Evidence of Validity of a Modern Homonegativity Measure against Gays and Lesbians

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Abstract
The goal of this research was to adapt and obtain validity evidence of the Modern Homonegativity Scale (MHS), which is set by two parallel forms with 12 items, one of them referring to gays (MHS-G) and the other referring to lesbians (MHS-L). In the first study 418 heterosexuals between 18 and 58 years old ($M = 24,9$; $SD = 7,23$), mostly women (66,3%) living at João Pessoa-PB (50,5%) answered. Both scales have shown as unidimensional and containing a high degree of internal consistency. The second study had the participation of 273 heterosexuals between 18 and 55 years old ($M = 23,7$; $SD = 6,33$), mostly women (69%). The confirmatory factor analysis showed satisfactory adjustment indexes for the proposed model and the Item Response Theory (IRT) demonstrated a good degree of discrimination and variation of the difficulty parameters. Therefore, we may conclude MHS is psychometrically valid, easily applicable and can be used in research contexts.
Keywords: statistical validity; homosexuality; prejudice; psychometry.

Evidências de Validade de uma Medida de Homonegatividade Moderna frente a Gays e Lésbicas

Resumo
O objetivo desta pesquisa foi adaptar e obter evidências de validade da *Modern Homonegativity Scale* (MHS) composta por duas formas paralelas com 12 itens, sendo uma versão referente aos gays (MHS-G) e outra às lésbicas (MHS-L). No Estudo 1, participaram 418 heterossexuais entre 18 e 58 anos ($M = 24,8$; $DP = 7,23$), a maioria mulheres (66,3%) e residentes em João Pessoa-PB (50,5%). As escalas apresentaram-se unidimensionais e com bons níveis de consistência interna ($\alpha = 0,92$). O Estudo 2, contou com 273 heterossexuais entre 18 e 55 anos ($M = 23,7$; $DP = 6,33$), a maioria mulheres (69%). A análise fatorial confirmatória mostrou satisfatórios índices de ajuste para o modelo proposto e a análise da Teoria de Resposta ao Item (TRI) demonstrou uma boa discriminação e variação dos parâmetros de dificuldade. Conclui-se que a MHS é psicometricamente válida e de fácil aplicação, podendo ser usada em contextos de pesquisa.
Palavras-chave: validade estatística, homossexualidade, preconceito, psicometria

Evidencias de Validez de una medida de Homonegatividad Moderna frente a los Gays y Lesbianas

Resumen
El objetivo de esta investigación fue adaptar y obtener evidencia de validez de la Escala de Homonegatividad Moderna (MHS), compuesta por dos formas paralelas con 12 ítems, siendo, una versión referente a gays (MHS-G) y otra a lesbianas (MHS-L). En el estudio 1 participaron 418 heterosexuales entre 18 y 58 años (M = 24,8; DP = 7,23), la mayoría mujeres (66,3%) residentes en la ciudad de João Pessoa-PB (50,5%). Las escalas se presentan em forma unidimensional y con buen nivel de consistencia interna ($\alpha = 0,92$). En el estudio 2 participaron 273 heterosexuales entre 18 y 55 años (M = 23,7; DP = 6,33), la mayoría también mujeres (69%). El análisis factorial confirmatorio mostró índices satisfactorios de ajuste para el modelo propuesto, y el análisis de Teoría de Respuesta al Ítem (TRI) demostró una buena discriminación y variación de los parámetros de dificultad. Se concluye que la MHS es psicométricamente válida y de fácil aplicación, pudiendo ser usada en contextos de investigación.
Palabras clave: validez estadística; homosexualidad; prejuicio; psicometría

Introduction

Since the political and social movements of 1980, the focus of scientific literature has been investigating attitudes towards homosexuality through numerous theoretical models, concepts and different measuring instruments (Grey, Robinson, Coleman, & Bockting, 2013). A term that has recently gained greater visibility, given its conceptual consistency, is homonegativity, used to express, in general, a negative attitude directed towards non-heterosexual people (Haney, 2016).

Although the concept of "homonegativity" is also attributed to the idea of homophobia and that there is no agreement on it in the literature, it is essential to explore the discussion between the two concepts. According to Weinberg (1972), homophobia refers to

the fear of being close to people who express a different orientation from heterosexuality. Although the term has been emphasized and gained political strength in recent years, it is an unsatisfactory denomination (Chamberland & Lebreton, 2012), to the extent that it rests on a conceptual error when you assign to the prejudice an individualizing and politically wrong feature, centred on the ideas of "phobia" or "fear" (Souza, Silva, & Santos, 2017). In other words, the term legitimises an alleged pathologisation of the individual who has a negative attitude towards homosexual people, taking away their social responsibilities upon their actions.

Beyond the terms is the fact that prejudice has taken on new forms of manifesting itself, to the extent that its open expression has become less and less acceptable, given the new laws and social discussions circulating in the media, which, in turn, may be causing concealment of the phenomenon. Thus, even though sexual prejudice appears to be in decline, heterosexuals who report little or no intolerance at all may still have subtle tendencies against gays and lesbians (Keibel, McFadden, & Herbstrith, 2017).

When Górska, Bilewicz, Winiewski and Waszkiewicz (2017) discussed the diffused opinions regarding the homosexuals, they made two arguments, generally used when people argue against new rights to the LGBT population. The first is the Catholic doctrine, which opposes to homosexuality; and the second regards the supposed excess of demands made by the LGBT movements, as well as in the belief that the institutionalisation of civil union between same-sex couples would diminish the prestige of heterosexual marriage. According to the same authors, this duality of thought reveals two types of prejudice against homosexuals: traditional homonegativity and modern homonegativity.

In this sense, Morrison and Morrison (2003) have proposed the concept of "modern homonegativity", which is a consideration in the negative with the lesbian and gay people, masked or hidden by three different discourses. First, (a) lesbians and gay men require nonessential social change. Second, (b) prejudice and discrimination are a phenomenon of the past. Finally, (c) lesbians and gay men put too much emphasis on their sexuality and, in doing so, are responsible for their marginalisation.

The discussion on these issues might propose increasing evidence that prejudice has not diminished, but has only taken on a new form. Mainly, the prejudice against gays and lesbians pulled away from the injunctions of the biblical and moral restraints, approaching

concerns such as the increasing visibility of these groups and the questioning of the values and rights traditionally associated with heterosexuality, such as marriage and parenting (Gato, Fontaine, & Carneiro, 2012).

To measure contemporary behaviors towards lesbians and gays, the Modern Homonegativity Scale (MHS) has been developed. The measure is characterised by two parallel forms of the measure, one directed toward attitudes towards gay men (MHS-G) and another towards attitudes towards lesbians (MHS-L). Each scale was considered one-dimensional and composed by 12 items, being fatally distinct from a measure of traditional prejudice. The scales showed 45% and 47% of total variance, respectively. Regarding internal consistency, MHS-G had an alpha coefficient of 0.91 for both sexes, while MHS-L had an alpha coefficient of 0.89 for men and 0.85 for women (Morrison & Morrison, 2003).

It is worth noting that in the international context other scales are used to measure attitudes towards gays and lesbians. Only the study of Gray *et al.* (2013) analysed 17 instruments with appropriate psychometric properties and aimed to measure homophobia, homonegativity or related concepts (heterosexism, homosexism, homopositivism and sexual prejudice). One of the most commonly used scales, according to Concha (2016), is the *Attitudes Toward Lesbians and Gay Men Scale* (ATLG) that uses 20 items divided into attitudes towards gays (ATG) and lesbians (ATL). However, both forms measure more traditional attitudes, besides having lower internal consistency than MHS, with alphas of 0.85 and 0.74, respectively (Moreno, Herazo, Oviedo, & Campo-Arias, 2015).

In Brazil, on the other hand, there is a lack of validated instruments to measure attitudes towards non-heterosexual people. An instrument developed in Brazil by Costa, Bandeira and Nardi (2015) includes both aspects of sexual orientation and gender expressions. The study compiled items from two other international scales: ATLG, mentioned above, and *Genderism* and *Transphobia Scale* (Hill & Willoughby, 2005). Thus being prejudice against sexual orientation and prejudice against gender expressions considered as a single general construct and, as a one-dimensional structure was accepted that explained only 12% of the variance of the items.

The Multidimensional scale of attitudes towards Lesbians and Gays (EMAFLG; Gato *et al.*, 2012) has been built in the Portuguese context, and used items of various scales: ATLG, *Index of Homophobia* (Ricketts

& Hudson, 1980), *Homosexuality Attitude Scale* (Kite & Deaux, 1986), the MHS (Morrison & Morrison, 2003), *Modern Homophobia Scale* (Raja & Stokes, 1998) and *The Homophobia Scale* (Wright, Adams, & Bernat, 1999). The final version of the scale consisted of 27 items and four factors: Rejection of proximity; Homopathologisation; modern Heterosexism; and Support. The measure was validated for Brazil and Portugal in a cross-cultural study by Gato, Fontaine and Leme (2014) and presented satisfactory adjustment indicators (CFI = 0.92, RMSEA = 0.057 and SRMR = 0.04).

The Explicit and Implicit Scale of Homophobia, developed by Castilho, Rodríguez, Torres, Perez and Martel (2003) was adapted to the Brazilian context by Marinho, Marques, Almeida, Menezes, and Guerra (2004) and has 17 items divided into two factors, explicit homophobia ($\alpha = 0.79$) and implicit homophobia ($\alpha = 0.74$). The adjustment quality indicators were moderate: GFI = 0.90; AGFI of 0.86 and RMR = 0.22. In addition to the internal consistency coefficients and reasonable model adjustment, the scale also brings traditional aspects and does not have separate versions for gays and lesbians.

Since a translated instrument adapted to the Brazilian reality which measures the modern homonegativity was not found in the national literature, and given the importance of working with this construct, the objective of this research was to adapt and obtain evidence of the validity of the MHS. For this purpose, we considered two studies which we described in details below.

Study 1 - Adaptation and Validation of Modern Homonegativity Scales

The primary objective of this study was to count on a Brazilian version of MHS, performing its translation, adaptation and exploratory analysis to verify its validity of construction and internal consistency.

Method

Participants

In this study, 418 self-declared heterosexuals, with ages ranging from 18 to 58 years old (*M* = 24.8; *DP* = 7.23), mostly female (66.3%) and single (76.3%) participated. The majority lived in the capital João Pessoa (50.5%), followed by Florianópolis (10.5%), Rio de Janeiro (6.9%), Salvador (6.2%), Curitiba (5%), Natal (3.3%), Recife (2.4%) and Brasília (1.9%). As for the level of education, 57.9% were attending a degree,

followed by 15.1% with a full degree and 19.6% in postgraduate studies. Regarding religion, most of the sample said they had no religion (45%), while 31.6% were Catholic and 15.3% were Evangelic.

Instruments

The *Modern Homonegativity Scale (MHS)*: in this study, it consisted of two translated and adapted scales, based on Morrison and Morrison's instrument (2003). The measure is characterised by two parallel forms (MHS-G and MHS-L), each with 12 items. Both scales use the five-point Likert response variants (1 = I totally disagree to 5 = I totally agree).

The *Sociodemographic questionnaire*: we asked the participants for data such as what is the city and state where they reside, their age, gender, marital status, level of education, sexual orientation, religion, social class and university degree.

Procedures

The items of the *Modern Homonegativity Scale (MHS)* measure were translated and retranslated through the *back-translation* technique, with the participation of three bilingual psychologists. The adaptation to Brazilian culture took place through semantic validation with ten university students from the first semester. Subsequently, we applied questionnaires through an *online* form following the ethical criteria based on Resolution 466/12 of the National Health Council. We asked for individual responses from the participants, who were advised not to identify themselves in the questionnaire, ensuring the anonymity of their participation. We stated that they could leave the study at any time without penalty, elucidating the voluntary nature of the research. Every participant agreed on a Free Consent and Clarified Term appointed previously.

Data Analysis

The analysis of semantic validation was given by the frequency of students agreeing on the clarity of the items. All items were found to be understandable, which highlighted the validity of the content. The IBM SPSS (version 21) was used to tabulate and analyse data for characterisation of the sample from descriptive statistics (measures of central tendency and dispersion) and perform the calculation of the Cronbach's alpha coefficient for each scale. To verify dimensionality, we carried out an exploratory factorial analysis (EFA) in the statistical program FACTOR version 10.5.2 (Lorenzo-Seva & Ferrando, 2006). When considering

the level of ordinal measurement of the Likert-type variables and the violation of the assumption of multivariate normality of the data (Mardia = 18.2, $p < 0,001$; Mardia, 1970), we conducted a robust EFA from the polychoric correlation matrices of the items MHS-G and MHS-L. In the withholding of the number of factors, the Hull method with adjustment index *Common part Accounted For* (CAF) was used, best indicated when there is a violation of normality (Lorenzo-Seva, Timmerman, & Kiers, 2011). As a method of extraction, the use of the *Minimum Rank Factor Analysis* (MRFA), which minimises the variance of the joint residual process, and enables the advantage of the interpretation of the proportion of common variance explained by the factors retained (Lorenzo-Seva & Ferrando, 2006; Ferrando & Lorenzo-Seva, 2017).

The Hull method (Lorenzo-Seva *et al.*, 2011) is recent to select the number of primary factors, seeking to find a model with an optimal balance between adjustment goodness indices and the number of parameters. The characterisation, according to Damasio (2012), occurs by being a method of factorial retention that has shown higher results when compared to other factorial retention methods, such as Kaiser-Guttman (*eigenvalue* > 1), Cattell criteria (*scree plot*), parallel analyses and the MAP method (*Minimum Average Partial*).

Results

Exploratory Factorial Analysis

First, we evaluated the modern homonegativity scale front Gay men (MHS-G). The matrix of polychoric correlations between MHS-G items has been shown to be suitable for extracting factors with magnitudes above 0.33. The viability of the factorial analysis was verified through the Kaiser-Meyer-Olkin index (KMO) = 0.93 and the Bartlett's sphericity test [$X^2 (66) = 2678.7$; $p < 0.001$]. For MHS-L, polychoric correlations were obtained between items greater than 0.40, a KMO index = 0.93; and the significant Bartlett's sphericity test [$X^2 (66) = 3007.2$; $p < 0.001$].

Then, through the Hull method, the adjustment adequacy indices of all possible factorial solutions of the two scales were evaluated, as well as the degrees of freedom of each of the models. The resulting solution has the highest *Scree Test* numerical value, whose mathematical formula ponders the relationship between the adjustment index and the degrees of freedom of a model, compared to a previous model (Damásio, 2012; Lorenzo-Seva *et al.*, 2011). According to the highest *Scree Test* value, the results presented by the Hull method indicated the presence of a single general factor for both scales of modern homonegativity (Table 1).

In MHS-G, the general factor presented eigenvalues > 1 (7.28), explaining 60.6% of the common variance of the scores. The factorial loads of the items were above |0.55| and the communalities of the items ranged between 0.59 and 0.92, as shown in Table 2.

In MHS-L, the general factor obtained eigenvalues > 1 (7.64), explaining 63.74% of the common variance of the scores. The factorial loads of the items were above |0.60|, and the communalities of the items between 0.50 to 0.91 (Table 3).

Internal consistency

The Cronbach's coefficient alpha resulted in values of 0.92 for MHS-G, being different in men ($\alpha = 0.93$) and women ($\alpha = 0.90$). The MHS-L obtained a general

Table 1.
Extraction of the number of factors from MHS-G and MHS-L by the Hull method.

Scale	Number of factors	Adjustment indices	g.l	Scree Test
MHS-G	0	0.056	66	0.000
	1	0.405	54	4.994*
	2	0.469	43	0.000
MHS-L	0	0.060	66	0.000
	1	0.409	54	6.681*
	2	0.457	43	0.000

Note. advice on a number of common factors: 1

Table 2.
Factor Charges and commonalities of MHS-G items

Item contents	h	h²
1. Many gay men use their sexual orientation so they can get special privileges.	0.74	0.67
2. Apparently, gay men focus on their differences with heterosexuals and ignore the similarities.	0.71	0.68
3. Gay men do not have all the rights they need.*	-0.72	0.71
4. Celebrations such as "Gay Pride Day" are ridiculous because they assume that an individual's sexual orientation should be a source of pride.	0.81	0.88
5. Gay men still need to protest for equal rights.*	-0.84	0.88
6. Gay men should stop imposing their lifestyle on other people.	0.81	0.79
7. If gay men want the same treatment as everyone else's, then, they need to stop exposing their sexuality/culture so much.	0.88	0,92
8. Gay men who are "out of the closet" should be admired for their courage.*	-0.55	0.46
9. Gay men should stop complaining about how they are treated in society, and simply continue living with their lives.	0.79	0.77
10. In difficult economic times like today, Brazilian tax money should not be used to support gay organisations.	0.71	0.59
11. Gay men have been very controversial in seeking equal rights.	0.79	0.71
12. Public displays of affection are unnecessary in homosexual couples.	0.75	0.66
Explained Variance (%)	0.60	
Cronbach's Alpha	0.92	

Note. * negative items. h factor charge; h² communality.

alpha of 0.92, 0.93 for men and 0.91 for women. Thus, the scales proved to be equally reliable for both genres.

Partial Discussion

All in all, there is initial evidence of the validity of the MHS construct (factorial structure and internal consistency) in a Brazilian sample. However, the nature of the analyses carried out was, basically, exploratory. In this context, it was considered essential to investigate whether the findings reported could be replicated in an independent sample, proving the fit of the unifactorial structure of this measure and checking the quality of each item separately. We carried this hypothesis in Study 2, described below.

Study 2 - Proof of Factorial Structure and Analysis of Items

In this study, it was intended to gather complementary evidence of the validity of MHS constructs,

through the information of the adjustment of the theorised model through the method of modelling structural equations. Also, we sought to ascertain the parameters of each item using the Item Response Theory (IRT).

Method

Participants

The sample consisted of 273 self-declared heterosexual people of the city of João Pessoa, aged between 18 to 55 ($M = 23.7$; $DP = 6.33$), most of them female (69%), single (89%) and with incomplete higher education (76.9%). As for religion, the majority declared themselves as Catholics (42.1%), followed by Evangelicals (22.3%).

Instruments and Procedures

We replicated the same tools and procedures detailed in Study 1 in this second study.

Table 3.
Factor Charges and commonalities of MHS-L items

Item contents	h	h²
1. Many lesbians use their sexual orientation so they can get special privileges.	0.79	0.80
2. Apparently, lesbians focus on their differences with heterosexuals and ignore the similarities.	0.70	0.69
3. Lesbians do not have all the rights they need.*	-0.78	0.89
4. Celebrations such as "Gay Pride Day" are ridiculous because they assume that a lesbian's sexual orientation should be a source of pride.	0.84	0.87
5. Lesbians still need to protest for equal rights.*	-0.84	0.91
6. Lesbians must stop imposing their lifestyle on other people.	0.82	0.80
7. If lesbians want the same treatment as everyone else's, then they need to stop exposing their sexuality/culture so much.	0.89	0,92
8. Lesbians who are "out of the closet" should be admired for their courage.*	-0.60	0.50
9. Lesbians should stop complaining about how they are treated in society, and just get on with their lives.	0.81	0.80
10. In difficult economic times like today, Brazilian tax money should not be used to support lesbian organisations.	0.71	0.67
11. Lesbians have been very controversial in their quest for equal rights.	0.79	0.72
12. Public displays of affection are unnecessary in lesbian couples.	0.78	0.76
Explained Variance (%)	0.63	
Cronbach's Alpha	0.92	

Note. * negative items. h factor charge; h² communality.

Data Analysis

For tabulation and analysis of the data, the IBM SPSS (version 21) and R (version 3.3.2) programs were used, respectively, to gather evidence of model adjustment through confirmatory factorial analysis (CFA) of MHS-G and MHS-L, using the *Lavaan* and *Semplot* packages. The estimation of model parameters was carried out using the *Robust Weighted Minimum Squares method* (WLSMV) because it uses polychoric correlation matrices, suitable for items with categorical or ordinal response scale (Hair, Black, Babin, Anderson, & Tatham, 2009).

The adequacy of fit of the model to the empirical data was assessed with the following indicators: CFI (*Comparative Fit Index*) and TLI (*Tucker Lewis Index*), which compare the relative fit to the null model, which values above 0.95 indicate great fit. The RMSEA (*Root-Mean-Square Error of Approximation*), a measure of discrepancy, being the expected values below 0.05, but acceptable up to 0.08. Also, the SRMR (*Standardized Root Mean Square Residual*) that reports the average standardised of the residuals (discrepancies between the observed matrix and modelled matrix), whose indices lower than 0.10 are indicative of a good quality of fit (Byrne, 2013; Kline, 2015)

We performed the analysis of the items through the TRI in the *R program* (version 3.3.2). The parameters of the items were tested employing the model *Graded Response Model* (GRM, Samejima, 1969), which has two settings: discrimination (parameter *a*) and difficulty (parameter *b*). To this end, we considered the *ltm* package (Rizopoulos, 2006).

Results

Confirmatory factorial analysis

Through the AFC, the following MHS-G adjustment indicators were observed: CFI = 0.95; TLI = 0.94; RMSEA = 0.066 (CI90% = 0.050-0.082), and SRMR = 0.04. It is, therefore, observed that all indicators were satisfactory to the adequacy criteria. Still, it has been

found that factorial weights (Lambda – λ) were statistically different from zero (0; *t* > 1.96, *p* < 0.001) with acceptable values between -0.37 (item 8) and 0.85 (item 7), presented in Table 4.

For MHS-L, the following indicators were observed: CFI = 0.93; TLI = 0.92; RMSEA = 0.071 (CI90 % = 0.056-0.087); and SRMR = 0.043. Therefore, we found that the RMSEA did not meet the adequacy criteria. However, considering its confidence interval, it reached the acceptable minimum threshold.

The factorial weights (Lambdas-λ) were statistically different from zero (0; *t* > 1.96, *p* < 0.001) and presented acceptable values ranging from -0.43 (Item 8) to 0.86 (Item 7), as shown in Table 4.

Item Response Theory Analysis

Once the one-dimensional scale was confirmed, we considered appropriate to evaluate some psychometric properties of the items. All 12 items retained in previous analyses of both scales were analysed. It was

Table 4.
Factor weights and parameters of MHS-G and MHS-L scale items

Items	AFC	TRI-GRM				
	λ	*a*	*b*1	*b*2	*b*3	*b*4
MHS-G						
1	0.74	2.24	-0.69	0.39	1.03	2.43
2	0.62	1.49	-1.70	-0.38	0.79	2.73
3	-0.64	1.71	-1.06	0.27	0.95	2.07
4	0.77	2.53	-0.53	0.38	1.26	2.02
5	-0.77	2.56	-0.98	0.47	1.18	1.99
6	0.78	2.40	-1.11	-0.47	0.46	1.31
7	0.85	3.42	-0.81	-0.00	0.58	1.34
8	-0.37	0.79	-2.47	0.09	1.99	**3.76**
9	0.80	2.77	-0.53	0.61	1.23	1.97
10	0.80	2.56	-0.94	-0.01	0.78	1.43
11	0.74	2.20	-1.46	-0.31	0.65	1.83
12	0.68	1.84	-0.64	0.37	1.31	2.21
MHS-L						
1	0.80	2.78	-0.65	0.45	1.06	2.08
2	0.69	1.87	-1.22	-0.12	0.86	2.37
3	-0.61	1.81	-1.05	0.49	1.22	2.25
4	0.79	3.00	-0.51	0.38	1.18	1.80
5	-0.81	2.92	-0.80	0.66	1.33	1.97
6	0.76	2.54	-1.21	-0.45	0.47	1.53
7	0.86	3.62	-0.78	0.16	1.71	1.50
8	-0.43	0.97	-2.00	0.25	1.54	2.95
9	0.81	3.07	-0.42	0.65	1.09	2.04
10	0.80	2.76	-0.90	0.08	0.76	1.49
11	0.73	2.21	-1.36	-0.30	0.89	2.07
12	0.65	1.87	-0.48	0.43	1.41	2.28

Note. λ = factor weight of the item via the AFC; GRM = *Graded Response Model. a* - Item Discrimination. *b* - Difficulty of the item in the thresholds of the response categories.

established as a cutting point to evaluate the breakdown of items; values *a* equal to or above 0.60 (Nakano, Primi, & Nunes, 2015). The results appear in Table 4.

As seen, all MHS-G and MHS-L items were discriminatory, ranging from 0.79 (item 8) to 3.47 (item 7) in MHS-G, while in MHS-L, it ranged from 0.97 (item 8) to 3.62 (item 7).

MHS-G parameter estimates covered a large portion of *theta*, with *b* values (*tresholds*) between -2.47 (*b1* of item 8) and 3.76 (*b4* of item 8). On the MHS-L *theta* portion for the *b* values ranged from -2.00 (*b1* of item 8) to 2.95 (*b4* of item 8).

In general, the values of b indicate that the lower the value, the easier the acceptance of the category and, the higher the value, the more difficult its endorsement is. Following the Embreston and Reise classification (2000), we observed that Categories 1 (I totally disagree), of the items of both scales, are easier to endorse, given the b values below -0.46. On the other hand, the *threshold b*4 shows that the extreme positive category (I totally agree) is the most difficult to endorse since the values were above 0.52.

Finally, we investigated the information curves of each of the two scales. The graphical representation of the curves for the range of -4.0 and 4.0 *logits* appears in Figures 1 and 2.

Figures 1 and 2 show that there was a tendency for the items of the two scales to be more informative for the portion of the underlying trace between points -2 and 2. On the other hand, there is also less information in *theta* at the positive and negative extremes.

General Discussion

Although opinions and legislation concerning homosexual people are changing rapidly in recent years, gay men and lesbians continue to suffer prejudice and discrimination (Chonody & Smith, 2013). In this regard, it is necessary that researchers and practitioners have access to precise and up-to-date instruments that aim to measure anti-gay and anti-lesbian attitudes, particularly those more subtle ways that may be present on groups and populations (Siebert, Chonody, Siebert, & Rutledge, 2014).

This article aimed to describe the validation and adaptation process of MHS, a measure composed of two parallel ways to evaluate modern homonegativity against gay (MHS-G) and lesbians (MHS-L). In a first study, the analyses presented by AFE with method Hull have demonstrated the existence of a single general
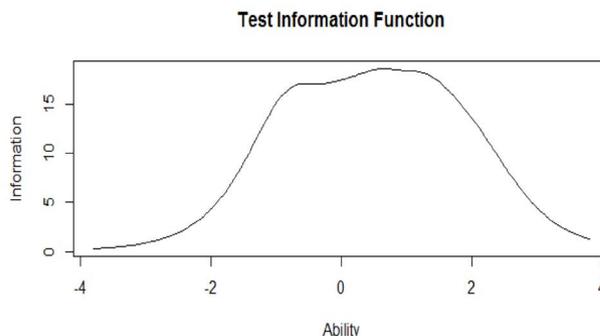

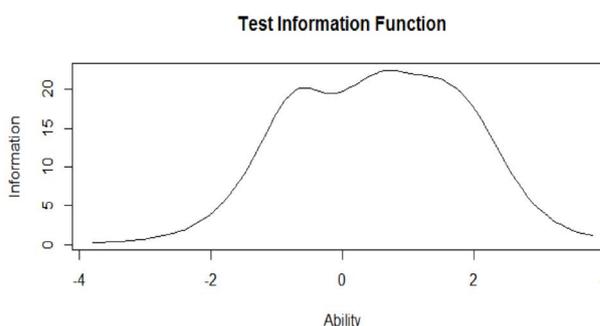*Figure 1.* Total MHS-G information curve

Figure 2. Total MHS-L information curve

factor of modern homonegativity in both versions of the scales, corroborating with the one indicated by Morison and Morison (2003). The Brazilian version of the MHS had a greater internal consistency and greater variance explained, when compared to the study of the original exploratory type (α_{MHS-G} = 0.89; α_{MHS-L} = 0.85), and later adaptations, such as in Ireland (Morrison, Kenny, & Harrington, 2005), with values > 0.90 (α_{MHS} = 0.84; α_{MHS-G} = 0.83).

Regarding Study 2, the single-factorial structures were suitable for the proposed model through the AFC, with satisfactory quality adjusted indices for both scales. More recent validations of the measure presented adjustment indices comparable to the Brazilian version, such as adaptations in Poland, whose indices found were satisfactory (Górska *et al.*, 2017) and in Mexico (Romero *et al.*, 2015), with values of CFI = 0.96 and RMSEA = 0.07, invariant on the gender of respondents.

No international publications were found to evaluate the parameters of MHS items through the TRI.

About the results, it was observed through the "parameter a", that the items of both scales can discriminate subjects with magnitudes close in the latent trait studied since the values "a" are above the cut-off point of 0.60 (Nakano *et al.*, 2015). The difficulty parameters showed less endorsement in the higher response categories.

However, the studies reported are not free of limitations, since their samples were of the non-probabilistic type and collected online, and therefore the generalisations of the results should be considered. Also, in both studies, much of the samples had incomplete higher education, with probable middle-class incomes and directed to university students.

For future studies, it is suggested the use of probabilistic sampling and data collection in person, to better control response influences and therefore the level of homonegativity. It is also recommended that MHS should be applied jointly with other scales to achieve convergent validity (scales of negative attitudes towards gays and lesbians) and discriminatory (scales of traditional homophobia) in future studies.

Regarding gender differences, agreeing with Concha (2015), even when it comes to scales that evaluate homonegativity in its modern form, the construction may still be measured differently between men and women, a fact that may compromise the validity of the measure. For this, there is a need for further studies solely aimed at the analysis of invariance of the measure between the genders, primarily based on the TRI.

Based on our results, the modern homonegativity scale with favourable validity evidence for Brazil can meet the need for a measure to base studies that aim at the understanding and prediction of this new form of prejudice. Besides, the measure can be tested and applied for different groups and spaces, such as universities, schools, organisations and health services. From these studies, we found that negative attitudes can change in different contexts or according to specific groups. In the long term, the application of the measure can be used for interventions aiming at change of attitudes, the prevention of bullying and the restriction of access to health resources and to employment, due to negative attitudes towards gays and lesbians in these multiple environments (Shell, 2016; Moreno *et al.*, 2015).

In general, the results suggest that the Brazilian version of MHS, proposed in this research, is suitable to evaluate modern homonegativity in the Brazilian context, as a new way of positioning itself negatively against homosexuals. Thus it is trusted that we are offering a psychometrically appropriate, quick and of easy application measure that can be used in multiple research contexts.

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