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Factors associated with the late application of condoms during young adults most recent sexual event at home and away from home

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ABSTRACT

Objective: To examine the influence of condom decision making, arousal and other contextual factors on the late application of condoms among young men and women during a recent sexual event at home and away from home such as on holidays.

Method: A retrospective, cross-sectional study design was used. A subset of participants aged 19-30 years from the national Irish Study of Sexual Health and Relationships were re-contacted (N=388); 51% men. Telephone interviews regarding participants' most recent sexual event at home (n=362) and away from home (n=178) were conducted. Participants reported on their condom use during each event and whether a condom was applied after initial penetration.

Results: Participants were more cautious in their sexual encounter away from home, with a higher proportion reporting condom use (79% vs. 62%) and a lower proportion reporting late application of a condom (14% vs. 24%). Pregnancy prevention as the primary motive for condom use increased the odds of late application at home (AOR 4.56, 95% CI 2.10 to 9.90) and away from home (AOR 2.93 95% CI 1.04 to 8.21). Arousal also increased the likelihood of using a condom after initial penetration at home (AOR 1.34 95% CI 1.05 to 1.68) and away from home (AOR 2.06 95% CI 1.36 to 3.14).

Conclusions: Findings suggest that young adults take greater sexual risks at home than when they are away from home. Regardless of location, young adults are most likely to report delaying the application of a condom when they are highly aroused and when they are using a condom to prevent pregnancy. Education programmes may benefit young adults if they encourage them to practice safer sex at home, and focus on the risk of applying a condom after penetration.

INTRODUCTION

While condom use represents an effective means of prophylaxis,(1-4) in no study has the effectiveness been 100%. The late or delayed application of a condom, an intentional user error, is a relatively common behaviour (5-8) compromising the protective effects of condoms.(9) Despite the prevalence of late application it is unclear why people who are obviously motivated to use a condom do not do so from the time of initial penetration. This is due, in part, to a reliance on summary measures of condom use error in the literature, combining either intentional errors (late application and early removal) and non-intentional errors (condom breakage, slippage or leakage),(5, 9-10) or intentional errors alone as an indicator of incomplete condom use.(8) The creation of such composite error scores, particularly in relation to intentional errors, may be inappropriate as the errors are distinct with plausibly different motives. In addition, studies which have assessed factors associated with delayed application are generally restricted to socio-demographic covariates.(11-13) Sexual arousal (10) and decision-making about condom use involving both sexual partners (14) have recently been hypothesised as potentially influential in understanding delayed application of condoms. However, recent studies examining the influence of arousal and joint decision making used convenience samples of men, with approximately two-thirds of men in each study married.(10, 14)

Furthermore, young holidaymakers are recognised as potential vectors for sexually transmitted infections (STI), due to increased sexual mixing between scattered sexual networks that would otherwise not come into contact.(15) Several studies have examined factors associated with condom use during ‘holiday’ sex,(16-18) however no study to date has considered condom error in this context. The purpose of this study is to examine factors associated with the late

application of condoms during young adults' most recent vaginal intercourse at home and away from home such as on holidays or short breaks.

METHOD

Sample

Participants were recruited from the national Irish Study of Sexual Health and Relationships (ISSHR).(19) ISSHR used a telephone interview methodology. Random digit dialing was used to create a representative stratified national sample of numbers. ISSHR achieved a 61.3% response rate (N = 7,441). Participants were contacted for the current study if they originally agreed to be re-contacted, self-identified as heterosexual, were aged less than 30 years, and considered themselves to be single (i.e., without a steady partner) when interviewed for ISSHR.

Procedure

A structured telephone interview was conducted. Participant consent was obtained verbally. Ethical approval was granted by the Royal College of Surgeons in Ireland. Recruitment was performed between October 2006 and November 2007. Telephone contact was made with 761 of the 888 households, with telephone problems or 10 failed attempts at contact accounting for the remaining 127 participants. Of the households contacted, 251 were not eligible for the following reasons: household refusal, no one in the house fit the description provided, participant was willing to participate but had not had sex in the past 2 years, participant had moved with no new telephone number provided, or participant had died. Of the 510 eligible participants, 388 agreed to participate (response rate 76%).

Measures

Participants reported on their most recent experience of vaginal intercourse at home (n=362) and away from home, such as holidays, short breaks, work or study trips (n=178), in the past two years. Details specific to each sexual event were recorded, including type of sexual partner (casual or steady), use of another form of contraceptive at the time of intercourse and whether participants discussed condom use with their partner on this occasion. Participants were also asked to indicate their primary motive for using a condom on that occasion (prevent pregnancy or prevent STI). Participants were asked whether they had been drinking alcohol prior sex, and if so how many standard drinks had they consumed on that occasion. In line with national and international indices of heavy episodic drinking, participants who reported consuming six or more standard alcoholic drinks on that occasion were classified as engaging in heavy drinking prior to sex.(20-21)

Levels of sexual arousal relative to participants desire to use a condom were measuerd by asking participants to “think about when it became clear to you that you might have vaginal sex with this person, on that occasion” and indicate how much they wanted to (a) use a condom (b) have vaginal sex with him/her. Consistent with Abraham and colleagues,(22) a five point response scale was used ranging from (1) not at all to (5) extremely, and desire for condom use was subtracted from desire for sex. A stronger desire for sex over condom use, reflected in a positive score, is considered a proxy measure of arousal. Finally, participants reported condom use and whether the condom was applied before any penetration occurred or after penetration (late application).

Statistical analysis

A series of univariate and multivariate analyses were performed. Univariate analyses included cross-tabulations and logistic regression. Multivariate analyses involved hierarchical logistic regression to identify factors associated with the late application of condoms at home and away from home. The multivariate models were used to calculate adjusted odds ratios, their 95% CI, and the corresponding p values. Covariates that had a statistically significant univariate p value ($p<0.05$) were included in the multivariate models.

RESULTS

Characteristics of the sample

Participants had an average age of 24 years (SD = 3.19; range: 19-32 years), with 51% men. Three hundred and sixty-two (93%) participants reported on a sexual event in their home environment, and one hundred and seventy-eight participants (46%) reported on sexual intercourse away from home, such as holidays, short breaks, or trips for work or study. Participants were more cautious in their sexual encounter away from home, with a higher proportion reporting condom use (79% vs. 62%) and a lower proportion reporting late application of a condom (14% vs. 24%). Greater caution away from home is confirmed when we compare only those who reported a sexual event in both sexual environments (n=153, 39%). Using the McNemar chi square test participants were significantly more likely to report a condom during a sexual event away from home (83%) compared to at home (61%) ($p<0.001$). In addition, late application was more likely at home (27%) than away from home (14%) $p<0.001$).

Univariate associations

As shown in Table 1 the likelihood of late application at home was twice as likely among those reporting on a steady sexual event. Discussing condom use, pregnancy as the primary motive for using a condom and arousal were also significantly associated with an increased likelihood of late application at home. Pregnancy as the primary motive for using a condom and arousal were also associated with the late application of a condom away from home.

Multivariate associations

Adjusting for covariates, pregnancy as the primary motive for condom use was associated with a four-fold increase in late application at home. Arousal also remained independently significant at home. Similarly, pregnancy as the primary motive for condom use and arousal were associated with an increased likelihood of late application away from home (Table 1).

INSERT TABLE 1 HERE

DISCUSSION

Consistent with international literature late application of condoms is common among young Irish adults.(9, 11, 14) However, this study found that young adults take less risks when engaging in sexual intercourse away from home, with higher levels of condom use and lower levels of delayed application. These findings are novel, highlighting the importance of context when trying to understand intentional user errors, such as the late application of condoms. Previous studies of condom errors have not considered the importance of social context. It is possible that young adults consider themselves less vunerable when engaging in sexual intercourse at home thus resulting in increased intentional user error.

In addition, this study tested the hypothesis that condom error is less likely when condom use is the result of decision making between both partners.(14) Contrary to expectation, participants who reported discussing condom use with their partner were twice as likely to report applying a condom after intercourse had started. It is plausible that highly aroused young adults delay discussing condom use until their is a mutual understanding that intercourse will definitely take place, and in some cases this may occur after initial penetration. Further study is neccessary to determine if this is the case and if the timing of dicussion influences the likelihood of applying a condom after penetration has begun. However, discussion did not remain independently significant after adjusting for arousal and motives for using a condom. The influence of arousal and pregnancy as the primary motive for using a condom appear to be robust as both factors remained independently associated with the late application of condoms both at home and away from home.

The representativeness of the current study findings are supported by the 76% response rate achieved. A further strength of this study was the use of a female interviewer, as research has found that people tend to report more sexual information to female interviewers.(23) Furthermore, the study focus on single recent events reduced the cognitive burden of recall thus providing a reliable index of sexual risk.(23-25) Examining specific sexual events also allowed for the identification of a temporal relationship between contextual factors and the late application of condoms. In addition, this was the first study to examine the influence of mutual deicision making among young men and women. However, several limitations of the present study must also be acknowledged. This study was cross-sectional, causal direction can only be plausibly inferred. A further limitation is the reliance on retrospective self-report. This study focused on one intentional user error, it remains unclear whether the same factors influence other intentional user errors at home and away.

Notwithstanding these limitations, the current findings have important public health and policy implications. Programmes aimed at improving sexual health by increasing condom use should also target reducing the late application of condoms, with a particular focus on the role of arousal and motives for using a condom. Furthermore, young adults should be encouraged to practice safer sex at home, as they do when they are away from home. Research studies focusing on condom use should also incorporate a measure of condom user error in an effort to validate the use of self-reported condom use.

Conclusions

Findings suggest that young adults take greater sexual risks at home than when they are away from home. Regardless of location, young adults are most likely to report delaying the application of a condom when they are highly aroused and when they are using a condom to prevent pregnancy. Education programmes may benefit young adults if they encourage them to practice safer sex at home, and focus on the risk of applying a condom after penetration. Further research is required to understand the importance of discussing condom use and whether the influence of discussing or negotiating use is moderated by when this takes place.

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	Late application at home			Late application away from home		
	Number (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Number (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Total	54 (24)			20 (14)		
Gender						
Male	30 (26)	1.28 (0.69 – 2.36)	-	15(16)	1.65 (0.56 – 4.86)	-
Female	24 (22)	1.00	-	5 (10)	1.00	-
Age						
<25 years	36 (24)	1.10 (0.58 – 2.10)	-	12 (14)	0.86 (0.33 – 2.26)	-
25 + years	18 (23)	1.00	-	8 (15)	1.00	-
Relationship status						
Casual	18 (17)	1.00	1.00	14 (12)	1.00	-
Steady	36 (30)	2.05 (1.08 – 3.88)*	1.13 (0.53 – 2.40)	6 (21)	1.93 (0.67 – 5.58)	-
Binge drinking prior to sex						
0-6 drinks	37 (23)	1.00	-	5 (13)	1.00	-
6+ drinks	17 (25)	1.10 (0.56 – 2.11)	-	14 (14)	1.14 (0.38 -3.40)	-
Other contraception used						
Yes	25 (25)	1.10 (0.60 – 2.04)	-	6 (14)	0.97 (0.35 – 2.73)	-
No	29 (23)	1.00	-	14 (14)	1.00	-
Discussed condom use with partner						
Yes	38 (29)	2.07 (1.07 – 3.98)*	1.48 (0.69 – 3.17)	8 (15)	1.09 (0.41 – 2.86)	-
No	16 (17)	1.00	1.00	12 (14)	1.00	-
Primary reason for using condom						
Prevent pregnancy	45 (33)	4.56 (2.10 – 9.90)***	4.29 (1.91 – 9.63)***	11 (24)	3.00 (1.14 – 7.88)*	2.93 (1.04 – 8.21)*
Prevent STIs	9 (10)	1.00	1.00	9 (9)	1.00	
Arousal†	0.7 (1.5)	1.36 (1.10 – 1.68)**	1.34 (1.05 – 1.68)*	0.9 (1.41)	2.05 (1.37 – 3.08)***	2.06 (1.36 – 3.14)**

† Mean (Sd)