

Influence of STIs on Condom Use Behavior in College Age Women

Emily VanEyll, Laura Van Wyck

Faculty Sponsor: Betsy Morgan, Department of Psychology

ABSTRACT

Sexually transmitted infections (STIs) are an under-recognized health concern in the United States and have been labeled the “hidden epidemic” by the Center for Disease Control. Two-thirds of sexually active females report that they do not consistently use condoms. Women are more biologically susceptible to contracting a STI than men and women who use oral contraceptives are less likely to use condoms than women using other birth control measures. This study examined the impact that the acquisition of an STI has on condom use behavior by assessing individuals’ readiness to change a behavior. The Transtheoretical Model (TTM) of behavior change places individuals in one of the five stages: the precontemplation stage, contemplation stage, preparation stage, action stage, and the maintenance stage. An IRB approved web-based questionnaire yielded a final sample of 269 women who had indicated that they had engaged in heterosexual intercourse. In order to access a group of women more likely to have had an STI diagnosis, 41 women from a reproductive teen health clinic from the suburbs of a larger city were solicited. All of women were between the ages of 18 and 23. The questionnaire examined sexual history, current behavior, STI history, and intentions to change condom use behavior. Chi-square analyses showed statistical significance between women who have had an STI and those who have not and for the reported level of behavioral change (TTM) for condom use. In particular, a higher percentage of women who have had an STI were more likely to report that they are intending to use condoms in the future as compared to those women without previous STI diagnoses. However, non-STI women reported the highest condom use. The current study adds to psychology’s understanding of women’s sexual health behavior and may be useful in helping to design effective public health campaigns.

INTRODUCTION

Sexually transmitted infections (STIs) are an under-recognized health concern in the United States and have been labeled the “hidden epidemic” by the Center for Disease Control (CDC, 2000). An estimated 19 million new cases are diagnosed each year, with almost half of the cases occurring in individuals between the ages of 15 and 24 (CDC, 2008). Despite the high level of incidence and prevalence of STIs, the rate of behaviors associated with safe(r) sex is extremely low. A recent survey found that two-thirds of sexually active females report that they do not consistently use condoms (“Report: Many teens,” 2006). This study explored the relationship between prior STI diagnoses and their change in behaviors toward safer sex.

According to a student health report by University of Oregon State (2007), 70% of the college age population is sexually active. Eng and Butler (1997) suggest that women are more biologically susceptible to contracting an STI than men because a larger amount of permeable tissue is exposed during sexual intercourse. In addition, women are also more likely to suffer more severe health consequences as a result of STIs, such as cervical cancer related to the Human Papilloma Virus (HPV) (HPV Transmission, 2009). Thus, college age women were an ideal population for this study.

Although latex condoms have been proven to be 97% effective for preventing the transmission of STIs (Condoms, 2008), usage of condoms remains low. Maticka-Tyndale (1991) found that the main explanation for low usage is the increase of women taking oral contraceptives. It appears that young women are more concerned with avoiding pregnancy than preventing disease. The more likely a woman is to be on oral contraceptives, the less likely she is to use condoms. Consequently, women may feel falsely “safe” from STIs because they view themselves as taking precautions association with safer sex.

Another factor associated with lower than expected condom use is that individuals do not see themselves as susceptible to contracting an STI. Studies show that adolescents rate their peers to be at a higher risk for STIs, HIV/AIDS, or unplanned pregnancy, than when rating themselves (Whaley, 2000). Evidence suggests that

adolescents feel that their methods of protection, both oral contraceptives and careful selection of a partner free of infection, are safe enough methods against the acquisition of an STI (Maticka-Tyndale, 1991). Therefore, they underestimate their actual risk. Whaley, et al. (2003) concluded that since women perceive the possibility of pregnancy as real, they are more likely to consciously prevent it. STI prevention programs could be more effective by emphasizing that STIs are real as well, stressing the importance of *their* prevention.

Finally, another factor that appears to diminish the use of condoms is the lack of communication between partners. Both men and women report difficulty in discussing condom use with a partner (Grimley, et al., 2004). It is an uncomfortable topic to bring up and has been found to be even more difficult to discuss when individuals are in a steady relationship; they do not want their partner to doubt their commitment.(Grimley). Consequently, the rate of STIs continues to increase.

Health researchers often rely on the Transtheoretical Model (TTM) of behavior change to assess individuals' readiness to change a behavior. (Prochaska & DiClemente, 1983) This model measures the change of behavior by assessing and placing individuals in one of the five stages: the precontemplation stage, contemplation stage, preparation stage, action stage, and the maintenance stage. The precontemplation stage represents individuals who have not changed their behavior and have no intention to. The contemplation stage corresponds to individuals who are thinking about a behavior change and have an intention to start within the next six months. In the preparation stage, individuals have not changed their behavior but intend to within 30 days. In the action stage, participants have already modified their behavior within the past six months. Lastly, the maintenance stage represents individuals who changed their behavior more than six months ago and have maintained that change. Overall, the Transtheoretical Model appears to be a reliable and valid method with predictive abilities for behavior change that is widely used in the health field (Baum, Revenson, & Singer, 2001).

This study retrospectively examined the impact that the acquisition of an STI had on condom use behavior. We hypothesized that women who have been diagnosed with an STI would be more likely to report that they are currently in the action or maintenance stages of the TTM and would report practicing safer sexual behaviors compared to women who have not had an STI.

METHODS

Participants

Participants included a total of 269 women from the University of Wisconsin- La Crosse, who were enrolled in a General Psychology class. However, in order to access a group of women more likely to have had an STI diagnosis, 41 women from a reproductive teen health clinic were also included. All of women were between the ages of 18 and 23 and indicated that they had engaged in heterosexual intercourse. The individuals participated on a voluntary basis, and informed consent was obtained prior to the study.

Procedure & Measures

A computer based questionnaire was administered to the University participants and a paper questionnaire was given to the clinic patients. The questionnaire examined the individual's sexual history, current sexual behavior, condom use behavior, STI history, their current status in terms of behavioral intention toward condom use, and demographic information. The questions used were modified from previous standard health measures (Whaley & Winfield, 2003). We used the primary screening question "Have you ever had sex?" to establish the participant pool. Individuals who checked "no" were asked to only provide demographic information. Participants who checked "yes" were placed into two primary groups of interest according to their response to the question: "Have you ever been diagnosed with an STI by a medical professional?"

The questionnaire included questions regarding each respondent's sexual history (including when they first had sex and how many partners they have had), and their current sexual behavior (such as: "Do they have a steady boyfriend?" and "Do they use a form of birth control?"). They were provided an open ended question that allowed them to explain why they did or did not use condoms. Participants who indicated a past STI were then asked additional information about the diagnosis ("What type/types they have been diagnosed with?" and "How old were you when you were diagnosed?"). Embedded within the questionnaire there was a question designed to assess the individual's status regarding the Transtheoretical Model of Change, as applied to their condom use behavior. The responses were as follows: "I do NOT intend to use condoms in the next 6 months" reflected the precontemplation stage. "NO, but I intend to in the next 6 months" placed individuals in the contemplation stage. "NO, but I intend to in the next 30 days" corresponded to the preparation stage. "Yes, but I have been for less than 6 months" was the response that fit those in the action stage. Lastly, "Yes, and I have been for more than 6 months" reflected individuals in the maintenance stage of the model.

The final part of the questionnaire included questions regarding standard demographic information. The participants will then be debriefed and thanked for completing the questionnaire.

RESULTS

Table 1 presents the demographic information of the sample. Table 2 provides descriptive data on the STI infection profile of the 43 women who had experienced STIs. The results for the hypothesis testing are shown in Table 3. Chi-square analyses showed statistical significance between women who have had an STI and those who have not for the reported level of behavioral change (TTM) for condom use.

In order to further analyze the data three different groups were formed based on the TTM responses from the questionnaire. The population was divided as follows: “no intention to use condoms” (precontemplation), “intention to start using” (contemplation and preparation), and “current use” (action and maintenance). Post hoc analysis showed no significance in the “no intention” group as well as the “currently using” group. However, when only comparing the proportion of women in the “intention to start using” groups a Fisher Exact Test found significance at $p < .001$.

Table 1. Demographic characteristics of sexually active women

	Total Sample (n = 310)
Number of partners since becoming sexually active	
1	35%
2-4	42%
5-7	11%
8-10	8%
11 +	4%
Frequency of sexual intercourse	
once a month or less	30%
2-3 times a month	23%
1-2 times a week	25%
3-5 times a week	17%
daily/almost daily	5%
% indicating sex within the last year	93%
% currently in heterosexual relationship lasting 3 months or longer	59%
% indicating occurrence of a one night stand	35%
% indicating an unprotected one night stand	16%
Race	
White	89%
Asian American	4%
African American	2%
Hispanic	2%
Native American	1%
Other	2%

Relationship Status			
Single		86%	
Cohabiting		12%	
Married		2%	
		University Sample (n = 269)	Clinic Sample (n = 41)
Education			
Some High School		1%	5%
High School Diploma		3%	27%
Some College		94%	61%
BA/BS		2%	7%

Table 2. Profile of women reporting past or current STI infections.

	University (n=9)	Clinic (n=23)
Median Age of First STI	18	19
Types of STIs Reported in order of prevalence	Chlamydia (3)	Chlamydia (14)
	Genital Warts (3)	HPV (12)
	HPV (2)	Genital Warts (4)
	Herpes (2)	Herpes (2)
		Gonorrhea (1)

Table 3. Comparison of women with past STIs and those with no STI history

	Women with STI history (n = 32)	Women without STI history (n = 278)	Significance Testing
Behavioral Change Stage: Do you currently use condoms?			$\chi^2(4) = 29.41$ $p < .001$
No, and I do not intent to use them	9%	22%	n.s.
No, but I intend to start using them in the next 6 months	22%	6%	Fisher Exact Test $p < .001$
No, but I intend to start using them in the next 30 days	13%	3%	
Yes, but I have used them for less than 6 months	22%	8%	n.s.
Yes, and I have been using them for more than 6 months	34%	61%	

DISCUSSION

This study looked at the condom use behavior of college-aged women. We hypothesized that women who have reported a previous STI diagnoses would be more likely than women who have never had an STI to be in the action

or maintenance stages of the TTM of behavior change. Overall, the two groups distributed among the 5 stages of the TTM in statistically different pattern; however, our hypothesis was only partially supported. To better understand the pattern found, we grouped the TTM into three categories: no intention to use condoms (precontemplation), intention to start using (contemplation and preparation), and current use (action and maintenance). The STI group was not significantly more likely to be in the action or maintenance stage “current use” than were the non-STI group (56% compared to 69%). However, the STI group indicated a higher likelihood to start condom use than the non STI women. The non-STI group showed more polarized results than the STI group. They were more likely to either used condoms all the time (69%) or never (22%). These data makes sense because women consistently using condoms would be less likely to contract an STI. In addition, women in the non-STI group, who never use condoms, would have little motivation to change their sexual behavior because they have never been diagnosed.

Several factors may account for the similarity between the STI and non-STI samples in terms of the current use or action and maintenance stages. One key factor that may have affected the results is that the STI respondents may not have had “time” to modify their behavior since their diagnoses. For example, one participant commented on her survey: “Just was diagnosed with Chlamydia” and identified her behavior as being in the preparation stage, with an intention to start using condoms within the next 30 days. Future studies should more specifically account for the timing of STI diagnoses in the design.

Another factor that may have affected our results is current sexual activity. Although we selected for participants who answered yes to the question “have you had sex in the last year?” some of the individuals in the STI group may not have *recently* engaged in sexual intercourse. Therefore, they are not likely to mark that they have been using condoms within the last six months. These individuals may appear to score low on the TTM, when in actuality they may not need to be using condoms at the time. In future studies, questions more specifically aimed at recent sexual activity should be included. Although we assessed frequency of intercourse and use of condoms, we did not specifically ask about the timing of recent sexual activity.

Finally, self-assessment data are often not reliable – especially in regard to sexual behavior (Clark, et al., 1997). In our study, 67% of all the individuals in a steady relationship reported being in the action or maintenance stages of the TTM of behavior change – stating that they regularly use condoms. However, 17% of those women also reported that they did not use a condom during their last intercourse. Consequently, responses to the TTM may reflect a high level of social desirability.

In addition to hypothesis testing, our results profile the different types of STIs reported and the reasons college-aged women report for use or non use of condoms. Out of the 43 diagnoses reported, 40% of them were Chlamydia, closely followed by HPV (33%). This pattern is consistent with other data related to STI prevalence on college campuses (University of Minnesota, 2007). However, it should be noted, that the incidence rate of STIs in our college sample was lower than expected from similar college studies – a result that may be due to a large number of freshmen in our sample. In future studies, it would be interesting to determine if the type of STI acquired was related to change in condom use. For example, are individuals who have been diagnosed with an incurable STI (HPV, herpes, and genital warts) more likely than women who have been diagnosed with curable STI (Chlamydia or gonorrhea) to use condoms due to their desire to stop the spread of the incurable forms of STI? As one participant from the STI-group with HPV simply wrote “[to] not spread HPV” in response to the question “why do you use or not use condoms?”

When the participants were asked an open ended question: “Why do you, or why do you not use condoms?” a myriad of responses were obtained. A majority of these responses for dealt with the prevention of pregnancy. Some women felt that being on birth control was adequate protection against pregnancy, “I believe that the birth control pill when used correctly is enough to prevent pregnancy” and “I am on the pill and see no need in condoms.” However, more than half the women who did use condoms also attributed their behavior to pregnancy prevention. A common response being: “I don’t want to get pregnant.” Unfortunately, many participants stated that STI prevention was not a concern, and did not influence whether or not they used protection: “...to prevent pregnancy, not very concerned with STIs” wrote one participant. These responses support previous literature. Women see pregnancy rather than STIs as an immediate risk to their sexual behavior (Grimley, et al., 2004).

Overall, this study has many important implications. Firstly, it supports previous research regarding women’s use of condoms to avoid unplanned pregnancies, not to prevent STIs. In addition, women tend to feel that as long as they are preventing pregnancy in some way, they do not need to use condoms. Both the qualitative and quantitative data from studies such as ours can inform sexual health education in programming and in clinics to help address this hidden epidemic. With over 19 million new cases reported every year, STIs are a real threat to women’s and men’s health (CDC, 2008). Women need to be more informed about *all* of the risks associated with unprotected sexual intercourse. Our hope is that research such as ours promotes changes in condom use before a diagnosis does.

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