

Models of Health-Related Behavior: A Study of Condom Use in Two Cities of Argentina

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This study aimed at determining the relative importance of motivational and control factors in the prediction of condom use in a high-risk heterosexual sample from two cities of Argentina. Participants reported their attitudes, norms, control perceptions, intentions, and condom use with regard to main and occasional partners. Control perceptions was the main predictor for intentions to use condoms and actual condom use with both partners. Furthermore, the norm of the partner predicted condom use with the main partner, whereas the norm of family and friends predicted condom use with occasional partners. There were no differences in condom-use determinants across men and women. Interventions for this population should train at-risk heterosexuals to manage the personal and interpersonal difficulties of condom use and warn audiences of implicit theories that associate love and commitment with perceptions that condom use with main partners is unnecessary.

KEY WORDS: Health behavior; prediction; condoms; heterosexuals; Argentina.

INTRODUCTION

Argentina has one of the highest rates of infection with HIV in South America. There are currently 21,865 individuals diagnosed with AIDS (Programa Nacional de Lucha contra los Retrovirus del Humano, SIDA y ETS, 2002), although recent estimates calculate 25,411 Argentines living with the disease. Furthermore, infection through heterosexual sex increased from 18% (6% and 29% for men and women, respectively) of all infection cases in 1990 to 55.6% (33% and 78.2% for men and women, respectively) in 2001 (Programa Nacional de Lucha contra los Retrovirus del Humano, SIDA y ETS, 2002). Within Argentina, the situation is especially critical in the province of Buenos Aires, which is the country's largest and most urban state. The province has the highest incidence of HIV infections in the country and heterosexual contagion is one of the most prevalent paths to infection,

especially among women. Within the state of Buenos Aires, the cities of Bahía Blanca and La Plata experience continuous traffic of people and concentration of armed forces and students, factors that increase the likelihood of occasional sexual encounters and HIV infections (Bayés, 1995). Despite the dangerous profile of the HIV epidemic in Argentina, no research has systematically investigated the motivational and cognitive factors that put Argentines at risk. In an attempt to fill this gap, we report a research study that had the objective of understanding the determinants of condom use in a high-risk population from the Argentine cities of La Plata and Bahía Blanca (Buenos Aires).

Models of Condom Use

Most research in the area of HIV prevention has followed one or more of the following three general models of behavior prediction and change: (1) the theory of reasoned action, (2) the social learning theory, and (3) the theory of planned behavior (e.g., Albarracín *et al.*, 1998; Cochran *et al.*, 1992; Fishbein *et al.*, 1995; Fisher *et al.*, 1995; Middlestadt *et al.*, 1995; Rye *et al.*, 2001). These models propose

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partially overlapping factors that presumably determine people's decisions to use condoms. The *theory of reasoned action* (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) maintains that individuals who develop favorable intentions to use condoms will in turn use condoms. Furthermore, individuals may intend to use condoms if they have a positive attitude toward condom use and perceive that their important others want them to use condoms. People may form a positive attitude toward condom use if they believe that the behavior has more positive than negative consequences (i.e., outcome beliefs weighted by the desirability of these outcomes). Similarly, people who perceive that significant individuals (e.g., friends, family, priest, etc.) and/or institutions (e.g., the health department in their area) expect them to use condoms and are motivated to comply with those normative referents should be more likely to perceive general normative pressure in favor of condom use than people who perceive little social support for the behavior. That is, pro-condom-use attitudes and norms constitute important "motivations" to use condoms (Fisher and Fisher, 1992).

According to the *social learning theory* (Bandura, 1989, 1997), people will use condoms if they perceive that they are capable of sorting obstacles to the behavior and have the ability to promote the behavior even in light of difficulties. Inspired by the concept of self-efficacy, Ajzen (1991; see also Ajzen, 2002; Ajzen and Madden, 1986) proposed that intentions depend not only on attitudes and norms, as proposed by Fishbein and Ajzen (1975), but also on perceived behavioral control. In addition, perceptions of control may influence the likelihood that people act on the basis of their intentions. That is, people are more likely to form intentions to engage in behaviors they believe they can perform, and also engage in behaviors more when they have actual control over the behavior. Recent conceptualizations (Ajzen, 2002) formally integrated control perceptions in a unitary latent construct with two dimensions: self-efficacy, or the perception that one is capable of using condoms despite the difficulties (e.g., "when my partner is very excited"), and expectations of the general controllability or agency over the behavior (e.g., "using condoms is up to me").

Relative Influence of Motivation and Control Perceptions

Models of the HIV behavior prediction identified motivation (i.e., attitudes and norms) and control perceptions (self-efficacy and perceived control) as

critical influences on condom use (Fisher and Fisher, 2000; Fisher *et al.*, 1994; for other influences on condom use see Catania *et al.*, 1990, 1994; Picciano *et al.*, 2001; Prochaska *et al.*, 1994). Presumably, when the behavior is easy to perform, the motivation to engage in it is sufficient to actually undertake it. However, when the behavior is difficult for a given population, control perceptions may influence both intentions and actual condom use because they affect the intermediate behaviors and recruitment of resources that are necessary to accomplish the behavioral goal. To this extent, control factors may be most influential when people are ill positioned to overcome personal and interpersonal barriers to perform the behavior (Ajzen, 1991). For example, Simbulan *et al.* (2001) suggested that women and groups at risk may need to perceive strong self-efficacy to sort the social and economic disadvantages that may come in the way of condom use. Social and economical drawbacks put these groups in worse conditions for impulse control (Tross, 2001), for asserting their position in front of their partners (Amaro, 1995; Kalichman *et al.*, 1998; Maxwell and Boyle, 1995), and for obtaining access to condoms. Power imbalances are, in addition, critical in the case of women, who can only exert an indirect control over protection because male condoms are anatomically designed for men (Gómez and Marín, 1996). In this regard, traditional cultural scripts that rule the sexual behavior of many Argentines may worsen Argentine women's position to negotiate condom use by prescribing a submissive sexual conduct for women (Marín *et al.*, 1997). Using condoms, however, also may be difficult for men living in cultures with traditional gender beliefs, such as Argentine men (Marín *et al.*, 1997). For example, traditional lay theories of gender differences tend to associate uncontrollable sex drive with "masculinity" (Burgos and Díaz-Pérez, 1986). To this extent, stopping to buy condoms when one does not have one at hand may be incongruent with men's self-definitions. In sum, men and women with traditional gender roles may require high levels of perceived control to engage in condom use.

Just as with the influence of control perceptions, whether norms and attitudes have an impact on condom use is likely to depend on the population one examines (Ajzen and Fishbein, 1980). For example, because people are more influenced by friends and family than by occasional partners, people may use condoms with an occasional partner provided that their friends believe that condom use is appropriate and justified in that context. In contrast, the opinion of the partner may be the only one that matters when

people have sex with steady partners because these partners are in a better position to influence decision making than occasional ones.

METHOD

To analyze the determinants of condom use in our Argentine target population, we first constructed a questionnaire on the basis of a previous elicitation of beliefs and pilot testing of measures of attitudes, norms, and control perceptions concerning condom use with main and occasional partners. We then used correlational and regression analyses to determine the relative influence of attitudes, norms, and control perceptions regarding condom use with main and occasional partners on intentions and actual condom use behavior.

Participants

During the year 1998, we recruited 101 heterosexual clients undergoing HIV testing in two large hospitals located in Bahía Blanca and La Plata, Buenos Aires State, Argentina: Centro Municipal de Salud Dr. Leónidas Lucero in Bahía Blanca, and Hospital Interzonal General de Agudos San Martín in La Plata. These hospitals are referral centers for the region and provide health care at no cost. Clients eligible for HIV testing in the HIV clinic are generally considered to be at risk for HIV infection (Kamb *et al.*, 1998).

Procedure

Physicians invited clients soliciting HIV counseling and testing to complete a prescreening questionnaire to determine eligibility for the study. To be eligible, clients had to report heterosexual intercourse in the previous 6 months and self-identify as heterosexual. Eligible clients then answered a research questionnaire administered by two trained interviewers in individual interview rooms. The introduction to the questionnaire informed participants about the study objectives, emphasizing the confidentiality of the responses and the normalcy of a large range of sexual activities. To further diminish the probability of biased responses due to shame and/or evaluation concerns, interviewers asked participants whether they had concerns about (1) being negatively evaluated, (2) being asked to provide responses that might

be embarrassing, (3) the confidentiality of their responses, and (4) any other issue related to the research. Interviewers further emphasized confidentiality and evaluative neutrality to those participants who answered "yes" to any of the above questions. The self-report of sexual behavior of participants who reported concerns did not differ from the behaviors reported by participants who responded "no" to all questions ($p > .30$).

The research questionnaire was administered in Spanish and took approximately 45 min to complete. Although participants did not receive any monetary compensation for their participation, only 8% of eligible clients refused to participate. Participants returned to the physician's office and underwent the usual counseling and testing procedures in place at the hospitals where the research took place once they finished answering the questionnaire.

Measures

Participants who had either or both main or occasional sexual partners answered questions regarding using condoms with main and occasional partners in the following 6 months.³ The 6-month time frame reflects the "window period" within which individuals who may be at risk of HIV infection are uncertain of their HIV status. The questions concerned (1) attitudes, (2) norms, (3) control perceptions, (4) intentions, and (5) condom use behavior. We first asked participants, "Is there anybody whom you have considered your partner for more than 3 months?" Partners who did not fit these criteria were coded as occasional partners. When participants had both main and occasional partners, they answered questions in relation to those partners. When participants did not have either main or occasional partners, we asked them to imagine their reactions if they had a main or occasional partner during the following 6 months. Six participants failed to answer all questions about occasional partners due to fatigue. Although those participants were less educated relative to the rest of the sample, ($F(1, 99) = 6.45, p < .013$), they did not differ in any of the key variables of the study (all $ps > .13$). As we presently report, responses with respect to real and imagined partners did not differ.

³Although our questionnaire included questions about both anal and vaginal sex, we excluded part of those data due to the low prevalence of anal sex in our sample ($M = 3.5$ and $M = 2.30$ for occasions of anal sexual intercourse in the last 6 months for main and occasional partners, respectively).

All measures of this study except those of condom use were constructed in two steps to maximize clarity and make response formats meaningful for participants of different literacy levels. Specifically, measures of direct attitudes, general norms, and control perceptions followed those of the Project RESPECT (Kamb *et al.*, 1998), a multisite randomized trial comparing interventions to increase condom use and prevent infection with HIV. For example, these measures allow the researcher to construct semantic-differential attitude scales by having respondents evaluate a general statement as globally good or bad and then asking them to assert the degree to which the statement is good or bad. Authors translated selected RESPECT items into Spanish and piloted the resulting measures with a sample of 40 participants. The format of the scales of indirect attitudes and specific norms also resembled those of the Project RESPECT, although we derived the specific beliefs from a previous elicitation study conducted with the same target population.

Attitudes

We measured *direct attitudes* by means of 10 semantic differential scales (good/bad, something that I like/dislike, negative/positive, correct/incorrect, gratifying/frustrating, necessary/unnecessary, moral/immoral, useful/useless, pleasant/unpleasant, and appropriate/inappropriate) presented in two stages. For example, we first asked participants whether “using condoms when you have sexual intercourse with your main (occasional) partner” was *good*, *bad*, or *neither bad nor good*; or *something that you like*, *something that you dislike*, or *something that you neither like nor dislike*. When participants selected a nonneutral response such as *good* or *bad*, they also indicated whether condom use was *very good* or *bad*, *fairly good* or *bad*, or *slightly good* or *bad*. For example:

Using condoms when you have sexual intercourse with your main partner is:

1. good X
2. bad
3. neither good nor bad

and

Using condoms when you have sexual intercourse with your main partner is:

1. very good
2. fairly good X
3. slightly good

Or:

Using condoms when you have sexual intercourse with your main partner is:

4. good
5. bad X
6. neither good nor bad

and

Using condoms when you have sexual intercourse with your main partner is:

4. very bad X
5. fairly bad
6. slightly bad

We then used the answers to the two questions to construct a -3 to 3 bipolar scale. Positive answers received 3 , 2 (see first example above), or 1 depending on whether participants reported that condom use was *very good*, *fairly good*, or *slightly good*, respectively. Correspondingly, negative answers received -3 (see second example above), -2 , or -1 depending on whether participants reported that condom use was *very bad*, *fairly bad*, or *slightly bad*, respectively. The score for neutral answers (*neither good nor bad*) was 0 . On the basis of internal consistency analyses (Cronbach's $\alpha = .85$ and $.77$ for attitudes toward using condoms with main and occasional partners, respectively), we averaged the responses on all 10 dimensions to create overall indexes of attitudes toward condom use with main and occasional partners.

The questionnaire also included questions to measure beliefs and evaluations of the consequences of using condoms, or *indirect attitudes*. These questions referred to 12 outcomes elicited from an independent sample of 40 participants from the same population, such as “using condoms with my main partner may make me feel safe.” As with attitudes, we constructed the measures of outcome beliefs on the basis of participants' responses to two questions. For example, participants first answered, “Do you agree or disagree that using condoms with your main (occasional) partner would make you feel safe?” on a scale that included whether they *strongly*, *moderately*, or *slightly* agreed or disagreed with that assertion. Scores ranged from -3 to 3 depending on whether the participant *strongly*, *moderately*, or *slightly* agreed or disagreed that the outcome would take place. The score for neutral responses was 0 . To measure outcome evaluations, we used the same approach as for attitudes. Thus, participants first responded whether

each outcome (e.g., “feeling safe”) was *good*, *bad*, or *neither*, and then indicated whether it was *very*, *fairly*, or *slightly good* or *bad*. We scored answers from -3 to 3 with a neutral point of 0 . As a measure of indirect attitudes, we multiplied the belief (b) in each outcome (i) by the evaluation (e) of each outcome and then averaged over the number (k) of outcomes (Fishbein and Ajzen, 1975) as follows: Attitude = $(\sum b_i^* e_i) / k$. The Cronbach’s alphas for the indirect attitude scales were $.78$ and $.70$ for main and occasional partners, respectively.

Norms

We elicited the population’s relevant normative referents from an independent sample of 40 participants from the target population. On that basis, we constructed measures of subjective norms (i.e., general norm) and normative beliefs or specific norms following Ajzen and Fishbein’s (1980) recommendations. We obtained measures of norms by asking participants whether (1) people who were important to the participant, (2) friends and family (including opinions of the mother, father, siblings, male friends, and female friends), and (3) partner (or partners) thought that the participant should use condoms when having sex with main and occasional partners. Participants indicated whether they *agreed*, *disagreed*, or *neither agreed nor disagreed*, and indicated whether they *strongly*, *moderately*, or *slightly* agreed or disagreed that others thought they should use condoms. As with the previous measures, we scored responses on a bipolar scale with -3 to 3 anchors with a neutral point of 0 .

We also obtained measures of motivation to comply with each social referent. That is, people reported whether in the domain of condom use with main and occasional partners, they tended to do what their significant others, family and friends, and partner (or partners) thought they should do. As with the other measures, participants responded to two questions that allowed us to construct 7-point scales of motivation to comply. Following Ajzen and Fishbein’s (1980) recommendations, measures of motivation to comply were scored unipolarly, ranging from 1 to 7 with a neutral point set at 4 . Finally, to obtain the overall measures of the subjective norm, we multiplied the relevant belief measures by the corresponding motivation to comply. For the beliefs about specific family members and friends, we averaged the resulting products for each type of normative belief. The reliability of the measures of the norms of family and friends

were $\alpha = .88$ and $.80$ for main and occasional partners, respectively.

Control Perceptions

Participants were asked whether using condoms in the next 6 months with main and occasional partners was *up to them*, *not up to them*, or *neither*. They also answered whether they were *able*, *unable*, or *neither able nor unable* to use condoms when (1) the partner refuses to use condoms, (2) one is very excited, (3) the partner is very excited, and (4) condoms are not readily available. Finally, clients indicated whether using condoms with each type of partner was *very*, *fairly*, or *slightly* up to them, or not up to them, and whether they were *very*, *fairly*, or *slightly* able or unable to use condoms under those specific circumstances. These responses were used to create scales from -3 to $+3$ using the same procedures as for the earlier measures. We averaged responses to all five questions as a single measure of control perceptions (Cronbach’s $\alpha = .89$ and $.83$ for main and occasional partners, respectively).

Intention

Two sets of items measured the intentions to use condoms in the medium and long term. We asked participants whether they *did*, *did not*, or *neither did nor did not* have the intention to use condoms with their main or occasional partner (or partners) in (1) the following 3 months and (2) the following 6 months. When participants reported either having or not having an intention to use condoms, they were also asked whether they *very*, *fairly*, or *slightly* intended to use or not use condoms. These responses were used to create scales from -3 to $+3$ with the same procedures as for the earlier measures. The measures of 3- and 6-months intentions correlated highly for both partners ($r = .77$ and $.89$ for main and occasional partners, respectively, $p < .001$ in both cases) and were thus averaged as composite measures of intentions to use condoms in each case.

Condom-Use Behavior

In addition to measuring intentions, we obtained a measure of recent past condom use. This measure may be an indication of participants’ recent intentions even if their intentions had changed at the time of deciding to undergo HIV testing (Fishbein and Ajzen, 1975). Specifically, we asked participants to report

(1) the number of times they had sexual intercourse with main and occasional partners in the last 6 months and (2) the number of those times they used condoms with each partner. We selected the 6-month interval of time to allow for higher variance in the condom use measure. To report their sexual behavior, participants recalled the number of sexual intercourses and condom use occasions they had monthly, beginning from the most remote month, and then described their behavior for each month, including the most recent one. Interviewers summed participant's responses and recorded the total number of sexual intercourses and the total number of sexual intercourses with condoms. We converted condom use reports into percentages by dividing the total number of times participants used condoms in the last 6 months over the total number of intercourse occasions during the same time frame.⁴

RESULTS

Characteristics of the Sample

Forty-six male and 55 female participants were eligible for the study. Participants' mean age was 25.95 years ($SD = 6.93$), and 51% did not complete high school. Most of the participants were Catholic (61%), 31% reported no religion, and the remaining 8% were members of other religious denominations. Forty-six participants resided in the city of Bahía Blanca and 55 in La Plata.

Eighty participants only had a main partner during the previous 6 months, 47 only had occasional partners, and 27 had both main and occasional partners. Participants reported an average of 73.35 ($SD = 64.14$) sexual intercourses with their main partner within the last 6 months, and having used condoms a mean of 28% ($SD = 39$) of those occasions. The average number of occasional partners in the sample was

1.81 ($SD = 3.64$) and participants reported a mean of 21.28 ($SD = 39$) intercourses with occasional partners over the last 6 months. The mean of condom use with occasional partners was 44% ($SD = 43$). There were no differences in gender, age, educational level, religion, or prior sexual behaviors across the two cities ($p > .10$ in all cases).

Influences on Intentions and Behavior

Descriptive statistics and correlations among attitudes, norms, perceptions of control, intentions, and condom use appear in Table I. As shown by the means in the table, participants had more favorable intentions, attitudes, norms, and control perceptions with respect to occasional partners than with respect to main partners, $t(1, 94) = 4.10$, $p < .001$ in all cases. Regardless of the type of partner, intentions correlated highly with direct and indirect attitudes, indirect norms, and control perceptions. Furthermore, condom-use behavior was highly associated with norms and perceived control across partners. Direct and indirect attitudes and norms also correlated strongly.

Before fitting regression models for intentions and condom use behavior, we tested the relations proposed by the theories of reasoned action and planned behavior regarding the antecedents of behavioral intentions: direct and indirect attitudes, and general and specific norms. Consistent with those theories, direct but not indirect attitudes predicted intentions when the two measures of attitudes were included in the equation ($\beta = 0.39$ and 0.40 , respectively, for the influence of direct attitudes on intentions for main and occasional partners, $p < .001$ in both cases; $\beta = 0.12$ and 0.09 , respectively, for the influence of indirect attitudes on intentions for main and occasional partners, $p > .29$ in both cases). In contrast, only the more specific norms of the friends and family and the partner had an impact on intentions when controlling for general norms (for similar findings, see Sheeran *et al.*, 1999). That is, when participants thought about using condoms with their main partner, the norms of their friends and family as well as the partner norm both predicted intentions ($\beta = 0.57$ and 0.33 , respectively, $p < .001$ in both cases), but the influence of the general norm was not significant, $\beta = -0.07$, $p < .51$. Also, the norms of the partner and the family and friends correlated significantly with intentions to use condoms with occasional partners ($\beta = 0.43$ and 0.29 , respectively, $p < .05$ in both cases), but the general

⁴To determine the validity of the self-reported behavior, we tested the impact of variables whose effect is well known on sexual behavior. As expected, men reported having had more occasional partners than women (means 2.91 vs. 0.89), $F(1, 99) = 8.30$, $p < .005$. Participants with higher educational level reported more frequent condom use with both main and occasional partners than participants with less formal instruction ($r = .40$, $p < .002$, and $r = .23$, $p < .05$). Participants reported more sexual intercourses with primary partners and more frequent vaginal intercourse relative to anal intercourse (all $p < .05$). Older participants reported having used condoms less frequently with their main partners than younger participants ($r = -.35$, $p < .002$).

Table I. Descriptive Statistics and Correlations

	<i>M</i>	<i>SD</i>	Direct attitudes	Indirect attitudes	General norm	Norm of friends and family	Norm of partner	Control perceptions	Intention	Condom use
Main partners										
Direct attitudes	0.62	1.22	1.00							
Indirect attitudes	2.24	2.99	.65***	1.00						
General norm	4.30	7.97	.36***	.48***	1.00					
Norm of friends and family	3.40	5.93	.48***	.51***	.67***	1.00				
Norm of partner	1.57	13.70	.37***	.44***	.24*	.37***	1.00			
Control perceptions	-0.31	2.15	.52***	.48***	.23*	.46***	.70***	1.00		
Intention	0.06	2.29	.48***	.38***	.25*	.44***	.40***	.59***	1.00	
Condom use	28.09	38.9	.17	.26*	.46***	.24*	.63***	.57***	.18	1.00
Occasional partners										
Direct attitudes	1.32	0.91	1.00							
Indirect attitudes	3.81	2.05	.56***	1.00						
General norm	11.15	7.79	.36***	.26*	1.00					
Norm of friends and family	9.16	6.11	.47***	.38***	.78***	1.00				
Norm of partner	6.76	9.00	.24*	.15	.12	.24	1.00			
Control perceptions	1.16	2.02	.50***	.41***	.33**	.43***	.53***	1.00		
Intention	2.24	1.49	.47***	.33***	.06	.21**	.37***	.60***	1.00	
Condom use	43.65	42.68	.25	.42***	.43***	.43***	.14	.39***	.34*	1.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

norm had no influence, $\beta = 0.15$, $p > .27$. This finding is consistent with recent discussions about the superiority of specific measures over the more general ones with regard to social norms (Trafimow, 2000) and the possibility that different normative referents have different types of influence depending on the nature and context of the behavior.

On the basis of the previous mediation analyses, we followed the theoretical assumptions regarding the influence of attitudes, norms, and control perceptions and regressed intentions on direct attitudes, norms of friends and family, norms of the partner, and control perceptions. A summary of these analyses appears in Table II. As the first section of the table shows, specific norms, direct attitudes, and control perceptions explained 40% and 42% of the variance in intentions to use condoms with main and occasional partners, respectively. Moreover, intentions were positively correlated with direct attitudes and perceptions of control regardless of the type of partner. Excluding participants who responded about hypothetical partners led to the same conclusions as findings with the overall sample. Attitudes and control perceptions were the best predictors of intentions to use condoms with main and occasional partners for those who actually had main or occasional partners in the last 6 months (see the second panel of Table II). In these cases, the models explained 41% of the variance in intentions to use condoms with main partners and 30% of the variance in intentions to use condoms with occasional partners. Furthermore, as shown in

the third section of Table II, control perceptions and norms both predicted past condom use, but the patterns were different across the two types of partners. Whereas the partner norm was associated with condom use with main partners, the norms of family and friends correlated with condom use with occasional partners.⁵ Of relevance for the study's hypotheses, separate regression analysis for men's and women's intentions and behaviors yielded similar results.

DISCUSSION

This study is the first to determine that at-risk heterosexual Argentines from Buenos Aires state report very low condom use, particularly in the context of steady sexual relationships. For example, only 10% and 30% of participants used condoms every time they had sex with main and occasional partners, respectively, relative to 30–40% among other heterosexual populations (Bajos *et al.*, 1995; Brown *et al.*, 1992). In fact, the percentages of reported condom use with main partners are comparable with those of people living in high-risk neighborhoods of New York City (28% in Argentina vs. 32% in New York City, respectively; for the latter, see Friedman *et al.*, 2001), and percentages of people who reported frequent condom use with occasional partners were only moderately

⁵As the outcome variable was condom use in the past, intentions to use condoms in the following 6 months were not entered in the regression equation.

Table II. Regression Analyses^a

Independent measures	Main partner				Occasional partner			
	β	95% CI		R^2	β	95% CI		R^2
		LL	UL			LL	UL	
Intentions with actual and hypothetical partners (full sample)								
Attitudes	0.19*	0.00	0.38		0.27**	0.07	0.47	
Norm of friends and family	0.15	-0.03	0.34		-0.15	-0.34	0.04	
Norm of partner	-0.05	-0.27	0.17		0.06	-0.14	0.25	
Control perceptions	0.46***	0.22	0.70	.40	0.50***	0.27	0.72	.42
Intentions with actual partners								
Attitudes	0.21*	0.00	0.42		0.34*	0.14	0.55	
Norms of friends and family	0.17	-0.04	0.37		0.00	-0.46	0.05	
Norms of partner	-0.00	-0.27	0.25		-0.13	-0.39	0.13	
Control perceptions	0.42***	0.13	0.72	.41	0.30*	0.01	0.58	.30
Condom use behavior								
Attitudes	-0.14	-0.35	0.06		-0.04	-0.38	0.30	
Norm of friends and family	-0.02	-0.23	0.18		0.34*	0.01	0.70	
Norm of partner	0.46**	0.19	0.70		-0.03	-0.35	0.30	
Control perceptions	0.30*	0.02	0.59	.44	0.27+	-0.09	0.61	.24

^aEntries include standardized regression coefficients, lower and upper limits (LL and UP) of 95% confidence intervals (CI), and squared multiple regression coefficients.

+ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

higher than those of some urban communities of the sub-Saharan Africa (30% in Argentina vs. 25% in sub-Saharan Africa; for the latter, see Lagarde *et al.*, 2001).

Consistent with past research (e.g., Albarracín *et al.*, 1998; Cochran *et al.*, 1992; Fishbein *et al.*, 1995; Fisher *et al.*, 1995; Middlestadt *et al.*, 1995; for reviews, see Albarracín *et al.*, 2001; Sheeran *et al.*, 1999), this study showed that the theories of reasoned action and planned behavior as well as social learning theory are useful for understanding different aspects of condom use. Specifically, in the Argentine sample we analyzed, perceptions of control were the most important determinant of intentions to use condoms and actual condom use with both main and occasional partners. Attitudes and norms also had an influence. Positive attitudes predicted stronger intentions to use condoms. A positive partner norm increased condom use with main partners, and a positive norm from family and friends increased condom use with occasional partners.

The Role of Control Perceptions

In our sample, Argentines who felt that they were competent enough to use condoms had more favorable intentions to use condoms and actually used condoms to a greater extent than individuals who doubted their ability to carry out their intentions. The greater influence of control perceptions compared to atti-

tudes does not imply that Argentines do not hold expectancies regarding the outcomes of condom use. For example, a man may expect that using condoms will prevent infection with HIV, but may also perceive that he will be unable to avoid intercourse when condoms are not available. Likewise, a woman may think that using condoms will be uncomfortable but use condoms anyway because she feels embarrassed to assert her position in front of her sexual partner. Thus, the participants in our sample appeared to make decisions based on their perceived ability to succeed at condom use and paid less attention to the probable outcomes of the behavior.

This study also showed that perceptions of competency to use condoms may be equally important for men and women, implying that condom use may be perceived as difficult by Argentines regardless of their gender. This finding may appear inconsistent with prior assertions that perceived control factors may be more important for women than for men (Amaro, 1995; Soet, 1999) because power distance makes condom use more difficult for women. However, our study complements prior arguments and highlights that the influence of control perceptions on intentions and behaviors may relate not only to women's disadvantaged position for condom use, but also to males' difficulties in impulse control as prescribed by machismo beliefs. In any case, the findings regarding perceptions of control are important for HIV-prevention interventions because they imply

that even when people encounter serious obstacles for condom use, they can nevertheless attempt to perform a behavior when they perceive that they will be able to do so.

The Role of Norms

This research suggested that different norms may come into play with different kinds of partners, with norms of partners versus norms of friends and family correlating with condom use with main and occasional partners, respectively. This conclusion is consistent with Sheeran *et al.*'s (1999) hypothesis that the partner norm is critical when relationships are steady. It seems reasonable to hypothesize that individuals are more aware of the opinions of steady, well-known partners, but act on the basis of more general social norms when making decisions about condom use with occasional partners. Furthermore, because norms correlated more strongly with condom use than with intentions to use condoms, our data suggest that the influence of the behavior of others on one's condom use may be as important as the influence of others' opinions on one's intentions (Cialdini *et al.*, 1991; Sheeran *et al.*, 1999).

The Role of Attitudes

In our sample of high-risk Argentines, attitudes toward condom use were not related to past condom use, suggesting that participants may have changed their attitudes at the time they solicited the HIV testing. Presumably, people who request counseling and testing put themselves at risk in the past, but later reevaluated the consequences of their risky behaviors and decided to change (Fishbein and Ajzen, 1975; Ickovics *et al.*, 1994). Consistent with this possibility, whereas current attitudes were unrelated to participants' earlier behavior, factors less likely to change as a result of people's reevaluations of the consequences of risky behaviors (i.e., norms and control perceptions) did predict participant's past condom use.

Implications of This Research for Prevention of HIV in Argentina

Extensive outcome research on HIV prevention suggests that theoretically based and culturally sensitive preventive interventions are likely to be most effective at inducing behavior change (Albarraçin *et al.*, 2001; Fisher and Fisher, 2000; Kelly *et al.*, 2000; Sheeran *et al.*, 1999). In the population we analyzed,

the key correlates of condom use were control perceptions and norms. Consequently, preventive interventions in Argentina may benefit from including a behavioral-skills component to counter risky situations that make impulse control and condom-use negotiation difficult. For example, Argentine clients in counseling-and-testing programs could be trained to avoid having sex under the influence of alcohol or drugs, have condoms always readily available, assert their position when confronting disagreements with their sexual partners, and initiate negotiation of condom use before the sexual encounter (for reviews, see Kalichman, 1998; Kelly, 1995).

Our research also implies that slightly different programs may be necessary for Argentine clients depending on whether these clients have main or occasional partners. Consistent with Misovich *et al.*'s (1997) findings, having a steady partner appears to increase risk for unprotected sex, in part because people elaborate implicit theories that a partner they love is a "safe" partner. An intervention based on our study should train recipients in the correct identification of "safe" partners as those who have a negative HIV test and are monogamous, and increase the social approval for using condoms within steady relationships. Interventions to increase condom use with occasional partners should, in turn, recruit support from the broader social context of friends and family.

Limitations

Although this study facilitated the understanding of different aspects of condom use in Argentina, the research we present has limitations. For one thing, the design is cross sectional and does not allow for an examination of the effect of intentions on future behaviors. In addition, although we took several precautions to increase the validity of behavioral reports, the study results rely on self-reported behavior, which can be sensitive to demand and presentation concerns. Also, memory-based distortions may affect self-reported behaviors even when researchers apply techniques to promote people's accurate recall. Finally, the study sample is small and participants were not selected at random, which limited the generalizability of our findings and prevented us from testing important interactions. Despite these limitations, we hope that this first empirical analysis of condom use determinants in Argentina will provide insights into the development of effective prevention interventions and serve as a basis for further theory-based research on Argentines' condom use.

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REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179–211.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, *32*, 665–683.
- Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I., and Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, *42*, 426–435.
- Albarracín, D., Fishbein, M., and Middlestadt, S. (1998). Generalizing behavioral findings across times, samples, and measures: A study of condom use. *Journal of Applied Social Psychology*, *28*, 657–674.
- Albarracín, D., Johnson, B. T., Fishbein, M., and Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin*, *127*, 142–161.
- Amaro, H. (1995). Love, sex, and power: Considering women's realities in HIV prevention. *American Psychologist*, *50*, 437–447.
- Bajos, N., Wadsworth, J., Ducot, B., and Johnson, A. M. (1995). Sexual behaviour and HIV epidemiology. Comparative analysis in France and Britain. *AIDS*, *9*, 735–743.
- Bayés, R. (1995). *Sida y Psicología*. Barcelona: Martinez Roca.
- Bandura, A. (1989). Perceived self-efficacy in the exercise of personal agency. *Bulletin of the British Psychological Society*, *10*, 411–424.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Brown, L. K., DiClemente, R. J., and Park, T. (1992). Predictors of condom use in sexually active adolescents. *Journal of Adolescent Health*, *13*, 651–657.
- Burgos, N. M., and Díaz-Perez, Y. I. (1986). An exploration of human sexuality in the Puerto Rican culture. *Journal of Social Work and Human Sexuality*, *4*, 135–150.
- Catania, J. A., Coates, T. J., and Kegeles, S. (1994). A test of the AIDS risk reduction model: Psychosocial correlates of condom use in the AMEN Cohort Survey. *Health Psychology*, *13*, 548–555.
- Catania, J. A., Kegeles, S. M., and Coates, T. J. (1990). Towards an understanding of risk behavior: An AIDS reduction model (ARRM). *Health Education Quarterly*, *17*, 53–72.
- Cialdini, R. B., Kallgren, C. A., and Raymon, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. *Advances in Experimental Social Psychology*, *24*, 201–234.
- Cochran, S. D., Mays, V. M., Ciarletta, J., Caruso, C., and Mallon, D. (1992). Efficacy of the theory of reasoned action in predicting AIDS-related sexual risk reduction among gay men. *Journal of Applied Social Psychology*, *22*, 1481–1501.
- Fishbein, M., and Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fishbein, M., Trafimow, D., Middlestadt, S. E., Helquist, M., Francis, C., and Eustace, M. A. (1995). Using an AIDS KABP survey to identify determinants of condom use among sexually active adults from St. Vincent and the Grenadines. *Journal of Applied Social Psychology*, *25*, 1–20.
- Fisher, J. D., and Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin*, *111*, 455–474.
- Fisher, J. D., and Fisher, W. A. (2000). Theoretical approaches to individual-level change in HIV risk behavior. In J. L. Peterson and C. C. DiClemente (Eds.), *Handbook of HIV prevention* (pp. 3–55). New York: Kluwer Academic/Plenum.
- Fisher, J. D., Fisher, W. A., Williams, S. S., and Malloy, T. E. (1994). Empirical test of an information–motivation–behavioral skills model of AIDS preventive behavior with gay men and heterosexual university students. *Health Psychology*, *13*, 238–250.
- Fisher, W. A., Fisher, J. D., and Rye, B. J. (1995). Understanding and promoting AIDS preventive behavior: Insights from the theory of reasoned action. *Health Psychology*, *14*, 255–264.
- Friedman, S. R., Flom, P. L., Kottiri, B. J., Neaigus, A., Sandoval, M., Curtis, R., Des Jarlais, D. C., and Zenilman, J. M. (2001). Consistent condom use in the heterosexual relationships of young adults who live in a high-risk neighborhood and do not use “hard drugs.” *AIDS Care*, *13*, 285–296.
- Gómez, C. A. and Marín, B. V. (1996). Gender, culture, and power: Barriers to HIV-prevention strategies for women. *Journal of Sex Research*, *33*, 355–362.
- Ickovics, J. R., Norril, A. C., Beren, S. E., and Walsh, U. (1994). Limited effects of HIV counseling and testing for women: A prospective study of behavioral and psychological consequences. *Journal of the American Medical Association*, *272*, 443–448.
- Kalichman, S. C. (1998). *Preventing AIDS. A sourcebook for behavioral interventions*. Mahwah, NJ: Erlbaum.
- Kalichman, S. C., Williams, E. A., Cherry, C., Belcher, L., and Nachimson, D. (1998). Sexual coercion, domestic violence, and negotiating condom use among low-income African American women. *Journal of Women's Health*, *7*, 371–378.
- Kamb, M. L., Fishbein, M., Douglas, J. M., Jr., Rhodes, F., Rogres, J., Bolam, G., et al. (1998). Efficacy of risk-reduction counseling to prevent human immunodeficiency virus and sexually transmitted diseases: A randomized controlled trial. *Journal of the American Medical Association*, *280*, 1161–1167.
- Kelly, J. A. (1995). *Changing HIV risk behavior: Practical strategies*. New York: Guilford Press.
- Kelly, J. A., Somlai, A. M., DiFranceisco, W. J., Otto-Salaj, L. L., McAuliffe, T. L., Hackl, K. L., Heckman, T. G., Holtgrave, D. R., and Rompa, D. (2000). Bridging the gap between the science and service of HIV prevention: transferring effective research-based HIV prevention interventions to community AIDS service providers. *American Journal of Public Health*, *7*, 1082–1088.
- Lagarde, E., Auvert, B., Sukwa, T., Glynn, J. R., Weiss, H. A., Akam, E., Laourou, M., Carael, M., and Buve, A. Study group on the heterogeneity of HIV epidemics in African cities. (2001). Condom use and its association with HIV/sexually transmitted

- diseases in four communities of sub-Saharan Africa. *AIDS*, 15, 71–78.
- Marín, B. V., Gómez, C. A., Tschann, J. M., and Gregorich, S. E. (1997). Condom use in unmarried Latino men: A test of cultural constructs. *Health Psychology*, 16, 458–467.
- Mexwell, C., and Boyle, M. (1995). Risky heterosexual practices amongst women over 30: Gender, power and long term relationships. *AIDS Care*, 7, 277–293.
- Middlestadt, S., Fishbein, M., Albarracín, D., Francis, C., Eustace, M. A., Helquist, M., and Schneider, A. (1995). Evaluating the impact of a National Aids Prevention Radio Campaign in St. Vincent and the Grenadines. *Journal of Applied and Social Psychology*, 25, 21–34.
- Misovich, S. J., Fisher, J. D., and Fisher, W. A. (1997). Close relationships and elevated HIV risk behavior. Evidence and possible underlying psychological processes. *Review of General Psychology*, 1, 72–107.
- Picciano, J. F., Roffman, R. A., Kalichman, S. C., Rutledge, S. E., and Berghuis, J. P. (2001). A telephone based brief intervention using motivational enhancement to facilitate HIV risk reduction among MSM: A pilot study. *AIDS and Behavior*, 5, 251–262.
- Prochaska, J. O., Redding, C. A., Harlow, L. L., and Rossi, J. S. (1994). The transtheoretical model of change and HIV prevention: A review. *Health Education Quarterly*, 21, 471–486.
- Programa Nacional de Lucha contra los Retrovirus del Humano, SIDA y ETS. (2002). *Boletín sobre SIDA en la República Argentina*. Buenos Aires: Ministerio de Salud.
- Rye, B. J., Fisher, W. A., and Fisher, J. D. (2001). The theory of planned behavior and safer sex behaviors of gay men. *AIDS and Behavior*, 5, 307–317.
- Sheeran, P., Abraham, C. H., and Orbell, S. (1999). Psychosocial correlates of heterosexual condom use. A meta-analysis. *Psychological Bulletin*, 125, 90–132.
- Simbulan, N. P., Aguilar, A. S., Flanigan, T., and Cu-Uvin, S. (2001). High-risk behaviors and the prevalence of sexually transmitted diseases among women prisoners at the women state penitentiary in Metro Manila. *Social Science and Medicine*, 52, 599–608.
- Soet, J. E., Dudley, W. N., and Dilorio, C. (1999). The effects of ethnicity and perceived power on women's sexual behavior. *Psychology of Women Quarterly*, 23, 707–723.
- Trafimow, D. (2000). A theory of attitudes, subjective norms, and private versus collective self-concepts. In D. J. Terry and M. A. Hogg (Eds). *Attitudes, behavior, and social context: The role of norms and group membership*. (pp. 47–65). Mahwah, NJ: Erlbaum.
- Tross, S. (2001). Women at heterosexual risk for HIV in inner-city New York: Reaching the hard to reach. *AIDS and Behavior*, 5, 131–139.