Revista Iberoamericana de las Ciencias de la Salud | RICS ISSN: 2395 - 8057

https://doi.org/10.23913/rics.v9i17.83

Artículos Científicos

Predictores del uso del condón en hombres que tienen relaciones sexuales con hombres en Costa Rica: comprobación del modelo de información, motivación y habilidades conductuales

Predictors of Condom Use Among Young Men who Have Sex with Men in Costa Rica: Testing the Information-Motivation-Behavioral Skills Model

Preditores de uso de preservativo em homens que fazem sexo com homens na Costa Rica: verificando o modelo de informação, motivação e habilidades comportamentais

Daniel Gredig
University of Applied Sciences and Arts Northwestern Switzerland, School of Social Work, Olten, Suiza
daniel.gredig@fhnw.ch
https://orcid.org/0000-0002-7014-7601

Maritza Le Breton
University of Applied Sciences and Arts Northwestern Switzerland, School of Social Work, Olten, Suiza
maritza.lebreton@fhnw.ch
https://orcid.org/0000-0002-2324-3035

Itzel Granados Valverde
Universidad Libre de Costa Rica, Escuela de Trabajo Social, San José, Costa Rica
itzel1389@gmail.com
https://orcid.org/0000-0003-2316-0659

Revista Iberoamericana de las Ciencias de la Salud | RICS ISSN: 2395 - 8057

Viviana Solís Lara
Universidad Libre de Costa Rica, Escuela de Trabajo Social, San José, Costa Rica
vsolis@pani.go.cr

Resumen

En Costa Rica se han incrementado los nuevos diagnósticos del virus de inmunodeficiencia humana (VIH). La epidemia afecta desproporcionadamente a hombres que tienen relaciones sexuales con hombres (HSH). Por consiguiente, el foco de interés de este estudio se centró en la conducta de protección de estos y la identificación de predictores del uso del condón. El estudio persiguió indagar: *a)* estrategias personales de protección ante una infección por VIH de HSH de 18 a 24 años en Costa Rica, *b)* consistencia del uso del condón de este grupo con parejas ocasionales, *c)* en qué medida puede validarse el modelo de información, motivación y habilidades conductuales (IMB, por sus siglas en inglés) como explicativo del uso del condón. Se realizó una muestra de accesibilidad de 238 HSH de 18 a 24 años. La recopilación de datos se efectuó a través de entrevistas personales estandarizadas. El análisis estadístico se efectuó mediante estadística descriptiva y procedimientos bi y multivariadas. La comprobación del modelo IMB se realizó mediante modelos de ecuaciones estructurales. Los 119 encuestados con parejas ocasionales en los seis meses previos señalaron una amplia gama de estrategias personales de protección. Solo 5.6 % indicó no tomar conscientemente precauciones frente a una infección. De los participantes que mantuvieron relaciones anales con parejas ocasionales en los seis meses previos, 13.4 % indicaron haber utilizado siempre un condón. La prueba del modelo IMB evidenció que el uso del condón está codeterminado por la estrategia personal y la severidad percibida de una infección. Es decir, el modelo IMB no se comprobó en su totalidad. El estudio genera información que puede servir como base para la prevención y destaca el rol de las estrategias personales de protección frente al VIH y de inhibidores situacionales y relacionados a la pareja. Los resultados invitan a la extensión del modelo IMB.

Palabras clave: comportamiento de protección, hombres gay, modelo de ecuación estructural, prevención.

Abstract

During the last decade in Costa Rica, the number of newly diagnosed HIV infections has increased. As in many countries across the globe, men who have sex with men (MSM) have been disproportionally affected. Given the need for a knowledge base for interventions, this study focussed on the HIV-protection behaviour of young MSM and predictors of condom use. Specifically, the aim of the study was a) to identify the personal HIV protection strategies which had been adopted by young MSM aged 18-24 living in Costa Rica, b) to assess the consistency of condom use of young MSM when having sex with casual partners, and c) to test the explanatory power of the Information-Motivation-Behavioural skills (IMB) model regarding the condom use of MSM with casual partners. For our data collection, we conducted standardized personal interviews with an availability sample of 238 young MSM aged 18-24. Data were analyzed using descriptive statistics and multivariate analyses. The IMB model was tested using structural equation modelling. The 119 participants who had sex with casual partners had adopted a wide range of personal HIV protection strategies. Only 5.6% of the respondents reported that they had not adopted a strategy to consciously prevent an HIV infection. Among those MSM who had had anal sex with casual partners in the six previous months, 13.4% reported consistent condom use. The test of the IMB model showed that the consistency of condom use was predicted by the personal HIV protection strategy and the perceived severity of an HIV infection. Thus, the data did not fully confirm the IMB model. This study provides insights into condom use of young MSM with casual partners and, thus, adds to the knowledge base needed for the development of prevention offers. It demonstrates the impact of personal HIV protection strategies as well as situational and partner-related barriers to condom use. The findings offer an incentive to further develop and extend the IMB model.

Keywords: protective behavior, gay men, structural equation model, prevention.

Resumo

Na Costa Rica, novos diagnósticos do vírus da imunodeficiência humana (HIV) aumentaram. A epidemia afeta desproporcionalmente homens que fazem sexo com homens (HSH). Portanto, o foco deste estudo se concentrou em seu comportamento protetor e na identificação de preditores de uso de preservativo. O estudo procurou investigar: a) estratégias de proteção pessoal contra a infecção pelo HIV de HSH de 18 a 24 anos na Costa Rica; b) consistência do uso de preservativos desse grupo com parceiros ocasionais; c) em que medida o modelo pode ser validado de informação, motivação e habilidades comportamentais (IMB) como uma explicação do uso do preservativo. Foi feita uma amostra de acessibilidade de 238 HSH de 18 a 24 anos. A coleta de dados foi realizada por meio de entrevistas pessoais padronizadas. A análise estatística foi realizada utilizando estatística descritiva e procedimentos bi e multivariados. O modelo IMB foi verificado usando modelos de equações estruturais. Os 119 entrevistados com parceiros casuais nos seis meses anteriores indicaram uma ampla gama de estratégias de proteção pessoal. Apenas 5,6% indicaram não tomar precauções conscientemente contra uma infecção. Dos participantes que tiveram relações anais com parceiros ocasionais nos seis meses anteriores, 13,4% indicaram que sempre usaram preservativo. O teste do modelo IMB mostrou que o uso de preservativo é co-determinado pela estratégia pessoal e pela gravidade percebida de uma infecção. Ou seja, o modelo IMB não foi totalmente verificado. O estudo gera informações que podem servir de base para a prevenção e destaca o papel das estratégias pessoais de proteção contra o HIV e inibidores situacionais e relacionados ao parceiro. Os resultados convidam a extensão do modelo IMB.

Palavras-chave: comportamento protetor, homens gays, modelo de equações estruturais, prevenção.

Fecha Recepción: Mayo 2019 **Fecha Aceptación:** Diciembre 2019

Introduction

The HIV pandemic has affected various regions of the world, as well as diverse populations and communities very differently. In a global view, the group proportionately most affected by HIV is the group of men who have sex with men (MSM) - not only in the countries of the North, where the situation of MSM received attention since the beginning of the epidemic , but also in the countries of the South, in which this disparity was recognized with some delay (Beyrer et al., 2012) -. This pattern is reproduced in Costa Rica, where there is an increase in new diagnoses as of 2009. The rate of diagnosed infections increased from 10.4 per 100,000 population in 2009 to 19.6 in 2017 (women: 5.6; men: 33.3) (Ministry of Health / National Council for Comprehensive Care for HIV and AIDS [Conasida], 2016) and with an important impact on young people (Ministry of Health, 2018). As mentioned, there is evidence, for many years (Bortman et al., 2006), that the group of MSM is being disproportionately affected (Ministry of Health, 2018). Along these lines, the Ministry of Health and Conasida (2016) declared a "concentrated epidemic" in MSM, sex workers and transgender people. In this context, the Ministry of Health confirmed that prevention offers aimed at the MSM population should be promoted (Ministry of Health, 2016).

Therefore, it is interesting to know the protective behavior of MSM. However, specific knowledge is scarce. The study on the prevalence of sexually transmitted infections (STIs) and risk behaviors of MSM living in the Greater Metropolitan Area, carried out in 2009 and published a year later by the Ministry of Health (2010), points out, as soon as When using the condom, 29.3% of men (aged 18 to 64) always used it in relationships with the stable partner in the previous year and 23.1% indicated that they had never used it. As for the last anal sex, 43.7% indicated that they had used a condom. Of the men with casual partners, 45.3% said they had always used a condom with casual partners in the previous year, and 7.7% said they had never used it. Regarding the last anal sexual relationship with an occasional partner, 67.9% of the informants indicated that they had used a condom (Ministry of Health, 2010). Unfortunately, the publication does not allow an analysis by age groups. This last observation must also be considered in relation to the most recent study, carried out in 2012, which shows that 82.2% of the MSM interviewed between 18 and 40 years of age had used a condom in their last relationship with a male partner and 74.2% declare having used the condom, without exception, in their last relationship. Considering the use "from beginning to end of the relationship", this proportion is reduced to 20.3% (Population Services International Research Division, 2012). However, this survey did not investigate differences in protective behavior according to the type of partner (stable versus occasional).

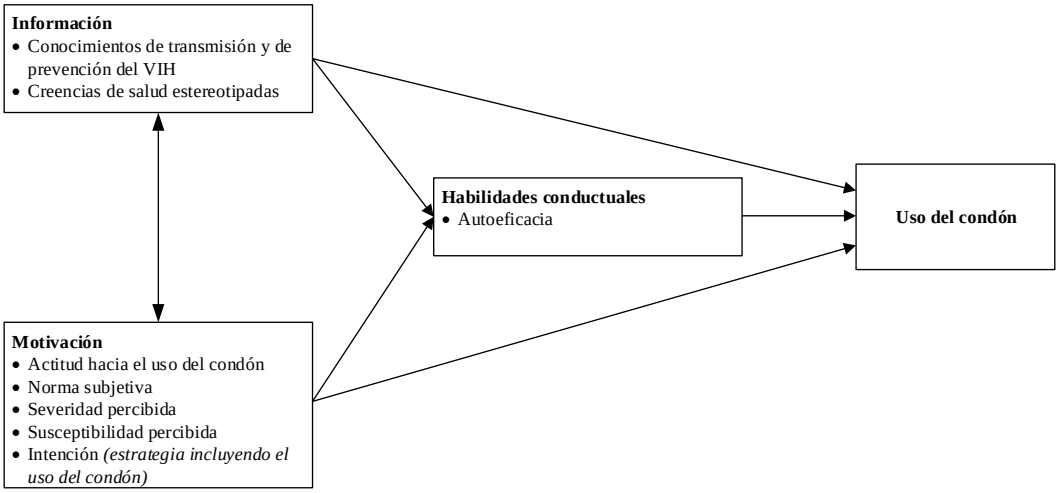
A recent qualitative study on HIV protection behavior of young adults in Costa Rica investigated how hetero, bi or homosexual young men and women protect themselves from infection. He also reconstructed personal strategies for protection against HIV, which include the action plans that people intend to carry out in terms of protection against this virus, reflected the habit developed in protective behavior and showed a wide range of alternative behaviors to use of the condom (Granados, Gredig, Le Breton and Solís, 2013).

Undoubtedly, the configuration of the factors is of interest, on which the use of the condom described depends. The research entitled "Costa Rica (2012): TRaC Study of HIV / AIDS, MSM in San José, Costa Rica", concludes that 68.8% of MSM interviewed in San José demonstrated complete transmission and prevention knowledge (Population Services International Research Division , 2012). In addition, he identified the self-esteem of the respondents as (sole) determinant of the consistent use of the condom. Although so far it has not been sufficiently investigated on what factors the protective behavior against HIV described depends.

In the context of prevention-oriented social research, several models have emerged that make up the set of influential factors in HIV protection behaviors and, in particular, the use of condoms in various target groups - as well as the theory of planned behavior (Ajzen, 1985, 1991), the AIDS risk reduction model (Catania, Coates and Kegeles, 1994) or the information, motivation and behavioral skills model in the prediction of condom use [IMB] (Fisher and Fisher, 1993) -. The IMB model has proven its effectiveness with respect to various prevention target groups in different contexts (Fisher and Fisher, 1993; Fisher, Fisher, Williams and Malloy, 1994). A critical review of these models, however, indicates that they are too focused on sociocognitive factors. Then, the objective would be to consider, increasingly, other factors (Coates, Richter and Caceres, 2008; De Visser and Smith, 1999; Gredig, Nideröst and Parpan, 2007; Moatti and Souteyrand, 2000). Therefore, research on the causes of protective and risk behavior against HIV may conform to the models mentioned, due to their reliability. However, it is necessary to contribute to the complementation of these models.

The IMB model, tested multiple, states that condom use is determined by behavioral skills. These are determined by information and motivation. However, information and motivation can directly determine condom use.

Figura 1. Modelo IMB tradicional



Fuente: Elaboración propia

Objective

This study aims to provide insight into the HIV protection behavior of young MSM living in Costa Rica and identify predictors of condom use. Specifically, it sought to investigate: a) personal protection strategies against an HIV infection of MSM aged 18 to 24 in Costa Rica, b) consistency of the use of the MSM condom with occasional partners and c) to what extent the IMB model can be validated as explanatory of condom use.

This verification of the model was carried out considering the use of the condom in anal relations in the six months prior to the survey. Figure 1 shows the hypotheses that form the following object of verification.

Method

The survey was applied as a cross-sectional study. In this regard, the research converges with numerous verifications of the IMB model.

Data collection

Personal interviews were implemented using a standardized questionnaire. The questions and response categories were read aloud and the informants' responses were recorded in the questionnaire, which was based on the IMB model (figure 1).

The operational process considered instruments already adequately tested in other studies (Fisher, Fisher, Bryan and Misovich, 2002; Fisher, Fisher, Misovich, Kimble and Malloy, 1996; Fisher, Davis, Yarber and Davis, 2010). When they were accessible, versions of the instruments (measures) previously used and tested in Spanish-speaking research were used. The development of the questionnaire was also supported by the results of the qualitative study (anonymous reference), in order to meet the specific methodological requirements of the mentioned model (Fisher and Fisher, 1992).

The exact formulation of questions and answers considered the assessment that questions about sexual behavior should be formulated with long sentences (more than 20 words). The importance of using colloquial language (familiar wording) was also considered (Blair, Sudman, Bradburn and Stocking, 1977; Catania, Kegeles and Coates, 1990; Weinhardt, Forsyth, Carey, Jaworski and Durant, 1998). This language was derived from qualitative study. Finally, it was considered to maintain a balanced dramaturgy of the questionnaire that allows the course of a natural interlocution, simplify answering and place the key questions in the field between 60 and 100 items (Költringer, 1993; Scherpenzeel and Saris, 1997).

The interviews lasted between 30-45 minutes and were conducted from April to July 2014.

The instrument was subjected to a previous test with 53 people to ensure the understanding of questions and answers, the correct handling of the questionnaire and its feasibility. This test of the instrument allowed the modification and led to the complementation of the questionnaire.

The interviews were conducted by Spanish-speaking members of the research team and a group of 15 students (seven men and eight women). The students signed a confidentiality agreement, were trained for this task and supervised throughout the data collection phase.

Operationalization and measures

The questionnaire evaluated the constructs of the IMB model: Information, Motivation and Behavioral Skills. According to the correspondence principle (Ajzen, 1988), the formulation of all the variables was specified for the use of the condom. The Information construct included two variables: 1) Knowledge of HIV transmission and prevention and 2) Stereotyped health beliefs. The Motivation construct included four variables: 1) Attitudes towards condom use, 2) Subjective norm, 3) Perceived severity of an HIV infection and perceived susceptibility, and 4) the intention to use condoms in terms of a personal strategy that involves Use of this method with occasional partners. The Behavioral Skills construct was operationalized by self-efficacy in condom use.

Personal HIV protection strategies adapted by informants were identified by an item. In addition, sociodemographic characteristics and sexual history information, number of couples in the last six months and self-identification of sexual orientation were captured. Table 1 shows the measures used to measure these variables.

The original instrument to measure the perceived severity consists of four items; but due to insufficient internal cohesion it was reduced to one item, with a higher apparent validity.

To determine the use of condoms in anal relations in the six months prior to the survey, a list of questions was carried out. Initially it was captured if the informant had an occasional partner (s). In the second stage, it was inquired whether the informant exercised a type of practice (anal, oral, vaginal) with that partner (s) in the six months prior to the survey. In the third stage, the consistency of condom use in the anal relations of this period was determined by a six-point Likert scale, which ranged from “never” (1) to “almost never”, “rarely”, “ often ”,“ most of the time ”and“ always ”(6).

Tabla 1. Exposición de las medidas utilizadas para evaluar las variables independientes en el modelo IMB

Constructo Variables	**Núm. de ítems**	**Escala de respuestas**	**Rango teórico de la medida**	**Alfa de Cronbach**	**Fuente**
Información					
Conocimientos sobre transmisión y prevención del VIH	20	0-1 1-4	0-40	NA	Ministerio de Salud (2011) Paniagua *et al*. (1994) / Maldonado *et al*. (2001)
Creencias de salud estereotipadas	4	Escala de Likert 1-4	1-4	0.75	Paniagua *et al*. (1994) / Maldonado *et al*. (2001
Motivación					
Actitudes hacia el uso del condón	12	Escala de Likert 1-4	1-4	0.70	Paniagua *et al*. (1994) / Maldonado *et al*. (2001)
Norma subjetiva	2	Escala de Likert 1-4	1-4	0.77	Robles *et al*. (2011)
Severidad percibida	(4*)1	Escala de Likert 1-4	1-4	0.51	Kelly *et al*. (1998)
Susceptibilidad percibida	1	Escala de Likert 1-4	1-4	–	Paniagua *et al*. (1994) / Maldonado *et al*. (2001)
Intención: Índice de estrategias personales de protección frente al VIH	6	Respuestas múltiples 0-1	…	NA	Construido a partir de la investigación cualitativa (anonimizado, 2013)

Habilidades conductuales Autoeficacia en el uso del condón	6	Escala de Likert 1-4	1-4	0.83	Paniagua *et al*. (1994) / Maldonado *et al*. (2001)

Nota: * = Número original de ítems.

Fuente: Elaboración propia

Sample

Accessibility sampling was applied to MSM between 18 and 24 years living in Costa Rica. The selection was made through a recruitment process, which led to a wide diversity of informants in all regions of the country. Thus, the informants were encouraged to participate through flyers distributed in MSM meeting places (such as bars and discos), in social networks (Facebook), Internet sites aimed at the virtual meeting between MSM, non-governmental organizations, people close to the "gay scene", even and finally by the project's own collaborators, connoisseurs of meeting places of MSM in the Greater Metropolitan Area.

The respect of the freedom of participation, dignity and privacy of all informants was ensured. All gave their informed and explicit consent to participate in the investigation.

Analysis

The data obtained were processed and read by the IBM SPSS Statistics 22 program. All values were encoded or recoded so that a high value represented a high or positive expression of the variable. On the scales, the missing values were replaced by the average responses.

Statistical data analysis was performed using descriptive statistical procedures, as well as bi and multivariate procedures. The models were checked in the form of a structural equation model by the AMOS 22 program. This procedure excludes variables with missing values. To avoid the loss of cases due to missing values, a multiple imputation was processed including all the variables of the model (Lüdtke, Robitzsch, Trautwein and Köller, 2007). The model test was performed using a two-stage procedure. First this was specified according to the IMB model hypotheses, considering the variables that proved to be significant predictors in the analysis of previous regressions. The

variables Behavioral skills and condom use were even transformed by taking their logarithms. Next, the model was modified according to the modification indicators identified by AMOS if the indication was in accordance with the IMB model (Schumaker and Lomax, 2004). The method used was the generalized least squares (GLS) procedure, which allows the calculation of structural equations, including variables with values without normal distribution. The model fit assessment was carried out using the indicators Goodness of fit index (GFI), Goodness of fit adjusted index (AGFI), the ratio Chi squared / degrees of freedom, Quadratic mean of errors (SRMR) and Root square of the mean square error (RMSEA).

Results

Sample Description

The sample included 238 MSM. Of these, 221 were identified as homosexual (92.9%), 13 as bisexual (5.5%), two as heterosexual (0.8%) and two did not respond (0.8%). With respect to the gender of their partners, “ligues” or “sets”, 207 men indicated having relations only with men (87%), eight men reported having relations with men and women (3.4%), seven indicated having relations with women (2.9%) and 16 (6.7%) did not indicate the gender of their partner (s). A group of 96 MSM (40.3%) reported having a stable partner. The remaining characteristics of men are presented in table 2.

Tabla 2. Características sociodemográficas de los informantes (*n* = 238)

Variable	**Descriptor**	**N**	**%**
Edad	18	20	8.4
	19	31	13.0

	20	38	16.0
	21	38	16.0
	22	38	16.0
	23	37	15.5
	24	35	14.7
	No responde	1	0.4
Media	21.24		
Mediana	21		
Estado de relación actual	Sin relación	60	25.2
	Ligues	78	32.8
	Relación de pareja	100	42.0
Tipo de relación de pareja	Anda con alguien	30	30.0
	Noviazgo	58	58.0
	Unión libre	11	11.0
	Matrimonio	1	1.0
Estado serológico	Seronegativo	233	97.9
	Seropositivo	1	0.4
	No responde	4	1.7
Escolaridad	Ninguna	1	0.4
	Primaria incompleta	2	0.9
	Primaria completa	9	3.8
	Secundaria incompleta	45	18.9
	Secundaria completa	43	18.1
	Técnico medio	8	3.4
	Universidad incompleta	95	39.9
	Diplomado	3	1.3
	Bachillerato universitario	20	8.4
	Licenciatura	6	2.5
	Maestría	2	0.8
	No responde	4	1.7
Ingresos económicos propios mensuales	Ninguno	76	31.9

	Menos de ₡100 000	0	0
	₡100 000-₡150 000	11	4.6
	₡151 000-₡200 000	13	5.5
	₡201 000-₡250 000	17	7.1
	₡251 000-₡300 000	18	7.6
	₡301 000-₡350 000	26	10.9
	₡351 000-₡400 000	18	7.6
	₡401 000-₡450 000	13	5.5
	₡451 000-₡500 000	7	2.9
	Más de ₡500 000	14	5.9
	No sabe/No responde	25	10.5
Ingresos económicos familiares mensuales	Ninguno	4	1.7
	Menos de ₡100 000	0	0
	₡100 000-₡150 000	2	0.8
	₡151 000-₡200 000	5	2.1
	₡201 000-₡250 000	11	4.6
	₡251 000-₡300 000	5	2.1
	₡301 000-₡350 000	16	6.7
	₡351 000-₡400 000	9	3.8
	₡401 000-₡450 000	13	5.5
	₡451 000-₡500 000	12	5.0
	Más de ₡500 000	98	41.2
	No sabe/No responde	63	26.5
Tipo de seguro	Directo	76	42
	Familiar	76	42
	Voluntario	17	7.1
	Estatal	20	8.4
	Otro	2	0.8
	Ninguno	31	13.0
	No sabe/No responde	16	6.7
Nacionalidad	Costarricense	214	89.9

	Nicaragüense	15	6.3
	Estadounidense	3	1.3
	Colombiana	2	0.8
	Panameña	1	0.4
	Otra	1	0.4
	No responde	2	0.8

Fuente: Elaboración propia

Personal strategies for protection against HIV

The research shows a wide range of personal protection strategies acquired by the participants, as well as the frequency of individual strategies (exclusive or in combination with others). Strategies that minimize the risk of HIV transmission (condom use or safer sex) were included, which entail a reduction in risk (dipping / coitus interruptus or negotiated safety / negotiated safety) or are a priori ineffective (such as relying on physical appearance or hygiene, find out the sexual history of the couple or trust that an infected couple would inform them about it). There are informants who prefer abstinence or monogamy. There are also people with alternative strategies that, depending on the couple or the situation, flexibly implement a different strategy. Finally, there is also a conscious decision not to prevent the spread of HIV. These people do not select any personal protection strategy and disregard precautions and measures. In this sample, 13 men (5.6% of the participants) indicated that they had no conscious protection strategy against HIV. No informant mentioned preexposure prophylaxis (PrEP). Figure 2 visualizes the strategies acquired by the participants and their frequency.

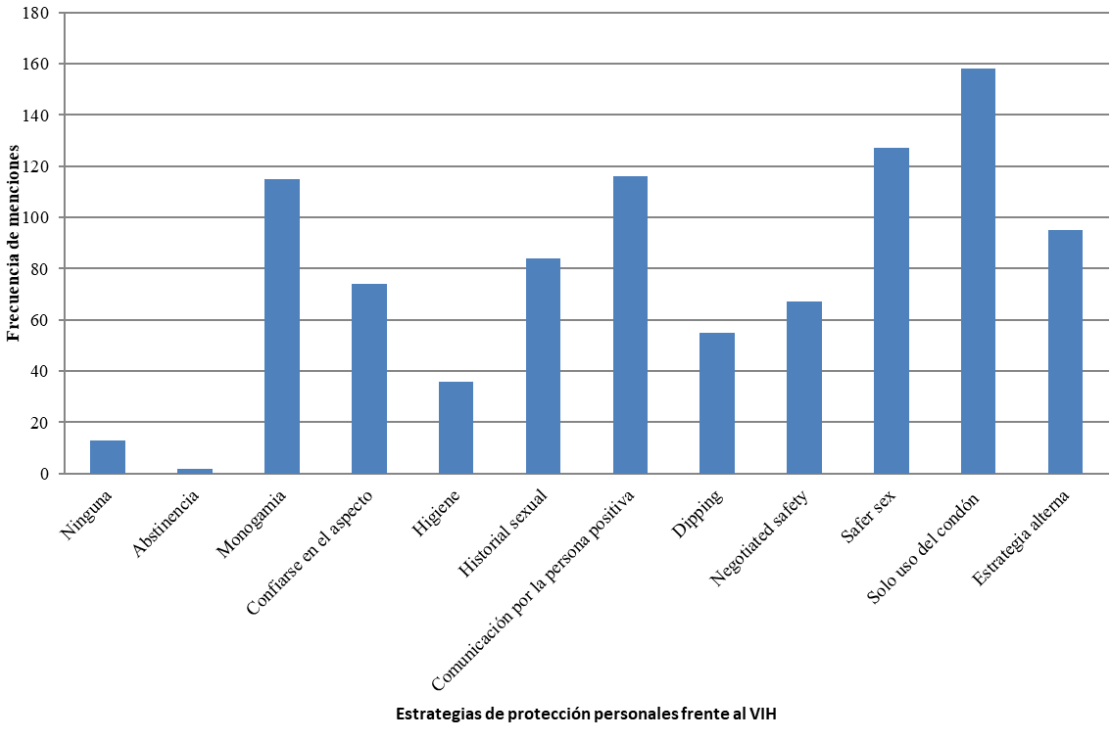
Abstinence is the least frequent strategy. Only two men (0.9% of the participants) indicated betting on it. Although both adhere to abstinence, in the sense of "not having sex before marriage," one of them claimed to have occasional partners.

Among the 115 men who indicated having committed to monogamy (49.8% of the participants), in the sense of having sex with a single partner (at the same time), 53 (46%) had a stable partner. On the other hand, 44 (38%) men in this group had no stable partner and, therefore, had sexual relations with occasional partners in the last six months.

However, only in the "safer sex" strategies (use the condom in all sexual contacts with both vaginal and anal penetration and avoid contact with semen during oral sex) and in the condom use strategy (use the condom in case of penetration), the condom is an indispensable component of

protection strategies. Of the MSM surveyed, a total of 166 informants (69.7%) have acquired a strategy that involves the use of condoms, 72 informants (30.3%) are committed to strategies that do not consider the use of condoms.

Figura 2. Estrategias personales de protección frente al VIH (*n* = 231; respuestas múltiples)



Fuente: Elaboración propia

Consistency of condom use with occasional partners

A fraction of 134 men (56.3% of the sample) reported having had sexual encounters with occasional partners during the last six months. This group includes a number of men (n = 31) who have occasional relationships while having a stable partner (corresponds to 33% of those with stable partners), 113 men had two or more occasional partners, of which 105 are identified as homosexuals , seven as bisexual and one as heterosexual. The average number of casual couples in the last six months was 1.95 (SD = 1.849, Md = 1). In relation to the number of occasional partners, the differences between men, of different orientations, do not prove to be significant (X2 = 25,578, df = 30, p = 0.700). Among the participants who reported having had relationships with occasional partners in the previous six months, the average number of these couples was 2.90 (ED = 1.892, Md = 2).

Of the informants who had sexual encounters with occasional partners, 119 practiced anal sex. Of these, a proportion of 13.4% indicated a consistent use of the condom ("all times"), 23.5% indicated its use in most cases, 15.1% often, 32.8% rarely, 8.4% almost never and 6.7 % never. There is no evidence of a significant association of condom use with sociodemographic characteristics (Table 3). With respect to the last relationship with penetration (anal or vaginal), 66.4% indicated having used a condom.

Tabla 3. Resumen de las asociaciones de la consistencia en el uso del condón con variables sociodemográficas

	Uso del condón con pareja ocasional		
Variable	**Coeficiente**	**Valor**	**Significancia *P***
Orientación sexual	X^2(df)	3.935(10)	0.950
Tipo de relación actual	X^2(df)	9.660(15)	0.841
Edad	*Spearman's rho*	-0.16	0.074
Escolaridad	X^2(df)	32.587(45)	0.806
Ingresos propios	*Spearman's rho*	-0.035	0.835
Ingresos familiares	*Spearman's' rho*	0.175	0.185
Nacionalidad	X^2(df)	22.941(25)	0.581

Fuente: Elaboración propia

An analysis of the group of 25 of the 31 participants who had relations with an occasional partner while having a stable relationship shows a strong association of the consistency of condom use in anal relations with the stable partner and occasional partners (Tau- b = 0.756, $p \leq 0.000$).

The 119 participants with occasional partners indicated the reason for not using a condom. These reasons are considered to allow a view of condom use inhibitors related to both the situation and the couple. Participants mentioned inhibitors such as the lack of condom availability in the situation at the time of sexual activity (n = 54), alcohol consumption (n = 42) or drugs (n = 19) before and during the relationship, allergy to latex (n = 3), trust in the couple (n = 39), feelings of love and attachment (n = 4) or rejection of use by the couple (n = 4). The multivariate analysis (regression analysis) led to the conclusion that the lack of condom availability (therefore, a

situational inhibitor) (β = -0.302, p = 0.002) and confidence in the occasional partner (an inhibitor in relation to the couple) (β = -0.190, p = 0.038) were significant predictors of condom use with occasional partners.

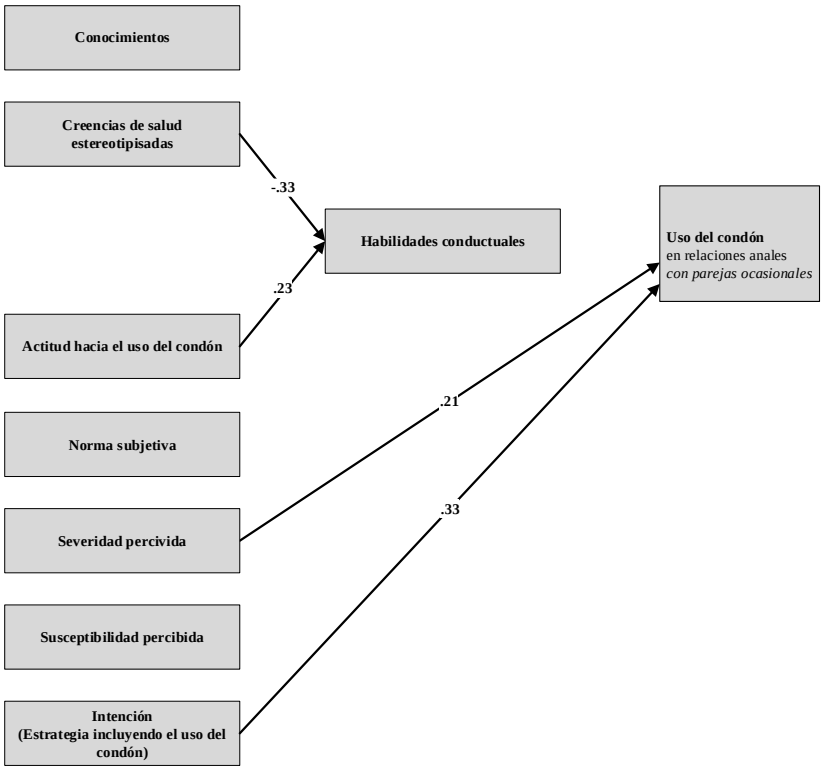
IMB model check

The analysis concludes that only the variables of the Motivation construct are predictors of condom use in anal relationships with occasional partners. Specifically, the intention in its form of personal strategy that implies the use of the condom proved to be a strong predictor of consistency in its use. The second predictor turned out to be the perceived severity of an HIV infection. Neither the Behavioral Skills variable nor those of the Information construct proved to be significant predictors of the variation in consistency of condom use.

In turn, the Behavioral Skills variable turned out to be determined by a Motivation construct variable, specifically Attitudes towards condom use, as well as a variable from the Information construct, Stereotyped Health Beliefs.

The details can be seen in the upper part of table 5 and figure 3. According to the specified criteria, the structural model demonstrates a very good fit (table 5); The adjusted R2 value is 0.21, which indicates that the model can explain a 21.1% percentage of the variation in the consistency of condom use. (The statistical description of the variables in the model is in the appendix.)

Figura 3. Comprobación del modelo IMB. Visualización de los resultados



Nota: *n* =119; método GLS; GFI = 0.989; AGFI = 0.952; SRMR = 0.0348; CMIN/df = 0.571, *p* = 0.839; RMSEA = 0.000; representación de los coeficientes significativos.

Fuente: Elaboración propia

Tabla 4. Predictores del uso del condón en relaciones anales con parejas ocasionales según el modelo IMB

Variables			**Pesos de regresión estandarizados β**			
			Estimación	**Inferior**	**Superior**	***P***
Habilidades conductuales	<---	Norma Subjetiva	0.108	-0.045	0.283	0.268
Habilidades conductuales	<---	Severidad percibida	-0.101	-0.267	0.062	0.273
Habilidades conductuales	<---	Susceptibilidad percibida	-0.127	-0.296	0.027	0.194
Habilidades conductuales	<---	Actitudes	0.227	0.002	0.391	0.022
Habilidades conductuales	<---	Conocimientos	-0.026	-0.169	0.131	0.768
Habilidades conductuales	<---	Creencias de salud estereotipadas	-0.326	-0.443	-0.164	≤0.001
Habilidades conductuales	<---	Intensión: Estrategia personal	0.046	-0.095	0.217	0.597
Uso del condón	<---	Habilidades conductuales	0.072	-0.113	0.272	0.424
Uso del condón	<---	Intensión: Estrategia personal	0.327	0.167	0.454	≤0.001
Uso del condón	<---	Severidad percibida	0.208	0.063	0.330	0.015
Uso del condón	<--	Creencias de salud estereotipadas	-0.139	-0.291	0.049	0.125

Nota: n=119; método GLS; GFI = 0.989.; AGFI = 0.952; SRMR = 0.0348; CMIN/df = 0.571, *p* = 0.839; RMSEA = 0.000.

Fuente: Elaboración propia

Discussion

The present study encompasses different personal strategies of protection against HIV and, therefore, evidence that young MSM have acquired a wide range of measures with which they intend to prevent infection with this virus. There are several strategies that are a priori ineffective (such as relying on physical appearance or hygiene, finding out the sexual history of the couple or trusting that an infected partner would inform them about it). Thus, there is a certain contrast with the results of studies related to MSM in Northern countries, where risk reduction strategies were not mentioned frequently (Gredig, Imhof and Nideröst, 2014). Only dipping appears in the responses of young MSM. It should be noted that in 2014 no informant mentioned PrEP.

A small proportion of informants (5.6%) indicated that they did not consciously take precautions against an HIV infection. This does not mean that the young men interviewed have adequate protective behavior. Most strategies - except those that include condom use - involve varying degrees of probability of contracting the virus. Although the young people interviewed do not necessarily have adequate preventive behavior, there is evidence that there is a willingness to protect themselves against HIV. This condition allows access to prevention - at a time that offers new options such as PrEP.

The data show that in sexual encounters with occasional partners in the last six months - relevant relationships from the perspective of an HIV transmission in general and especially in the group most affected by the virus - a proportion of 13.4% of the informants always used The condom in anal relationships. These results show a very low protection against HIV. It is found, then, that the protective behavior is insufficient, and in particular prone to a high risk of transmission in anal relations.

This research contrasts sharply with the results of previous studies. This finding could be attributed to the use of different methodological procedures. For example, the studies focus on different terms, varying from 12 months (Ministry of Health, 2010) or one month (Population Services International Research Division, 2012), as opposed to the six months of this study, which could cause certain distortions of the memory. It seems that the MSM interviewed in this study indicated less consistent protective behavior - which was facilitated by the use of a six-point Likert scale that comprised a range of four indications to also express inconsistent use in a differentiated manner. Regarding the use of the condom in the last relationship, there are approximations between the results of the studies, although a comparison has to be appreciated with caution since the data do not refer to the same age groups and do not consider the type of partner.

The verification of the IMB model showed that two variables of the Motivation construct were predictors of the consistency of condom use with occasional partners. It turned out that condom use is co-determined by the intention expressed in a strategy involving its use and the perceived severity of an HIV infection. A direct impact of the Motivation variables is consistent with the proposals of the traditional IMB model (Fisher and Fisher, 1993). Thus, the data in this sample did not confirm the other assumptions of the IMB model. Although the two predictors were able to explain 21.1% of the variation in the consistency of condom use.

Considering that the IMB model has been widely corroborated, this result is unexpected. At the methodological level, the Behavioral Skills variable could be questioned. With a median of 3.6, an average level of 3.57 and a standard deviation of 0.45, there is a strong homogeneity in the type of participants' responses. In this case, an effect of social desirability could be assumed, in the sense that the men interviewed perceive the ability to use the condom in terms of sex between men as a social norm and fear expressing uncertainties or problems.

At a theoretical level, the results present, first of all, a challenge to the development of a more comprehensive IMB model. The analysis of the reasons for not using the condom with a casual partner provides insight into the potential role of situational inhibitors such as those related to the couple, which could indicate their inclusion in the model. Second, the strong position of intention can also be understood as an invitation to address condom use from the perspective of planned behavior theory (Ajzen, 1985), which considers the intention to use the condom as a determining factor of its use.

Like any study, this has its limitations. The research is based on a self-report and there could be an effect of social desirability, given that the data was collected through an interview. However, the low values of condom use, the few missing values in items related to sexual practices seem to contradict this objection. The methodological literature also relativizes this consideration (Weinhardt et al., 1998). The measurement of perceived severity shows a weak point, based on a single item. In addition, the study has a cross-sectional design, so conclusions in terms of causality are allowed with caution. The sample reflects a wide diversity of MSM. The number of participants does not provide a basis for drawing conclusions regarding the total population of MSM youth in Costa Rica, however, it allows probing interrelationships of variables and modeling condom use, although the number limits statistical analysis.

Conclusions

This research provides insight into personal HIV protection strategies, protection behavior with occasional partners and confirms certain significant predictors of condom use with occasional partners. Through this study we have information, on the basis of which variables of interest for prevention can be considered, in order to promote the use of condoms in MSM with occasional partners - or even strengthen those who use condoms consistently.

The IMB model, already well corroborated in other studies and contexts, has only been partially confirmed (Fisher and Fisher, 1993; Fisher et al., 1994). From the perspective of the results obtained, the investigation of protective behavior in MSM should evaluate a reorientation and an approach based on the theory of planned behavior. In this sense, the results of this study provide a benchmark for new research.

The findings allow a channeling for the practice of direct preventive intervention; The explicit inclusion of personal protection strategies should then be evaluated. In particular, interventions at a personal level could investigate personal protection strategies for users and explore with the recipients the risks inherent in risk reduction strategies and the alternate strategy. The consideration of the strategies chosen by the users would allow them to provide adequate, relevant and sensitive advice to their needs.

At the same time, situations could be addressed in which young men usually have sexual encounters with men and their relationships, in order to reflect on condom use inhibitors, such as, for example, confidence in an occasional partner or lack of condom availability at the time of sexual encounter. In addition, interventions could provide opportunities to develop and strengthen self-efficacy in condom use, with the aim of increasing their capacities against the negative consequences of an infection, and thus being able to proceed according to the perceived severity of the infection. . Given the effectiveness of PrEP and poor protection in young MSM, this prevention option should be assessed, although recommendations for the management of this measure in Costa Rica have not yet been developed. PrEP could serve as a personal prevention strategy appropriate to the situation and lifestyle of young MSM who cannot or do not want to protect themselves through condom use.

References

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In Kuhl, J. and Beckmann, J. (eds.), *Action-control: From cognition to behaviour* (pp. 11-39). Heidelberg, Germany: Springer Verlag.

Ajzen, I. (1988). *Attitudes, Personality and Behavior*. Chicago, United States: Open University Press.

Ajzen, I. (1991). The Theory of Planned Behavior: Some unresolved issues. *Organizational Behavior and Human Decision Processes, 50*, 179-211.

Beyrer, C., Baral, S. D., van Griensven, F., Goodreau, S. M., Chariyalertsak, S., Wirtz, A. L. and Brookmeyer, R. (2012). Global epidemiology of HIV infection in men who have sex with men. *Lancet, 380*(9839), 367-377.

Blair, E., Sudman, S., Bradburn, N. M. and Stocking, C. (1977). How to Ask Questions About Drinking and Sex: Response Effects in Measuring Consumer Behavior. *Journal of Marketing Research, 14*(3), 316-321.

Bortman, M., Saenz, L. B., Pimenta, I., Isern, C., Rodriguez, A. E., Miranda, M., Moreira, L. y Rayo, D. (2006). *Reduciendo la Vulnerabilidad al VIH/SIDA en Centro América: Costa Rica Situación del VIH/SIDA y Respuesta a la Epidemia*. Washington, Estados Unidos: Banco Internacional de Reconstrucción y Fomento / Banco Mundial. Recuperado de http://documentos.bancomundial.org/curated/es/758221468324886683/pdf/385450SPANISH010COSTA0RICA01PUBLIC1.pdf.

Catania, J., Kegeles, S. and Coates, T. J. (1990). Towards an understanding of risk behavior: an AIDS risk reduction model (ARRM). *Health Education Quarterly, 17*(1), 53-72.

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*(6), 548-555.

Coates, T. J., Richter, L. and Caceres, C. (2008). Behavioural strategies to reduce HIV transmission: how to make them work better. *The Lancet, Special Edition HIV Prevention, 372*(9639), 669-684.

De Visser, R. O. and Smith, A. M. A. (1999). Predictors of heterosexual condom use: characteristics of the situation are more important than characteristics of the individual. *Psychology, Health & Medicine, 4*(3), 265-279.

Fisher, J. D. and Fisher, W. A. (1992). Changing AIDS-risk behavior. *Psychological Bulletin, 111*(3), 455-474.

Fisher, J. D., Fisher, W. A., Bryan, A. D. and Misovich, S. J. (2002). Information-motivation-behavioral skills model-based HIV risk behavior change intervention for inner-city high school youth. *Health Psychology, 21*(2), 177-186.

Fisher, J. D., Fisher, W. A., Misovich, S. J., Kimble, D. L. and Malloy, T. E. (1996). Changing AIDS risk behavior: Effects of an intervention emphasizing AIDS risk reduction information, motivation, and behavioral skills in a college student population. *Health Psychology, 15*(2), 114-123.

Fisher, J. D., Fisher, W. A., Williams, S. S. and Malloy, T. E. (1994). Empirical tests of an information-motivation-behavioral skills model of AIDS-preventive behavior with gay men and heterosexual university students. *Health Psychology, 13*(3), 238-250.

Fisher, T. D., Davis, C. M., Yarber, W. L. and Davis, S. L. (eds.) (2010). *The Handbook of Sexuality-Related Measures* (3th ed.). London, England: Routledge.

Fisher, W. A. and Fisher, J. D. (1993). A general social psychological model for changing AIDS risk behavior. In Pryor, J. and Reeder, G. (eds.), *The social psychology of HIV infection* (pp. 127-154). Hillsdale, United States: Erlbaum.

Granados, I., Gredig, D., Le Breton, M. y Solís, V. (2013). *Conducta de protección frente al VIH/SIDA en jóvenes entre 15 y 24 años de edad en Costa Rica*. Ponencia presentada en la XI International AIDS Impact Conference. Barcelona, del 29 de septiembre al 3 de octubre de 2013.

Gredig, D., Imhof, C. and Nideröst, S. (2014). Settings, Sexual Practices, and Personal HIV Protection Strategies: The Circumstances of Recent HIV Infections in Switzerland. *Journal of HIV/AIDS & Social Services, 13*(4), 436-450.

Gredig, D., Nideröst, S. and Parpan-Blaser, A. (2007). Explaining the Condom Use of Heterosexual Men in a High-Income Country: Adding Somatic Culture to the Theory of Planned Behaviour. *Journal of Public Health, 15*(2), 129-140.

Kelly, J. A., Hoffmann, R. C., Rompa, D. and Gray, M. (1998). Protease inhibitor combination therapies and perceptions of gay men regarding AIDS severity and the need to maintain safer sex. *Aids, 12*(10), F91-F95.

Költringer, R. (1993). *Gültigkeit von Umfragedaten*. Wien, Österreich: Bohlau.

Lüdtke, O., Robitzsch, A., Trautwein, U. and Köller, O. (2007). Umgang mit fehlenden Werten in der psychologischen Forschung. *Psychologische Rundschau, 58*(2), 103-117.

Maldonado, A. L. y Castillo, L. (2001). Adaptación al Castellano de la Escala VIH/SIDA. Psicología-Online. Recuperado de http://www.psicologia-online.com/ciopa2001/actividades/p/69/.

Ministerio de Salud. (2010). *Prevalencia de VIH, sífilis y comportamiento de riesgo en hombres que tienen sexo con hombres del Gran Área Metropolitana de Costa Rica.* San José, Costa Rica: Ministerio de Salud.

Ministerio de Salud. (2011). *Informe de los resultados: Encuesta Nacional de Salud Sexual y Reproductiva*. San José, Costa Rica: Ministerio de Salud.

Ministerio de Salud. (2016). *Plan Estratégico Nacional (PEN) en VIH y sida 2016 – 2021*. San José, Costa Rica: Ministerio de Salud. Recuperado de https://www.ministeriodesalud.go.cr/index.php/biblioteca-de-archivos/sobre-el-ministerio/planes-institucionales/3898-plan-estrategico-institucional-2016-2020-1/file.

Ministerio de Salud. (2018). *Situación HIV y sida, Costa Rica 2002-2017*. San José, Costa Rica: Ministerio de Salud. Recuperado de https://www.ministeriodesalud.go.cr/index.php/vigilancia-de-la-salud/analisis-de-situacion-de-salud.

Ministerio de Salud / Consejo Nacional de Atención Integral al VIH y SIDA [Conasida]. (2016). *Informe Nacional sobre los progresos realizados por Costa Rica. Declaración de compromisos*. Costa Rica: Ministerio de Salud / Consejo Nacional de Atención Integral al VIH y SIDA. Recuperado de http://www.unaids.org/en/file/110875/download?token=_6cFCojo.

Moatti, J. P. and Souteyrand, Y. (2000). Editorial: HIV/AIDS social and behavioural research: past advances and thoughts about the future. *Social Science & Medicine, 50*(11), 1519-1532.

Paniagua, F. A., Oboyle, M., Wagner, K. D., Ramirez, S. Z., Holmes, W. D., Nieto, J. F. and Smith, E. M. (1994). AIDS-related items for developing an AIDS Questionnaire for children and adolescents. *Journal of Adolescent Research, 9*(3), 311-339.

Population Services International Research Division. (2012). *COSTA RICA (2012): Estudio TRaC de VIH/SIDA, HSH en San José, Costa Rica*. Costa Rica: División de Investigación de PSI.

Robles, S. y Díaz, R. (2011). *Validación de la Encuesta Estudiantil sobre Salud Sexual*. México: Universidad Nacional Autónoma de México / Facultad de Estudios Superiores Iztacala.

Scherpenzeel, A. C. and Saris, W. E. (1997). The Validity and Reliability of Survey Questions. A Meta-Analysis of MTMM Studies. *Sociological Methods and Research, 25*(3), 341-383.

Schumaker, R. E. and Lomax, R. G. (2004). *A Beginner's Guide to Structural Equation Modeling* (2nd ed.). Mahwah, United States: Erlbaum.

Weinhardt, L. S., Forsyth, A. D., Carey, M. P., Jaworski, B. C. and Durant, L. E. (1998). Reliability and validity of self-report measures of HIV-related sexual behavior: Progress since 1990 and recommendations for research and practice. *Archives of Sexual Behavior, 27*(2), 155-180.

Anexo

La descripción de las variables independientes del modelo IMB se resume en la tabla 5.

Tabla 5. Resumen de la descripción de las variables de los constructos Información, Motivación y Habilidades conductuales

Variable	***n***	**Min**	**Max**	**Rango**	**Media**	**DE**	**Mediana**
Conocimientos	238	14	38	24	29.56	4.78	30.0
Creencias de salud estereotipadas	238	1	4	3	1.54	0.54	1.5
Actitud hacia el uso del condón	238	2	3.91	1.91	2.93	0.37	2.9
Norma subjetiva	236	1	4	3	3.33	0.66	3.0
Severidad percibida	235	1	4	3	2.07	0.81	2.0
Susceptibilidad percibida	236	1	4	3	3.39	0.76	4.0
Habilidades conductuales Autoeficacia	238	2	4	2	3.57	0.45	3.67

Fuente: Elaboración propia

Rol de Contribución	Autor (es)
Conceptualización	Daniel Gredig y Maritza Le Breton
Metodología	Daniel Gredig (principal), Maritza Le Breton
Software	NO APLICA
Validación	Daniel Gredig (principal), Maritza le Breton, Itzel Granados, Viviana Solis (apoyo)
Análisis Formal	Daniel Gredig (principal), Maritza le Breton, Itzel Granados, Viviana Solis (apoyo)
Investigación	Recogida de datos: Itzel Granados, Viviana Solis (principales), Maritza le Breton (apoyo), Daniel Gredig (supervisión)
Recursos	Provisión por las universidades implicadas
Curación de datos	Daniel Gredig, Maritza le Breton, Itzel Granados, Viviana Solis (iguales)
Escritura - Preparación del borrador original	Daniel Gredig y Maritza le Breton (principales), Itzel Granados, Viviana Solis (contribuyentes)
Escritura - Revisión y edición	Daniel Gredig, Maritza le Breton, Itzel Granados, Viviana Solis (iguales)
Visualización	Daniel Gredig, Maritza le Breton, Itzel Granados, Viviana Solis (iguales)
Supervisión	Daniel Gredig y Maritza Le Breton
Administración de Proyectos	Daniel Gredig y Maritza Le Breton (gestión de las líneas directores) Itzel Granados y Viviana Soli (gestión in situ)
Adquisición de fondos	Daniel Gredig y Maritza Le Breton