



A Psychometric Evaluation of the Revised Attitudes toward Lesbians and Gay Men Scale-Short Version: The ATLG-R-S-9

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Abstract

Measuring attitude toward homosexuality with well-validated instruments is a critical step for a better understanding of the anti-lesbian/gay public prejudice (formerly known as homophobia). The Revised Attitudes toward Lesbians and Gay Men Scale-Short Version-10 (ATLG-R-S-10) is one of the most known measures of attitude toward lesbians and gay men. This study aimed to test the factorial structure, construct validity, discriminant validity, and reliability of the Romanian version of the ATLG-R-S-10. Participants were 496 Romanian graduates, master's students, and undergraduates from five universities. The sample included 392 women and 104 men aged 18 to 47 years. Participants completed the translated version of ATLG-R-S-10 along with other measures of religiosity and openness (as a domain of stable personality traits). We used confirmatory factor analysis to test the internal validity of the ATLG-R-S-10. The hypothetical model with a single latent factor and full ATLG-R-S-10 items showed an unsatisfactory statistical fit. Also, one item (i.e. "State laws against private sexual behavior between consenting adult women should be abolished") loaded poorly ($\gamma = 0.10$) on the hypothetical factor. Therefore, this item was removed and a second analysis was carried out. Results indicated a slight improvement in the statistical fit of this second model, but still unsatisfactory. Suggestions for improving the model led us to correlate three pairs of items, resulting in a third model with a satisfactory statistical fit ($NFI = 0.961$; $CFI = 0.969$; $RMSEA = 0.085$). The internal consistency of the nine-item version of the ATLG-R-S (ATLG-R-S-9) was excellent ($\alpha = 0.912$). Correlational analysis revealed a positive and moderate association ($r = 0.48$; $p < 0.001$) between ATLG-R-S-9 score and religiosity. The correlation with openness was negative, but modest ($r = -0.14$; $p < 0.01$). Comparative data are also presented.

Key words: Attitude; gay men; lesbians; measurement; psychometric properties; Romanian version of ATLG-R-S-10

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1. Introduction

One of the concerns of researchers who addressed the topic of human sexuality was homophobia. This term was introduced into the scientific circuit by G. Weinberg (1972). For about five decades, this construct has been used in the cultural jargon and in areas such as the psychosociology of sexuality, psychotherapy, or psychopathology. Over time, the meanings of homophobia have evolved from a person's rejection of their own homoerotic desires to the attitude by which heterosexuals challenge the minority of homosexual people. Another facet includes the misconceptions that heterosexual people have about lesbian/gay people (Herek, 1994). In 1973, the American Psychiatric Association declassified homosexuality from the range of clinical disorders related to identity and sexual orientation. Following this change, researchers began to use the term "homophobia" interchangeably with other terms such as sexual prejudice or negative attitudes, beliefs, and actions that heterosexual individuals may have toward lesbian/gay people (O'Donahue & Caselles, 1993).

The measurement of prejudice against lesbian/gay people began in the 1970s. The first measures operationalized homophobia as the fear that heterosexuals manifest toward lesbian women and gay men. Later, researchers began to use a generic term with fewer ethical implications. Thus, sexual prejudice has been conceptualized as a negative attitude based on a sexual orientation other than the predominant one (Herek, 2004). One of the most popular modern instruments for measuring sexual prejudice is Attitudes toward Lesbians and Gay Men Scale (ATLG; Herek, 1984a, 1984b, 1988, 1994; Herek & McLemore, 2011). The ATLG includes two subscales that allow a separate measurement of the attitudes toward lesbian women and gay men. Thus, researchers have the opportunity to differentiate attitudes toward the minority of people with other sexual orientations than the predominant one depending on the gender of the subjects who are the target of the evaluation.

By the late of the 1970s, G. M. Herek laid the empirical foundations for what would later become the well-known ATLG scale. Herek proposed that the ATLG offer the possibility of a separate assessment of attitudes toward lesbians and gay men. Until then, the published literature had failed to cover this issue. The ATLG includes items that require respondents to a wide range of evaluations regarding lesbian women and gay men. The content of the items covers areas such as moral and religious beliefs, cultural stereotypes, emotional reactions or social policy toward this minority. The long version contains 20 items. It was developed using an initial pool of 128 items that were selected from several instruments built to measure attitudes toward lesbians and gay men (Herek, 1984b). Herek performed factorial analyses on several measures that operationalized homophobia and focused more on gay men. These included the Homosexuality Attitude Scale (J. Millham, C. L. San Miguel and R. Kellogg), MacDonald Attitudes toward Homosexuality Scale (A. P. MacDonald and R. G. Games), Homophobia Scale (K. T. Smith), and a set of items developed by E. E. Levitt and A. D. Klassen. Herek has supplemented these measures with new items. The results of the factor analyses revealed a general latent factor which was named "condemnation-tolerance". This factor accounted for most of the total variance of the items included in the initial set. The factor did not vary significantly depending on the subject being the target of the evaluation, i.e. lesbian women or gay men. Factor analyses performed on the initial set of items revealed a few narrower factors in terms of psychological content. One of these factors relates to beliefs about lesbians and gay men.

According to C. H. Rosik (2007), Herek did not develop the ATLG scale from the perspective of traditional Christian ideology. From a normative point of view, it dichotomizes between the positive value of all people, as they were created in the image of God, and the negative, undesirable, and punishable nature of sinful behavior (e.g., same-sex relationships), as they were conceptualized in traditional Christian teachings. According to Herek (1984b), the ATLG measures the negative attitude toward lesbians and gay men, not homophobia. Herek (1994)

interpreted the general condemnation-tolerance factor as the fact that although heterosexual men and heterosexual women may differ in the intensity of attitudes toward lesbian women and gay men, their evaluations rather reflect a cognitive dimension that corresponds to personal and cultural attitudes that are traditionally included under the term 'homophobia'. For this reason, the long version of the ATLG includes only the items that have shown the highest loadings in the general condemnation-tolerance factor. Based on this assertion, Herek created two ATLG subscales, one for lesbian women and one for gay men. Herek retained in the final version of the ATLG 20 items that showed the highest item-total correlation.

Initial studies aimed at validating the long version of the ATLG (Herek, 1988, 1994) have some methodological limitations (e.g., low sample size or too many working variables). C. J. Stoeber and O. F. Morera (2008) published a first consistent investigation based on confirmatory factor analysis. This study revealed a hierarchical metric model that provided the best statistical description of the relationships between scores on all items of the ATLG. According to this model, three indicators of sexual prejudice against lesbians and gay men can be derived from the evaluations of a respondent. These include an indicator of the attitude toward lesbian women, another indicator of the attitude toward gay men and a third global indicator of the prejudices toward people who have other sexual orientations than the predominant one. In the study we referred to, religiosity and the etiology of homosexuality were predictors of the global indicator of prejudices against lesbian women and gay men, while the gender of respondents was predictor of the prejudice against gay men. Compared to heterosexual women, the heterosexual men showed a more negative attitude toward gay men.

The ATLG was developed for administration to English-speaking adult heterosexuals in the United States. It has also been used in research conducted in Canada (Mohipp & Morry, 2004) and England (Hegarty, 2002). Translated versions have been administered in the Brazil (DeSouza, Solberg & Elder, 2007), Chile (Cardenas & Barrientos, 2008), Netherlands (Meerendonk, Eisinga & Felling, 2003), Singapore (Detenber *et al.*, 2007), and Turkey (Gelbal & Duyan, 2006). In addition, a Spanish version was created for a study of adults of Mexican descent (Herek & Gonzalez-Rivera, 2006).

2. Short versions of the ATLG

In parallel with the long version, Herek (1988, 1994) developed a short version with ten items (ATLG-R-S-10), five of which are aimed at quickly assessing the attitude toward lesbian women and five are aimed at attitude toward gay men. Also, in several national telephone-based surveys conducted in the United States, Herek and Capitanio (1995) used another abbreviated version (ATLG-R-S-6) which included three items for each of the two subscales. The two short versions have become popular among researchers in various fields. They were used in several studies conducted among college and university students (Ellis, Kitzinger & Wilkinson, 2003; Rainey & Trusty, 2007; Rutledge, Siebert, Siebert & Chonody, 2012).

To create the ten-item abbreviated version of the ATLG, Herek (1988, 1994) selected five items from each of the long-running subscales to assess the attitudes toward lesbian women and gay men. These items showed high correlations with the overall score for the long version of the ATLG. The ATLG-R-S-10 was administered to several adult samples and showed an excellent internal consistency ($\alpha = 0.95$ – attitude toward lesbians and $\alpha = 0.96$ – attitude toward gay men). In addition, the scores for the short version correlated strongly with those for the long version ($r \geq 0.95$), as expected. The construct validity of the ATLG-R-S-10 is proved by the statistically positive and significant correlations between the scores for its subscales and: a) the absence of interpersonal contact with a lesbian woman or a gay man; b) the gender-role orientation and traditional family ideology; c) the high level of authoritarianism; d) the religious services attendance; e) the affiliation with conservative religious denominations; f) the fundamentalist

religious beliefs (Herek, 1994, 2009; Herek & Capitanio, 1996; Herek & McLemore, 2011). The discriminant validity of the ATLG-R-S-10 was also tested by comparing the scores of adults who publicly supported local LGBT rights initiatives with the scores of respondents who opposed the LGBT movement. Subjects who supported the rights of sexual minorities scored lower. In other words, they expressed a more favorable attitude toward lesbian women and gay men.

3. The current study

This study is part of a larger investigation that focuses on the psycho-socio-cultural dimensions of homosexuality in the contemporary Romanian perspective. The ideological biases against lesbian women and gay men remain an ongoing issue (Chonody, 2013). A careful radiography of the socio-demographic characteristics that differentiates prejudices and negative attitudes toward LGBT people is needed. An accurate measurement of prejudices against homosexual people is essential to address targeted social and cultural interventions.

3.1. Aim

The current study aimed to determine the psychometric characteristics of the Romanian version of the ATLG-R-S-10. The main objective was to evaluate the construct validity (factorial structure and discriminant validity) and the reliability (internal consistency) of the ATLG-R-S-10.

3.2. Translation and adaptation of the ATLG-R-S-10

The translation and back-translation technique (ITC, 2017) was used to obtain the Romanian working version of the ATLG-R-S-10. As a first step, the original English version of the ATLG-R-S-10 was translated into Romanian by the authors of the current article. In the second stage, the version in Romanian was retranslated into English by a university teacher at the Faculty of Letters, “Vasile Alecsandri” University of Bacau. In the third stage, the original version of the ATLG-R-S-10 was compared with the one resulting from the process of retranslating into English the Romanian version established in the first stage. Some minor changes and corrections were made and a Romanian working version was established (see Appendix). It was administered to participants in the current study. Table 1 shows the items in the original English version of the ATLG-R-S-10 as well as the Romanian equivalents.

Table 1: ATLG-R-S-10 items used in the current study

Original English version of the ATLG-R-S-10	Adapted Romanian version of the ATLG-R-S-10
1. I think male homosexuals are disgusting.	1. Cred că bărbații homosexuali sunt dezgustători.
2. Male homosexuality is a perversion.	2. Homosexualitatea în rândul bărbaților este o perversiune.
3. Male homosexuality is a natural expression of sexuality in men (reverse-scored).	3. Homosexualitatea masculină este o expresie naturală a sexualității bărbaților.
4. Sex between two men is just plain wrong.	4. Relația sexuală dintre doi bărbați este, pur și simplu, greșită.
5. Male homosexuality is merely a different kind of lifestyle that should not be condemned (reverse-scored).	5. În rândul bărbaților, homosexualitatea este, pur și simplu, un stil de viață diferit, care nu ar trebui condamnat.
6. Lesbians just can't fit into our society.	6. Lesbienele nu corespund normelor societății

	noastre.
7. State laws against private sexual behavior between consenting adult women should be abolished (reverse-scored).	7. În țările în care sunt în vigoare, legile care interzic relația sexuală cu consimțământ între două femei adulte ar trebui abolite.
8. Female homosexuality is a sin.	8. Homosexualitatea în rândul femeilor este un păcat.
9. Female homosexuality in itself is no problem unless society makes it a problem (reverse-scored).	9. Prin ea însăși, homosexualitatea în rândul femeilor nu reprezintă o problemă decât dacă societatea o transformă într-o problemă.
10. Lesbians are sick.	10. Lesbienele sunt persoane bolnave.

Items 1-5 operationalize the attitude toward gay men. Items 6-10 measure the attitude toward lesbian women. For each item, the answer can be given on a Likert-type scale with five verbal anchors which are gradually distributed from 1 = total disagreement to 5 = total agreement. Items 3, 5, 7, and 9 (see Table 1) are reverse-scored (total disagreement = 5 points; disagreement = 4 points; nor disagreement, nor agreement = 3 points; agreement = 2 points; total agreement = 1 point). The total score for each of the subscales can be obtained by averaging scores for the corresponding items (possible range: 1-5). High scores indicate the negative attitude toward lesbian women and gay men.

3.3. Participants and procedure

The data that we will summarize in the current article come from 496 graduates of Bachelor's or Master's degree programs, master's students and undergraduate students from five Romanian universities. The recruitment pool for study participants included the following university centers: "Vasile Alecsandri" University of Bacău, "Dunărea de Jos" University of Galați, "Alexandru Ioan Cuza" University of Iasi, "Petre Andrei" University of Iasi and the University of Oradea. Participants were recruited through the convenience sampling strategy.

The sample included 392 heterosexual female and 104 heterosexual males. At the time of data collection, participants ranged in age from 18 to 47 years ($M = 23.39$; $SD = 6.11$). About 53% of the participants were 21 years of age or younger. The distribution of the participants according to the latest studies they had completed was as follows: high school – 62.5%, post-secondary school – 1.8%, basic higher education – 30.8%, master's degree – 4.9%. The programs that the participants had followed in the first/second cycle of university studies or that they followed when they answered the questionnaires included: pedagogy of primary and preschool education – 25%, psychology – 17.7%, engineering – 15.5%, letters – 6.4%, communication and public relations – 5.4%, architecture – 5%, general medicine – 4.8%, Department of Teacher Training – 4%, economics – 3.8%, law – 2%, other programs – 9.8%, unspecified – 0.6%. Participants also indicated their religious denomination as follows: Orthodox – 79.8%, Catholic – 7.1%, Baptist – 2.2%, Adventist – 1.8%, Pentecostal – 1.4%, Reformed – 0.8%, Neo-protestant – 0.6%, Roman Catholic – 0.6%, Greek Catholic – 0.4%, Buddhist – 0.2%, Evangelist – 0.2%, Protestant – 0.2%, without any religious denomination – 3.9%, unspecified – 0.8%.

Field data collection was conducted between February 2018 and October 2019. Responses to the ATLG-R-S-10 and other measures were anonymous.

3.4. Other measures

In the study that focused on the psycho-socio-cultural dimensions of homosexuality from a Romanian perspective, participants answered to 127 items (eight instruments) that operationalized: a) the socio-demographic characteristics; b) the sexual orientation of participants; c) the self-assessment of religiosity – Centrality of Religiosity Scale-5 (CRS-5;

Huber & Huber, 2012); d) the self-assessment on the conservatism-liberalism axis; e) the occasional interpersonal contact and friendship with a lesbian/gay person; f) the importance that the issue of homosexuality has for the Romanian society; g) the factual knowledge and stereotypes about homosexuality – Knowledge About Homosexuality Questionnaire (KHQ; Harris, Nightengale & Owen, 1995); h) the social representation of homosexuality; i) the attitude toward homosexual people – Index of Attitudes Toward Homosexuals (IAH; Hudson & Ricketts, 1980), ATLG-R-S-10 (Herek, 1988) and Homosexuality Attitude Scale (HAS; Kite & Deaux, 1986); j) the attitude toward sexuality in general – Attitudes Toward Sexuality Scale (ATSS; Fisher & Hall, 1988); k) the openness to experience as personality factor – Big Five Inventory-Openness (BFI-O; John, Donahue & Kentle, 1991); l) the tendency to lie intentionally – Paulhus Deception Scale-Impression Management (PDS-IM; Paulhus, 1998). Below are three of the measures that were used to assess the construct validity of the ATLG-R-S-10. These are CRS-5, BFI-O and ATSS. We will also refer to the PDS-IM that was used to assess the accuracy of the responses that participants gave to the ATLG-R-S-10.

Religiosity can be defined by the importance that an individual attaches to religion in his/her personal life and by the involvement in religious activities. This dimension was measured with the Romanian version of the Centrality of Religiosity Scale-5 (CRS-5; Huber & Huber, 2012). The CRS-5 operationalizes the importance of five dimensions that are representative of a person's religious life: public practice (e.g., attendance at religious services), private practice (e.g., prayer at home), religious experience (e.g., the feeling that God intervenes when someone is facing critical events), ideology (e.g., belief in the existence of a divine being), and intellectual dimension (e.g., concerns about religious matters). Participants completed five items (e.g., "How often do you think about religious issues?") using five-step Likert-type scales (e.g., 1 = never...5 = very often). The total score can be obtained by summing the scores of individual items (possible range: 5-25). High scores indicate high levels of religiosity. The construct validity of the Romanian version that we administered in the current study was tested using confirmatory factor analysis with AMOS 20.0. The retained model included a single latent factor and a pair of interrelated errors. The overall statistical fit of the model was excellent: $\chi^2 = 7.26$; $df = 4$; $p = 0.123$; $\chi^2/df = 1.81$; SRMR = 0.015; NFI = 0.993; CFI = 0.997; RMSEA = 0.041; CI_{90%} = 0.000-0.087. The standardized factor loadings ranged from 0.64 to 0.81 ($p < 0.001$). The latent factor accounted for 42%-66% of the variance of each item. For the current study, the internal consistency was satisfactory ($\alpha = 0.85$).

Openness describes a person's depth of thought and the orientation toward a wide range of experiences. This domain of personality traits includes facets such as: originality of ideas, intellectual curiosity, ingenuity of thinking, inventiveness, orientation toward literary, philosophical or artistic interests, etc. (John, Donahue & Kentle, 1991). In the current study, the openness to experience was measured with the Romanian version of the Openness scale from BFI (BFI-O; John, Donahue & Kentle, 1991; John Naumann, & Soto, 2008). The scale includes ten items (e.g., "I see myself as someone who likes to reflect, play with ideas"). For each item, a subject can answer using a five-step Likert-type scale (1 = disagree strongly...5 = agree strongly). The overall score is obtained by averaging the scores of individual items (possible range: 1-5). A high score means that a person is open to a variety of experiences. Confirmatory factor analysis revealed the superiority of the model with a single latent factor and three pairs of intercorrelated errors. The statistical fit of this model was quite good: $\chi^2 = 85.89$; $df = 32$; $p < 0.001$; $\chi^2/df = 2.68$; SRMR = 0.041; NFI = 0.919; CFI = 0.947; RMSEA = 0.058; CI_{90%} = 0.044-0.073. The standardized factor loadings ranged from 0.23 to 0.68 ($p < 0.001$). The latent factor accounted for 5.5%-46.5% of the variance of each item. The internal consistency was satisfactory ($\alpha = 0.77$).

Sexuality refers to the way in which human individuals experience and express themselves sexually (Ferrante, 2014). In the current study, participants' attitude about human sexuality in

general were measured with the Romanian version of the Attitudes Toward Sexuality Scale (ATSS; Fisher & Hall, 1988). This instrument includes 13 items (e.g., “A person’s sexual behavior is his/her own business, and nobody should make value judgments about it”). Answers can be given on a Likert-type scale with five verbal anchors (1 = strongly disagree...5 = strongly agree). The total score may range from 13 to 65, with 13 being most conservative and 65 being most liberal. In our study, the model with a single latent factor and no constraints on correlation of errors showed poor statistical fit: $\chi^2 = 347.38$; $df = 65$; $p < 0.001$; $\chi^2/df = 5.34$; SRMR = 0.109; NFI = 0.644; CFI = 0.686; RMSEA = 0.128; CI_{90%} = 0.115-0.141. In addition, the loadings for three items were problematic. Therefore, all problematic items were removed and two other models were tested, but the statistical fit remained unsatisfactory. The selected model included two interrelated latent factors. Five items were forced to load on a factor related to the liberal attitude toward sexuality and another five items were constrained to load on a second factor related to the conservative attitude. No error correlation was imposed. The model showed a satisfactory statistically fit: $\chi^2 = 70.92$; $df = 34$; $p < 0.001$; $\chi^2/df = 2.08$; SRMR = 0.054; NFI = 0.906; CFI = 0.948; RMSEA = 0.064; CI_{90%} = 0.043-0.085. The standardized factor loadings ranged from 0.31 to 0.83 ($p < 0.001$). The correlation between the two latent factors was moderate ($\gamma = 0.64$; $p < 0.001$). These factors accounted for 9.6%-68.2% of the variance of each item. The internal consistencies were 0.81 (for conservative attitude) and 0.62 (for liberal attitude). A score was computed for each of the two subscales resulting from the confirmatory factor analysis. This score was obtained by summing the individual items (possible range: 5-25). A high score indicates the liberal/conservative attitude toward sexuality in general.

The assessment of the accuracy of the responses that participants gave to the ATLG-R-S-10, i.e. the resistance to the effect of social desirability, was performed by correlating the scores for ATLG-R-S-10 and PDS-IM. Paulhus Deception Scales (PDS; Paulhus, 1998) assesses a person’s tendency to give socially desirable responses to items designed to operationalize personality traits, attitudes and opinions, values, or everyday behaviors. PDS includes 40 items (20 for the Self-Deception Enhancement/SDE subscale and 20 for the Impression Management/IM subscale) to which a person can answer on a Likert-type scale with five verbal anchors (1 = strongly disagree...5 = strongly agree). In the current study, only the IM subscale was used. Participants responded to items such as “There have been occasions when I have taken advantage of someone”. The responses can be transformed into scores using a scoring key. The overall score is obtained by summing the individual items (possible range: 0-20). A high score indicates a person’s tendency to lie intentionally. In the current study, the internal consistency was satisfactory ($\alpha = 0.76$).

3.5. Data analysis

Raw data was analyzed using SPSS for Windows 20.0 (IBM SPSS, Chicago, IL) and AMOS 20.0 (Arbuckle, 2011). The parameters of the hypothetical metric models for the Romanian versions of the ATLG-R-S-10, CRS-5, BFI-O and ATSS were estimated using confirmatory factor analysis by the maximum likelihood method. This method is more robust when considering the sample size and the non-normality of the distributions of the observed variables (Byrne, 2010). The statistical fit of the models we tested was estimated using the following indicators (Byrne, 2010; Kline, 2011): a) χ^2 (Fisher’s test), degree of freedom (df), and statistical significance threshold (p); b) the χ^2/df ratio; c) SRMR (standardized root mean square residual); d) NFI (normed fit index); e) CFI (comparative fit index) and f) RMSEA (root mean square error of approximation). The RMSEA is one of the most important indicators. It allows the estimation of the error that a researcher assumes for the model resulting from the confirmatory factor analysis. The RMSEA value is sensitive to inadequate specifications of the relationships between the observed variables and is accompanied by a confidence interval. For this reason, the use of

RMSEA in the confirmatory factor analysis is strongly recommended (MacCallum & Austin, 2000).

A factorial model has the best statistical fit when (Byrne, 2010; Kline, 2011): a) the value of χ^2 is not statistically significant and $\chi^2/df < 2.00$; b) NFI > 0.95 and CFI > 0.95 ; c) the value of SRMR is as close as possible to zero; d) RMSEA < 0.05 , the limits of the confidence interval are as close as possible to the value of RMSEA, and the lower limit is as close as possible to zero. Some authors (Bentler, 1990; Browne & Cudeck, 1993) suggest that values for the χ^2/df between 2.00 and 3.00, a value for RMSEA between 0.05 and 0.08, and a value for CFI between 0.90 and 0.95 are indicators of a satisfactory statistical fit.

4. Results

4.1. Confirmatory factor analysis of the ATLG-R-S-10

In a first metric model, all ATLG-R-S-10 items were constrained to load on only one latent factor. No other constraints were imposed on the correlations between the item errors. This model showed unsatisfactory statistical fit: $\chi^2 = 301.74$; $df = 35$; $p < 0.001$; $\chi^2/df = 8.62$; SRMR = 0.052; NFI = 0.893; CFI = 0.904; RMSEA = 0.124; CI_{90%} = 0.111-0.137. In addition, item 7 listed in Table 1 (i.e. “State laws against private sexual behavior between consenting adult women should be abolished”) loaded poorly on the hypothetical factor ($\gamma = 0.10$; $p = 0.023$). Therefore, this item was removed and a second analysis was carried out. The results indicated a slight improvement in the statistical fit of the factorial model, but still unsatisfactory: $\chi^2 = 268.83$; $df = 27$; $p < 0.001$; $\chi^2/df = 9.95$; SRMR = 0.049; NFI = 0.904; CFI = 0.912; RMSEA = 0.135; CI_{90%} = 0.120-0.149. Suggestions for improving the metric model led us to correlate three pairs of errors, i.e. those for the items 1 (“I think male homosexuals are disgusting”) and 2 (“Lesbians just can’t fit into our society”), 4 (“Male homosexuality is a natural expression of sexuality in men”) and 8 (“Male homosexuality is merely a different kind of lifestyle that should not be condemned”), 7 (“Female homosexuality in itself is no problem unless society makes it a problem”) and 8. These changes resulted in a third model (Figure 1) with a satisfactory statistical fit: $\chi^2 = 109.46$; $df = 24$; $p < 0.001$; $\chi^2/df = 4.56$; SRMR = 0.030; NFI = 0.961; CFI = 0.969; RMSEA = 0.085; CI_{90%} = 0.069-0.101. The standardized factor loadings ranged from 0.36 to 0.85 ($p < 0.001$). The latent factor accounted for 13%-73% of the variance of each item that was retained in the final model.

An additional model with two interrelated latent factors was tested. Items 1-5 listed in Table 1 were forced to load on a latent factor related to the attitude toward gay men. Items 6, 8, 9 and 10 were forced to load on a second latent factor referring to the attitude toward lesbian women. No other constraints were imposed. Unfortunately, the statistical fit of this hypothetical model was poor: $\chi^2 = 263.07$; $df = 26$; $p < 0.001$; $\chi^2/df = 10.11$; SRMR = 0.048; NFI = 0.906; CFI = 0.914; RMSEA = 0.136; CI_{90%} = 0.121-0.151.

In conclusion, the final metric model included only nine of the ten items in the original version of the ATLG-R-S-10. These items are listed in the Appendix. The Romanian version for the ATLG-R-S-10 has been named ATLG-R-S-9. Items 3, 6 and 7 are scored by reversing the response scale. For each participant, an overall score was computed by averaging the scores on individual items (possible range: 1-5). The descriptive characteristics for the statistical distribution of the ATLG-R-S-9 overall score were: M = 2.88; median = 2.94; SD = 1.05; skewness = 0.07; kurtosis = - 0.78. About 17% of participants obtained high scores (> 4.00). These scores correspond to a negative attitude toward homosexual people. On the other hand, over 24% of participants obtained low scores (< 2.00). These scores express a more favorable attitude toward lesbian women and gay men.

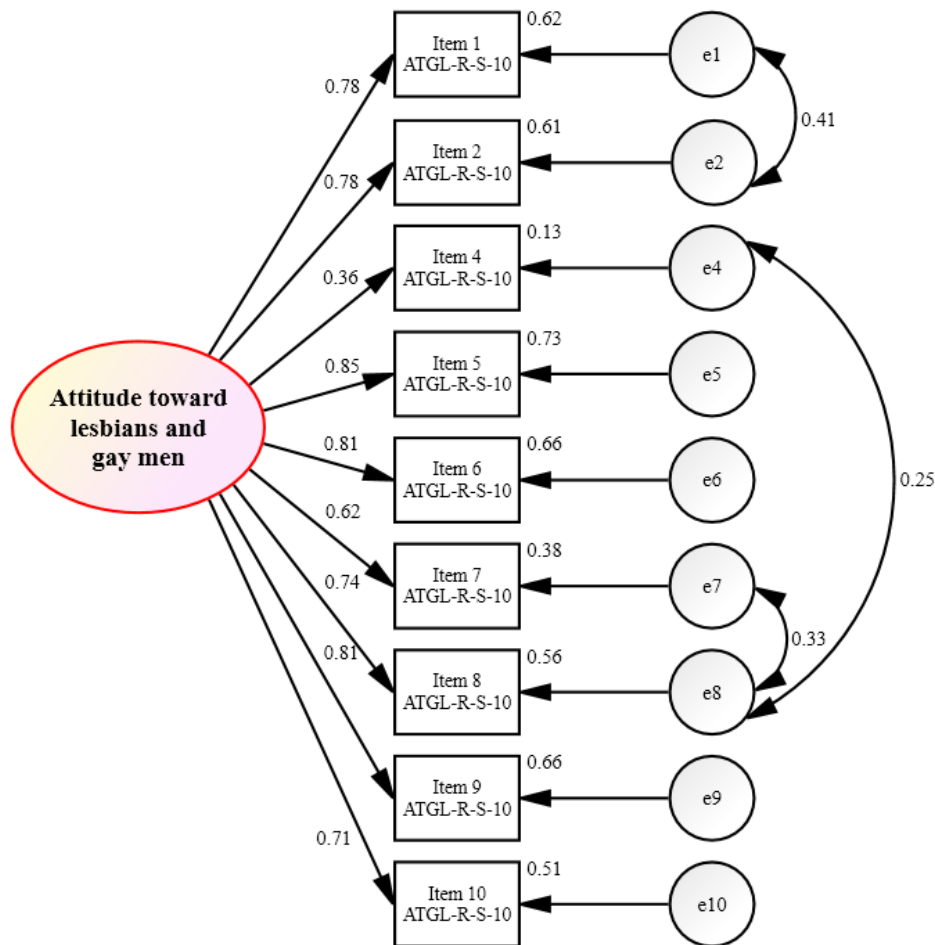


Figure 1. Estimated parameters for the ATLG-R-S-9 factorial model

4.2. Additional evidence for construct validity

As expected, the negative attitude toward lesbian women and gay men was moderately associated with both participants' religiosity ($r = 0.48$; $p < 0.001$) and the conservative attitude toward sexuality ($r = 0.53$; $p < 0.001$). On the other hand, the unfavorable attitude toward homosexual people was negatively associated with the liberal attitude toward sexuality ($r = -0.49$; $p < 0.001$). The negative correlation between the unfavorable attitude toward homosexual people and openness to experience was much lower, but statistically significant ($r = -0.14$; $p < 0.01$). All correlations that were analyzed are evidence of the construct validity of the ATLG-R-S-9.

4.3. Discriminant validity

Compared to participants who had an occasional contact with persons who had declared their lesbian/gay orientation ($n = 238$; $M = 2.53$; $SD = 1.06$), those who had no previous contact ($n = 258$; $M = 3.20$; $SD = 0.94$) expressed a more negative attitude toward homosexual people ($t = -7.40$; $p < 0.001$; $d_{Cohen} = 0.67$). Also, compared to participants who had a friendship with a lesbian/gay person ($n = 124$; $M = 2.10$; $SD = 1.01$), those who were not involved in such a relationship ($n = 372$; $M = 3.14$; $SD = 0.94$) showed a more unfavorable attitude toward homosexual people ($t = -10.42$; $p < 0.001$; $d_{Cohen} = 1.09$).

Further evidence of the discriminant validity of the ATLG-R-S-9 was provided by comparisons based on the ideological orientation. Thus, compared to participants with a liberal ideology ($n = 337$; $M = 2.66$; $SD = 1.05$), those with a conservative one ($n = 159$; $M = 3.34$; $SD = 0.91$) expressed a more negative attitude toward lesbian and gay people ($t = -7.32$; $p < 0.001$; $d_{\text{Cohen}} = 0.68$).

4.4. Reliability

The internal consistency of the ATLG-R-S-9 was estimated by computing the Cronbach's alpha coefficient. It has been suggested that 0.70 and above are acceptable reliability coefficients (Nunnally & Bernstein, 1994). An additional item analysis aimed at estimating the corrected item-total correlation as well as internal consistency for all sets of items obtained by removing each item (Table 2).

Table 2: ATLG-R-S-9 item analysis summary

Items	Corrected item-total correlation	Cronbach's alpha if item deleted
1. I think male homosexuals are disgusting.	0.765	0.897
2. Lesbians just can't fit into our society.	0.764	0.898
3. Male homosexuality is a natural expression of sexuality in men.	0.368	0.923
4. Sex between two men is just plain wrong.	0.800	0.895
5. Female homosexuality is a sin.	0.758	0.898
6. Female homosexuality in itself is no problem unless society makes it a problem.	0.626	0.907
7. Male homosexuality is merely a different kind of lifestyle that should not be condemned.	0.757	0.898
8. Male homosexuality is a perversion.	0.763	0.898
9. Lesbians are sick.	0.660	0.905

For the total sample, the internal consistency of ATLG-R-S-9 was excellent ($\alpha = 0.912$). Comparable alpha coefficients were obtained for the subsamples of females ($\alpha = 0.911$) and males ($\alpha = 0.918$). The inter-item correlations ranged from 0.154 to 0.775 (mean = 0.532; median = 0.574). All correlations were positive and statistically significant. Item 3 ("Male homosexuality is a natural expression of sexuality in men") showed a modest correlation with item 9 ("Lesbians are sick"). The corrected item-total correlation ranged from 0.368 to 0.800 (median = 0.758). Again, item 3 showed a slightly lower correlation with the total score. However, its elimination did not lead to a substantial increase in the alpha coefficient. Therefore, we have decided to keep this item in the working version of the ATLG-R-S-9.

The correlation between ATLG-R-S-9 and PDS-IM scores was low and was not statistically significant ($r = 0.10$; $p = 0.100$). This result can be considered as evidence that the ATLG-R-S-9 score was relatively slightly biased by the effect of socially desirable responses.

4.5. Additional comparative data

No difference between females ($M = 2.89$; $SD = 1.03$) and males ($M = 2.83$; $SD = 1.16$) in terms of score on ATLG-R-S-9 was revealed ($t = 0.56$; $p = 0.572$). Both females and males scored close to the midpoint of the ATLG-R-S-9 score range. Also, the participants who considered homosexuality as an important social and moral issue for the Romanian society ($n = 340$; $M =$

2.83; $SD = 1.08$) did not differ ($t = -1.39$; $p = 0.164$) from the participants for whom homosexuality was not a threat ($n = 156$; $M = 2.98$; $SD = 1.00$).

Conclusions

Measuring the attitudes of different social groups toward homosexuality is a key step toward a better understanding of public prejudice against lesbian/gay people. The ATLG-R-S-10 is one of the most well-known and psychometrically sound measures of attitude toward lesbian women and gay men. This short scale can be easily integrated into research projects that operate with a wide range of variables. In addition, it has consistent psychometric qualities and has been used in various cultural contexts.

The main objective of the current study was to assess the validity and reliability for the Romanian version of the ATLG-R-S-10. The internal construct validity was tested using confirmatory factor analysis. The one-factor model with nine of the original items best fit the data. Additional data are needed to test a two-factor model. The resulting scale was named ATLG-R-S-9. It has proven to be a valid and reliable measure of the attitude that university students and graduates have toward lesbian women and gay men. However, further evidence of the validity (e.g., criterion-related validity) and reliability (e.g., test-retest reliability) of this measure in the Romanian cultural and social context is needed.

References

- Arbuckle, J. L. (2011). *IBM® SPSS® AMOS™ 20 User's Guide*. Chicago, IL: IBM Corporation.
- Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, *107*(2), 238-246
- Browne, M. W., & Cudeck, R. (1993). Alternate ways of assessing model fit. In K. A. Bollen & J. Long (Eds.), *Testing Structural Equation Models* (pp. 136-162). Newbury Park, CA: Sage Publications.
- Byrne, B. M. (2010). *Structural Equation Modeling with AMOS. Basic Concepts, Applications and Programming* (2nd ed.). New York, NY: Routledge.
- Cardenas, M., & Barrientos, J. (2008). The Attitudes Toward Lesbians and Gay Men Scale (ATLG): Adaptation and testing the reliability and validity in Chile. *Journal of Sex Research*, *45*(2), 140-149.
- Chonody, J. M. (2013). Measuring sexual prejudice against gay men and lesbian women: Development of the Sexual Prejudice Scale (SPS). *Journal of Homosexuality*, *60*(6), 895-926.
- DeSouza, E., Solberg, J., & Elder, C. (2007). A cross-cultural perspective on judgments of woman-to-woman sexual harassment: Does sexual orientation matter? *Sex Roles*, *56* (7-8), 457-471.
- Detenber, B. H., Cenite, M., Ku, M. K. Y., Ong, C. P. L., Tong, H. Y., & Yeow, M. L. H. (2007). Singaporeans' attitudes toward lesbians and gay men and their tolerance of media portrayals of homosexuality. *International Journal of Public Opinion Research*, *19*(3), 367-379.
- Ellis, S. J., Kitzinger, C., & Wilkinson, S. (2003). Attitudes towards lesbians and gay men and support for lesbian and gay human rights among psychology students. *Journal of Homosexuality*, *44*(1), 121-138.
- Ferrante, J. (2014). *Sociology: A Global Perspective* (9th ed.). Stamford, CT: Cengage Learning.
- Fisher, T. D., & Hall, R. G. (1988). A scale for the comparison of the sexual attitudes of adolescents and their parents. *The Journal of Sex Research*, *24*(1), 90-100.
- Gelbal, S., & Duyan, V. (2006). Attitudes of university students toward lesbians and gay men in Turkey. *Sex Roles*, *55*(7-8), 573-579.

- Harris, M. B., Nightengale, J., & Owen, N. (1995). Health care professionals' experience, knowledge, and attitudes concerning homosexuality. *Journal of Gay & Lesbian Social Services*, 2(2), 91-108.
- Hegarty, P. (2002). 'It's not a choice, it's the way we're built': Symbolic beliefs about sexual orientation in the US and Britain. *Journal of Community and Applied Social Psychology*, 12(3), 153-166.
- Herek, G. M. (1984a). Beyond "homophobia": A social psychological perspective on attitudes toward lesbians and gay men. *Journal of Homosexuality*, 10(1-2), 1-21.
- Herek, G. M. (1984b). Attitudes toward lesbians and gay men: A factor-analytic study. *Journal of Homosexuality*, 10(1-2), 39-51.
- Herek, G. M. (1988). Heterosexuals' attitudes toward lesbians and gay men: Correlates and gender differences. *Journal of Sex Research*, 25(4), 451-477.
- Herek, G. M. (1994). Assessing heterosexuals' attitudes toward lesbians and gay men. In B. Greene & G. M. Herek (Eds.), *Lesbian and Gay Psychology: Theory, Research and Clinical Applications* (pp. 206-228). Thousand Oaks, CA: Sage Publications.
- Herek, G. M. (2004). Beyond "homophobia": Thinking about sexual prejudice and stigma in the twentyfirst century. *Sexuality Research & Social Policy*, 1(2), 6-20.
- Herek, G. M. (2009). Sexual stigma and sexual prejudice in the United States: A conceptual framework. In D. A. Hope (Ed.), *Contemporary perspectives on lesbian, gay and bisexual identities: The 54th Nebraska Symposium on Motivation* (pp. 65-111). New York, NY: Springer.
- Herek, G. M., & Capitano, J. P. (1995). Black heterosexuals' attitudes toward lesbians and gay men in the United States. *The Journal of Sex Research*, 32(2), 95-105.
- Herek, G. M., & Capitano, J. P. (1996). 'Some of my best friends: Intergroup contact, concealable stigma, and heterosexuals' attitudes toward gay men and lesbians'. *Personality and Social Psychology Bulletin*, 22(4), 412-424.
- Herek, G. M., & Gonzalez-Rivera, M. (2006). Attitudes toward homosexuality among U.S. residents of Mexican descent. *Journal of Sex Research*, 43(2), 122-135.
- Herek, G. M., & McLemore, K. A. (2011). The Attitudes Toward Lesbians and Gay Men (ATLG) scale. In T. Fisher, C. M. Davis, W. L. Yarber, & S. L. Davis (Eds.), *Handbook of Sexuality-Related Measures* (3rd ed., pp. 415-417). Oxford, UK: Taylor & Francis.
- Huber, S., & Huber, O. W. (2012). The Centrality of Religiosity Scale (CRS). *Religions*, 3(3), 710-724.
- Hudson, W. W., & Ricketts, W. A. (1980). A strategy for the measurement of homophobia. *Journal of Homosexuality*, 5(4), 357-372.
- International Test Commission (2017). *The ITC Guidelines for Translating and Adapting Tests* (2nd ed.). Retrieved from www.intestcom.org.
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory-Versions 4a and 54*. Berkeley, CA: University of California at Berkeley, Institute of Personality and Social Research.
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big-Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of Personality: Theory and Research* (3rd ed., pp. 114-158). New York, NY: Guilford Press.
- Kite, M. E., & Deaux, K. (1986). Attitudes toward homosexuality: Assessment and behavioral consequences. *Basic and Applied Social Psychology*, 7(2), 137-162.
- Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling* (3rd ed.). New York, NY: Guilford Press.

- MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, *51*(1), 201-236.
- Meerendonk, B. van de, Eisinga, R., & Felling, A. (2003). Application of Herek's Attitudes Toward Lesbians and Gay Men Scale in the Netherlands. *Psychological Reports*, *93*(1), 265-275.
- Mohipp, C., & Morry, M. (2004). The relationship of symbolic beliefs and prior contact to heterosexuals' attitudes toward gay men and lesbian women. *Canadian Journal of Behavioural Science*, *36*(1), 36-44.
- Nunnally, J., & Bernstein, I. (1994). *Psychometric Theory* (3rd ed.). New York, NY: McGraw Hill.
- O'Donahue, W., & Caselles, C. E. (1993). Homophobia: Conceptual, definitional, and value issues. *Journal of Psychopathology and Behavioral Assessment*, *15*(3), 177-195.
- Paulhus, D. L. (1998). *Paulhus Deception Scales (PDS): The Balanced Inventory of Desirable Responding-7. User's Manual*. North Tonawanda, NY: Multi-Health Systems, Inc.
- Rainey, S., & Trusty, J. (2007). Attitudes of master's-level counseling students toward gay men and lesbians. *Counseling and Values*, *52*(1), 12-24.
- Rosik, C. H. (2007). Ideological concerns in the operationalization of homophobia, Part I: An analysis of Herek's ATLG-R scale. *Journal of Psychology and Theology*, *35*(2), 132-144.
- Rutledge, S. E., Siebert, D. C., Siebert, C., & Chonody, J. (2012). Attitudes toward gays and lesbians: A latent class analysis of university students. *Journal of Social Service Research*, *38*(1), 18-28.
- Stoeber, C. J., & Morera, O. F. (2008). A confirmatory factor analysis of the Attitudes Toward Lesbians and Gay Men (ATLG) measure. *Journal of Homosexuality*, *52*(3-4), 189-209.
- Weinberg, G. (1972). *Society and the Healthy Homosexual*. New York, NY: St. Martin's.

APPENDIX: The Romanian version of the ATLG-R-S-9

Vă rugăm să citiți cu atenție fiecare dintre următoarele **9** afirmații și, pentru fiecare, să răspundeți cât mai sincer. Răspundeți încercuind (sau bifând un „X” peste) cifra corespunzătoare variantei de răspuns care corespunde cel mai bine cu părerea pe care dvs. o aveți.

Încercuiți sau bifați cu un „X” cifra corespunzătoare variantei de răspuns care se potrivește părerii dvs.



1 – dezacord total
2 – dezacord
3 – nici dezacord, nici acord
4 – acord
5 – acord total

	1	2	3	4	5
1. Cred că bărbații homosexuali sunt dezgustători	1	2	3	4	5
2. Lesbienele nu corespund normelor societății noastre	1	2	3	4	5
3. Homosexualitatea masculină este o expresie naturală a sexualității bărbaților	1	2	3	4	5
4. Relația sexuală dintre doi bărbați este, pur și simplu, greșită	1	2	3	4	5
5. Homosexualitatea în rândul femeilor este un păcat	1	2	3	4	5
6. Prin ea însăși, homosexualitatea în rândul femeilor nu reprezintă o problemă decât dacă societatea o transformă într-o problemă	1	2	3	4	5
7. În rândul bărbaților, homosexualitatea este, pur și simplu, un stil de viață diferit care nu ar trebui condamnat	1	2	3	4	5
8. Homosexualitatea în rândul bărbaților este o perversiune	1	2	3	4	5
9. Lesbienele sunt persoane bolnave	1	2	3	4	5