Predictive Models of Attitude toward Homosexuality in Heterosexual Men*

Modelos predictivos de actitud hacia homosexualidad en hombres heterosexuales

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ABSTRACT

The aims of this paper were to predict membership to a group of attitude of acceptance or ambiguity-rejection toward homosexuality, and describe the attitude levels. The Attitudes Toward Lesbians and Gay men (ATLG) scale was applied to a non-probability sample of 239 single heterosexual men. All of them were students of health sciences. 15% expressed rejection (including 4% extreme) based on the ATLG total score. Rejection toward gay men (28% including 7% extreme) was higher than toward lesbians (9% including 2.5% extreme). Not having homosexual friends and having adscription to Christian or Catholic religions were significant predictors of belonging to the group with an ambiguity-rejection attitude. It is concluded that the percentage of rejection toward homosexuality is significant. For this reason it is encouraged to implement workshops for promoting an acceptance attitude, and consider these risk variables in their design.
Keywords
attitude; homophobia; religion; men; youth.

RESUMEN

Los objetivos de este artículo fueron predecir la pertenencia al grupo de actitud de aceptación o ambigüedad-rechazo hacia la homosexualidad y describir los niveles de actitud. Se aplicó la escala de Actitudes hacia Lesbianas y Hombres Homosexuales (ATLG) a una muestra no probabilística de 239 varones heterosexuales solteros. Todos ellos eran estudiantes de Ciencias de la Salud. El 15 % expresaron rechazo (incluyendo 4 % extremo) con base en la puntuación total de la escala ATLG. Fue mayor el rechazo hacia los hombres homosexuales (28 %, incluyendo 7 % extremo) que hacia las lesbianas (9 %, incluyendo 2.5 % extremo). El no tener amigos homosexuales y religión cristiana o católica fueron los predictores de pertenencia al grupo, con una actitud de ambigüedad-rechazo. Se concluye que el porcentaje de rechazo es significativo. Por esta razón, se estimula la implementación de talleres que promuevan una actitud de aceptación, teniendo en cuenta en su diseño estas variables de riesgo.
Palabras clave
actitud; homofobia; religión; hombres; jóvenes.

Introduction

Human beings react to their environments in an evaluative fashion. This involves formation of judgments regarding the goodness, likeability, agreeableness, or suitableness of objects, events, oneself, and others. The concept of attitude refers precisely to that psychological tendency, which is expressed by evaluating a particular entity, being material or immaterial (Albarracin, Zanna, Johnson, & Kumkale, 2005).

Attitudes may be explicit (consciously-held attitudes) or implicit (unconsciously-held attitudes). Explicit attitudes are evaluations that a person is consciously aware of, and can express. Implicit attitudes are evaluations that are automatic and function without a person's awareness or ability to control them (Greenwald, McGhee, & Schwartz, 1998; Oskamp & Schultz, 2005).

The concept of attitude has become one of the most important concepts in contemporary social psychology. It is a relatively neutral and interdisciplinary concept that helps us explain the consistency of a person's behavior. Individuals may hold ambivalent feelings toward specific objects, and their implicit and explicit attitudes might differ. While explicit attitudes have been shown to predict controlled and deliberative behavior, implicit attitudes are better at predicting automatic and spontaneous behaviors. Thus, implicit measures of attitude provide a more accurate reflection of individual's inner feelings than explicit attitudes (Basili & Brown, 2005; Oskamp & Schultz, 2005).

In the field of health sciences, these concepts become particularly relevant. Several studies have shown a direct relation between people's attitudes and behaviors toward individuals belonging to a minority social group (Dovidio, Kawakami, & Gaertner, 2002; Neumann, Hülsenbeck, & Seibt, 2004). Often, professionals in health sciences are not aware of their own beliefs and attitudes, which may remain unconscious, covert, resulting in automatic behaviors that can lead to deleterious outcomes for their patients (Freeman & Payne, 2000). This has led to the development of the concept of "cultural safety", which is the recognition that all attitudes and behaviors, beyond the open manifestation of prejudice and discriminatory practices, can have serious implications for the health care of minorities (Guilfoyle, Nelly, & St Pierre-Hansen, 2008).

Groups belonging to sexual minorities comprise very diverse populations that have historically received inadequate attention, if not discriminatory, in developed countries, and often this is more pronounced in developing countries. If the repudiation that health care professionals and students may hold against lesbians and gay men is particularly intense, it may lead to such visceral responses that can result in damage to the quality of care provided to non-heterosexuals and to behaviors that tend to reinforce social stigma toward sexual minorities (Matharu, Kravitz, McMahon, Wilson, & Fitzgerald, 2012). Furthermore, in most countries, health professionals do not receive specific training on the problems faced by these groups, resulting in a lack of health care facilities friendly for these patients (Arnold, 2001).

Campo, Herazo, and Cogollo (2010) informed in a meta-analysis that between 7% and 16% of nursing students rejected homosexuality, and this rejection was higher among men. Jones, Pynor, Sullivan, and Weerakoon (2002) reported that 27% to 30% of health care students in Australia would feel uncomfortable working with a male homosexual or lesbian patient. Studies performed in Asia have found that more than 25% of medical students considered homosexuality as a psychological disorder that requires therapy and more than 15% would avoid any physical contact with homosexuals (Kan et al., 2009); similarly, in a sample of American students it was found that nearly one-third of medical students responded, either negatively or ambivalently, to the statement that homosexuality is as natural as heterosexuality (Matharu et al., 2012). Moral and Valle (2012) found an attitude of rejection in 21% of Mexican students of Health sciences, including an attitude of extreme rejection in 4%.

Several variables have been consistently related to the attitude toward lesbians and gay men, including age (Besen & Zicklin, 2007; Shackelford & Besser, 2007), years of formal education (Overby & Barth, 2002), personal contact with gay men and

lesbians (Lemm, 2006; Overby & Barth, 2002), religious adscription (Moral & Valle, 2011), religiosity (Besen & Zicklin, 2007; Morrison & Morrison, 2002; Wilkinson, 2004), religious fundamentalism (Shackelford & Besser, 2007; Vincent, Parrot, & Peterson, 2011), conservatism (Shackelford & Besser, 2007) and gender belief system (Keiller, 2010; Parrott, 2009).

Bearing in mind this background, the aims of this investigation are: 1) To describe the attitudes towards male homosexuality and lesbianism in unmarried heterosexual male students, and 2) to predict their belonging to the group of acceptance or the group of rejection using experiential variables (having had sexual relations, number of sexual partners, having friends with HIV, and having had an HIV test, as well as socio-demographic variables (religious adscription and age).

Method

Participants

An incidental sample of 239 male, heterosexual students of Health Sciences, from the northeast of Mexico, was collected. All participants were single.

The mean age was 19.14 years (*SD* = 1.25), ranging from 17 to 26. Regarding their religious adscription, 79.5% (190 out of 239) reported to be Catholic, 5% (12) Christian, and 15.5% (40) reported belonging to another religion. None of them reported to be non-religious.

Instruments

The scale of Attitudes Toward Lesbians and Gay men ([ATLG]; Herek, 1984) is a self-report instrument composed of 20 Likert-type items, 10 to measure the attitude toward gay men and 10 to measure the attitude toward lesbians. The 7 items of acceptance toward male homosexuality and lesbianism (G1, G5, G7, G9, L2, L4, and L7) have 5 answer options and a range from 1 to 9 (from 1 "definitely in agreement" to 9 "completely in disagreement"). The sum of the previous items, plus the remaining 13 negatively keyed items (scoring

from 1 "completely in disagreement" to 9 "definitely in agreement") provides a scoring where the higher the value (ranging from 20 to 180) the greater the level of rejection.

A structure of two correlated factors is reported: attitude toward gay men (ATG) with 10 items (from G1 to G10) and attitude toward lesbians (ATL) with 10 items (from L1 to L10), with an appropriate data fit and high values of internal consistency for both factors (Herek & McLemore, 2011). Moral and Valle (2011) validated the scale in Mexico. In a sample of 356 students, they found a high internal consistency (α = 0,94) and normal distribution. By principal components analysis with Oblimin rotation, and setting the number of factors according to Kaiser criterion, they obtained a factor of rejection toward lesbians (ATL: from L1 to L10) with high internal consistency (α = 0.91), another of open rejection toward gay men (ATG-O: G2, G3, G4, G6, and G10) with high internal consistency (α = 0.85), and another one of subtle rejection toward gay men (ATG-S: G1, G5, G7, G8, and G9) with high internal consistency (α = 0.78). This structure of three correlated factors showed an appropriate data fit by generalized least squares: χ^2/gl = 2.11, FD = 0.99, PNCP = 0.52, GFI = 0.9, AGFI = 0.88, and RMSEA = 0.06 (Moral & Valle, 2011). In this study, both the bifactorial model (ATG and ATL) and the trifactorial model (ATG-A, ATG-S and ATL) were considered, along with the total score (ATLG). In the present sample, the internal consistency for the 20 items of the ATLG scale was high (α = 0.94), and so was the internal consistency of its factors (0.89 for ATG, 0.85 for ATG-O, 0.81 for ATG-S and 0.9 for ATL).

Procedure

A descriptive-correlational study was performed, with an ex post-facto transversal design. The scale was applied in classrooms. Application lasted about 15 minutes. Participants were requested to give a verbal informed consent for their participation in the study, and were offered anonymity and confidentiality for the information supplied, in accordance to the ethical standards of investigation of

the American Psychological Association ([APA], 2002).

Data analysis

First, the differential qualitative variables for the total score of the ATLG and its factors were selected, as well as the numeric variables correlated to those attitudinal scores. The means were compared by the Student's t-test for two independent samples (defined by the dichotomic qualitative variables) and by analysis of variance for independent samples (defined by the polichotomic qualitative variables). The effect sizes were estimated by Cohen's *d* in the first case and the eta coefficient in the second case. Correlations with age were calculated by the Pearson product-moment coefficient (*r*). The predictive models were calculated with the differential variables and the significant correlates. Previously, the ATLG total score and the scores of its factors were dichotomized. Models were estimated by means of binary logistic regression, using the enter method. The goodness of data fit of the models was contrasted by the Hosmer-Lemeshow test. Percentages of explained variance were reported from the Nalgelkerke pseudo-R^2 coefficient. The level of significance was set to 0.05.

Results

Attitudes toward Gay Men and Lesbians in the Sample

The discrete scores of the ATLG scale and its factors were divided by the number of items that was added up to obtain each one of them. In this way it was possible to obtain scores within a homogeneous and continuous range of minimum value 1 and maximum value 9. Next, these continuous scores were grouped in 5 intervals of constant amplitude ([0.9 -1]/5 = 1.6). This method allowed to interpret the scores from the answer tags to the items written up in a sense of rejection: from 1 to 2.59 (discrete value 1= *completely in disagreement*), from 2.6 to 4.19 (discrete value 3 = *in disagreement*), from 4.2 to 5.79 (discrete value 5 = *neither in agreement nor*

in disagreement), from 5.8 to 7.39 (discrete value 7 = *in agreement*), and from 7.4 to 9 (discrete value 9 = *definitely in agreement*).

Of the 239 participants, in the ATLG total score (continuous range from 1 to 9), 121 (50.6%) gave acceptance answers (from 1 to 4.19), 82 (34.3%) ambiguous answers (from 4.2 to 5.79), and 36 (15.1%) rejection answers (from 5.80 to 9), including 9 (3.8%) of extreme rejection (7.4 to 9). In the ATG factor, 94 (39.3%) gave acceptance answers, 78 (32.7%) ambiguous answers, and 67 (28%) rejection answers, including 17 (7.1%) of extreme reaction. In the ATG-O factor, 153 (64%) gave acceptance answers, 51 (21.3%) ambiguous answers, and 35 (14.7%) rejection answers, including 9 (3.8%) of extreme rejection. In the ATG-S factor, 61 (25.5%) gave acceptance answers, 61 (25.5%) ambiguous answers, and 117 (49%) rejection answers, including 47 (19.7%) of extreme rejection. In the ATL factor, 164 (68.6%) gave acceptance answers, 54 (22.6%) ambiguous, and 21 (8.8%) rejection answers, including 6 (2.5%) of extreme rejection.

Initial Selection of Predictors

The ATLG total score and its factors were independent to age. Means of ATLG total score and its factors were statistically equivalent between students who had started or not couple sexual life, between those who had been or not HIV tested, and among the three groups of number of sexual partners (none, from 1 to 5, and more than 5). The means of the ATLG total score and its factors were statistically differential between students who had homosexual friends or not, and among the three groups of religious adscription (Catholics, Christians, and Others). Those with homosexual friends had means that were significantly lower than those without homosexual friends. The adepts to Christian religions had the highest means. The means of Catholic participants remained in intermediate positions. Those who were adept to other religions had the lowest means. Except for the factor of subtle reaction toward gay men, the means between students who had friends with HIV or not were statistically equivalent (see Table 1).

TABLE 1

Variables exp. and soc.	Attitude				
	ATLG	ATG	ATG-O	ATG-S	ATL
SSL	$t_{(236)} = 1.78$	$t_{(236)} = 1.6$	$t_{(233)} = 1.94$	$t_{(236)} = 1.06$	$t_{(236)} = 1.78$
	$p = 0.08$	$p = 0.11$	$p > 0.05$	$p = 0.29$	$p = 0.08$
	$d = 0.23$	$d = 0.21$	$d = 0.25$	$d = 0.14$	$d = 0.23$
HomF	$t_{(235)} = 5.02$	$t_{(235)} = 5.55$	$t_{(235)} = 5.66$	$t_{(235)} = 4.52$	$t_{(168)} = 3.76$
	$p < 01$	$p < 01$	$p < 01$	$p < 01$	$p < 0.01$
	$d = 0.66$	$d = 0.72$	$d = 0.74$	$d = 0.59$	$d = 0.49$
HIVF	$t_{(236)} = 1.24$	$t_{(236)} = 1.42$	$t_{(236)} = 1.42$	$t_{(3)} = 6.42$	$t_{(236)} = 0.93$
	$p = 0.22$	$p = 0.16$	$p = 0.16$	$p < 0.01$	$p = 0.35$
	$d = 0.16$	$d = 0.19$	$d = 0.19$	$d = 0.84$	$d = 0.12$
HIVT	$t_{(235)} = 0.99$	$t_{(235)} = 0.9$	$t_{(235)} = 0.83$	$t_{(235)} = 0.83$	$t_{(235)} = 0.98$
	$p = 0.33$	$p = 0.37$	$p = 0.41$	$p = 0.41$	$p = 0.33$
	$d = 0.13$	$d = 0.12$	$d = 0.11$	$d = 0.11$	$d = 0.13$
NSP	$F_{(2, 231)} = 2.10$	$F_{(2, 231)} = 1.54$	$F_{(2, 231)} = 1.89$	$F_{(2, 231)} = 0.88$	$F_{(2, 231)} = 2.76$
	$p = 0.13$	$p = 0.22$	$p = 0.15$	$p = 0.42$	$p = 0.07$
	$\square = 0.14$	$\square = 0.12$	$\square = 0.13$	$\square = 0.09$	$\square = 0.15$
Religion	$F_{(2, 236)} = 9.43$	$F_{(2, 236)} = 8.84$	$F_{(2, 236)} = 6.98$	$F_{(2, 236)} = 8.17$	$F_{(2, 236)} = 8.05$
	$p < 0.01$	$p < 0.01$	$p < 0.01$	$p < 0.01$	$p < 0.01$
	$\square = 0.27$	$\square = 0.26$	$\square = 0.24$	$\square = 0.25$	$\square = 0.25$
Age	$r = -0.04$	$r = -0.08$	$r = -0.03$	$r = -0.11$	$r = 0.01$
	$p = 0.57$	$p = 0.24$	$p = 0.61$	$p = 0.1$	$p = 0.9$

In the Student t-test, when degrees of freedom are 236 or 235, equality of variance is assumed by the Levene test; it is not assumed when they are less than 235.

Experiential and socio-demographic variables: SSL = Start of couple sexual life. (0 = No, 1 = Yes), HomF = having homosexual friends (0 = No, 1 = Yes), HIVF = having HIV-infected friends (0 = No, 1 = Yes), HIVT = having been HIV tested (0 = No, 1 = Yes. NSP = number of sexual partners (0 = Zero, 1 = from 1 to 5, and 3 = more than 5) and Religion = Religious ascription (0 = Catholic, 1 = Christian, and 2 = Other).

Attitudes: ATLG = Attitude of rejection toward lesbians and gay men (simple sum of 20 items: from G1 to L10), ATG = Attitude of rejection toward gay men (simple sum of 10 items: from G1 to G10), ATG-O = Attitude of open rejection toward gay men (G2 + G3 + G4 + G6 + G10), ATG-S = Attitude of subtle rejection toward gay men (G1 + G5 + G7 + G8 + G9), and ATL = Attitude of rejection toward lesbians (simple sum of 10 items, from L1 to L10).

Source: Own work

Prediction of Belonging to the Group of Acceptance or Ambiguity-Rejection

The ATLG total score and its factors (continuous range from 1 to 9) were dichotomized. Scores lower than 4.20 defined groups with an attitude of acceptance (discrete values 1 and 3) and scores equal to or higher than 4.20 defined groups with an attitude of ambiguity-rejection (discrete values 5, 7, and 9). Since two participants did not state whether they had or not homosexual friends, the regression models were calculated with 237 cases.

Differential variables of the ATLG total score were two: homosexual friends and religion. The model with those two variables was significant ($\chi^2[3, N = 237] = 22.51, p < 0.01$). Both variables, having homosexual friends ($W[1] = 11.26, p < 0.01$) and religious adscription ($W[2] = 7.34, p = 0.03$), had significant weights. Having a Christian religious ascription, as compared to an adscription

another religion, sextuplicated the probability of belonging to the group with an attitude of ambiguity-rejection (OR = 6.87, 95% CI: 1.5, 31.5). Having a Catholic religious adscription, as compared to an adscription to another religion, duplicated the probability of belonging to the group with an attitude of ambiguity-rejection (OR = 2.36, 95% CI: 1.06, 5.27). Finally, not having homosexual friends, as compared to having homosexual friends, triplicated the probability (OR = 2.57, 95% CI: 1.48, 4.47) (see Table 2). The model presented goodness of fit (χ^2[3, N = 430] = 0.64, p = 0.89), and explained 12% of variance of the binary criterion (acceptance versus ambiguity-rejection by the ATLG total score). It correctly classified 63% (149 out of 237) of participants: 73% (87 out of 119) of those with an attitude of acceptance and 53% (62 out of 118) with an attitude of ambiguity-rejection. Thus, it had a high specificity, but a low sensitivity.

The differential variables of the ATG factor were two: homosexual friends and religion. The model with those two variables was significant (χ^2[3, N = 237] = 37.52, p < 0.01). Both variables, having homosexual friends (W[1] = 7.14, p < 0.01) and religious adscription (W[2] = 9.8, p < 0.01), have significant weights. Having a Christian religious adscription, as opposed to having an ascription to another religion, nonuplicated the probability to belong to the group with an attitude of ambiguity-rejection (OR = 8.83, 95% CI: 1.59, 49.07), having a Catholic religious adscription, as opposed to having an adscription to another religion triplicated the probability (OR = 2.98, 95% CI: 1.35, 6.56), and not having homosexual friends, as opposed to having homosexual friends, quadruplicated the probability (OR = 4.13, 95% CI: 2.22, 7.7) (see Table 2). The model presented goodness of fit (χ^2[2, N = 237] = 0.93, p = 0.63), and explained 20% of the variance of the binary criterion (acceptance versus ambiguity-rejection by the ATG factor). It correctly classified 68% (160 out of 237) of participants: 24% (22 out of 92) of those with an attitude of acceptance and 95% (138 out of 145) of those with an attitude of ambiguity-rejection. Thus, it had a very high sensitivity, but very low specificity.

The differential variables of the ATG-O factor were two: homosexual friends and religion. The model with those two variables was significant (χ^2[3, N = 237] = 28.47, p < 0.01). Both variables, having homosexual friends (W[1] = 17.07, p < 0.01) and sexual adscription (W[2] = 7.98, p = 0.01), had significant weights. Having a Christian religious adscription, as opposed to having an adscription to another religion, nonuplicated the probability of belonging to the group with an attitude of ambiguity-rejection (OR = 9.33, 95% CI: 1.95, 44.7). Not having homosexual friends, as opposed to having homosexual friends, triplicated the probability (OR = 3.35, 95% CI: 1.89, 5.94) (see Table 2). The model presented goodness of fit (χ^2[3, N = 237] = 1.03, p = 0.79), and explained 16% of the variance of the binary criterion (acceptance versus ambiguity-rejection by the ATG-O factor). It correctly classified 67% (159 out of 237) of participants: 72% (108 out of 151) of those with an attitude of acceptance and 59% (35 out of 86) of those with an attitude of ambiguity-rejection. Thus, it had a low sensitivity, but high specificity.

The differential variables of the ATG-S factor were three: homosexual friends, religion, and friends with HIV. In the estimation of the model, having HIV-infected friends, had a non-significant weight and it was eliminated. The model with two variables was significant (χ^2[3, N = 237] = 26.44, p < 0.01). Both variables, having homosexual friends (W[1] = 11.17, p < 0.01) and a religious adscription (W[2] = 9.41, p < 0.01) had significant weights. Having a Christian religious adscription, as opposed to having an adscription to another religion, nonuplicated the probability of belonging to the group with an attitude of ambiguity-rejection (OR = 9.5, 95% CI: 1.08, 83.62), having a Catholic religious adscription, as opposed to an adscription to another religion, triplicated the probability (OR = 2.94, 95% CI: 1.37, 6.31). Not having homosexual friends, as compared to having homosexual friends, triplicated the probability (OR = 3.48, 95% CI: 1.68, 7.24) (see Table 2). The model presented goodness of fit (χ^2[2, N = 237] = 0.06, p = 0.97), and explained 16% of the variance of the binary criterion (acceptance versus ambiguity-rejection

TABLE 2
Models of Binary Logistic Regression for the ATLG Total Score and its Factors (Within a Continuous Ranges from 1 to 9 and Dichotomized with a Cut-Point Equal to 4.2)

Models		Coefficients		Significance			Odds Ratio		
								95% IC	
Predicted	Predictors	B	EE	Wald	gl	p	OR	LI	LS
ATLG	Constant	-1.17	0.39	9.19	1	< 0.01	0.31		
	HomF (Not)	0.95	0.28	11.26	1	< 0.01	2.57	1.48	4.47
	Religion			7.34	2	0.03			
	Rel. (Catholic)	0.86	0.41	4.4	1	0.04	2.36	1.06	5.27
	Rel. (Christian)	1.93	0.78	6.14	1	0.01	6.87	1.5	31.5
ATG	Constant	-1	0.38	7.14	1	< 0.01	0.37		
	HomF (Not)	1.42	0.32	19.95	1	< 0.01	4.13	2.22	7.7
	Religion			9.8	2	< 0.01			
	Rel. (Catholic)	1.09	0.4	7.35	1	< 0.01	2.98	1.35	6.56
	Rel. (Christian)	2.18	0.88	6.19	1	0.01	8.83	1.59	49.07
ATG-O	Constant	-1.55	0.42	13.55	1	< 0.01	0.21		
	HomF (Not)	1.21	0.29	17.07	1	< 0.01	3.35	1.89	5.94
	Religion			7.98	2	0.02			
	Rel. (Catholic)	0.42	0.45	0.91	1	0.34	1.53	0.64	3.66
	Rel. (Christian)	2.23	0.8	7.8	1	< 0.01	9.33	1.95	44.7
ATG-S	Constant	-0.23	0.35	0.43	1	0.51	0.8		
	HomF (Not)	1.25	0.37	11.17	1	< 0.01	3.48	1.68	7.24
	Religion			9.41	2	< 0.01			
	Rel. (Catholic)	1.08	0.39	7.66	1	< 0.01	2.94	1.37	6.31
	Rel. (Christian)	2.25	1.11	4.12	1	0.04	9.5	1.08	83.62
ATL	Constant	-1.6	0.43	13.74	1	< 0.01	0.2		
	HomF (Not)	0.78	0.29	7.17	1	< 0.01	2.19	1.23	3.87
	Religion			4.96	2	0.08			
	Rel. (Catholic)	0.5	0.46	1.17	1	0.28	1.64	0.67	4.04
	Rel. (Christian)	1.63	0.73	4.93	1	0.03	5.09	1.21	21.4

Groups predicted: Acceptance < 4.2 (discrete scorings 1 and 3) and Ambiguity-Rejection ≥ 4.2 (discrete scorings 5, 7, and 9). ATLG = Attitude of rejection toward lesbians and gay men (simple sum of 20 items: from G1 to L10), ATG = Attitude of rejection toward gay men (simple sum of 10 items: from G1 to G10), ATG-O = Attitude of open rejection toward gay men (G2 + G3 + G4 + G6 + G10), ATG-S = Attitude of subtle rejection toward gay men (G1 + G5 + G7 + G8 + G9), and ATL = Attitude of rejection toward lesbians (simple sum of 10 items, from L1 to L10).
Source: Own work

by the ATG-S factor). It correctly classified 76% (180 out of 237) of the participants: 27% (16 out of 60) of those with an attitude of acceptance and 93% (164 out of 177) of those with an attitude of ambiguity-rejection. Thus, it had a high sensitivity, but very low specificity.

The differential variables of the ATL factor were two: homosexual friends and religion. The model with those two variables was significant (χ^2[3, N = 237] = 13.59, p < 0.01). Having homosexual friends had a significant weight (W[1] = 13.74, p < 0.01). Religious adscription would have been significant with a significance level of 0.10 (W[2] = 4.96, p = 0.08). Having a Christian religious adscription, as opposed to having an adscription to another religion, quintuplicated the probability of belonging to the group with an attitude of ambiguity-rejection (OR = 5.09, 95% CI: 1.21, 21.4). Not having homosexual friends, as compared to having homosexual friends, duplicated the prob-

ability (OR = 2.19, 95% CI: 1.23, 3.87) (see Table 2). The model presented goodness of fit ($\chi^2[3, N = 237] = 0.88, p = 0.83$), and explained 8% of the variance of the binary criterion (acceptance versus ambiguity-rejection by the ATL factor). It correctly classified 69% (164 out of 237) of participants: 97% (157 out of 162) of those with an attitude of acceptance, and 9% (7 out of 75) of those with an attitude of ambiguity-rejection. Thus, it had a high specificity, but very low sensitivity.

Discussion

One out of six or seven male students who participated in the survey showed an attitude of rejection toward homosexuality and lesbianism based on the ATLG total score, including extreme rejection in one out of every twenty-five. These are proportions within the expected range based on other studies performed in the same population of undergraduate students on Health Sciences (Campo et al., 2010; Klamen, Grossman, & Kopacz, 1999; Moral & Valle, 2012; Parker & Bhugra, 2000; Skinner, Henshaw, & Petrak, 2001).

In this investigation, like in other studies (Herek, 2000), there was a greater level of rejection toward male homosexuality than toward lesbianism. One fourth of participants rejected gay men, in opposition to one tenth that rejected lesbians. This polarization of attitude with regard to gender was expected, in line with a deeper cultural homophobia toward male homosexuality. This difference is also determined by a greater rejection toward homosexuality in the own gender; this fact has been observed both in men and women, but with a higher effect size for men than for women. Rejection of homosexuality in the own gender puts the attitude at the service of an expressive function in favor of the hegemonic heterosexist ideology (Herek & McLemor, 2013).

As it was previously mentioned, the greater rejection toward male homosexuality stems from the cultural attitude, which stigmatizes and punishes the deviation from the heterosexual pattern more in men than in women. Men apparently enjoy greater sexual freedom, especially with regard to masturbation, early start of sexuality, multiple sexual partners, and even concurring partners. However, this freedom is restricted to heterosexual sex, and this is limited by the "decent" women who respect themselves and demand respect from men. Thus, prostitution appears as a valve that releases the pressure imposed to the greater male sexual freedom by the restrictive female sexuality (Paternostro, 1998). Nevertheless, another solution is to have sex with other men. Precisely, a strong cultural stigmatization attempts to restrict this outlet before a sexuality that is malleable and possesses a wide potential of expression depending on contexts, advantages, and opportunities (Moral, 2010a). Men internalize the prohibition of the homosexual behavior imposed by culture, and thus their rejection toward homosexuality in their own gender is stronger than that of women.

On the other hand, lesbianism is culturally more accepted. This is evidenced by the presence of lesbian acts in pornography, threesome parties, and orgies. From the heterosexist ideology, this kind of acts is justified because they are put to the service of male sexual excitement, and they are not exactly a deviation from the heterosexual orientation. Likewise, embarrassing, humiliating jokes and defamatory gossip about lesbianism are infrequent as compared to those expressed against male homosexuality. Furthermore, lesbianism as a causative factor of penal processes and divorce is highly unusual, while male homosexuality is not. All of this reflects a higher cultural acceptance of lesbianism (Herek, 2006).

Also in this study, subtle rejection of homosexuality (one out of two men) was higher than manifest rejection (one out of seven), although this qualification could only be evaluated for male homosexuality from the trifactorial model proposed by Moral and Valle (2011) for the ATLG scale. This fact is consistent with the attitudinal change in Western culture, where open condemnation has given way to symbolic rejection. Homosexuality is no longer considered as a crime, but persecution and flagrant discrimination due to sexual orientation are crimes. The change first appeared in the academic and scientific circles in the 1970's, and recently

reached the legal forums. However, for the sake of the hegemonic heterosexist ideology, a symbolic rejection of homosexuality still persists, especially toward gay men (Crompton, 2006; Herek, 2004). This symbolic rejection is evidenced by embarrassing jokes, insults, defamatory gossip, humiliating pranks, and surreptitious disqualifications (Jewell & Morrison, 2010).

The most important experiential variable in the models of regression was having homosexual friends. Since all participants defined themselves as heterosexuals, this indicates that the personal and friendly contact with homosexuals, who are object of stigmatization, provides an opportunity to elaborate a richer and more realistic representation than the simplistic and distorting stereotypes, reducing the biased attitude and allowing to initiate a relationship of mutual respect (Goodwin et al., 2003; Herek & McLemore, 2013). Having HIV-infected friends was differential only in the factor of subtle rejection toward male homosexuality, when equality of variances was not assumed in the mean comparison; nevertheless, it was not included in the regression model because its weight was not significant. This is explained by the few cases of participants having HIV-infected friends, which can be attributed to the low prevalence of the infection in the Mexican population, 1 out of every 3,000 (National Center for Prevention and Control of AIDS, 2012).

Religion was the only demographic variable with a statistically significant weight. Participants who followed Christian or fundamentalist biblical cults showed the greatest level of rejection. Those who belonged to other cults showed the lowest level of rejection. An intermediate level of attitude was found among Catholics. In studies performed with American samples, religion has been shown to be a predictor for rejection toward homosexuality (Basen & Zicklin, 2007; Wilkinson, 2004). Let's see more in depth the Mexican religious scene to better understand these results and their connection with an attitude of rejection.

In a context of crisis of the traditional religion in Mexico, Catholicism has been losing adepts in favor of Christian movements or fundamentalist

biblical associations, emerging cults, and magical-esoteric beliefs (Garma, 2008). Christianism and the biblical fundamentalism in Mexico implicate a revitalization of religiosity and a greater adherence to dogmas. Since the ideology of the Bible is clearly homophobic, heterosexist, and repressive of sexuality, it is quite understandable that these people express and feel more rejection toward gay men and lesbians (Dow, 2005). Nevertheless, being a Catholic was also a significant predictor of an attitude of rejection, although it had much lower weight than being a Christian. In Mexico, a new cult with a considerable development is the cult of the Holy Death. This cult is prospering, especially in the more disadvantaged social sectors (Ambrosio, 2003). Since this sample is composed mainly of students belonging to medium-high or high-class, the cult to the Holy Death is not representative. Participants who reported an adherence to other cults referred to idiosyncratic beliefs with magical-esoteric contents (reincarnation, subtle energies, cosmic connection, etc.). Attitudes toward sexuality tend to be liberal within this post-modern current (Aranda, 2000); hence, their higher level of acceptance toward sexual diversity. It is remarkable that none of the participants declared to be an atheist, when the percentage of people without religion is increasing in Mexico, especially among the youth (Moral, 2010b; National Institute of Statistics, Geography, and Informatics, 2003). Perhaps this might be explained by the fact that a person who claims to be an atheist will probably be stigmatized with a label of "immorality"; the confirmation of this hypothesis requires a study of social representation.

Having started couple sexual life and the number of sexual partners were not variables related to attitude. Since most participants were non-emancipated late adolescents, the expectation was that they were engaged in consolidating and proving their sexual orientation. This evolutionary task would put the attitude to the service of an expressive function of the hegemonic heterosexist values in Western society, or even to the service of a defensive function before homosexual desire (Herek & McLemore, 2013). Hence, individuals who define themselves as heterosexuals, but have

not yet shown themselves if they can, want, and really feel comfortable engaging in a heterosexual relationship, will express more rejection toward gay men and lesbians. Furthermore, the inhibition (not having started sexual life) could be an evidence of conflicts with homosexual desire, internalized homophobia, and consequential rejection toward homosexual persons (Troiden, 1989). Averages were higher among those who had not started couple sexual life, and the correlations were positive with number of sexual partners, in accordance to these expectations. However, it is also argued that promiscuity, infidelity, and ineptitude for intimacy may reveal this conflict, especially among men (Limentani, 1998; Sapetti, 1997). If this were the case in a significant portion of cases, the opposite direction of the effect to that previously argued may have reduced differential and associative capacity to both variables.

As expected, the means of rejection of those who have taken care of HIV-infected patients were lower, and the correlations of the rejection level with age were negative. These data reflect greater acceptance. Nevertheless, young age, limited range of age, and scarce clinical experience of these students (most of them freshmen) subtract variability and associative capacity to these variables, and thus they could not reach any statistical significance.

Despite taking into account relevant variables for predicting attitudinal level, the predictive models explained a low percentage of variance and the percentage of well-classified participants was also low, showing low sensitivity or ability to detect cases (attitude of ambiguity-rejection) in three models (ATLG, ATG-O, and ATL) and a low specificity or ability to reject non-cases in another two models (ATG and ATG-S). This suggests that there might be other important variables that were overlooked in this study, such as the attitude toward homosexuality in the family of origin, the genetic factor of attitude (Eaves et al., 1999; Verweij et al., 2008), and the conflict with own homosexual desire (Currie, Cunningham, & Findlay, 2004).

First, an attempt was made to calculate the models between two groups, rejection versus acceptance-ambiguity, but the result was not a good one. As the result was much better between another two groups, acceptance versus ambiguity-rejection, it was decided to choose these ones to calculate the models. It seems that the scoring interval from 4.20 to 5.80 defines a group of participants trapped in the conflict of not wanting to verbally express an acceptance that they do not completely feel. Thus, these participants are better represented among those who reject homosexuality in word and in feeling, since that is what they silence in their conflict.

The low explained variance and the issue of assignment of the group with an attitude of ambiguity could be indicating the convenience of using another technique of analysis, which could preserve more variance of the predicted variable, such as ordinal regression. However, no improvement was observed when this statistical technique was used (selecting the negative log-log method with ATLG, ATL, ATG and ATG-O owing to the skewness toward low values; and logit method with ATG-S owing to a more homogeneous distribution). Percentages of variance fluctuated from 11 to 14% and the variables with significant weight were the same.

This study has several limitations. A non-probability sample of students of health sciences was recruited from a private university of Monterrey. For this reason, conclusions derived from these data should be considered as hypothesis for this population and other similar populations. Data in this study correspond to an instrument of self-report, and for this reason they could differ from those obtained with open-ended interviews, projective tests, or reaction times.

In conclusion, the attitudinal level of rejection is similar to other studies in undergraduate populations. Subtle rejection is higher than open rejection, although the qualification of subtle and open could be estimated only in the rejection toward gay men. This is coherent with the attitudinal change that is happening in today's culture, in which attitude has gone from overt condemnation to symbolic rejection. As it was expected, the level of rejection was higher toward gay men than toward lesbians, which is probably due to a deeper cultural homophobia toward men and the expression of a greater rejection to homosexuality in the own

gender, thus reinforcing the heterosexist ideology. The prediction models had little explanatory power and classification ability, which indicates that some important variables were overlooked. Not having homosexual friends and being an adept of a Christian or fundamentalist biblical cult and, to a lesser extent, to Catholicism, were the variables that predicted a higher level of rejection.

In order to improve the predictive power of the models, it is suggested to evaluate the attitude in the family of origin, estimate dogmatism and cognitive rigidity (possibly genetic aspects of attitude), and explore the rejection of the own homosexual desire. Variables that were shown to be predictive of an attitude of ambiguity-rejection should be considered in the design of workshops promoting an attitude of acceptance toward sexual diversity, since they represent sources of resistance to change. Since there is a significant level of rejection, it is necessary to implement these workshops in the schools of health sciences.

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