = 0.35, 95% CI 0.16–0.73). Similarly, women recruited from Planned Parenthood were less likely to be contemplating or using the female condom (OR = 0.25, 95% CI 0.08–0.72).

TABLE 1. Demographic characteristics of sample (N = 198)

Characteristic	Proportion % (n)
Recruitment site	
Denver Health	38.4 (76)
Planned Parenthood	29.8 (59)
Community settings	32.8 (63)
Employed	63.3 (124)
Enrolled in school	39.9 (77)
Education	
<High school	49.0 (97)
High school, GED, or some college	30.8 (61)
College graduate or postgraduate	20.2 (40)
Money available to spend monthly	
<\$200	37.0 (107)
≥\$200	19.0 (83)
Race or ethnicity*	
White	35.4 (70)
African American	17.7 (35)
Hispanic/Latina	39.8 (78)
Native American	8.2 (16)
Other	14.6 (29)
In a sexual relationship	76.6 (145)
Age 18 or younger	32.7 (64)

*Women were asked to indicate all that apply, and many selected more than one race or ethnicity, so this category totals more than 100%.

TABLE 2. Knowledge about, use of, and stage of change for female condom use and male condom use N = 198

Variable	Female condom use % (n)	Male condom use % (n)
Heard of method	90.1 (180)	99.0 (191)
Seen any information on method	59.8 (91)	97.5 (155)
Read information about method*	91.2 (83)	87.7 (136)
Seen the condom	52.2 (94)	95.3 (183)
Used the method	5 (9)	88.1 (170)
Stage of change for method		
Precontemplation	77.1 (138)	37.8 (73)
Contemplation	7.8 (14)	5.7 (11)
Ready for action	11.7 (21)	38.3 (74)
Action	2.8 (5)	3.1 (6)
Maintenance	0.6 (1)	15.0 (29)

*Among those who had seen any information about the method.

TABLE 3. Relationships between stage of change for male and female condom use and participant characteristics

Characteristic	Male condom stage of change (at least contemplation)		Female condom stage of change (at least contemplation)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Employed	0.87 (0.47–1.60)	1.17 (0.53–2.58)	0.69 (0.34–1.43)	1.81 (0.86–5.89)
In school	1.21 (0.66–2.22)	0.99 (0.47–2.10)	1.21 (0.58–2.52)	0.57 (0.18–1.78)
Disposable income [†] (≥\$200/month)	0.76 (.42–1.37)	1.26 (0.59–2.67)	0.75 (0.34–1.56)	1.40 (0.47–4.13)
Race				
African American	2.16 (0.90–5.22)*	2.50 (0.84–7.40)*	7.35 (2.12–25.54)***	12.78 (2.35–67.44)***
Latina	1.95 (0.97–3.92)*	1.81 (0.75–4.37)	4.32 (1.37–13.68)**	4.75 (0.96–23.48)*
White	—	—	—	—
Age ⁺⁺	0.89 (0.81–0.98)**	0.90 (0.79–1.02)*	0.88 (0.79–0.99)**	0.84 (0.69–1.03)*
In a sexual relationship	0.53 (0.26–1.06)*	0.47 (0.20–1.13)	0.35 (0.16–0.73)**	0.28 (0.08–0.98)**
Site				
Denver Health	1.11 (0.55–2.28)	1.82 (0.79–4.22)	0.89 (0.41–1.94)	0.54 (0.17–1.69)
Planned Parenthood Community	0.58 (0.28–1.20)	1.59 (0.57–4.43)	0.25 (0.0–0.72)**	0.32 (0.06–1.71)
Increased pregnancy intention	0.98 (0.81–1.18)	1.04 (0.83–1.29)	0.91 (0.72–1.14)	1.00 (0.72–1.38)
Seen information on the condom	—	—	0.55 (0.26–1.15)	0.79 (0.23–2.68)
Seen the condom	0.46 (0.09–2.28)	1.42 (0.21–9.81)	1.09 (0.54–2.20)	0.67 (0.20–2.28)

CI, confidence interval; OR, odds ratio.

[†]Coded as a dichotomous variable, ≥\$200 month or <\$200 per month.⁺⁺Coded as a continuous variable.* $P \leq .10$, ** $P \leq .05$, *** $P \leq .01$

In the multivariate logistic regression analysis, none of the variables identified were significantly associated with at least contemplating the use of male condoms; however, trends were observed for African American women to be more likely than whites to contemplate or use the female condom. Although no longer significant, a trend for older women not to contemplate or use the male condom was also observed. In the logistic regression model for female condom use, those who were contemplating or using it were more likely to be African American (OR = 12.78, 95% CI 2.35–67.44) compared to white women. Older women were significantly less likely to contemplate or use the female condom (OR = 0.28, 95% CI 0.08–0.98). Similar to the findings from the multivariate analysis of male condom use, there was a trend toward older women being less likely to at least contemplate female condom use.

All other characteristics, including being enrolled in school, disposable income, and pregnancy intentions, were not related to stage of change for female condoms.

DISCUSSION

Some limitations must be considered with this work. While the sample is diverse, the sample size is small and therefore limits our ability to distinguish between significant differences, nonsignificant differences, and trends. Because female condom stage of change is clearly not a normally distributed variable, it may be more appropriate for the future to use a better measure for female condom stage of change. Perhaps a set of scaled questions would be more appropriate than those we used to measure this concept. We originally designed the measure using a commonly accepted algorithm to allow for comparability across studies.³¹ However, despite these limitations, we have documented important findings here.

We identified considerable disparities in familiarity with condoms and female and male condom stage of change. Although 90% of the young women had heard of the female condom and 99% had heard of the male condom, only 5% had used the female condom compared to 88% who had used the male condom. This is clearly a sample in which familiarity with and use of the female condom needs to be increased.

We also showed that African Americans, in both bivariate and multivariate analyses, were more likely to contemplate and use female condoms, and there is a trend for African Americans to be more likely to contemplate and use male condoms compared to white women. In the multivariate analyses, other important trends show that with age, women are less likely to contemplate and/or use female condoms. These findings suggest that younger women, African American women, and those who are not in a steady relationship may be good populations to target with messages about female condoms. It is clear from these findings, however, that we need to raise awareness of female condoms among all women, and we need to raise awareness of both male and female condoms for women who may not currently be in a sexual relationship but for whom protected sex is still important to avoid pregnancy and STDs.

Researchers have demonstrated that an increase in options for contraception can increase condom use.³ Our first goal, therefore, should be to increase awareness of and knowledge about female condoms. Although most of the survey respondents had heard of the method, only 60% had actually seen information regarding it and 52% had ever seen a female condom. Many young women may not be aware of the method's advantages, such as protection against STD and pregnancy, reduction of the need for male consent, and more control by the woman.

Moving women along the continuum of change for female condom use suggests they must first move through precontemplation to contemplation. Prochaska and colleagues have demonstrated that for 12 behaviors (sexual behavior included), increased knowledge and improved attitudes are a critical first step to achieve longer term change.³¹ We are challenged, therefore, to increase knowledge about female condoms in this population and to give them good reasons to consider them as an alternative to male condoms. The data we have collected in this first phase of what we now call the POWER study (Prevention Options for Women Equals Rights) has helped us develop a social marketing campaign targeted to African American and Latina women aged 15 to 25 in Denver to encourage increased knowledge of female condoms. As Fontanet et al.³ showed, awareness of the availability of another contraceptive option for women can help increase use of standard methods such as male condoms. Latka³⁶ has argued that the trajectory for widespread use of female condoms is not unlike that of the tampon in the 1930s in the United States, when

people raised concerns about its efficacy, providers had a bias against their use, and early acceptability and use was low (25% prevalence). Latka et al. conclude that a small group can guide use of the female condom to be more acceptable to the mainstream.³⁷ We need to more rigorously promote female condom use, particularly for those at combined risk for STD/HIV and unintended pregnancy. Used consistently and correctly, female condoms can greatly reduce the risk for these two conditions.

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