**A Pilot Study of The Home-Based Exercises for Increasing Responsible Sex Among a University Population**

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Running Head: Pilot Test of a Condom Program

**Abstract**

The consistently high rate of sexually transmitted infections (STIs) among people 18-24 years old warrants novel strategies promoting condom use among large segments of this population. Ample opportunity exits to employ such strategies in university settings. This study evaluated a sex-positive, home-practice intervention designed to promote condom use among university undergraduates engaging in penile-vaginal intercourse (PVI). A sample of 29 opposite-sex undergraduate couples, engaging in PVI, was recruited from a large university. After teaching couples about condom use, a health educator helped couples select condoms/lubricants from options comprising various sizes, fits, shapes, textures, and other features. A 30-day “homework assignment” was made to use these products while reducing condom use errors/problems and enhancing sexual pleasure. A repeated measures design, with a 6-month observation period, was used to evaluate the program. Over the 6-month period the mean frequency of condomless PVI decreased from 26.4 to 3.9 times (*P*<.001). Significant and favourable changes were also found relative to attitudes toward condom use (*P*=.027) and in condom use self-efficacy (*P*<.001). Most students completing the follow-up assessment indicated the intervention would favourably impact their future condom use. Findings suggest this intervention program may be important to promoting condom use among university couples engaging in PVI.

**Key words:** condom; opposite-sex; intervention

**Introduction**

One-half of all new cases of sexually transmitted infections (STIs) in the U.S. occur among persons 18 to 24 years of age.1,2 Condom use remain the best protection against STIs when used consistently and correctly. Unfortunately, studies have documented numerous barriers to condom use, including negative perceptions about pleasure, fit and feel problems, and complaints of physical irritation and dryness when using condoms.3,4 Although numerous clinic-based and community-based interventions have focused on reducing these barriers,5-11 these have not been designed specifically for opposite sex couples enrolled as university undergraduates, thus they have not taken advantage of the fact that couples can practice what they learn in an intervention program. As an additional limitation, most intervention programs focus on teaching individuals without the benefit of teaching about condom use to both sex partners. In this way, “learning pairs” can efficiently practice with one another following the intervention.

A previous study by our research team used a home-based intervention emphasizing pleasurable condom use; this was designed and tested with only male university undergraduates.12 Subsequently, our research team designed and tested a similar intervention program for only female university undergraduates.13 Given the success of both programs,12,13 we then developed a couples-based program: *The Home-Based Exercise to Increase Responsible Sex* (THEIRS). Like its predecessors,12,13 THEIRS involves instruction and coaching in the pleasure-oriented aspects of condom and lubricant use in the context of enhancing mutual sexual pleasure. This sex-positive program is one that requires few resources and minimal time investment because the practice assignments occur in the context of the couples’ normally chosen time and place for sex. The premise of the approach is that both partners in any given couple can learn from one another through dyadic experimentation with various types of condoms and lubricants. Although people are recruited and enrolled as couples in opposite-sex “learning pairs,” the expectation is that the acquired skills may readily generalize to other sex partners, thus data collection and analyses occurred at the individual-level.

 The purpose of this study was to test this couples-based learning program with a sample of university undergraduate students. The primary purpose was to obtain a reduction in the frequency of condomless penile-vaginal intercourse (PVI). The secondary purpose was to assess change in four psychosocial correlates of condom use. The third and final purpose was simply to gage students’ reactions as to how the intervention would influence their future use of condoms for PVI.

**Methods**

Study Sample

A convenience sample of opposite-sex undergraduate student couples was recruited from The Ohio State University, a large university campus located in the Midwestern United States. Passive recruitment occurred through several methods: advertisements via campus student organizations (Facebook pages; member list-servs, newsletters), digital displays in the student union, and posters distributed on campus. Active recruitment occurred at the Student Wellness Center’s STI testing sites during walk-in hours. Six eligibility criteria were used for screening volunteer couples: 1) both partners aged 18-24 years, 2) both partners attended classes on the main campus, 3) a relationship duration of > 30 days; 4) each partner intended to stay in the relationship for at least 60 days, 5) both partners reported PVI with each other at least twice a week for the past 30 days, and 6) the couple had used condoms during PVI at least once in the past 30 days.

 Data collection occurred during the 2018-2019 school year. A total of 226 students were screened for eligibility, with 167 meeting all five criteria. Of these, 58 (29 female-male couples) volunteered for study participation and completed the baseline assessment and intervention procedures. Of the 58, 32 (55.1%) were retained throughout the study period and thus completed the 6-month assessment. Despite stating intent to stay together, not all of those completing the 6-month assessment did so with the originally enrolled partner also being retained in the study.

Study Design and Procedures

 A repeated measures design was used, with assessments at baseline and six months. As part of the in-person baseline visit, participating couples completed separate assessments on electronic tablets. Using proprietary materials, a health educator then spent approximately 30 minutes with each couple teaching them various aspects of condom use, e.g., correct application techniques, correct use, finding the right “fit and feel,” communicating with partners about condom use. Next, guided by the health educator couples worked together to select a variety of 10 condoms and 5 single-use lubricants from several options. Condom options comprised various sizes, fits, shapes, textures, and other features (e.g., spirals, ribs, studs). Lubricant options varied by silicone-based, water-based, and hybrids of the two. These options also included various consistencies and other features (e.g., organic, residue-free). As “homework,” couples were then assigned to experiment with the newly acquired condoms and lubricants during PVI over the next 30 days. To reify this homework assignment participants were instructed to independently provide feedback about the condoms and lubricants they liked (or did not like) via periodic ecological momentary assessment surveys. After the baseline session, participants were provided free access to additional condoms and lubricants from the study supply, if they chose to replenish their supply or try new varieties. At the 6-month follow-up assessment, partners independently completed online assessments via SurveyGizmo (Boulder, CO). The internal review board at Ohio State University approved all study procedures, and all participating students provided written informed consent.

Measures

 Regarding the primary objective, the outcome measure was the frequency of condomless PVI over the last 30 days **(**total number of acts during which a condom was used subtracted from total number of acts reported in study assessments). Regarding the secondary objective, the four correlates were assessed by scale measures: 1) barriers to condom use (7-item scale; Cronbach’s alpha =.84), 2) attitudes toward condom use (10-item scale; Cronbach’s alpha =.66), 3) self-efficacy to use and discuss condom use with partners (7-item scale; Cronbach’s alpha =.74), and 4) self-confidence to use condoms under varied circumstances (5-item scale; Cronbach’s alpha =.72; table 2). The first three measures were taken from validated measures;14-16 the last was developed specifically for this study. Regarding the third objective, at the end of the six-month observation period participants were presented with five questionnaire items that assessed how likely what they had learned would influence future condom use.

Data Analysis

 Paired samples t-tests were used to detect significant differences in the study outcomes (condomless PVI and the four selected psychosocial correlates) occurring between baseline and the follow-up assessment. A dyadic analysis was precluded because (as previously noted) many of the couples were no longer intact and thus did not return as couples.

**Results**

Characteristics of the Sample

 The mean age was 19.8 years (SD = 1.2), with a range from 18-22 years. The majority identified as white (70.4%), with the remainder identifying as racial minorities. Regarding ethnicity, a small percentage (7.4%) identified as Hispanic. Eighteen males and 14 females were retained to the point of completing the 6-month follow-up assessment.

Findings

 Table 2 displays the findings from the paired samples *t*-tests. As shown, the mean frequency of condomless PVI decreased from 26.4 times at baseline to 3.9 times at the follow-up assessment over the 6-month observation period. Also, of the four assessed correlates, two yielded significant changes over this period. The first was an increase in favorable attitudes towards condom use, and the second was an increase in condom use self-efficacy. In testing for gender differences in the pre-post intervention difference scores for all outcomes none of the significance levels from *t*-tests approached significance (the lowest was .13).

Intention Ratings at Follow-Up

 Five questionnaire items asked participants about how the THEIRS program would influence their future condom use behaviors and experience. For each indicator, a substantial majority reported that they were “likely” or “extremely likely” to change their behavior to use condoms more often (78.0%), to better enjoy sex when using condoms (78.5%), to better negotiate future condom use (64.3%), to better put condoms on in the future (71.5%), and that their partner would better enjoy sex when using condoms (71.4%).

**Discussion**

The results of this study yielded promising findings for a novel strategy to teach undergraduate students about condom use through an active learning approach. Because students enrolled as couples, and were instructed in these “learning pairs” this active learning approach was both acceptable and effective. The primary outcome was a significant and substantial decrease in change in condomless PVI over a six-month period. It is noteworthy that this change was evident six months after the intervention (indicating maintenance of effects over time), and it was not tied to PVI only with the enrolling sex partner (indicating transferability of learning).

 Further, two correlates – attitudes toward condom use and self-efficacy relative to condom use – were significantly enhanced as a result of the intervention program. The other two possible correlates assessed – barriers to condom use and self-confidence to use condoms in varied situations – did not attain the criteria for statistical significance. These two null findings warrant further exploration, perhaps on a qualitative basis. It would, for instance, be particularly intriguing to learn why the intervention did not resolve some of the communication-related barriers to condom use, or the sensation-related barriers. Yet, despite the lack of change in these two psychosocial correlates students nonetheless became more likely to use condoms thereby suggesting that perhaps other (un-measured) psychosocial correlates may have been influenced by the intervention.

 Another indicator of intervention effectiveness involved the findings about participants’ perceptions regarding how the intervention would benefit their safer sex behaviors. Participants not only reported positive intentions to continue to use condoms with partners in the future, but also anticipated that their level of sexual enjoyment during condom use would be increased. Further, they indicated that enjoyment of their partner(s) in the future would be enhanced based on their involvement with the intervention. Collectively, these endorsements of the intervention suggest that if such a program were implemented in university settings then students may be quick to take part in the program.

 Study limitations include the high rate of attrition, in part due to the point that students leaving campus for summer and winter breaks were those most likely to be lost for follow-up assessments. Whether this attrition introduced bias cannot be known; however, it is possible that bias may have occurred to systematically favour the research hypothesis. Also, this initial test of the THEIRS program was designed to focus on PVI as opposed to a broader conceptualization that would have included same-sex couples and extragenital forms of sex. Finally, the relatively small sample size precluded subset analyses that may have indicated differential program effects based on various factors e.g., age, race, history of STIs, use of contraception.

Conclusions

 Findings suggest that a novel, sex-positive intervention program could have a highly favourable impact on risk of STI transmission among young university students engaging in PVI. A key aspect of this novelty is the home-practice. This is important from a pragmatic viewpoint because it translates into what can be classified as a low-resource program i.e., it requires only the employment of a health educator and the purchase of wide varieties of condoms and lubricants (including products that may be “high-end” in terms of cost). For university officials tasked with protecting the health of students, THEIRS is thus a potentially affordable option.

**Declaration of Conflicting Interests**

The Authors declare that there is no conflict of interest.

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Table 1. Participant characteristics

Variable N = 32

 n (%)

Age 19.8 (SD = 1.2)

Female 14 (43.8)

Male 18 (56.3)

Asian 5 (15.2)

Black/African American 2 (6.3)

Latin American 2 (6.3)

White 22 (70.4)

Hispanic 3 (7.4)

Heterosexual 29 (90.6)

Bisexual 1 (3.1)

Queer 2 (6.3)

Seriously dating one person (currently) 32 (100)

Condom used at last sex 20 (62.5)

Lifetime sex partners 3.4 (SD = 3.4)

Sex partners in last month 1.0 (.2)

Table 2. Results of five paired samples *t*-tests\*

Outcome Mean 1a Mean 2b t *P df*

Frequency of condomless PVIc 26.4 3.9 3.81 .001 29

Barriers to condom used 15.10 14.69 1.01 .32 25

Attitudes toward condom usee 17.96 16.46 2.43 .027 25

Condom Use Self-Efficacyf 22.93 16.60 3.57 .001 25

Situational Condom Confidenceg 15.71 16.25 1.18 .25 25

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a. Mean score at baseline assessment

b. Mean score at the six-month follow-up assessment

c. Penile-Vaginal Intercourse

d. Range = 7 to 21, with higher scores representing greater perceived barriers

e. Range = 11 to 23, with higher scores representing less favourable attitudes

f. Range = 18 to 28, with higher scores representing greater self-efficacy

g. Range = 11 to 20, with higher scores representing greater confidence

\* all tests had 28 degrees of freedom

Table 3. Self-confidence to use condoms under varied circumstances scale items

Items

I feel confident I could use a condom during sex without reducing any sexual sensations.

I feel confident that I would remember to use a condom, even after I have been drinking.

I feel confident that I would remember to use a condom, even if I were high.

If my partner didn’t want to use a condom during sex, I could easily convince them that it was necessary to do so.

I feel confident I could stop to put a condom on myself or my partner even in the heat of passion.

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Cronbach’s alpha =.72