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Perceptions of a campus-wide condom distribution programme: An exploratory study

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Abstract

Objective—Condom distribution programmes are an important means of preventing sexually transmitted infections (STIs); yet little research has examined their perceived and actual impact on college campuses.

Design—Quantitative, cross-sectional study.

Setting—Large public university in the Southeastern USA.

Method—Approximately 2 months after a campus-wide condom distribution programme began, we utilised intercept surveys with 355 students (68% women; 43% racial/ethnic minorities) to examine their perceptions of the availability, accessibility and acceptability of condoms, and their perceptions and use of the newly installed condom dispensers.

Results—Students perceived condoms to be available and accessible on campus after implementation of the condom dispensers. Students had heard about the dispensers from other people (36%), through social media (18%) and the campus newspaper (15%). Most students (71%) had seen the dispensers. Almost one in four students (23%) had taken a condom from the dispensers; among those who were sexually active during the 2months that the dispensers were available, 33% had used them. More than one-third of students (37%) – and 53% of sexually active students – indicated intentions to use the dispensers in the next 6months. Multiple

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regression analysis controlling for age, gender and race revealed that prior condom use, attitudes about the dispensers and comfort with the dispensers were significant predictors of sexually active students' intentions to use the dispensers (p<.001).

Conclusion—Overall, results indicate that over a short time period, this condom distribution programme was successful in reaching students and providing free condoms. Implications for implementing condom distribution programmes on college campuses as well as future directions for research are discussed.

Keywords

Condom availability; condom distribution programme; HIV/STIs; structural interventions; USA; young adults

Introduction

Adolescents and young adults in the USA are at disproportionately higher risk of acquiring sexually transmitted infections (STIs) than older adults (The Henry J. Kaiser Family Foundation, 2014). Of the 20 million new STIs contracted every year, half are among persons aged 15–24 years (Centers for Disease Control and Prevention, 2014). Despite high STI rates, consistent condom use remains low (Buhi et al., 2010; Oswalt and Wyatt, 2013). In a national study of college students aged 18–29 years, 70% had engaged in sexual intercourse in the past 30 days, and 40% rarely or never used condoms during those encounters (Oswalt and Wyatt, 2013). Oswalt and Wyatt (2013) also found that more than half of young people (51.1%) were not in relationships. Similarly, when college students are surveyed about consistent condom use in the past month, studies have found that less than one-third consistently used condoms for vaginal intercourse (McCave et al., 2013).

Numerous studies have examined factors motivating young people to use condoms, including scores of correlational studies (Committee On Adolescence, 2013; Sheeran et al., 1999) and interventions seeking to increase condom use (Noar, 2008). A surprising gap in this literature, however, has to do with understanding barriers to accessing condoms themselves (Shacham et al., 2015; Warren-Jeanpiere et al., 2011; Wilson and Ickes, 2015). Condom use is a behaviour that requires access to a product – a condom – and in the absence of that access, the behaviour cannot occur. Yet, some adolescents and young adults may not easily access condoms because of environmental barriers (e.g. condoms not being available at convenient locations on campus) or psychosocial barriers (e.g. embarrassment about being seen purchasing or carrying condoms) (Bell, 2009; Shacham et al., 2015; Wilson and Ickes, 2015). These environment and psychosocial barriers reduce access to condoms and may ultimately reduce condom use itself (Shacham et al., 2015; Wilson and Ickes, 2015). Thus, removing these barriers may increase condom access and bridge the gap between condom intentions and actual safer sex behaviours (Abraham et al., 1999; Carvalho et al., 2015).

In recent years, colleges in the USA have increased access to condoms on their campuses (e.g. through dispensing machines) (Butler et al., 2011; Eisenberg et al., 2012); however, evidence of effectiveness of those programmes is lacking due to a dearth of evaluations. As a first step towards filling this gap, we examined perceptions of condom access and use of a

newly implemented campus-wide condom distribution programme (via condom dispensers with free condoms) at a large university in the Southeastern USA.

Understanding and improving condom access

When considering the factors that influence condom use on college campuses, it is critical to understand condom availability, accessibility and acceptability (Blankenship et al., 2006; Charania et al., 2011). *Availability* refers to how much condoms are physically available in one's environment. *Accessibility* refers to how easy or hard it is to obtain condoms. *Acceptability* is the degree of comfort (or embarrassment) one feels about obtaining condoms. All three of these concepts are inter-related, and any one of these factors could pose a significant barrier to procuring condoms (Shacham et al., 2015; Wilson and Ickes, 2015).

Structural interventions are public health interventions that change the underlying political, economic and social environments (Blankenship et al., 2006). Existing research suggests that structural-level condom distribution programmes can be effective in not only improving the availability and accessibility of condoms but also increasing actual condom acquisition, carrying and use (Charania et al., 2011). Several studies have demonstrated increased condom use at last intercourse among young people following introduction of condom availability programmes at their high schools (De Rosa et al., 2012). Awareness of such programmes and obtaining school condoms were associated with increased condom use (De Rosa et al., 2012). Additionally, making condoms available has been shown to be associated with a decrease in STI cases among young men aged 15–19 years (Wretzel et al., 2011). Despite a modest-sized literature on condom distribution programmes (Charania et al., 2011), there has been surprisingly little research on the perceived and actual impact of condom distribution programmes implemented on US college campuses (Butler et al., 2014).

Current study

This exploratory study draws on the integrative model of behavioural prediction (IM) (Fishbein, 2000; Fishbein and Yzer, 2003), which suggests that intention is the primary determinant of performing a particular behaviour and also that attitudes are one key determinant of intentions. The integrative model also suggests that environmental factors play an important role in determining whether a person performs a particular behaviour. The theory suggests that if a person has formed intentions to perform a particular behaviour (such as intentions to use condoms) but encounters environmental constraints (such as restricted access to condoms), then it is less likely that the behaviour will be performed. The purpose of this study was to assess perceptions of a newly implemented campus-wide condom distribution programme. This study sought to (1) assess perceptions of condom access; (2) examine awareness of, attitudes about, and use of the dispensers; and (3) determine which psychosocial factors were most strongly associated with intentions to use the dispensers.

Methods

Participants and procedures

In Autumn 2013, the student health centre at a large public university in the Southeastern USA installed 10 condom dispensers across campus. The dispensers were filled with free lubricated condoms and placed in male and female toilets at three prominent, high-traffic locations on campus. They were checked and refilled on a weekly basis, as needed. Before implementing the programme, the student health centre asked students to submit slogan ideas to go on the dispensers. The student health centre team chose six slogans and ran a contest for students to decide which one would be displayed on the front of the dispensers. The winning message said, 'Step 1 consent; Step 2 take a condom'. As far as we are aware, there was no explicit attempt to use behaviour change theory to guide message choice. Rather, the slogan most popular with the students was chosen. Also, our research team was completely independent of the development of the dispenser messages and implementation of the condom distribution programme.

Two months after the condom distribution programme began, our research team conducted an intercept survey of undergraduate students at a central campus location (i.e. the student union lobby), which was one of three locations in which condom dispensers had been placed. Over a 1-week period, nine trained undergraduate research assistants, supervised by two of the authors (D.B.F. and K.P.G.), approached 465 people and asked (1) whether they were an undergraduate student, and if so, (2) would they be interested in participating in a short sexual health survey. Willing participants read an informed consent document and then completed the anonymous online survey, which was programmed on an iPad. The duration of participation was approximately 10 minutes; students received a USD5 gift card as an incentive. Study approval was granted by the University of North Carolina at Chapel Hill Institutional Review Board.

Of the 465 people approached, four were ineligible (i.e. not undergraduates), 86 refused (the majority due to lack of time) and data from 20 people were dropped due to incomplete responses (i.e. defined as missing more than 80% of data on key outcome variables). The final sample included 355 individuals – indicating a very strong response rate of 77% (Shih and Fan, 2008).

Measures

Demographics—Demographic items included age, sex (men or women), race (Caucasian, Asian/Pacific Islander, African American or American Indian/Alaskan Native), ethnicity (Hispanic/Latino(a), non-Hispanic/Latino(a)) and current year in school (undergraduate: first year, second year, third year, fourth year, fifth year or beyond).

Relationships and sexual behaviour—Students indicated their marital status, current relationship status and sexual behaviour since the beginning of the school year. We defined being currently sexually active as having had oral, vaginal or anal sex since the beginning of the school year (about 2 months prior to the study). Among sexually active students, condom use was measured by asking students to indicate their frequency of condom use during

vaginal or anal sex since the beginning of the school year (1 = *never* to 5 = *every time*). For this condom use item, we limited the focus to vaginal or anal sex, given the high STI risk associated with both of these behaviours.

Availability, accessibility and acceptability of condoms—Condom availability was measured using three items, including, 'In your opinion, how available are condoms on campus?' Responses ranged from 1 = *not at all available* to 5 = *extremely available* (Cronbach's α = .64). Three items were also used to assess condom accessibility including, 'If you were looking for a condom today on campus, how difficult or easy would it be to get one?' Responses ranged from 1 = *extremely difficult* to 5 = *extremely easy* (Cronbach's α = .83). Condom acceptability was measured by adapting eight items from the Embarrassment about Purchase subscale of the University of California, Los Angeles (UCLA) MultiDimensional Condom Attitudes Scale (Helweg-Larsen and Collins, 1994). This subscale measures participant's embarrassment with purchase of condoms. We adapted the scale to measure not only purchase contexts but also obtaining free condoms. Using a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*, students responded to statements, such as 'It is very embarrassing to obtain condoms, even when they are free' and 'I always feel uncomfortable when I have to get condoms'. Items were reverse coded so that higher values indicated greater acceptability of obtaining condoms (Cronbach's α = .96).

Awareness of condom dispensers—Several items assessed whether students had seen or heard about the condom dispensers, from what sources (from six possible sources), whether they could identify the dispenser locations (a combination of true and false options) and interpersonal communication about the dispensers. Skip patterns were such that students who answered 'yes' to having seen or heard about the condom dispensers were asked more detailed questions about sources, locations and interpersonal communication. We also asked students to list the sources from which they have obtained condoms (either for free or purchase) since the beginning of the school year.

Attitudes towards condom dispensers—Attitudes towards condom dispensers were measured with a 9-item, 7-point semantic differential scale with items such as 'The new condom dispensers on campus … do not fill an existing need for students/fill an existing need for students' (Cronbach's α = .89).

Comfort with the dispensers—Respondents rated their comfort taking a condom from one of the dispensers using a single item, 'How comfortable would you feel taking a condom from one of the new dispensers?' Responses ranged from 1 = *extremely uncomfortable* to 5 = *extremely comfortable*.

Intentions to use the dispensers—All respondents were asked to rate how likely they were to take a condom from one of the dispensers in the next 6 months, with responses ranging from 1 = *extremely unlikely* to 5 = *extremely likely*.

Dispenser use—Respondents were asked whether they had ever taken a condom from one of the new dispensers (yes/no) and whether they were currently carrying condoms on them

(yes/no). If they responded ‘yes’, they were asked whether the condom they were carrying came from the dispensers.

Condom attitudes—We used six items from Sacco’s Condom Attitudes Scale (CAS) global attitudes subscale to measure attitudes about condoms (Sacco et al., 1991). The scale was validated with heterosexual undergraduate students in the USA. Using a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*, students responded to statements such as ‘Using condoms interrupts the pleasure of sex’ and ‘Condoms are a hassle to use’. Items were reverse coded; higher values indicate more positive attitudes about condoms (Cronbach’s $\alpha = .87$).

Data analysis

All analyses were conducted in SPSS version 22 (SPSS Inc., Chicago, IL). We computed descriptive statistics (e.g. frequencies and percentages, means and standard deviations [SDs]) and correlations and performed multivariate regression analyses to examine predictors of intentions to use the dispensers. Multivariate hierarchical regression analysis was conducted to predict intentions to use the dispensers, after controlling for demographic (i.e. age, race and sex), psychosocial and condom use behaviours (Table 1). Prior to the regression analyses, bivariate correlation analyses were conducted. Tests to determine whether the data met the assumption of collinearity indicated that multicollinearity was not a concern (Variance inflation factor [VIF] for all independent variables ranged from 1.01 to 1.66). The data met the assumption of independent errors (Durbin–Watson value = 2.31). The histogram of standardised residuals indicated that the data contained approximately normally distributed errors, as did the normal P-P plot of standardised residuals, which showed points that were at or close to the line. The scatterplot of standardised predicted values showed that the data met the assumptions of homogeneity of variance and linearity.

Results

Sample characteristics

The majority of students who participated were women (67%), and the mean age was 19.8 years ($SD = 1.52$). The sample was ethnically diverse, including participants who self-identified as Caucasian (61%), Asian (18%), African American (16%) and Hispanic (9%). These demographics roughly approximate the entire university population, which at the time of the survey were Caucasian (66%), African American (9%), Asian (9%) and Hispanic (7%). First-year students represented 21% of participants in our sample, while 23% were second year, 32% were third year and 23% were fourth year. Most students (62%) lived on campus. In all, 98% percent of students were unmarried ($n = 346$), almost half ($n = 171$; 48%) were not dating and 46% ($n = 163$) had engaged in sexual intercourse since the beginning of the school year (past 2 months). Only 31% of sexually active students ($n = 50$) said they used a condom every time they had sex since the beginning of the university year.

Perceptions of condom access

On average, students perceived condoms to be somewhat available ($M = 3.55$, $SD = 0.90$) and quite accessible ($M = 4.02$, $SD = 0.95$) on campus. Students were somewhat accepting (i.e. comfortable) of obtaining condoms in general ($M = 3.25$, $SD = 0.99$). Sexually active students were significantly more accepting of obtaining condoms ($M = 3.39$, $SD = 1.06$) than non-sexually active students ($M = 3.13$, $SD = 0.91$), $t(350) = 8.277$, $p = .004$. Sexually active students did not differ significantly from nonsexually active students on condom availability ($t(350) = 2.57$, $p = .11$) or accessibility ($t(350) = .51$, $p = .48$). Most students (81%) knew of at least two on-campus sources providing free condoms (e.g. campus health services and residence halls), although 10% of students (incorrectly) said either there were no free condoms on campus or they did not know where to get them (Table 2). Since the beginning of the university year, 46% of students had obtained condoms (free or purchased).

Perceptions of the condom dispensers

A majority of students (72%) had seen the condom dispensers in person, and 50% ($n = 182$) read or heard information about the dispensers from multiple sources around campus. Students read or heard about the dispensers most often from another person (36%), through the Internet (25%) and/or through the campus newspaper (15%; Table 2). Almost one in five students (19%) heard about the dispensers solely by talking to another person, whereas 5% saw information only on the Internet and 3% only through the campus newspaper. After hearing about or seeing the dispensers, students most often reported talking about them with their friends (39%) or someone they were dating (7%).

Students had positive attitudes towards the dispenser initiative ($M = 5.52$, $SD = 1.17$). They believed the condom dispensers to be convenient ($M = 5.95$, $SD = 1.50$), to fill an existing need ($M = 5.75$, $SD = 1.32$), to be a good campus policy ($M = 5.57$, $SD = 1.70$), to be frequently used by students ($M = 5.60$, $SD = 1.55$) and to increase students' condom use ($M = 5.68$, $SD = 1.30$). Overall, students felt somewhat comfortable taking a condom from the dispensers ($M = 3.54$, $SD = 1.28$).

Dispenser use

Overall, 23% of students ($n = 80$) reported taking a condom from one of the dispensers, 21% ($n = 74$) obtained condoms from campus health services and 21% ($n = 74$) from off-campus pharmacies. Of the 80 students who used the dispensers, 21% ($n = 17$) used the dispensers only, while 9% ($n = 7$) got condoms from the dispensers and campus health services. One-third of sexually active students (33%, $n = 52$) had used the condom dispensers compared to 14% ($n = 27$) of students who were not sexually active over the prior 2 months. Pharmacies were the most common condom access location for students who did not use the dispensers (14%, $n = 15$), followed by campus health services (11%, $n = 13$). Also, of the 28% ($n = 99$) of students who were carrying condoms at the time of the study, 44% ($n = 43$) said the condoms came from one of the dispensers.

Intentions to use condom dispensers

More than one-third of all students (37%) indicated some intentions to use the dispensers in the next 6 months. Among sexually active students ($n = 163$), slightly more than half (53%)

said they intended to use the dispensers. To examine what factors best explained intentions to use the condom dispensers among sexually active students (Table 3), we conducted a hierarchical multiple linear regression analysis (Table 1). This was done to determine whether the addition of condom access (availability, accessibility and acceptability) and dispenser-related variables (condom attitudes, attitudes about dispensers and comfort with dispensers) would improve prediction of dispenser use beyond demographic variables (age, sex and race) and condom use. In step 1, we entered demographic variables (sex, age and race/ethnicity). In step 2, we added condom use to control for prior condom use behaviour. In step 3, we entered condom accessibility, availability and acceptability. In step 4, we entered condom attitudes, attitudes towards the dispensers and comfort with the dispensers. All four steps of the model were statistically significant, including the final step (R^2 = .41, ΔR^2 = .22, $F(3, 149) = 20.03$, $p < .001$). Sex was statistically significant in step 1 ($\beta = -.85$, $p < .05$), with women having lower intentions than men. Condom acceptability was significant in step 3 ($\beta = .35$, $p < .01$). In the final model, prior condom use ($\beta = .30$, $p < .001$), attitudes about the dispensers ($\beta = .32$, $p < .001$) and comfort with the dispensers ($\beta = .50$, $p < .001$) were significant predictors of intentions to use the dispensers. We also ran this regression model with the full sample (without condom use in the model), and the pattern of results was very similar.

Discussion

This exploratory study is one of the first investigations to examine perceptions of a newly implemented condom distribution programme with free condoms on a college campus in the USA. Overall, students perceived condoms to be available and accessible on campus, and most students (81%) knew where to get free condoms 2 months after installation of the dispensers. Almost 50% of students had obtained condoms since the beginning of the school year from at least one location on campus. Nearly one in four students (23%) reported taking condoms from the dispensers, a figure higher than the other locations where students obtained condoms (e.g. campus health – 21%). Furthermore, among students who obtained condoms from only one location during the study period, the condom dispensers were the most used venue. Students also held very positive attitudes towards the dispensers. This indicates that many students began using the dispensers within a short period of time after they were implemented (i.e. within 2 months). This is notable, as the other locations have provided condoms to students for many years; in contrast, the condom dispensers had only been available for 2 months. These findings, along with positive attitudes, suggest dispensers may improve the availability, accessibility and perhaps even acceptability of condoms on campus and promote college students' sexual health.

Consistent with findings from previous research (De Rosa et al., 2012; Wretzel et al., 2011), the condom dispenser initiative also achieved high awareness over a relatively short period of time. More than 70% of students had seen the condom dispensers in person, and many had heard or seen information about the dispensers from one or more sources. It is notable that our findings are consistent with condom distribution programmes in high school settings. For example, De Rosa et al. (2012) studied the effects of a condom availability programme in an urban high school in the USA and found awareness of condoms on campus, condom acquisition and actual condom use increased following the condom

distribution intervention (De Rosa et al., 2012). That is, most students in the intervention group knew they could obtain condoms at their school, and many obtained and used those condoms, more so than in the control group.

Our results also suggest that the condom distribution programme attracted students' attention, sparked interpersonal communication and was well received overall. Interpersonal communication about the programme may bode well for the future application of on-campus condom distribution programmes. Indeed, prior research suggests that interpersonal communication between peers and partners may be an important factor influencing the effectiveness of safer sex interventions (Helme et al., 2011; Southwell and Yzer, 2007, 2009). The findings from this study therefore suggest that peer networks and interpersonal communication may be instrumental at influencing awareness of condom distribution programmes, and over time, this could contribute to changing condom acquisition norms and ultimately condom use (Southwell and Yzer, 2007). One lesson here is to implement various communications along with the condom distribution programme – to raise awareness about availability and locations and to stimulate student conversations about the initiative.

Prior condom use, attitudes about the dispensers and comfort with the dispensers were strongly associated with intentions to use the dispensers among sexually active students. However, perceptions of accessibility and availability were *not* significantly associated with intentions to use the dispensers, and acceptability was significantly associated with intentions only before dispenser-specific measures were entered into the regression. The internal consistency of the condom accessibility scale was not strong in this study, so it is possible that measurement error in this scale obscured our ability to detect stronger effects. Alternatively, it is possible that the non-significant findings for availability and accessibility is due to the fact that some college students may have particular venues (e.g. campus health services, pharmacies) where they obtain condoms (Reece et al., 2010; Shacham et al., 2015; Wilson and Ickes, 2015). In this study, we found that students who did not use the condom dispensers reported obtaining condoms from pharmacies and campus health. For these students, the presence of condom dispensers may not alter their high perceptions of availability and accessibility of condoms. Thus, dispensers may best serve particular types of students (e.g. students who do not already have easy access to condoms and/or students who spend more time on campus). Future research should be undertaken to determine which students are best served by the dispensers, as well as which campus locations are most effective for the distribution of condoms.

Our findings also strongly suggest comfort and embarrassment play a large role as facilitators and barriers, respectively, to condom access among college students (Dahl et al., 1998; Moore et al., 2006). Both acceptability (i.e. general comfort) and specific comfort with the dispensers were strongly associated with intentions to use the dispensers. Our findings were in some ways surprising because the dispensers were in discrete locations, whereas other studies have shown embarrassment to be an issue when purchasing condoms from public locations such as stores and pharmacies (Brackett, 2004; Dahl et al., 1998; Sixsmith et al., 2006; Van Teijlingen et al., 2007). In prior studies, persons who were more embarrassed about getting condoms were less likely to obtain, carry and use condoms than those who were not embarrassed (Moore et al., 2006, 2008). Embarrassment has received

some, but arguably not enough, attention in the condom access literature (Bell, 2009; Dahl et al., 2001; Van Teijlingen et al., 2007). To date, the literature from the USA has primarily emphasised other factors influencing condom use (e.g. sexual communication; Widman et al. (2014)), but *not* embarrassment (Bell, 2009). Future research should address not only structural but also psychosocial barriers to condom access and ways to reduce those barriers (Heard et al., 2015; Sixsmith et al., 2006). For example, condom dispensers could be used as 'point-of-access' channels for delivering embarrassment and stigma-reducing messages, encouraging young women and men to obtain and carry condoms (Agha and Beaudoin, 2012; Wells and Alano, 2013). Future research could then evaluate whether messaging on the dispensers has any effects on embarrassment, condom acquisition and use of the dispensers. In this study, although messages were placed on the condom dispensers, they were selected through a campus contest and were not developed according to established recommendations from health communication research (i.e. systematic formative research with members of the target audience, use of theory to guide message development and a message design approach that is targeted to a specific audience segment; Noar, 2006; Noar et al., 2009). Future research should develop and evaluate theory-based and evidence-based messages designed for the dispensers.

This exploratory study contributes to the literature on perceptions about condom distribution programmes by assessing students' attitudes, beliefs and behaviours following a newly implemented condom dispenser initiative on a college campus. However, the study is not without limitations. The study was cross-sectional and assessed students' perceptions about condom availability, accessibility and acceptability after the implementation of the dispensers. We did not have a pre-test survey; therefore, it was not possible to know whether attitudes or perceptions about condoms changed due to the condom distribution programme. Future work could evaluate condom distribution programmes using experimental designs (e.g. a pre-post control group design) to identify how these programmes impact student attitudes and behaviour over time. These evaluations could also track how many condoms students take and whether condom acquisition differs by venue; such data would provide additional evidence supporting the effectiveness of condom dispenser programmes. This study also used an intercept convenience sample. Although this sample does not provide generalisability to the entire campus population, we achieved a high response rate, a good cross section of students and greater diversity than the general campus population. Finally, we defined sexually active as having had sex in the past 2 months, aligning with the 2-month timeframe of the study; future studies with longer time-frames can examine the impact of condom dispenser programmes on sexually active students over a longer period of time. This study thus represents an important first step in research on the impact of condom dispenser programmes on college campuses; additional work is currently underway to replicate and extend these findings.

Conclusion

Our study provides evidence suggesting that this condom distribution programme was well received by students and was initially successful in providing condoms to students. About one-quarter of students reported taking condoms from the dispensers, and the dispensers were the most used venue among those who obtained condoms from only one location

during the 2-month study period. Sexually active students were more likely to have used the dispensers and expressed greater intentions to use the dispensers than non-sexually active students, as expected. However, psychosocial barriers (e.g. embarrassment) related to condom access were observed. To that end, we suggest future studies address not only structural barriers but also psychological barriers when implementing condom distribution programmes. Future research should pair dispensers with theory-based and evidence-based 'point-of-access' messaging to reduce embarrassment and stigma. Rigorous evaluation designs should also be used to advance our understanding of the potential impact of such programmes on condom access and condom use. This study is an important first step that indicates that condom dispensers may play an important role in improving condom access to college students, perhaps ultimately improving their sexual health and reducing STIs.

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Table 1

Predictors of intentions to use condom dispensers (sexually active sample, $n = 163$).

Predictor variables	β (*SE*)	*R*	R^2	Adjusted R^2	Δ R^2
Step 1		.29**	.08	.06	.08**
Sex	−.85 (0.23)**				
Age	−.07 (0.07)				
Race	−.02 (0.24)				
Step 2		.40***	.16	.14	.08***
Sex	−.58 (0.22)**				
Age	−.03 (0.07)				
Race	.02 (0.23)				
Condom use	.28 (.07)***				
Step 3		.48***	.23	.19	.06**
Sex	−.50 (0.22)*				
Age	−.03 (0.07)				
Race	.09 (0.22)				
Condom use	.28 (0.07)***				
Accessibility	.18 (0.14)				
Availability	.15 (0.16)				
Acceptability	.34 (0.11)**				
Step 4		.67***	.45	.41	.22***
Sex	−.29 (0.19)				
Age	−.01 (0.06)				
Race	.03 (0.19)				
Condom use	.30 (0.07)***				
Accessibility	.16 (0.13)				
Availability	.07 (0.14)				
Acceptability	.04 (0.11)				
Condom attitude	.11 (0.12)				
Attitudes about dispenser	.32 (0.09)***				
Comfort with dispenser	.50 (0.09)***				

SE: standard error.

Sex was coded 0 = *male*, 1 = *female*; race was coded as 0 = *White* and 1 = *non-White*. We also computed this regression model with the full sample (without condom use) and saw a very similar pattern of results.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 2

Descriptive data on the condom distribution programme and general condom availability on campus.

	n	%		*n*	%
Have you seen (in person) the new dispensers on campus?			Which sources provides free condoms to students?[a]		
Yes	257	72	Campus health services/student wellness	298	84
No	98	28	Student union building	212	60
			Residence halls	161	45
Where else did you hear or see information about the dispensers?[a]			Campus events (e.g. World AIDS Day)	110	31
Someone told you	127	36	Student recreation centre	68	19
Other social media	64	18	Other recreation centre	68	19
Campus newspaper – print or online	54	15	LGBTQ Centre	67	19
Campus health services Facebook or Twitter page	42	12	There are free condoms, but I don't know where	32	9
Student wellness blog	20	6	Campus libraries[b]	20	6
			Sorority/fraternity houses	12	3
After hearing about or seeing the dispensers, who did you talk to?[a]			Campus dining halls[b]	10	3
Friend(s)	138	39	None	4	1
No one	57	16			
Someone I'm dating	26	7	From which sources have you obtained condoms?[a]		
Sorority or fraternity member	7	2	I have not obtained condoms this school year	190	54
Family member	13	4	Condom dispensers	80	23
			Campus health clinic	75	21
Where are the dispensers located?[a]			Pharmacy, convenience store, or grocery store	74	21
Student union building	165	47	Significant other or sexual partner	65	18
Student recreation centre	44	12	Friend(s)	47	13
Other recreation centre	37	10	Residence hall	42	12
Undergraduate library[b]	27	8	Campus event (e.g. World AIDS Day)	44	12
Don't know	27	8	Non-university health clinic	10	3
Main library[b]	25	7	Sorority/fraternity house	5	1
Dining hall[b]	7	2	Fraternity/sorority member	5	1

	n	%		*n*	%
Have you used the dispensers?			How likely are you to take a condom from the dispenser?		
No	275	77	Extremely or somewhat unlikely	163	46
Yes	80	23	Extremely or somewhat likely	132	37

LGBTQ: lesbian, gay, bisexual, transgender and queer.

[a] These items were answered in a ‘check all that apply’ format, and thus percentages sum to greater than 100%.

[b] These locations were included in the survey but do not provide condoms to students.

Table 3

Means, standard deviations (SDs) and correlations for variables in the study.

		M (*SD*) Sexually active sample	*M* (*SD*) Full sample	Range	1	2	3	4	5	6	7	8	9
1	Sex				–	−.16*	.06	.05	−.17**	.16**	−.04	−.19**	−.26**
2	Condom use				−.16*	–	–	–	–	–	–	–	–
3	Condom availability	3.28 (1.56)	3.55 (0.90)	1–5	.12	.01	–	.63**	.16**	.04	.08	.14*	.08
4	Condom accessibility	4.11 (0.90)	4.02 (0.95)	1–5	.04	−.03	.57**	–	.12*	−.04	.04	.14*	−.02
5	Condom acceptability	3.39 (1.06)	3.25 (0.99)	1–5	−.16*	.03	.33**	.31**	–	.12*	.23**	.47**	.31**
6	Condom attitudes	3.42 (0.88)	3.47 (0.82)	1–5	.14	.39**	.06	−.15	.01	–	.24**	.07	.12*
7	Attitudes about dispenser	5.76 (1.18)	5.52 (1.17)	1–7	−.09	.15	.19*	.02	.26**	.31**	–	.37**	.40**
8	Comfort with dispenser	3.68 (1.29)	3.54 (1.28)	1–5	−.19*	−.03	.17*	.18*	.53**	.30	.29**	–	.44**
9	Intentions to use dispensers	3.27 (1.47)	2.77 (1.45)	1–5	−.28**	.34**	.09	.01	.28**	.15	.42**	.50**	–

Sex was coded 0 = *male*, 1 = *female.* Sexually active sample (n = 163) in lower diagonal; full sample (n = 355) in upper diagonal; condom use row is empty for the full sample because it was only assessed for the sexually active sample.

*p<.05;

**p<.01.