ABSTRACT

Using the Theory of Planned Behaviour (Ajzen, 1988) as a conceptual framework, 705 secondary school students were surveyed to identify their intentions to use birth control pills, condoms, and birth control pills in combination with condoms. Hierarchical multiple regression revealed that the theory explained between 23.5% and 45.8% of the variance in intentions. Variables external to the model such as past use, age, and ethnicity exhibited some independent effects. Attitudes were consistently predictive of intentions to use condoms, pills, and condoms in combination with pills for both male and female students. However, there were differences by gender in the degree to which subjective norms and perceived behavioural control predicted intentions. The findings suggest that programs should focus on: creation of positive attitudes regarding birth control pills and condoms; targeting important social influences, particularly regarding males' use of condoms; and developing strategies to increase students' control over the use of condoms.

ABRÉGÉ

La théorie du comportement axé sur un objectif (Ajzen, 1988) a servi de cadre de travail conceptuel pour mener un sondage auprès de 705 étudiants à l'école secondaire visant à connaître leurs intentions concernant l'utilisation de la pilule anticonceptionnelle, du condom ou des deux méthodes combinées. L'analyse de variance avec régression hiérarchique a révélé que la théorie expliquait entre 23,5 % et 45,8 % de la variance dans les intentions. Les variables extérieures au modèle comme l'utilisation qu'ils en ont fait dans le passé, l'âge et le groupe ethnique ont révélé des effets indépendants. Les attitudes étaient prévisibles tant chez les filles que chez les garçons quant à l'intention d'utiliser soit le condom, la pilule anticonceptionnelle ou bien une combinaison des deux. Cependant, on a noté des différences selon le sexe concernant la subjectivité des normes et la perception de contrôle des comportements des intentions prévues. Les conclusions indiquent que les programmes devraient s'attarder à : développer des attitudes positives au sujet de la pilule anticonceptionnelle et du condom; viser les influences sociales importantes, en particulier en ce qui a trait à l'utilisation du condom chez les hommes; et mettre au point des stratégies pour accroître la maîtrise des étudiants pour ce qui est de l'utilisation du condom.

Factors Predictive of Adolescents' Intentions to Use Birth Control Pills, Condoms, and Birth Control Pills in Combination with Condoms

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Surveys in Canada and the United States have shown evidence of high levels of sexual activity among adolescents and young adults, with increasing rates by age.¹⁻⁴ According to the Canada Youth and AIDS study, 31% of males and 29% of females in grade nine have had sexual intercourse at least once.¹ Furthermore, several studies suggest that many are not using condoms or are using them inconsistently.^{1,2,5-10} Also, studies have noted that young people tend to use condoms for contraception rather than protection against STDs¹¹⁻¹³ and to not use condoms when taking oral contraceptives.^{13,14} This is of concern because unprotected sexual activity poses serious health threats for youth, including sexually transmitted diseases, HIV infection, and unplanned pregnancy.^{2,15,16}

The Theory of Planned Behaviour (TPB)¹⁷ was used as the conceptual framework for the study reported here. This theory, which is an extension of the Theory of

Reasoned Action (TRA),¹⁸ suggests that a specific behaviour is a function of an individual's intention to perform that behaviour. Intention is a function of attitude towards the behaviour, subjective norm, and perceived behavioural control. In turn, attitude is a function of the belief that performing the behaviour leads to certain outcomes and the evaluation of these outcomes. Subjective norm is a function of the beliefs that important referents value the performance of a particular behaviour and the motivation to comply with the referents. Perceived behavioural control, which refers to the ease or difficulty of performing a behaviour, is influenced by internal factors such as information, skills, and emotions, as well as external factors such as dependence on others. Variables such as age, gender, and ethnicity are seen as affecting intentions and behaviour indirectly, through the model variables.

Studies based conceptually on the TRA and the TPB have provided evidence of positive associations between beliefs and attitudes about the outcomes of using birth control pills, condoms, and various contraceptives, and intention to use, and/or use of birth control pills;¹⁹⁻²¹ and intention to use and/or use of condoms.^{9,19,22-27} Similarly, there is some evidence, in studies using the TRA and the TPB, for the relationship between subjective norms and intention to use and/or use of condoms;²²⁻³¹ and intention to use and/or use of oral contraceptives.¹⁹⁻²¹ Although studied to a lesser extent, perceived behavioural control has been found to be associated with intention to use condoms.^{26,27} No previous studies using the

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This study was funded by The National Health Research and Development Program of Health Canada, Project #6606-5631-201. The study was a project of the North York Community Health Promotion Research Unit. Kenneth Allison is supported by a Career Scientist award from the Ontario Ministry of Health.

TPB have explored young adolescents' intentions to use birth control pills, or birth control pills in combination with condoms.

Using the TPB as a conceptual framework, the analysis reported here examines the extent to which students' global attitudes, subjective norms, and perceived behavioural control predict their intention to use birth control pills, condoms, and birth control pills in combination with condoms. A subsequent paper will examine the relationship between intentions and actual behaviour.

METHODS

Sample

A single-stage cluster sampling design was used. From a sampling frame of 17 secondary schools in an Ontario city, six schools stratified by socioeconomic status and ethnicity were originally selected and four of these schools consented to participate. Following negotiations with individual schools, eligible students between grades nine and OAC (formerly called grade 13) were invited to participate. The study received approval from the relevant ethics committees. All participants provided written informed consent. In addition, parental consent was obtained for those below age 18.

Of a total of 1,597 eligible students, 711 participated, for a response rate of 44.5%. Six questionnaires were excluded due to incomplete data, leaving 705 available for the analysis. The participants consisted of 53.8% males (mean age 15.8 years) and 46.2% females (mean age 15.8 years). Almost a third (31.4%) of males and 24.1% of females had engaged in sexual intercourse at least once in the past.

Measures used

Data were collected using the Adolescent Sexual Health Questionnaire (male and female versions). This questionnaire used global measures of attitude, subjective norm, and perceived behavioural control, suggested by Ajzen.¹⁷ A number of experts reviewed the instruments for relevance, clarity, and potential item bias. Based on their input, and the results of a pilot test with 37 students, the instruments were modified. The measures used in the analysis reported here are summarized in Table I.

TABLE I
Descriptive Statistics for Variables Used in OLS Regressions of Adolescents' Intentions to Use Birth Control Pills, Condoms, and Condoms in Combination with Birth Control Pills

	Females (N=326)		Males (N=379)	
	Mean	SD	Mean	SD
Intentions:				
I intend to use birth control pills daily.	5.046	1.865	5.129	1.524
I intend to insist that my partner always uses a condom if I am not taking the birth control pill every day.	6.472	1.204	6.419	0.986
I intend to insist that my partner always uses a condom even if I am taking the birth control pill every day.	6.160	1.457	5.676	1.426
Birth Control Pills Attitudes (sum of two 7-point scales)	10.444	2.722	10.653	2.546
Using birth control pills daily is useful.				
Using birth control pills daily is good.				
Subjective Norm (multiplicative composite of two 7-point scales)	20.295	13.968	19.068	15.087
Generally speaking, most people who are important to me think I should use birth control pills daily.				
Generally speaking, I want to do what most people who are important to me want me to do.				
Perceived Behavioural Control	5.767	1.433	4.344	1.538
I feel I have control over whether or not I use birth control pills daily.				
Condom Use Attitudes (sum of two 7-point scales)	12.559	2.086	11.832	2.13
Insisting that my partner always uses a condom is useful.				
Insisting that my partner always uses a condom is good.				
Subjective Norm (multiplicative composite of two 7-point scales)	27.028	13.927	24.249	15.422
Most people who are important to me think that I should insist that my partner use a latex condom each time we have sexual intercourse.				
Generally speaking, I want to do what most people who are important to me want me to do.				
Perceived Behavioural Control (sum of two 7-point scales)	10.434	2.591	10.779	2.319
I feel I have control over whether or not my partner always uses a condom.				
Insisting that my partner always uses a condom will be easy.				
Past Behaviour†				
Used birth control pills during the past 3 months.	0.067	0.251	0.069	0.253
Used condoms during the past 3 months.	0.150	0.358	0.187	0.391
Combined use of condoms and birth control pills during the past 3 months.	0.031	0.173	0.053	0.224
Demographic Measures				
Age (in years)	15.803	1.651	15.789	1.552
Length of Residence in Canada†				
0 - 2 years	0.144	0.352	0.166	0.373
3 - 5 years	0.129	0.336	0.103	0.304
More than 5 years	0.291	0.455	0.298	0.458

NOTE: The wording in the table is the language for female respondents. For males, the wording reflected the behaviour of using a condom or insisting that a partner use birth control pills. Questions concerning intentions, attitudes, subjective norms, and perceived behavioural control were rated on 7-point Likert scales, ranging from strongly disagree (1) to strongly agree (7).
† The means reflect the mean percentage. For example, 6.7% of females used birth control pills during the past 3 months.

Data collection and analysis

The questionnaires were completed by students in classrooms or auditoriums during the spring term, 1997. Hierarchical multiple regression was used to examine the ability of the TPB to predict intentions and to assess the relative contribu-

tion of each of the model variables. Past experience and demographic characteristics were also examined. Analyses were carried out separately by sex. In each hierarchical analysis, intention was regressed first on the TPB variables. The second regression model added past experience

TABLE II
Intentions to Use Birth Control Pills Progressively Regressed on Measures of the Theory of Planned Behaviour, Past Behaviour, and Demographic Characteristics

Independent Variables	Model 1 b	Model 1 beta	Model 2 b	Model 2 beta	Model 3 b	Model 3 beta
Females						
Attitudes	0.375***	0.547	0.368***	0.537	0.357***	0.520
Subjective Norm	0.009	0.070	0.009	0.069	0.009	0.068
Perceived Behavioural Control	0.094	0.072	0.096	0.074	0.092	0.070
Used Birth Control Pills During the Past 3 Months†			0.931**	0.125	0.960**	0.129
Age					-0.102*	-0.090
0 - 2 years residence in Canada‡					0.101	0.019
3 - 5 years residence in Canada‡					-0.612*	-0.110
More than 5 years residence in Canada‡					-0.142	-0.035
R ²	0.368		0.383		0.405	
Males						
Attitudes	0.395***	0.660	0.395***	0.660	0.398***	0.666
Subjective Norm	0.004	0.042	0.004	0.042	0.004	0.039
Perceived Behavioural Control	0.038	0.038	0.038	0.038	0.037	0.037
Partners Used Birth Control Pills During the Past 3 Months†			-0.058	-0.010	-0.016	-0.003
Age					-0.012	-0.012
0 - 2 years residence in Canada‡					0.030	0.007
3 - 5 years residence in Canada‡					0.435*	0.087
More than 5 years residence in Canada‡					0.058	0.017
R ²	0.458		0.458		0.465	

* p<0.05 ** p<0.01 ***p<0.001

† Comparison group is students without prior experience with birth control pills during the past 3 months.

‡ Comparison group is native-born students.

and the third model added demographic variables. Mean substitution was used to replace missing values for the three outcome measures.^{32,33}

RESULTS

Intention to use birth control pills

The findings indicate some support for the TPB although, for both males and females, the only significant predictor of intention from the theory was attitude toward using pills (Table II). Students with positive (global) attitudes were more likely to intend to use pills. Neither subjective norm nor perceived behavioural control was predictive of intention for males or females. Other significant predictors of intention included past use of birth control pills (females); age (a negative predictor for females); and years of residence compared to born in Canada (3-5 years was a negative predictor of females' intentions and a positive predictor of males' intentions to insist that their partners use pills).

Intention to use condoms

As was the case with pills, the findings indicate some support for the TPB regarding intention to use condoms (Table III). For females, attitude toward using condoms was a positive predictor of intention. For males, all three components of the TPB (attitude, subjective norm, and perceived behavioural control) were significant positive predictors of intention. Other significant predictors of intention included past use (a negative predictor for females); age (a negative predictor for both males and females); and years of residence compared to born in Canada (more than 5 years was a negative predictor of females' intentions to insist that their partners use condoms).

Intention to use condoms in combination with birth control pills

The findings indicate some support for the TPB as a framework for predicting intention to use condoms in combination with pills (Table IV). As was the case with the two discrete intentions, attitude

towards using condoms in combination with pills was a significant positive predictor of intentions for females. In the case of males, all three TPB predictors were significant positive predictors of intention. Additional significant predictors of intention to use condoms in combination with pills included: past use of condoms in combination with pills (a negative predictor for females); age (a negative predictor for both males and females); and years of residence compared to born in Canada (0-2 years was a negative predictor of intention for females, while 0-2 years, and more than 5 years residence, were positive predictors of intention among males).

Predictive value of the theory of planned behaviour

The predictive value of the TPB as a whole was moderately high, explaining 36.8% (females) and 45.8% (males) of the variance in intention to use pills (Table II); 32.3% (females) and 23.5% (males) of the variance in intention to use condoms (Table III); and 35.3% (females) and 26.9% (males) of the variance in intention to use condoms in combination with pills (Table IV). Additional variables, included in subsequent models of the hierarchical multiple regression analyses, explained less additional variance in intention regarding either pill use or condom use than they did for intention to use condoms in combination with pills. These additional variables explained 6.1% of the total variance for females in intention to use condoms in combination with pills and 5.4% for males (Table IV).

DISCUSSION

The predictive value of the TPB was moderately high, explaining between 23.5% and 45.8% of the variance in intentions. Previous studies of adolescents' intentions to use birth control pills or condoms have shown that the TRA or the TPB accounts for between 10.6% to 50% of the variance in intention.^{9,19,22,26} The TPB is said to be a "sufficient" model – suggesting that variables external to the model, such as past use, age, and ethnicity, affect intentions indirectly through their influence on attitudes, subjective norm or

perceived behavioural control. However, in the current study, these variables exhibited some independent effects, although not always in the expected direction. Thus, it is important to include demographic and social (contextual) factors when using attitudinal models either to predict intention and behaviour, or as the basis for programs and policies in the field.

Results of this study indicate that attitudes were consistently, positively predictive of intentions to use condoms, pills, and condoms in combination with pills for both male and female students. Previous studies also report attitudes to be a significant predictor of high school age students' intentions to use condoms^{9,19,22,26} or pills (females only).¹⁹ However, results of this study found differences by gender in the degree to which subjective norms and perceived behavioural control predicted intentions. Previous studies using the TRA or the TPB have produced mixed results regarding the predictive value of subjective norms as related to intentions to use condoms^{9,19,22,26} or pills.¹⁹ Similarly, two previous studies examining the relationship between perceived behavioural control and high school students' intentions to use condoms found mixed results.^{9,26}

Ajzen's explanation for these differences would be that the relative importance of attitudes, subjective norms, and perceived behavioural control in predicting intention varies across behaviours and populations. However, this does not explain why subjective norm and perceived behavioural control are more predictive of intentions for males than females. One possible reason for the greater influence of subjective norm among males is that they may be more inclined to discuss condom use with friends in that condom use may be a "bragging point" relating to sexual activity. The intentions of female students, perhaps, are not as influenced by others because their sexual activity may be seen as more of a private and confidential matter. In order to examine this explanation empirically, further research is needed on male and female differences in the influence of subjective norms and perceived behavioural control on intentions. For example, focus groups could be used to explore the social context surrounding the influences on adolescent intentions.

TABLE III
Intentions to Use Condoms Progressively Regressed on Measures of the Theory of Planned Behaviour, Past Behaviour, and Demographic Characteristics

Independent Variables	Model 1		Model 2		Model 3	
	b	beta	b	beta	b	beta
Females						
Attitudes	0.324***	0.562	0.318***	0.551	0.303***	0.525
Subjective Norm	0.000	0.001	0.000	0.004	-0.001	-0.016
Perceived Behavioural Control	0.010	0.022	0.025	0.053	0.024	0.052
Partner Used Condoms During the Past 3 Months†			-0.532***	-0.158	-0.498***	-0.148
Age					-0.074*	-0.102
0 - 2 years residence in Canada‡					-0.321	-0.094
3 - 5 years residence in Canada‡					-0.167	-0.047
More than 5 years residence in Canada‡					-0.273*	-0.103
R ²	0.323		0.347		0.371	
Males						
Attitudes	0.185***	0.400	0.182***	0.392	0.177***	0.382
Subjective Norm	0.008**	0.119	0.008**	0.120	0.008**	0.121
Perceived Behavioural Control	0.041*	0.097	0.045*	0.104	0.041*	0.097
Used Condoms During the Past 3 Months†			-0.134	-0.053	-0.061	-0.024
Age					-0.074**	-0.117
0 - 2 years residence in Canada‡					-0.116	-0.044
3 - 5 years residence in Canada‡					0.138	0.042
More than 5 years residence in Canada‡					0.149	0.069
R ²	0.235		0.238		0.261	

* p<0.05 ** p<0.01 ***p<0.001

† Comparison group is students without prior experience with condoms during the past 3 months.

‡ Comparison group is native-born students.

The findings suggest that programs need to move beyond merely providing information to students and focus on the creation of positive attitudes regarding birth control pills and condoms. At a population level, health communication strategies (e.g., social marketing campaigns) could be developed to illustrate positive attitudes regarding these behaviours. At a small group or individual level, practitioners, such as nurses, physicians, and teachers, should engage in discussion with adolescents to determine their specific attitudes, including the beliefs underlying the attitudes. Discussion could ensue regarding how their attitudes and beliefs are supported or not supported by current information and research.

Because the current study highlighted the influential nature of subjective norms on males' intentions to use condoms, programs should focus on determining the salient social influences regarding condom use and targeting these individuals/groups as well as the adolescents themselves. The study also suggests that programs should

focus on developing strategies to increase students' control over the use of condoms and to make condoms easily and cheaply available to students.

The fact that older students were less likely to intend to enact these behaviours and that female students who had used condoms in the past said they were less likely to do so in the future are of concern. Although the study did not explore these issues, it is noteworthy that, in this community, most students are not involved in educational programs focussing on healthy sexuality beyond grade 9. These findings suggest that accurate information regarding behaviours to prevent pregnancy and sexually transmitted diseases need to be reinforced as adolescents get older.

ACKNOWLEDGEMENTS

The authors acknowledge the contribution of the following to this project: Board of Education staff and students, Cindy-Lee Dennis, Leanne Burton, Maureen Cava, Carol Farkas, Angela Golabek, Helen

TABLE IV
Intentions to Use Condoms in Combination with Birth Control Pills
Progressively Regressed on Measures of the Theory of Planned Behaviour,
Past Behaviour, and Demographic Characteristics

Independent Variables	Model 1		Model 2		Model 3	
	b	beta	b	beta	b	beta
Females						
Attitudes	0.406***	0.582	0.407***	0.583	0.378***	0.542
Subjective Norm	0.000	0.009	0.001	0.011	-0.001	-0.012
Perceived Behavioural Control	0.020	0.035	0.024	0.043	0.024	0.043
Combined Use of Condoms and Birth Control Pills During the Past 3 Months†			-0.899*	-0.107	-0.930**	-0.110
Age					-0.157***	-0.177
0 - 2 years residence in Canada‡					-0.455*	-0.110
3 - 5 years residence in Canada‡					-0.359	-0.082
More than 5 years residence in Canada‡					-0.229	-0.072
R ²	0.353		0.364		0.414	
Males						
Attitudes	0.287***	0.429	0.285***	0.426	0.284***	0.424
Subjective Norm	0.008*	0.088	0.008	0.086	0.009*	0.102
Perceived Behavioural Control	0.082**	0.134	0.087***	0.142	0.095***	0.154
Combined Use of Condoms and Birth Control Pills During the Past 3 Months†			-0.451	-0.071	-0.291	-0.046
Age					-0.187***	-0.204
0 - 2 years residence in Canada‡					0.364*	0.095
3 - 5 years residence in Canada‡					0.387	0.083
More than 5 years residence in Canada‡					0.367**	0.118
R ²	0.269		0.273		0.323	

* p<0.05 ** p<0.01 ***p<0.001

† Comparison group is students without prior experience with the combined use of condoms and birth control pills during the past 3 months.

‡ Comparison group is native-born students.

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Received: July 26, 1999

Accepted: March 6, 2000