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Factors Affecting Condom Use among Adolescents

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ABSTRACT

A total of 822 adolescents (15–19 years old) took part in this study. A subsample of this group, consisting of respondents with previous sexual experience ($n=423$) is central to the analyses in this article. Previous condom use was related to attitudes, subjective norms, self-efficacy, anticipated affective reactions and habits. Perception of risk, response-efficacy and some demographic variables were also included in the analyses. Results indicate the necessity to distinguish between groups, both in terms of monogamy and gender. Self-efficacy had a strong effect on taking precautionary measures, especially for girls. Attitudes, anticipated affective reactions and habits also played an important role in determining the frequency of condom use. Implications of these findings for our understanding of adolescent sexual behaviour, and for campaigns aiming at the reduction of risky sexual practices, will be discussed.

Key words: AIDS, adolescent sexual behaviour, condom use.

INTRODUCTION

An important way to reduce the impact of the AIDS epidemic concerns public information campaigns aiming to convince people of the necessity to reduce specific risky practices. Changes in sexual behaviour are a major component of these campaigns. As argued before (e.g. Strunin and Hingson, 1987; Baldwin and Baldwin, 1988; Brown and Fritz, 1988; Dorman and Rienzo, 1988; Flora and Thoresen, 1988; Kegeles, Adler and Irwin, 1988; Curtis, Lawrence and Tripp, 1989) education in the teenage years, *before* patterns of sexual behaviour have been established, could play an important role in changing potentially dangerous lifestyles.

Recent studies suggest only marginal changes in adolescents' sexual behaviour. For instance, Kegeles *et al.* (1988) studied a sample of adolescents in San Francisco and concluded that the perception that condoms prevent sexually transmitted disease (STDs) and AIDS is high. Moreover, the value and importance attached to avoiding STDs and AIDS also remained high, but these views were not related to increased intentions to use condoms. Other studies (e.g. Price, Desmond and Kukulka, 1985; Dorman and Rienzo, 1988) report only limited knowledge about the issue of AIDS

among adolescents. Some studies report that many adolescents are still misinformed or confused about AIDS and AIDS transmission, and relate this to the marginal changes in adolescent sexual behaviour (e.g. Strunin and Hingson, 1987).

All in all, a number of studies suggest that more research is needed to investigate adolescents' decision-making about AIDS-related risks, and to relate the findings to education programmes (e.g. Brooks-Gunn, Boyer and Hein, 1988). The present study aims to take a closer look at the sexual behaviour of young adolescents, and relate this to a number of psychological and demographic variables.

The theoretical perspective of the present study can be summarized as follows. We adopted an attitudinal approach similar to Fishbein and Ajzen's model of reasoned action (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980) and assumed that adolescents' attitudes towards safer sexual practices (using condoms) would be (partly) determined by a simple cost-benefit analysis of safe and less-safe behavioural actions. In a related study (Richard, van der Pligt and de Vries, 1991) social norms have been found to be important determinants of sexual behaviour; hence their inclusion in the present study. This basic model of attitude-behaviour relationship was expanded with three factors. First, a series of studies have pointed at the importance of self-efficacy in health-related behaviours (Bandura, 1989a). Self-efficacy is often a necessary condition for behavioural change to occur, and is related to later additions of Fishbein and Ajzen's model of reasoned action. For instance, Ajzen and Madden's (1986) concept of perceived behavioural control is similar to self-efficacy. Effective self-regulation of sexual behaviour requires skills and the belief in one's contributions to exercise personal control. Self-efficacy is concerned with people's beliefs that they can exert control over their motivation and behaviour and over their social environment (Bandura, 1989b). We expected self-efficacy to play an important role in the context of using condoms.

Another variable added to the present study is related to theories about economic decision-making, i.e. anticipated regret. A number of studies have shown that anticipated regret of specific behavioural alternatives determines behavioural choice (Bell, 1982; Loomes and Sugden, 1982; Tjijstra, 1987). Richard *et al.* (1991) found that a modification of this factor, i.e. 'anticipated affective reactions', was a good predictor of sexual behaviour. More specifically, anticipated affective reactions influenced subjects' choice between four behavioural alternatives, i.e. having sex without intercourse, having intercourse and using a condom, having intercourse and using another contraceptive, and having intercourse without using a contraceptive.

The basic model was further expanded by some variables related to the literature on the effects of previous behaviour (habits) on behavioural preferences (e.g. Bentler and Speckart, 1979; Triandis, 1979). It could well be that habits play an important role in behavioural domains that are private and not often openly discussed with peers. Therefore age and condom use at first sexual intercourse, frequency of intercourse, and number of sexual partners could all be related to sexual risk-taking. Some support for this has been found by Baldwin and Baldwin (1988). The purpose of the present study was to investigate the relative importance of the above variables as predictors of behaviour (i.e. the use of condoms).

It seemed worthwhile also to include an elaborate test of adolescents' knowledge about AIDS and AIDS transmission. A number of studies suggest a rather limited knowledge about these issues among adolescents. Moreover, AIDS education programmes have often been directed at increasing knowledge. As a consequence we

developed a series of items to test subjects' knowledge about AIDS and AIDS transmission, and related the scores on this test to behavioural preferences.

Finally, we explored the contributions of a number of variables which have been found to be predictive for behaviour in previous studies, i.e. perception of the risk to attract STDs and AIDS, response-efficacy of condom use, religious background, type of school and age.

We expected that the above-mentioned variables would not influence condom use of all adolescents in the same manner. More specifically, we expected adolescents with a monogamous relationship to have different reasons for using condoms as compared to adolescents without such a relationship. The latter will be much more likely to use condoms to avoid STDs and AIDS than the former. Furthermore, we expected self-efficacy to play a more important role for girls than for boys. Traditionally, girls seem to be cast in the role of the person who takes care of birth control matters. This suggests that girls are expected to take the initiative with respect to condom use, rather than boys. Self-efficacy was expected to be a major determinant of introducing the issue of safe sex and insisting on protective measures such as the use of a condom. For this reason we expected self-efficacy to be more closely related to behaviour for girls than for boys.

To summarize; the present study focuses on the determinants of risky vs. cautious sexual practices among adolescents. In this study we investigate the relative role of attitudes, subjective norms, self-efficacy, anticipated affective reactions and habits in safe sexual behaviour (i.e. condom use). Contributions of knowledge about AIDS, risk perception, response-efficacy, and some demographic variables will be examined.

METHOD

Sample

Respondents were approached via their schools. Of the 138 schools contacted, 66 agreed to participate. A total of 822 adolescents between 15 and 19 years of age took part in the study. Two respondents were eliminated from the sample due to an unacceptable amount of missing values. The final sample is representative for the general population of Dutch adolescents in terms of educational level, type of school, region (urbanization) and gender. Two differences with the general population need to be mentioned however. First, the sample had a slight underrepresentation of religious schools (50 per cent vs 80 per cent nationally). Second, in order to get a fair amount of youngsters with sexual experience subjects of 17, 18 and 19 years were overrepresented in the sample design. Of the 822 respondents 118 were 15 years of age, 138 were 16, 173 were 17, 195 and 192 respondents were 18 and 19 years old, respectively (four respondents did not indicate their age).

Procedure

The interviews were carried out by a market research company with experience with AIDS-related research. Respondents were approached via their schools. Each school had to select a number of pupils varying in age and gender. The respondents were interviewed personally by a trained interviewer. For reasons of privacy they

also had to fill in a brief questionnaire dealing with aspects of their sexual behaviour. Completing the interview and questionnaire took about 50 minutes.

Measures

If respondents indicated that they had intercourse only with their steady partner, condom use was measured by asking how often they used condoms when having intercourse with their steady partner on a five-point scale, ranging from never (coded 0) to always (coded 4). If respondents indicated that they had a steady partner, but also had intercourse with others, condom use was measured by asking how often they used condoms when having intercourse with others than their steady partner. For respondents indicating not to have a steady partner condom use was measured by asking how often they used condoms.

Attitudes towards condom use were measured by asking the level of agreement with 12 possible consequences of using condoms, e.g. 'condoms protect against the AIDS-virus' and 'putting on a condom is an annoying interruption'. Scores ranged from disagree completely (coded 1) to agree completely (coded 7). Cronbach's α for this measure is 0.63. Evaluation of the consequences were not measured separately since all consequences were clearly positive or negative. In the analyses consequences were scored as +1 (positive) or -1 (negative).

Subjective norm was measured according to directives of Ajzen and Fishbein (1980) with normative beliefs and the motivation to comply. Respondents had to indicate how important others (parents, best friends and individually selected others) would find it if the respondent (a) would use condoms and (b) would use other contraceptives while having intercourse with someone. Scores ranged from 1 (disagree entirely) to 7 (agree entirely). Motivation to comply was assessed by asking how much the respondents adhere to these others' opinions about (c) condom use and (d) using other contraceptives; scores ranging from 1 (not at all) to 7 (very much). Respondents would feel most pressure to use condoms if important others agreed with the respondent using condoms but disagreed with the respondent using other contraceptives. Therefore the final subjective norm score was computed as $(a \times c) \text{ minus } (b \times d)$.

In order to get a measure of self-efficacy, respondents were asked to indicate for six situations whether he or she would have intercourse and *not* use a condom. Examples of those situations are: 'you say you want to use a condom and the other person gets angry' and 'you don't have a condom with you so you first have to buy some'. Scores ranged from 1 (very unlikely) to 7 (very likely). Cronbach's α for this measure is 0.77.

Anticipated affective reaction was measured by asking respondents to think about sexual experiences in the past (a) with a condom and (b) without a condom. If the respondent had no experience with one of these situations, he or she was asked to imagine this situation. Respondents were asked to evaluate their feelings after situation (a) and after situation (b) on five seven-point semantic differential scales: discontent-content, concerned-unconcerned, regret-no regret, worry-no worry, and tensed-relaxed. Summed scores over the five scales (each coded from 1 to 7) for situation (b) was subtracted from situation (a). Cronbach's α for this measure is 0.87.

With respect to their first sexual intercourse, respondents were asked at what age this took place and whether they had used a condom (1 = no, 2 = yes). Next we asked how many sexual partners they had had, with possibilities one (coded

1), two (coded 2), three to five (coded 3) and more than five (coded 4), and how often they had sexual intercourse on a four-point scale, ranging from once (coded 1) to often (coded 4). These four variables were taken as an indication of previous sexual behaviour (habits).

Religious background was coded 1 if the respondent was not raised religiously and two if he or she was. We did not distinguish between religions; in our sample religious background meant a Catholic or Protestant upbringing in 88 per cent of the cases. Type of school was dichotomized; 1 for the higher educational levels and 2 for the lower educational levels. Next respondents were asked to answer some questions about risks. Respondents had to indicate the likelihood of eight negative events (coded 1 for very unlikely up to 7 for very likely). Two of these were 'you get infected with the AIDS-virus' and 'you get a venereal disease'. The other events (e.g. 'your bicycle gets stolen' and 'you fail your exam at school') were used as a point of reference. Risk perception of STDs was computed by summing the likelihoods of the two sex-related events multiplied by 3 and divided by the sum of the likelihoods of the other six events. Response-efficacy was measured by asking respondents the suitability of a variety of protective action. Each of these was accompanied by the question: 'in protecting yourself against the AIDS-virus, how appropriate do you think it is to ...', followed by eight possibilities (each coded 1 for highly unsuitable up to 7 for highly suitable). The possibility 'always using a condom when having intercourse' relative to six less appropriate alternatives (e.g. 'first asking whether the person is infected') formed the measure of response-efficacy. Knowledge about AIDS, finally, was assessed by 13 items. Each item was coded 1 when answered correctly and 0 when answered wrongly.

Analysis

A two-stage stepwise regression analysis was used to predict condom use. In the first analysis the contributions of attitudes, subjective norms, self-efficacy, anticipated affective reactions, and habits were explored. In the second analysis the other variables were added. In this way the analyses could provide information about the stability of the prediction equations.

RESULTS

Of the 820 respondents 393 had no prior experience with sexual intercourse, and were therefore excluded from further analyses. Two hundred and seventeen respondents said they had a steady sexual relationship and never had sexual intercourse with any other than their present partner. These adolescents (group I) were analysed separately from the other respondents who either had a steady relationship but also had other sexual partners, or had no steady relationship (group II). For the respondents in group II condom use is a necessity to safeguard against AIDS. Table 1 summarizes how these respondents behaved in the past with respect to condom use. The table shows that about half the subjects in group II protected themselves adequately in the past, i.e. they *always* used condoms. This means that the other half of this group, which is about one-eighth of the total group and one-quarter of the group with sexual experience, did take certain risks in their past behaviour.

Table 2 presents the descriptive statistics for group I and II jointly. Furthermore,

Table 1. Previous risk behaviour in group II

Used condom in the past	No.	Percentage of total group	Percentage of group I + II	Percentage of group II
Always	101	12.3	23.9	49.0
Almost every time	37	4.5	8.7	18.0
Sometimes	26	3.2	6.1	12.6
Usually not	15	1.8	3.5	7.3
Never	27	3.3	6.4	13.1
	206	25.1	48.6	100.0

it presents the Pearson's correlation coefficients for all predictor variables with condom use for boys and girls in group I and II separately. If youngsters in the Netherlands had intercourse before their 20s, for most of them it was at the age of 16. Seventy-two per cent of the respondents used a condom on their first intercourse. The average number of sexual partners reported was two. Forty-six per cent of the respondents with experience with sexual intercourse was raised religiously, in comparison to 56 per cent of the total sample. This means that people with a religious upbringing are less likely to have intercourse in their teens. In general the adolescents were quite knowledgeable about AIDS. Thirty per cent of them answered all questions correctly and an equal percentage answered only one question incorrectly. Only 1 per cent of the respondents gave the wrong answer to six or more questions. Moreover, the items concerning crucial knowledge were answered correctly by almost all respondents; for example 99 per cent of the respondents knew that a condom can be used to protect oneself against AIDS.

It was expected that condoms are used for partly different reasons by the two groups. As can be seen from Table 2 there are indeed some differences in the relations between some of the variables and condom use. Moreover, univariate analysis of variance revealed that five of the 14 predictor variables were significantly different ($p < 0.01$) over the four groups. Therefore the two groups and the boys and girls were analysed separately. Table 3 presents the results of the stepwise regression analyses. In the first place it can be seen from Table 3 that in *group I* there is not much difference between boys and girls in the variables entered in the regression equations. Attitude, self-efficacy, frequency of intercourse and condom use on the first intercourse explain a sizeable percentage of the variance in condom use for both boys and girls. For boys only, additional variance is explained by the age at which they had their first intercourse and the number of sexual partners. More specifically, for both boys and girls of the monogamous group the results show a positive relation between attitude, self-efficacy and condom use; if a condom was used on the first intercourse they were more likely to do so in future; but the frequency of condom use decreased with the frequency of intercourse. Further, for monogamous boys the frequency of condom use decreased with the age at which they had their first intercourse, but increased with the number of sexual partners. Results are stable over the two regression analyses, i.e. adding a number of variables to the analyses did not change the results for both boys and girls. As the anticipated affective reaction was not measured for the monogamous group, no relation with condom use could be shown. It is interesting to note that the subjective norm did not enter any regression

Table 2 Descriptive statistics and correlation coefficients

	Descriptive statistics				Correlation coefficients			
	Group I + Group II (n = 423)				Group I		Group II	
	Range	$\bar{x}$	SD		Boys (n = 86)	Girls (n = 131)	Boys (n = 132)	Girls (n = 74)
Condom use	0-4	2.28	1.67		1.00	1.00	1.00	1.00
Attitude condom use	32-79	54.89	8.40		0.42***	0.25**	0.29***	0.30**
Subjective norm	-15-31.50	1.70	5.04		0.33**	0.18	0.04	0.06
Self-efficacy	8-42	32.66	6.85		0.21	0.23**	0.26**	0.59***
Anticipated affective reaction	-27-30 ^a	13.57 ^a	9.99 ^a		—	—	0.38***	0.40***
Condom used first intercourse	1-2	1.72	0.45		0.44***	0.37***	0.56***	0.49***
Age at first intercourse	9-19	15.89	1.42		-0.37***	-0.03	0.20	0.31**
Frequency of intercourse	1-4	2.75	1.05		-0.57***	-0.51***	-0.03	-0.26
Number of sexual partners	1-5	2.00	1.15		0.08	-0.01	-0.02	-0.29**
Age	15-19	17.58	1.29		-0.52***	-0.31***	-0.10	0.07
Raised religiously	1-2	1.46	0.50		-0.13	-0.03	-0.06	0.10
Type of school	1-2	1.66	0.47		-0.00	0.08	-0.05	0.01
Risk perception STDs	0.23-2.33	0.88	0.37		0.13	-0.05	0.02	-0.23
Response-efficacy condom use	0.36-7	1.50	0.70		0.29**	-0.04	0.10	0.15
Knowledge AIDS	5-13	11.58	1.38		-0.01	-0.08	0.10	0.05

** $p < 0.01$; *** $p < .001$. ^a $n = 206$.

equation. All in all, the proportion of explained variance was higher for boys ($R^2=0.64$) than for girls ($R^2=0.40$).

In *group II* (the non-monogamous group)¹, there are some striking differences between the sexes. Self-efficacy was the major predictor for the behaviour of girls, but it did not enter the regression equation of the boys. Yet, as can be seen from Table 2, self-efficacy is significantly related to condom use for both boys and girls. This implies that for the boys self-efficacy is mediated by one or more of the other variables. The opposite is true, however, for anticipated affective reaction. Table 2 shows significant relations of this variable with condom use for both boys and girls. But as anticipated affective reaction only entered the regression equation for the boys, it is mediated by other variables for the girls. As in group I, for both boys and girls (additional) variance in condom use is explained by condom use at first intercourse. For the boys, the age at which they had their first intercourse is also related to condom use. For the girls this is the case for the frequency of intercourse. All effects are in the same direction as in group I, except for 'age at first intercourse'. Thus, whereas in the monogamous-boy group condom use decreased with the age at first intercourse, it increased with age at first intercourse in the non-monogamous-boy group.

In contrast to the second regression analysis in group I, results did change when a number of variables was added to the analysis of the boy group. Though the same variables as in the first analysis entered the regression equation, these variables no longer mediated self-efficacy completely. Furthermore, the number of sexual partners and the age of the boys entered the regression equation. Condom use decreased with age and, as before, increased with the number of sexual partners. In the second analysis the proportion of explained variance was similar for boys ($R^2=0.46$) and girls ($R^2=0.53$).

DISCUSSION

It was hypothesized that adolescents with a monogamous relationship will use condoms for partly different reasons than adolescents with casual sex. It was also expected that girls and boys differ in their reasons to use condoms. The results of this study support this. The monogamous group (I) was found to be markedly different from the non-monogamous group (II). Also boys and girls in group II were found to be different. There is not so much difference, however, between boys and girls in group I. For respondents of group I stepwise regression analyses revealed corresponding regression equations. The frequency of previous sexual intercourse was found to be the most powerful predictor of condom use for both boys and girls; the more frequently monogamous adolescents had sexual intercourse, the *less* likely they were found to be using condoms. Additional variance was explained by attitude and self-efficacy. The adolescents who used a condom at their first sexual intercourse were

¹ A separate analysis was carried out in which group II was further divided in adolescents without a steady partner (group IIa) and adolescents with a steady *plus* additional partners (group IIb). Results remained essentially the same. Condom use at first sexual intercourse entered the regression equations of both boys and girls in group IIa and group IIb. Self-efficacy entered the regression equations of the girls in both groups, and failed to enter the regression equations of the boys in both groups. On the other hand, anticipated affective reactions entered only the boys' regression equations. Proportions of explained variance were higher in group IIa than in group IIb.

Table 3. Results of the stepwise regression analyses

	Regression I				Regression II			
	Group I		Group II		Group I		Group II	
	Boys (n = 86) β	Girls (n = 131) β	Boys (n = 132) β	Girls (n = 74) β	Boys (n = 86) β	Girls (n = 131) β	Boys (n = 132) β	Girls (n = 74) β
Attitude condom use	0.23**	0.16*			0.23**	0.16*		
Subjective norm								
Self-efficacy	0.16*	0.16*		0.50***	0.16*	0.16*	0.17*	0.50***
Anticipated affective reaction	—	—	0.25***		—	—	0.20**	
Condom used first intercourse	0.28***	0.22**	0.48***	0.39***	0.28***	0.22**	0.45***	0.39***
Age at first intercourse	-0.20*		0.14*		-0.20*		0.31***	
Frequency of intercourse	-0.53***	-0.47***		-0.17*	-0.53***	-0.47***		-0.17*
Number of sexual partners	0.21*				0.21*		0.18*	
Age							-0.26**	
Raised religiously								
Type of school								
Risk perception STDs								
Response-efficacy condom use								
Knowledge AIDS								
R^2	0.64	0.40	0.39	0.53	0.64	0.40	0.46	0.53

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

more likely to do so on following occasions as compared to adolescents who did not use a condom at their first sexual intercourse.

Major sex differences were obtained in group II. Self-efficacy was the most powerful predictor of condom use for girls, but for boys this factor explained only little variance. Anticipated affective reactions, age at first sexual intercourse, number of sexual partners, and age all explained independent proportions of variance for the boys, but not for the girls. For the girls, however, additional variance was explained by the frequency of previous sexual intercourse. Condom use at first sexual intercourse was found to be a powerful predictor for both boys and girls.

Our results clearly indicate that condoms were used for different reasons by group I and II. Beforehand, it was expected that prevention of STDs and AIDS is a much greater incentive for condom use in group II than in group I; indeed, this is what the results suggest. First, attitudes towards condom use were found to be predictive for condom use in group I but not in group II. Respondents with a monogamous relation may evaluate condom use negatively, and since there is less danger of attracting STDs and AIDS, they can feel free not to use them. But for respondents with multiple sexual partners it is necessary to use condoms to avoid STDs and AIDS, whether they like using condoms or not. A second indication is that condom use at first intercourse is predictive of future condom use in both groups, but much more so in group II. Moreover, condom use decreased with the frequency of sexual intercourse in group I but only marginally in group II. So, it seems that although many adolescents in the Netherlands start off using condoms (72 per cent reported using a condom at first sexual intercourse), a sizeable proportion of adolescents in a monogamous situation switch to other contraceptives after some time, whereas this is not the case for adolescents in the non-monogamous group. A third indication is that monogamous boys who start sexual intercourse at an older age were *less* likely to use condoms than boys who start at a younger age, whereas non-monogamous boys who start sexual intercourse at an older age were *more* likely to use condoms than boys who start at a younger age.

So, adolescents do take account of STDs and AIDS, but this does not mean that we should stop efforts to encourage safe sexual practices. About half the respondents in the non-monogamous group did take certain risks in their past sexual behaviour, i.e. they did not *always* use condoms. Condom use at first intercourse was found to be predictive of future condom use, irrespective of group and gender. This suggests that special efforts should be taken to convince adolescents without sexual experience to use condoms. If they can be convinced to use a condom on their first sexual intercourse, they will be more likely to use condoms on later occasions, especially if these will concern non-monogamous relations.

For the girls in the non-monogamous group self-efficacy was found to be the most powerful predictor of further condom use. This suggests that more effort should be made to increase self-efficacy for this group. Special attention should be given to girls without a monogamous sexual relationship. Training in sexual assertiveness would probably be appropriate. Health education campaigns should address this issue by providing role-models of how to deal with these issues, *and* to increase the preparedness of boys also to play a role in initiating preventive behaviour. Anticipated affective reaction was found to be an important predictor of condom use for the boys in the non-monogamous group. Therefore, a strategy to change the sexual behaviour of boys could be to stress that risky sexual behaviour could lead

to negative feelings, whereas safe sexual behaviour is likely to result in positive feelings.

Knowledge about AIDS and AIDS transmission was unrelated to condom use. This is in agreement with findings of other studies (Baldwin and Baldwin, 1988; De Wit, Kok, Timmermans and Wijnsma, 1990). Although knowledge does probably motivate certain forms of cautious sexual behaviour, the fact that knowledge has repeatedly been found to be unrelated to safe vs. less-safe sexual practices suggests that the main point of future campaigns should not be the increase of knowledge. It needs to be added that in the Netherlands knowledge about AIDS among adolescents is adequate. Most of them are aware of the risk, and transmission routes.

In sum, condoms were found to be used for different reasons by adolescents with a monogamous relationship as compared to adolescents without a monogamous relationship. For the latter group major sex differences were found. Self-efficacy was found to be a much more powerful predictor for girls than for boys. Irrespective of gender and monogamy, condom use at first sexual intercourse was found to be highly predictive for further condom use. Future AIDS preventive campaigns could have more impact if different subgroups of adolescents were approached in different ways.

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