

Condoms and US college-aged men and women: briefly assessing attitudes toward condoms and general condom use behaviours

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Abstract. *Background:* The purpose of this study was to develop an abbreviated reliable tool for assessing the attitudes US college-aged men and women have about condoms and condom use. *Method:* An online questionnaire was constructed and completed by 674 participants incorporating modified items from the Attitudes Towards Condom Scale (1984) and the Multidimensional Condom Attitude Scale (1994), with the addition of gender-neutral worded and condom positive or erotic items. *Results:* The original 40 items were reduced to 18 Likert-type items comprising the Brief Condom Attitude Scale (BCAS). Gender comparisons on a subset of 584 self-identified heterosexual participants indicated that women were significantly more likely to consider condoms as less protective, while men were significantly more likely to consider condoms as more interruptive. Additional analyses examining partnership indicated that monogamous participants were significantly more likely to view condoms as less interruptive, more erotic and less negative than non-monogamous participants. *Conclusions:* The BCAS appears to be a reliable measure for assessing US college-aged individuals' attitudes about condoms.

Additional keywords: college students, condom attitudes, condom attitudes scale, gender differences.

Introduction

The consistent and correct use of condoms is considered the most effective method for preventing the transmission of HIV and other sexually transmissible infections (STI).^{1–3} Additionally, condoms are considered to be an effective form of contraception. Given the increased rates of STI and HIV cases reported among young American adults, condom use has become a major area of research in sexual health, health promotion, sexual medicine, and sex education. Research examining the sexual behaviours and risks of adolescent and college-aged individuals (18–25 years old) is of particular interest to researchers because this is the time in psychosocial development when young people typically become sexually active.⁴ During this period of development, adolescents and young adults may potentially increase their risk of STI and HIV infection by not using condoms. Currently, it is estimated that roughly half of the new HIV infections in the US are among people under the age of 25 years old.⁵

Existing research on condom use has demonstrated several ongoing problems reported by both college-aged individuals and adults. Among these problems most commonly reported are breakage and slippage,^{6–8} erection loss,⁶ problems with

'fit' or 'feel',⁹ sensation loss^{6,10,11} and decreased sexual pleasure.^{12,13} Consistent across most condom related problems is the influence of one's own attitude towards condoms. In a meta-analysis of 42 studies assessing the determinants of condom use among various groups, an individual's attitude towards condoms was found to have a direct influence on an actual use. Additionally, attitude was also a significant determinant of an individual's intention to use condoms.^{3,14–18} Given the significant influence condom attitudes exert on intention and behaviour, concise measures that briefly and accurately assess condom attitudes are essential in sexual health research. The aim of the current study was to develop a condensed gender-neutral condom attitude scale using two existing condom attitude scales. Additionally, this study aimed to examine any gender and sexual relationship differences in condom attitudes, using the condensed and abridged attitude scale. Gender and sexual relationship differences in general condom use with specific sexual behaviours were also explored in the current study. Further, the current study also examined correlations between college-aged men and women's condom attitudes and general condom use behaviour.

One of the first condom scales was developed by Brown in 1984, the Attitude Towards Condom Scale (ATCS), designed to assess attitudes about condoms as a method of contraception.¹⁹ However, it is likely that since 1984, social attitudes surrounding condoms have drastically changed in response to the HIV/AIDS pandemic. In 1986, the US Surgeon General, based on the findings from several domestic and international medical researchers, declared barrier methods such as latex condoms the most effective means of preventing the transmission of HIV/AIDS.^{20,21} Thus, for most western countries, condoms were no longer viewed solely as a form of heterosexual contraception. In 1991, Sacco and colleagues developed the Condom Attitude Scale (CAS) to assess the domain of attitudes about condom use as an AIDS-relevant behaviour.²² The CAS is composed of eight factors underlying the attitudes towards condom use of heterosexual undergraduates, including: (1) interpersonal impact, (2) effect on sexual experience, (3) self-control, (4) global attitude, (5) perceived risk, (6) inhibition, (7) promiscuity and (8) relationship safety. The development of this scale marked the first condom attitude scale developed on heterosexual participants that was not focussed on contraception, but rather the prevention of STI and HIV/AIDS.

Exploring more external domains of condom attitudes, the University of California Los Angeles Multidimensional Condom Attitude Scale (MCAS) was developed in 1994 by Helweg-Larson and Collins, which identified five factors: (1) reliability and effectiveness, (2) pleasure, (3) identity stigma, (4) embarrassment about negotiation and condom use and (5) embarrassment about purchasing condoms.¹ This was the first time external social factors such as identity stigma and embarrassment were associated with condom attitudes and condom use behaviour. Most recently, Reece and colleague's Multi-Factor Attitude Towards Condoms Scale (MFACS) focusses the assessment of condom attitudes based on the evaluation of condoms as objects, rather than targeting specific outcomes associated with condom use behaviours.³ The MFACS offers a comprehensive assessment of more global attitudes about condoms (e.g. condoms are (or are not) effective at preventing HIV; easy to use versus difficult to use, etc.) using three factors: (1) manageability, (2) perceived effectiveness and (3) affective.

Given the success of sexual health promotion programs and the increased availability of condoms on college campuses, health clinics and internet websites, several of the original dimensions and factors articulated in commonly used condom attitude scales (i.e. ATCS, MCAS) are in need of reassessment. This is of particular reassessment of adolescents and young adults who were born after the onset of the HIV/AIDS pandemic. Additionally, it may be likely that the proliferation of condom sizes, styles, shapes and features (such as ribbing, texture and lubricant type) designed to enhance sexual experiences while using condoms, in addition to extensive sexual health programming focussed on the promotion of safer sex practices among young adults, have influenced contemporary social perceptions about condoms among college-aged men and women. The current study was designed to examine what factors using revised items from the ATCS and MCAS, in addition to themes from the MFACS, efficiently and reliably assess college-aged individuals' attitudes about condoms.

Methods

Participants

Phase 1

In an effort to maintain participant confidentiality and reach a broad range of college-aged men and women, an online questionnaire was constructed to assess attitudes about condoms and condom use. Participants were recruited through university listservs (e.g. university student groups and department listings) and electronic flyers that were disseminated on a popular US social networking website (i.e. Facebook). Permission was granted from all listservs and any applicable advertising guidelines were followed. Eligibility criteria included being 18 years or older and able to read English. All research procedures were approved by the Indiana University's institutional review board human subjects committee.

Phase 2

Since it is estimated that roughly half of the new HIV infections in the US are among people under the age of 25 years old, a secondary sample consisting of only self-identified heterosexual individuals' aged 18–24 years old was pooled from the larger sample in Phase 1 for secondary data analysis and gender comparisons.

Measures

Phase 1

Participants were asked to complete a brief 30-min online questionnaire consisting of sociodemographic questions including: age, education, hometown size and ethnic background. Participants were then asked to complete a revised 40-item questionnaire that included items from Brown's ATCS,^{19,23} and Helweg-Larsen and Collins' MCAS¹. The revised questionnaire utilised more gender-neutral wording of questions and contained items assessing attitudes about condoms as a form of STI protection, condoms as an enhancer for sexual pleasure, condom effectiveness and embarrassment around using condoms. Response options to each question were: 1 = strongly agree to 5 = strongly disagree. In addition to condom attitude questions, participants were asked their general condom use using a set of specific sex behaviour questions (i.e. manual, oral, penile–vaginal penetration, penile–anal penetration). Response options to each specific sexual behaviour were: 1 = always to 5 = never. All items from the questionnaire were then entered into Predictive Analytics SoftWare (PASW) 17.0 for analysis.

Data Analysis

Phase 1

Principal component analysis (PCA) with Varimax rotation was used to reduce data from the 40 condom attitude items to produce the Brief Condom Attitudes Scale (BCAS). Items were first eliminated on the basis of skewness (<10% of responses in either the 'agree' or 'disagree' direction). Item intercorrelations, commonalities and factor loadings all exceeded 0.30. Each of the remaining 18 items was assigned to only one factor. Items that loaded negatively on a factor were reverse coded for calculation

of factor scores. Factor scores were calculated as the mean of their constituent items to permit easy identification of the degree of agreement–disagreement. Cronbach alphas were calculated for each subscale in the measure. An overall Cronbach α for all 18 items was calculated after reverse coding all items on the *Condoms as erotic* subscale.

Phase 2

Using the newly revised BCAS, gender comparisons were further explored. A multiple ANOVA was applied to examine gender differences in attitudes towards condoms on the BCAS and general condom use with specific sex behaviours. Additionally, a multiple ANOVA was applied to examine sexual relationship status over the past 6 months (monogamous or non-monogamous) differences and BCAS scores.

Results

Participant characteristics

Phase 1

Table 1 denotes the demographic characteristics of the Phase 1 sample. The sample consisted of 674 participants. Of this sample, 68.4% were women and 31.6% were men. The mean age of the sample was 21.7 years (s.d.=3.7), with a range between 18 and 57 years of age. Similar to the demographics of the university, 88.4% of the participants were white. The majority (95.3%) identified themselves as

Table 1. Sample characteristics ($n=647$)

Demographic variable	Statistic
Mean age (s.d.)	21.7 (3.7)
Range	18–57
Gender	
% women	68.4
% men	31.6
Self-labelled sexual orientation	
% heterosexual or straight	95.3
% homosexual, gay or lesbian	1.9
% bisexual	2.8
Education	
% less than 1 year of college	1.3
% less than college degree	85.0
% graduate education	12.8
% unknown	0.9
Race	
% American Indian	0.8
% Asian	3.2
% Black or African American	4.7
% Pacific Islander	0.3
% White or Caucasian	88.4
% Latino or Hispanic	2.6
% Middle Eastern	0.2
Sexual relationship status in the past 6 months	
% exclusive or monogamous	62.6
% non-exclusive or non-monogamous	13.6
% exclusive but sporadic or casual monogamous	9.5
% multiple partners or casual	7.4
% not applicable	6.8

heterosexual and defined their sexual relationship status in the past 6 months as ‘exclusive or monogamous’ (62.6%).

Phase 2

The Phase 2 sample consisted of 584 self-identified heterosexual participants aged 18–24 years old with a mean age of 20.8 years (s.d.=1.24) selected from the larger sample. Of this sample subset, 69.9% were women and 30.1% were men. Again, similar to the demographics of the university, the majority of the participants (89.9%) were white. The highest proportion of participants in this sample (66.1%) defined their sexual relationship status in the past 6 months as ‘exclusive or monogamous’, while 14.4% defined their sexual relationship status as ‘not exclusive or non-monogamous’, 10.7% defined it as ‘exclusive but sporadic or casual monogamous’, and 8.8% defined their sexual relationship as ‘casual or having multiple partners’. The remaining participants (7.0%) selected ‘not applicable’ for their sexual relationship status.

Phase 1. Factor structure

Exploration of the 18 items using PCA yielded four factors accounting for 59% of the variance (see Table 2 for the list of items and their factor loadings). All factor loadings were between 0.45 and 0.83. Table 3 presents the means, standard

Table 2. Items and factor loadings on the Brief Condom Attitudes Scale

Superscript denotes scale item origin (^ABrown, 1984¹⁹; ^BHelweg-Larsen and Collins, 1994¹); STI, sexually transmissible infection

Scale item		
<i>Condoms as an interruption</i>		
Using a condom requires taking time out of foreplay, which interrupts the pleasure of sex ^A	0.832	
Having to stop to put on a condom takes all the romance out of sex ^A	0.799	
The use of a condom is an interruption to foreplay ^B	0.758	
Condoms are inconvenient ^A	0.684	
I think condoms look ridiculous ^A	0.597	
Condoms are uncomfortable for both partners ^A	0.583	
Most people don't like their partner(s) to use condoms	0.452	
<i>Condoms as erotic</i>		
Many people make use of the condom as an erotic part to foreplay ^A	0.764	
Putting a condom on an erect penis (hard on) can be a real sexual turn-on ^A	0.755	
I see the use of a condom as adding to the excitement of foreplay if the partner helps the other put it in place ^A	0.745	
I think proper use of a condom can enhance sexual pleasure ^A	0.565	
<i>Condoms as negative</i>		
Condoms are pleasant to use ^A	–0.631	
The neatness of condoms (e.g. no wet spot on the bed) makes them more attractive to use ^A	–0.629	
The idea of using a condom doesn't appeal to me ^A	0.627	
I just don't like the idea of using condoms ^A	0.622	
<i>Condoms as protective</i>		
The condom is a highly satisfactory form of contraception ^B	0.817	
The condom is a highly satisfactory form of STI prevention	0.811	
Condoms seem safer to me than any other form of contraception	0.624	

Table 3. Descriptive data for the factors ($n=674$)

Factor (number of items)	Mean	s.d.	Proportion of variance	Cronbach's α
<i>Condoms as interruptive</i> (7)	3.38	0.80	31.80	0.85
<i>Condoms as erotic</i> (4)	3.03	0.86	11.82	0.79
<i>Condoms as negative</i> (4)	3.33	0.83	10.83	0.74
<i>Condoms as protective</i> (3)	2.49	0.83	6.211	0.63

deviations, variance explained and Cronbach alphas for the four factors. The Cronbach α for all 18 items with appropriate reverse coding so that lower scores indicate more negative attitudes was 0.70.

The *Condoms as an interruption* factor (Cronbach $\alpha=0.85$) consisted of seven items, all related to the interruption and inconvenience condom use has on sexual foreplay, romance and partner relations. Lower scores indicate a tendency to feel interrupted by the use of condoms.

The *Condoms as erotic* factor (Cronbach $\alpha=0.79$) consisted of four items depicting condoms as a potential erotic part of foreplay and arousal. These items reflect the idea that condoms can be used as a sexual turn-on or can enhance sexual pleasure among partners. A lower score on this factor indicates the tendency to view condoms as erotic.

The *Condoms as negative* factor (Cronbach $\alpha=0.74$) consisted of four items, two of which are reverse coded. These two items focussed on condoms as pleasant and neat. The remaining two items consisted of a general aversion towards condoms. A lower score on this scale indicates negative attitudes towards condom use.

The *Condoms as protective* factor (Cronbach $\alpha=0.63$) consisted of three items reflecting the potential for condoms as being protective against both unwanted pregnancy and STI. Lower ratings on this factor indicate the belief that condoms are protective against STI and are a satisfactory form of contraception.

Phase 2. Gender comparisons

A multiple ANOVA was performed using general linear modelling (GLM) to examine gender differences subscale scores (Table 3). There was a significant gender difference for Factor 1, the *Condom as interruption* subscale of the BCAS ($F(1)=10.24$, $P=0.001$), with women (mean=3.41) in more agreement that condoms are a interruption to foreplay, romance and sexual interaction than men (mean=3.14). For Factor 4, *Condoms as protective*, scores also significantly differed by gender ($F(1)=12.93$, $P<0.001$), with women (mean=2.55) in significantly greater disagreement than men (mean=2.28), that condoms are a satisfactory form of contraception and STI protection. Factor 2 (*Condoms as erotic*) and Factor 3 (*Condoms as negative*) did not demonstrate any significant gender difference on the BCAS.

An additional multiple ANOVA was performed using GLM to examine the gender differences in general condom use with specific behaviours. There were no significant gender differences for condom use with manual (hand) genital stimulation ($F(1)=0.19$, $P=0.67$); oral (mouth) genital stimulation ($F(1)=0.02$, $P=0.89$) and penile–anal penetration

($F(1)=1.24$, $P=0.27$). However, there was a significant gender difference in general condom use in regards to penile–vaginal penetration ($F(1)=8.82$, $P=0.003$), with young women significantly reporting using condoms less often for penile–vaginal penetration (mean=2.52) compared to young men (mean=2.27).

Sexual relationship status comparisons

A third multiple ANOVA was performed using GLM to examine the differences in sexual relationship type over the past 6 months and scores on the BCAS. Sexual relationship status was divided by self-reported status as either *monogamous* or *non-monogamous*. Subcategories such as *casual monogamous*, *non-monogamous* and *casual* were collapsed to create the *non-monogamous* category for sexual relationship type comparisons. Sexual relationship type was significantly different for Factor 1, *Condoms as interruptive* ($F(1)=7.34$, $P=0.007$), with individuals in a monogamous sexual relationship considering condoms as less interruptive (mean=3.39) than non-monogamous individuals (mean=3.18). For Factor 2, *Condoms as erotic*, monogamous individuals (mean=2.96) were significantly more likely than non-monogamous individuals (mean=3.23) to report condoms as more erotic or able to enhance sexual pleasure ($F(1)=10.55$, $P=0.001$). Monogamous individuals (mean=3.43) were also less likely to view condoms as generally negative compared with non-monogamous individuals (mean=3.13) ($F(1)=13.56$, $P<0.001$). There were no significant differences for sexual relationship type over the past 6 months for Factor 4, *Condoms as protective*.

Discussion

Based on the findings above, the abbreviated BCAS appears to be an efficient and reliable measure for assessing attitudes about condoms in college-aged men and women. Given that roughly half of the new HIV infections in the US are among people under the age of 25 years, concise and brief attitudinal measures that enhance the HIV/AIDS prevention and sexual health promotion literature are necessary.⁵ Given the BCAS's brevity in comparison to its parent condom attitude scales, it is likely that it could efficiently be utilised in health behaviour research where attitudes are hypothesised to predict or mediate planned, intended or actual sexual behaviour (e.g. condom use, sexual risk, etc.) in adolescents and college-aged men and women.

The initial purpose of this study was to create an efficient and brief measure that could reliably assess young adults' attitudes about condoms and condom use. Similar to existing scales, significant gender differences were found in two of the four factors.^{1,13} For Factor 1, *Condoms as interruptive*, the current study's findings suggest that men in the study were more likely than women in the study to consider condoms interruptive to sex. Other studies have also found that men tend to view condoms as an interruption to sexual intercourse.^{6,12,19} Men who are applying a condom to their own penis may need to stop foreplay in order to apply the condom. Therefore, they may perceive this behavioural action as more of an interruption. Interestingly, the young women participants in the current

study were less likely to consider the application of a condom as an interruption. Thus, it is possible that men's own desires, arousal or excitement is interrupted by the condom application and not the partner interactions. This finding also indicates that gender relations may play an important role in the perception of condoms and condom use.⁴

Another significant gender difference was found in Factor 4, *Condoms as protective*. For these items, the men in our sample were significantly more likely to consider condoms as an effective means for protecting against STI and unwanted pregnancy compared with the women participants. This may suggest that young women are not directly in contact with the condoms their male partners are using, and are not likely to put the condom on their partner's penis or remove it to ensure that it did not tear or break prior or during intercourse. Further, women's previous experiences with condoms (negative or positive) are likely to influence their attitudes about whether condoms are the most reliable form of STI protection and contraception. Additionally, the popularity of oral contraception as a means of preventing pregnancy rather than condoms may also influence women's attitudes in assessing condoms and their effectiveness for preventing STI and unwanted pregnancy.

Analysing the data based on sexual relationship type over the past 6 months also highlighted some interesting findings. In general, the participants who reported having a monogamous sexual relationship over the past 6 months were significantly more likely to view condoms as less interruptive to foreplay or sexual arousal; more likely to view condoms as erotic or enhancing sexual pleasure, and less likely to view condoms as negative compared with participants who were in non-monogamous sexual relationships over the past 6 months including casual monogamy, non-monogamy and casual sexual relationships. These findings suggest that college-aged individuals' attitudes about condoms are not only likely to be influenced by sex, but also the type of sexual relationship the individual is engaging in. Similar to other social perceptions and attitudes, condom attitudes are likely to be fluid and variable, and based on multiple factors.

Limitations

One of the limitations to the current study is that the recruitment relied on convenience samples. Additionally, despite efforts to reach beyond the undergraduate population, most of our sample were women, predominantly white and relatively young in age. Future attitudinal studies on condoms utilising more diverse samples, particularly in regard to race, ethnicity, socioeconomic status, varying levels of literacy and age, are needed in order to more extensively study condom attitudes and potential gender differences in attitudes. Another limitation may derive from using the BCAS subscales independently. Although the BCAS's overall Cronbach α demonstrates good reliability, in the fourth subscale, *Condoms as protective*, a Cronbach α of 0.63 may not be as reliable as a standalone measure compared with the other three subscales.

Condom attitude studies focussed on gay, lesbian, bisexual and transgender identified individuals are also needed to better understand the beliefs and attitudes of individuals who may

engage in different sexual practices to heterosexual samples. Another limitation to the present study is that the scale was developed using a US sample. Consequently, the items in the scale may carry too much cultural specificity for direct application in non-western cultures. Additional cross-cultural research is necessary to fully articulate the influence of culture on condom attitudes. Therefore, future studies focussing on validity and utility are the next necessary step in order to create the most condensed and reliable measure assessing condom attitudes.

Conclusions

Even with its limitations, the BCAS, appears to be an efficient and reliable measure for assessing college-aged men and women's attitudes about condoms. The four factors highlighted in the scale reflect a shift in attitudes, with some young men and women viewing condoms as erotic and enhancing sexual pleasure rather than simply contraceptive. The development of better products, youth targeted marketing campaigns, and sexual health research and education effort are likely to have influenced the attitudes of young adults. Future research on the relationship between positive attitudes about condoms and their influence on sexual behaviour and condom use are likely to generate new and innovative avenues for intervention, STI and HIV/AIDS prevention, and sexual health promotion.

Conflicts of interest

None declared.

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