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Psychometric Properties of the Modern Homonegativity Scale in the Southern United States

John T. Gavlas
Walden University

Walden University

College of Social and Behavioral Sciences

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John Gavlas

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Review Committee
Dr. Kimberley Cox, Committee Chairperson, Psychology Faculty
Dr. Cameron John, Committee Member, Psychology Faculty
Dr. James Carroll, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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MA, James Madison University, 1989

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The Modern Homonegativity Scale (MHS) is designed to measure a distinct modern form of prejudice against gay people. Based on the conceptual framework of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison, the present study was conducted to assess the reliability and validity of the MHS as a measure of modern antigay prejudice in the southern United States—a region where antigay prejudice appears to be particularly pervasive and damaging. This purpose was achieved by analyzing survey responses from 691 adult residents of 14 southern states. As hypothesized, MHS scores were correlated with political conservatism, contact with gay people, nonabusive antigay behavior, and scores on a traditional measure of antigay prejudice. Contrary to hypotheses, MHS scores were not related to sexual orientation, educational level, income level, or religious self-schema. Results concerning the relationships between MHS scores and other known correlates of antigay prejudice were mixed. In factor analyses, items on the MHS and a traditional measure of antigay prejudice did not load on different factors. The results of this study suggest that the MHS is a highly reliable measure of modern antigay prejudice in the South, but that its validity as such is limited. This study promotes positive social change by providing evidence that should aid in the selection of appropriate measures to use in future studies of prejudice against gay people in the South. Such studies promise to result in the development of more effective interventions to reduce antigay prejudice in the southern United States—but such studies will produce useful findings only to the extent that the instruments used are reliable and valid measures of the constructs they purport to measure in this region.

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Dedication

This work is dedicated to the memory of my parents, Dr. Frank J. and Arline C. Gavlas.

Acknowledgments

I am grateful to the members of my review committee, Dr. Kimberley Cox, Dr. Cameron John, and Dr. James Carroll, for their guidance in the completion of this work. I am especially grateful to Dr. Cox for the constructive feedback, excellent advice, and much-needed encouragement she has provided as chairperson of my committee. Her invaluable help at every stage in the dissertation process has surely fostered my growth as a scholar-practitioner.

This dissertation would not have been possible without the unwavering support of my life partner, Bill Hurd. Thank you, Bill. The words are not enough, but thank you.

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Chapter 1: Introduction to the Study

The present study was conducted to assess the reliability and validity of the Modern Homonegativity Scale (MHS; Morrison & Morrison, 2002) as a measure of modern antigay prejudice in the southern United States. The results of this study should aid investigators in the selection of appropriate measures to use in future studies of antigay prejudice in this region. Such research promises to result in better understanding of this prejudice and the development of more effective interventions to reduce it. Curbing prejudice against marginalized minorities is an important form of positive social change.

In this chapter, I present the background of the present study, the research problem it addressed, the purpose of the study, and research questions and hypotheses. The conceptual framework of the study is presented, as well as the nature of the study, operational definitions, and assumptions, delimitations, and limitations of the study. The chapter concludes with discussion of the significance of the study as a means of advancing knowledge, informing future research and public policy, and facilitating positive social change.

Background of the Study

Despite growing acceptance of gay people in recent decades, antigay attitudes are still widespread in the United States. Surveys conducted in 2015 found that 28% of Americans at that time thought sexual relations between consenting adults of the same sex should be illegal, 34% thought such relations are morally wrong, and 40% thought same-sex marriages should not be recognized as legally valid (Gallup, Inc., 2015). Thirty-

five percent of Americans who took part in a survey conducted in 2014 thought same-sex couples should not have the right to adopt a child (Gallup, Inc., 2015). Such findings demonstrate that antigay prejudice remains pervasive in the United States.

Antigay prejudice has serious negative consequences for members of the gay community. In 2013, 20.2% of victims of "single-bias" hate crimes in the United States reported they "were targeted because of bias against sexual orientation" (U.S. Department of Justice, 2014, p. 1). Experiencing various forms of antigay discrimination is associated with higher levels of depression, anxiety, shame, loneliness, and physical distress among gay people (Mereish & Poteat, 2015). Gay people who have been verbally or physically attacked for being gay are at greater risk of substance abuse problems, suicidal ideation, and suicide attempts than gay people who have not been victimized in this manner (Mereish, O'Cleirigh, & Bradford, 2014). Research indicates that the life expectancy of gay and bisexual people living in communities with high levels of antigay prejudice is 12 years less than that of gay and bisexual people living in communities with low levels of antigay prejudice (Hatzenbuehler et al., 2014). In light of these and other findings (e.g., Barton, 2010, 2012; Grossman et al., 2009; Jenness & Richman, 2002; Taylor & Peter, 2011), it is clear that antigay prejudice can lead to emotional and physical harm.

Evidence suggests that prejudice against gay people is particularly pervasive and damaging in the southern United States. A national survey conducted in 2014 found that only 55% of adults in the South said homosexuality should be accepted, compared to 61% of adults in the Midwest, 67% of adults in the West, and 70% of adults in the

Northeast (Pew Research Center, 2014). Only 45% of adults in the South favored same-sex marriage, compared to 53% of adults in the Midwest, 59% of adults in the West, and 62% of adults in the Northeast (Pew Research Center, 2014). Barton (2010, 2012) found that gay people reared in fundamentalist Christian churches in the South experienced extreme emotional distress; most participants in her qualitative research "describe[d] living through spirit-crushing experiences of isolation, abuse, and self-loathing" (Barton, 2010, p. 477). These findings indicate that prejudice against gay people in the South is a topic that merits further research. One instrument that may be useful when conducting research in this area is the MHS.

The MHS is an unconventional self-report measure of prejudice against gay people. According to its developers, Morrison and Morrison (2002), traditional measures of antigay prejudice such as the Attitudes Toward Lesbians and Gay Men Scale–Revised (ATLG-R; Herek, 1998) assess an "old-fashioned" type of prejudice based on religious and moral objections (p. 17). By contrast, the MHS is meant to assess a "modern" type of prejudice based on more abstract, contemporary concerns, such as the view that gay people overstate the importance of their sexual orientation (Morrison & Morrison, 2002, p. 18).

Many investigations have produced evidence concerning the reliability and validity of the MHS. The MHS demonstrated high levels of internal consistency in numerous studies (e.g., Cabeldue, Cramer, Kehn, Crosby, & Anastasi, 2016; Cramer, Miller, Amacker, & Burks, 2013; Eldridge & Johnson, 2011). MHS scores were correlated with scores on other measures of antigay prejudice, such as the ATLG-R

(Eldridge & Johnson, 2011; Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2011; Rosik, Dinges, & Saavedra, 2013; Summers, 2010; Wiley & Bottoms, 2013). MHS scores were also correlated with known correlates of antigay prejudice, such as political orientation (Cabeldue et al., 2016; Dinh, Holmberg, Ho, & Haynes, 2014; Morrison, 2003; Morrison & Morrison, 2002, 2011; Satcher & Leggett, 2007; Summers, 2010). In factor analyses conducted to assess the construct validity of the MHS, MHS items and items on traditional measures of antigay prejudice loaded on different factors as predicted (Morrison, 2003; Morrison & Morrison, 2002; Morrison, Morrison, & Franklin, 2009). This body of evidence suggests that the MHS is a reliable and valid measure of modern antigay prejudice.

However, it should be noted that most of the studies cited in the preceding paragraph were conducted with college students. The extent to which the results of these studies may generalize to other populations is unclear. Consequently, there is a gap in the literature concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in nonstudent populations. The present study has addressed this gap in the literature by assessing the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States.

Problem Statement

Findings suggest that prejudice against gay people is particularly pervasive and damaging in the southern United States (Barton, 2010, 2012; Pew Research Center, 2014). Appropriate measures are needed for investigations of antigay prejudice in this

region. The MHS is a measure of modern antigay prejudice that may be useful in such investigations.

Numerous studies have produced evidence concerning the reliability and validity of the MHS (e.g., Morrison, 2003; Morrison & Morrison, 2002, 2011). However, most of these studies were conducted with college students. The extent to which the results of these studies may generalize to other populations is unclear. Consequently, there is a gap in the literature concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in nonstudent populations.

Purpose of the Study

The primary purpose of the present quantitative study was to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. The reliability of the MHS was assessed in terms of internal consistency. The empirical validity of the MHS was assessed in terms of the difference in MHS scores between people who self-identified as homosexual or bisexual and those who did not, the relationship between MHS scores and scores on a traditional measure of antigay prejudice, and the relationships between MHS scores and scores on measures of several known correlates of antigay prejudice. Known correlates of antigay prejudice assessed in this study included sex, age, educational level, income level, religious self-schema (how religious one perceives oneself to be), religious behavior (frequency of attendance at religious services), political conservatism, contact with gay people, antigay behavior, and sexual orientation. The construct validity of the MHS was assessed in terms of the relationship between MHS scores and scores on a

traditional measure of antigay prejudice, the relationship between MHS scores and scores on a measure of social desirability bias, and the results of factor analyses conducted to determine whether items on the MHS and items on a traditional measure of antigay prejudice loaded on different factors.

A secondary purpose of this study was to determine whether MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice in the target population. This purpose was to be achieved by comparing (a) the degree of relationship between scores on a measure of social desirability bias and MHS scores with (b) the degree of relationship between scores on the same measure of social desirability bias and scores on a traditional measure of antigay prejudice.

Research Questions and Hypotheses

All the hypotheses stated below were tested twice. They were tested once with the version of the MHS designed to assess modern prejudice against lesbian women (the MHS-L), and they were tested again with the version of the MHS designed to assess modern prejudice against gay men (the MHS-G).

Research Question 1: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 1: When used with the target population, the MHS has an acceptable level of internal consistency, defined as Cronbach's alpha ≥ .70.

$H_0 1$: Cronbach's $\alpha < .70$

$H_1 1$: Cronbach's $\alpha \geq .70$

Research Question 2: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 2.1: Among adult residents of the southern United States, people who self-identify as homosexual or bisexual score lower on the MHS than those who do not.

$H_0 2.1$: $\mu_{\text{bisexual or homosexual}} = \mu_{\text{not bisexual or homosexual}}$

$H_1 2.1$: $\mu_{\text{bisexual or homosexual}} < \mu_{\text{not bisexual or homosexual}}$

Hypothesis 2.2: Within the target population, there is a positive relationship between MHS scores and scores on the ATLG-R.

$H_0 2.2$: $\rho = 0$

$H_1 2.2$: $\rho > 0$

Hypothesis 2.3: Within the target population, males' scores on the MHS are higher than females' scores on the MHS.

$H_0 2.3$: $\mu_{\text{males}} = \mu_{\text{females}}$

$H_1 2.3$: $\mu_{\text{males}} > \mu_{\text{females}}$

Hypothesis 2.4: Within the target population, there is a positive relationship between MHS scores and age.

$H_0 2.4$: $\rho = 0$

$H_1 2.4$: $\rho > 0$

Hypothesis 2.5: Within the target population, there is a negative relationship between MHS scores and educational level.

$H_0 2.5$: $\rho = 0$

$H_1$2.5: $\rho < 0$

Hypothesis 2.6: Within the target population, there is a negative relationship between MHS scores and income level.

$H_0$2.6: $\rho = 0$

$H_1$2.6: $\rho < 0$

Hypothesis 2.7: Within the target population, there is a positive relationship between MHS scores and religious self-schema.

$H_0$2.7: $\rho = 0$

$H_1$2.7: $\rho > 0$

Hypothesis 2.8: Within the target population, there is a positive relationship between MHS scores and religious behavior.

$H_0$2.8: $\rho = 0$

$H_1$2.8: $\rho > 0$

Hypothesis 2.9: Within the target population, there is a positive relationship between MHS scores and political conservatism.

$H_0$2.9: $\rho = 0$

$H_1$2.9: $\rho > 0$

Hypothesis 2.10: Within the target population, there is a negative relationship between MHS scores and contact with gay people.

$H_0$2.10: $\rho = 0$

$H_1$2.10: $\rho < 0$

Hypothesis 2.11: Within the target population, there is a positive relationship between MHS scores and nonabusive antigay behavior as assessed with the Behavior Toward Gay People Scale (BTGP), an instrument designed specifically for use in this study (Appendix A).

$H_0$2.11: $\rho = 0$

$H_1$2.11: $\rho > 0$

Hypothesis 2.12: Within the target population, there is a positive relationship between MHS scores and abusive antigay behavior as assessed with the BTGP.

$H_0$2.12: $\rho = 0$

$H_1$2.12: $\rho > 0$

Research Question 3: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? This question was addressed by testing Hypothesis 2.2 above and the following hypotheses:

Hypothesis 3.1: Within the target population, there is a relationship between MHS scores and scores on the Marlowe-Crowne Social Desirability Scale–Short Form C (MCSDS-C; Reynolds, 1982).

$H_0$3.1: $\rho = 0$

$H_1$3.1: $\rho \neq 0$

Hypothesis 3.2: Within the target population, scores on the MHS and ATLG-R reflect different constructs.

$H_0$3.2: At least one MHS item and one ATLG-R item load on the same factor.

$H_1$3.2: MHS items and ATLG-R items load on different factors.

Research Question 4: Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice?

Hypothesis 4: Within the target population, the degree of relationship between MHS scores and MCSDS-C scores is less than the degree of relationship between ATLG-R scores and MCSDS-C scores.

$H_0$4: $\rho_{ay} = \rho_{by}$

$H_0$4: $\rho_{ay} < \rho_{by}$

Conceptual Framework

The conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002) served as the conceptual framework for this study. These researchers proposed that there are two types of antigay prejudice: (a) an old-fashioned type based on religious and moral concerns and (b) a modern type based on more abstract contemporary concerns, such as doubts that antigay discrimination is still a problem in modern society. Morrison and Morrison conceived of these two types of prejudice as related yet distinct constructs. This conception of old-fashioned and modern antigay prejudice is explained further in Chapter 2. This framework underlies the approach to assessing the validity of the MHS in this study, as summarized in the Purpose section of this chapter.

If the MHS is a valid measure of any form of antigay prejudice, then one would expect people who self-identify as homosexual or bisexual to score lower on the MHS

than those who do not. One would also expect to find that MHS scores are correlated with scores on other measures of antigay prejudice and measures of known correlates of antigay prejudice. One would not expect to find that MHS scores are correlated with scores on a measure of social desirability bias. If the MHS is a valid measure of modern antigay prejudice specifically, and if old-fashioned and modern antigay prejudice are related constructs, then one would expect to find a positive correlation between MHS scores and scores on a traditional measure that presumably assesses old-fashioned antigay prejudice. If the MHS is a valid measure of modern antigay prejudice specifically, and if old-fashioned and modern antigay prejudice are distinct constructs, then one would expect to find that, in factor analyses, items on the MHS and items on a traditional measure that presumably assesses old-fashioned antigay prejudice load on different factors.

Nature of the Study

The research design and methodology used in the present study are identified below. Key variables are also identified and conceptually defined.

Study Design

A quantitative cross-sectional survey design was used in this study. A quantitative approach was appropriate for this study because this study was meant to produce generalizable findings about the validity of the MHS. Whereas qualitative methods yield in-depth information about small numbers of people in specific contexts, quantitative methods may be used to obtain findings with samples of participants that generalize to the larger populations from which those samples were drawn (Patton, 2002). A cross-

sectional design was appropriate for this study because all the hypotheses could be tested by analyzing data collected on a single occasion. A survey design was appropriate for this study because survey research methods enable investigators to collect information from large samples in an efficient and cost-effective manner (Frankfort-Nachmias, Nachmias, & DeWaard, 2015).

Key Variables

The key variables in this study were antigay prejudice, old-fashioned antigay prejudice, and modern antigay prejudice. Following Herek (2007, 2015), antigay prejudice was conceptually defined as negative attitudes among heterosexual people that are consistent with societal degradation of gay people or homosexual behavior. Old-fashioned antigay prejudice was conceptually defined as negative attitudes among heterosexual people that are not only consistent with societal degradation of gay people or homosexual behavior but also rooted in religious or moral objections. Modern antigay prejudice was conceptually defined as negative attitudes among heterosexual people that are not only consistent with societal degradation of gay people or homosexual behavior but also rooted in contemporary concerns other than religious or moral objections. Operational definitions of old-fashioned antigay prejudice, modern antigay prejudice, and all other variables assessed in this study are presented in the Operational Definitions section of this chapter.

Methodology

Primary data in the form of participant responses were collected by conducting surveys in which adult residents of the southern United States were asked to complete

five instruments: the MHS, the ATLG-R, the MCSDS-C, a Participant Information Questionnaire (PIQ; Appendix B), and the BTGP. The sampling frame was to be a list of household addresses in 14 southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. I purchased a mailing list of randomly selected household addresses in this region from a reputable vendor and mailed an invitation to participate in the study to each address on this list. All adult residents at each address were invited to complete the survey online.

Unfortunately, the strategy described above proved to be unsuccessful, yielding only 22 responses. Therefore, an alternative strategy was implemented. I purchased survey responses from adult residents of the target region from SurveyGizmo, which is a secure online survey platform. For a fee, SurveyGizmo connects researchers with panels of prospective survey respondents.

Several statistical procedures were used in hypothesis testing. Cronbach's alpha coefficients were calculated to test Hypothesis 1, and independent-samples *t* tests were conducted to test Hypotheses 2.1 and 2.3. Hypothesis 2.2, Hypotheses 2.4 through 2.12, and Hypothesis 3.1 were tested by calculating correlation coefficients. Hypothesis 3.2 was tested by conducting factor analyses. Hypothesis 4 was to be tested by first calculating correlation coefficients and then conducting a Steiger's *z* test.

Operational Definitions

In the present study, old-fashioned antigay prejudice was operationally defined as scores on the ATLG-R. Modern antigay prejudice was to be operationally defined as

scores on the MHS only if support was found for the hypothesis that the ATLG-R and the MHS measure different constructs; if not, then the validity of the MHS as a measure of modern antigay prejudice in the target population was to be questioned. Social desirability bias was operationally defined as scores on the MCSDS-C. Antigay behavior was operationally defined as scores on the BTGP. Nine additional variables known to be correlated with antigay prejudice were each operationally defined in terms of responses to a single item on the PIQ. These nine variables included sex, age, educational level, income level, religious self-schema, religious behavior, political conservatism, contact with gay people, and sexual orientation. State of residence was also assessed with a questionnaire item, as this variable was to be used in the process of weighting cases in data analysis.

Assumptions

The present study involved the assumption that participants followed instructions by setting aside uninterrupted time to complete an online survey, completing the survey alone, and providing open and honest responses. This assumption was necessary because it was impossible to monitor the extent to which participants in this study followed survey instructions.

Scope and Delimitations

This study was designed to yield findings about the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of 14 specified southern states; it should not be assumed that the results of this study will generalize to other groups. I decided to focus on this particular population because

antigay prejudice appears to be especially pervasive and damaging in the southern United States (Barton, 2010, 2012; Pew Research Center, 2014). This study produced evidence about attitudes toward gay people, but due to the nature of the measures used, it did not produce evidence about attitudes toward other sexual minorities.

Limitations

The characteristics of participants constitute a limitation of this study. In terms of the demographic variables assessed in this study, participants were similar to the target population; however, there were some notable departures from known distributions on those variables, as explained in Chapter 4. In terms of variables not assessed in this study, members of the target population who join panels of prospective survey respondents may differ from those who do not join such panels, and panel members who accepted the invitation to participate in this study may differ from those who declined. Any differences between the characteristics of the target population as a whole and the characteristics of participants in this study reduce the generalizability of results. This limitation was unavoidable given the design of the study, a modest research budget, and challenges encountered in data collection.

Significance

The present study fills a gap in understanding of the psychometric properties of the MHS by focusing specifically on its reliability and validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. This study is unique because prior research has not addressed this specific issue. The results of this study should aid investigators in the selection of appropriate measures to use in

future research concerning antigay prejudice in the South. Such research promises to result in better understanding of this prejudice and the development of more effective interventions to reduce it. Curbing prejudice against marginalized minorities is an important form of positive social change.

In addition to producing evidence about the reliability and validity of the MHS as a measure of modern antigay prejudice in the South, this study has produced up-to-date information about the incidence of antigay prejudice in the southern United States. This information may be useful to gay advocacy groups in their efforts to raise awareness of prejudice against gay people. This information may also be useful to public officials in the development of policies that ensure equal rights for gay people. Securing equal rights for marginalized minorities is another important form of positive social change.

Summary

Findings suggest that antigay prejudice is especially widespread and damaging in the southern United States. Therefore, further research about antigay prejudice in this region is warranted. The MHS may be a useful instrument in such research, but there is a gap in the literature concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in nonstudent populations. This gap in the literature was addressed in the present study by assessing the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. The results of this study should help researchers in the selection of appropriate measures to use in future studies of prejudice against gay people in the South. Such studies may to lead to better understanding of this prejudice and the development of

more effective strategies to reduce it. Reducing prejudice against marginalized minorities is an important form of positive social change.

Chapter 2: Literature Review

Numerous studies have produced evidence concerning the reliability and validity of the MHS (e.g., Morrison, 2003; Morrison & Morrison, 2002, 2011). However, most of these studies were conducted with college students. The extent to which the results of these studies may generalize to other populations is unclear. Consequently, there is a gap in the literature concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in nonstudent populations. This gap in the literature was the research problem addressed in the present study.

The primary purpose of this study was to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States—a region where prejudice against gay people appears to be particularly pervasive and damaging (Barton, 2010, 2012; Pew Research Center, 2014). A secondary purpose of this study was to determine whether MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice in the target population.

In this chapter, I present the search strategy used to identify sources of information relevant to this study, the conceptual framework that underlies both the MHS and the approach to assessing its reliability and validity in this study, and a review of the literature concerning the most widely used measures of attitudes toward gay people and the MHS.

Literature Search Strategy

Sources of information about the MHS were identified by searching numerous databases: the ProQuest Central database, the SAGE Premier database, and all EBSCOhost databases available through the Walden University Library. Database searches conducted for this study were not limited by date of publication.

A total of 86 articles and dissertations were found by searching databases for sources in which the keyword *Modern Homonegativity Scale* appeared anywhere in text. All English-language sources identified in this manner were reviewed for the present study. Additional articles and dissertations relevant to this study were found by searching databases for sources that include combinations of the following keywords: *antigay prejudice, Attitudes Toward Lesbians and Gay Men Scale, homonegativity, homophobia, Homophobia Scale, Index of Attitudes Toward Homosexuals, psychometrics, sexual prejudice, sexual stigma, social desirability, test reliability,* and *test validity.* Still more relevant sources were found in the reference sections of articles and dissertations identified through database searches.

Conceptual Framework

The conceptual framework for the present study was the conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002). These researchers observed that, although college students' scores on traditional measures of antigay prejudice suggested that their attitudes toward gay people were largely positive, other indicators (e.g., gay students' reports of harassment on campus)

did not. Based on this observation, Morrison and Morrison posited the existence of a new modern type of antigay prejudice.

Morrison and Morrison (2002) proposed that there are two types of antigay prejudice: (a) an old-fashioned type that is rooted in religious and moral objections and (b) a modern type that stems from more contemporary concerns. These contemporary concerns include questions about the legitimacy of the gay community's objectives, doubts that antigay discrimination is still a problem in modern society, and the view that gay people overstate the importance of their sexual orientation. Morrison and Morrison conceived of old-fashioned and modern antigay prejudice as related yet distinct constructs. They argued that traditional measures of antigay prejudice assess only old-fashioned prejudice against gay people, and they developed the MHS for the express purpose of assessing modern antigay prejudice.

The conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002) underlies the approach to assessing the validity of the MHS in this study. This conception formed the basis for the following predictions:

- People who self-identify as bisexual or homosexual score lower on the MHS than those who do not. This prediction was supported in a study conducted by Wiley and Bottoms (2013), who found a significant negative correlation between MHS scores and being gay or having gay acquaintances in a study conducted with students at a university in the Midwestern United States.
- There is a positive correlation between MHS scores and scores on a traditional measure of antigay prejudice. This prediction has been supported in numerous

prior studies (Eldridge & Johnson, 2011; Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2002, 2011; Rosik et al., 2013; Wiley & Bottoms, 2013).

- MHS scores are correlated with scores on measures of other known correlates of antigay prejudice. This prediction has also been supported in numerous prior studies (e.g., Dinh et al., 2014; Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2002, 2011; Rosik et al., 2013; Summers, 2010; Wiley & Bottoms, 2013).
- In factor analyses, MHS items and items on a traditional measure of antigay prejudice load on different factors. This prediction has been supported in three prior studies (Morrison, 2003; Morrison & Morrison, 2002; Morrison et al., 2009).

To the extent that these four predictions were supported in the present study, the MHS was to be considered a valid measure of modern antigay prejudice among heterosexual adult residents of the southern United States.

Widely Used Measures of Attitudes Toward Gay People

Measurement is a hallmark of scientific research (Tal, 2015). To achieve a better understanding of attitudes toward gay people, researchers need appropriate instruments to measure those attitudes. Many instruments have been developed for this purpose in recent decades. Grey, Robinson, Coleman, and Bockting (2013) identified and reviewed 23 such instruments used in published research between 1970 and 2012; this number included

only English-language measures that were used to assess attitudes toward gay men in the United States or Canada and for which evidence of reliability or validity was reported.

Costa, Bandeira, and Nardi (2013) identified the three self-report measures of attitudes toward gay people that were most frequently cited in the literature between 1993 and 2010. These three measures are the Index of Attitudes Toward Homosexuals (IAH; originally known as the Index of Homophobia; Hudson & Ricketts, 1980), the Homophobia Scale (HPS; Wright, Adams, & Bernat, 1999), and the Attitudes Toward Lesbians and Gay Men Scale (ATLG; Herek, 1988). These traditional measures of attitudes toward gay people are discussed below.

IAH

The IAH is a 25-item Likert scale that assesses attitudes toward gay people in terms of feelings. Examples of items included in the IAH are "If I saw two men holding hands in public I would feel disgusted" (Hudson & Ricketts, 1980, p. 361) and "I would feel disappointed if I learned that my child was gay" (Hudson & Ricketts, 1980, p. 361). Hudson and Ricketts (1980), the developers of the IAH, reported that the scale demonstrated a high level of internal consistency with an alpha coefficient of .90. There is evidence that the IAH is a valid measure of attitudes toward gay people; Wright et al. (1999) reported a strong correlation between IAH scores and scores on the HPS (r = .658), which suggests that the two scales measure similar constructs, and other researchers have found significant relationships between IAH scores and such theoretically relevant variables as contact with gay people (Malley & Tasker, 2004) and sexism (Walker, Tokar, & Fischer, 2000). The utility of the IAH is limited, however,

because it measures only the affective component of attitudes toward gay people (Costa et al., 2013).

HPS

The HPS is a 25-item Likert scale designed to assess the affective, behavioral, and cognitive aspects of attitudes toward gay people. Examples of HPS items include "Gay people make me nervous" (Wright et al., 1999, p. 344), "I tease and make jokes about gay people" (Wright et al., 1999, p. 344), and "Marriage between homosexual individuals is acceptable" (Wright et al., 1999, p. 344). Wright et al. (1999) reported an alpha coefficient of .936 for the HPS, which indicates that the scale had a high level of internal consistency. HPS scores have been correlated with scores on the IAH (as noted above; Wright et al., 1999) and other measures of attitudes toward gay people (Latner, O'Brien, Durso, Brinkman, & MacDonald, 2008), as well as theoretically relevant variables, including educational level (Wright et al., 1999) and bias against Muslim people (Latner et al., 2008). These findings attest to the validity of the HPS as a measure of attitudes toward gay people.

ATLG

The ATLG is designed to assess the attitudes of heterosexual people toward gay people (University of California, Davis [UCD], n.d.). The ATLG was developed in the 1980s and revised in the 1990s (Herek, n.d.). By 2010, it had become the most widely used measure of antigay prejudice (Clarke, Ellis, Peel, & Riggs, 2010).

The revised ATLG (the ATLG-R) is a 5-item Likert scale. There are two parallel versions of the ATLG-R: one to measure attitudes toward lesbian women (the ATL-R)

and one to measure attitudes toward gay men (the ATG-R). Examples of ATLG-R items are "I think male homosexuals are disgusting" (Herek, n.d., p. 2) and "Sex between two women is just plain wrong" (Herek, n.d., p. 2). High levels of internal consistency have been reported for the ATLG; in most studies, alpha coefficients for the ATLG were greater than .80.

Considerable evidence attests to the validity of the ATLG as a measure of attitudes toward gay people. ATLG scores are "reliably correlated" with theoretically relevant variables, including religiosity, interpersonal contact with gay people, and gender-role attitudes, among others (UCD, n.d., "Reliability and Validity," para. 2). In studies conducted with the ATLG, members of gay organizations scored "at the extreme positive end" of the scale (UCD, n.d., "Reliability and Validity," para. 2), and proponents of a gay-rights ballot measure scored significantly lower on the ATLG (indicating more positive attitudes toward gay people) than opponents of the measure.

Traditional Measures and Social Desirability Bias

Social desirability bias is the tendency for research participants to present themselves in a positive light by responding in a manner that is socially acceptable (Furr, 2010; Groves et al., 2009). The influence of social desirability bias is an important factor to consider when assessing the construct validity of measurement instruments, particularly self-report measures that ask respondents to reveal potentially embarrassing information (DeVellis, 2012; Groves et al., 2009). An instrument that elicits socially desirable but inaccurate responses yields scores that are biased indicators of the construct the instrument purports to measure (Furr, 2010). Social desirability bias is an issue of

growing concern in the assessment of attitudes toward gay people (Breen & Karpinski, 2013). As mainstream attitudes toward homosexuality become more positive, the probability that research participants will report blatantly antigay attitudes seems likely to decrease—regardless of what participants truly think about gay people.

One might expect traditional measures of attitudes toward gay people to elicit responses that reflect social desirability bias. Whether that is actually the case is unclear. Consider, for example, the Homonegativity Scale (HNS), which is a measure of old-fashioned antigay prejudice developed by Morrison, McLeod, Morrison, Anderson, and O'Connor (1997). The HNS includes items such as "Homosexuality is immoral" (Morrison, Parriag, & Morrison, 1999, p. 115) and "Homosexuals should be avoided whenever possible" (Morrison et al., 1999, p. 115). In one study, HNS scores were not correlated with MCSDS-C scores among male or female participants (Morrison et al., 1999). In another study, however, researchers found a significant negative correlation between HNS scores and MCSDS-C scores among male participants but not among female participants (Morrison & Morrison, 2002).

The possible influence of social desirability bias on ATLG scores is a matter of particular concern because the ATLG is the most widely used measure of antigay prejudice. In an early study conducted with college students, Herek (1988) found a significant correlation ($r = -.27$) between scores on the Marlowe-Crowne Social Desirability Scale (MCSDS) and scores on the version of the ATLG designed to measure prejudice against gay men (the ATG) among male participants but not among female participants. The correlation between MCSDS scores and scores on the version of the

ATLG designed to measure prejudice against lesbians (the ATL) was not significant for males or females. Herek (1988) interpreted these results, which he described as "lack of an overall pattern of significant correlations" (p. 459), as evidence that the "ATLG is not predominantly linked to socially desirable response sets" (p. 459).

Recent findings with respect to the influence of social desirability bias on ATLG scores have been mixed. Overton (2006) and Tebbe and Moradi (2012) did not find significant correlations between MCSDS scores and ATL or ATG scores in samples of college students. However, Claman (2008) found weak but significant correlations between MCSDS scores and both ATL scores ($r = –.20$) and ATG scores ($r = –.19$) in a sample of college students. Laine (2015) found a weak but significant correlation between MCSDS scores and ATL scores ($r = –.20$) in a convenience sample of adults, and Rosik et al. (2013) found a weak but significant correlation between ATG scores and scores on the 5-item Socially Desirable Response Set Measure ($r = –.18$; SDRS-5; Hays, Hayashi, & Stewart, 1989) in a sample of students at a Christian university. The practical significance of these statistically significant correlations is questionable due to their small magnitude. Indeed, one group of investigators found statistically significant correlations between MCSDS scores and both ATL and ATG scores of such small magnitude ($r = –.123$ and $r = –.093$, respectively; Einbinder, Fiechter, Sheridan, & Miller, 2012) as to be of virtually no practical significance.

MHS

The MHS is an unconventional self-report measure of attitudes toward gay people. According to its developers, Morrison and Morrison (2002), traditional measures

of attitudes toward gay people assess an "old-fashioned" type of prejudice based on religious and moral objections (p. 17). By contrast, the MHS is meant to assess a "modern" type of prejudice based on more abstract, contemporary concerns (Morrison & Morrison, 2002, p. 18). As a measure of modern antigay prejudice, the MHS may complement its traditional counterparts. Moreover, the MHS is designed to be "a more subtle measure" (Rye & Meaney, 2010a, p. 159)—one that allows research participants to express antigay attitudes "without looking like a bigot" (Rye & Meaney, 2010a, p. 159). Consequently, the MHS appears less likely than traditional measures of antigay prejudice to elicit responses that reflect social desirability bias.

Nature of the MHS

The MHS is a 12-item Likert scale. There are two parallel versions of the MHS: one to assess modern prejudice against lesbian women (the MHS-L) and one to assess modern prejudice against gay men (the MHS-G). Examples of MHS items include "Lesbians should stop shoving their lifestyle down other people's throats" and "Gay men have become far too confrontational in their demand for equal rights" (Morrison & Morrison, 2002, p. 25). Response options for each item range from *strongly disagree* to *strongly agree.* Scale scores range from 12 to 60 with higher scores indicating higher levels of modern antigay prejudice.

Reliability of the MHS

Test reliability is "the consistency of a measuring instrument, that is, the extent to which a measuring instrument exhibits variable error" (Frankfort-Nachmias & Nachmias, 2008, p. 526). Available evidence suggests that the MHS is a reliable measure. Morrison

and Morrison (2002) reported average corrected item-total correlations for the MHS of .63 for male research participants and .65 for female participants. The scale has demonstrated high levels of internal consistency, with Cronbach's alpha coefficients for the scale ranging from .85 to .96 (Cabeldue et al., 2016; Cramer, Miller et al., 2013; Eldridge & Johnson, 2011; Hugelshofer, 2006; Kwon & Hugelshofer, 2012; McCusker & Galupo, 2011; McCutcheon & Morrison, 2015; McDermott & Blair, 2012; Meaney & Rye, 2010; Morrison, 2003; Morrison, Kenny, & Harrington, 2005; Morrison & Bearden, 2007; Morrison & Morrison, 2002, 2011; Morrison et al., 2009; Romero, Morera, & Wiebe, 2015; Rye & Meaney, 2010a; Satcher & Leggett, 2007; Satcher & Schumacker, 2009; Wiley & Bottoms, 2013).

Validity of the MHS

Test validity is defined as the extent to which an instrument actually measures what it purports to measure (Frankfort-Nachmias & Nachmias, 2008). Available evidence suggests that the MHS is a valid measure of modern antigay prejudice, as explained below.

Content validity. One form of test validity is content validity, which is the degree to which an instrument measures all aspects of the phenomenon it is meant to measure (Frankfort-Nachmias & Nachmias, 2008). Content validity of the MHS is ensured to some degree by the rigorous process of item selection that Morrison and Morrison (2002) used in the development of the scale. Several gay graduate students generated an initial pool of 50 items to assess modern antigay prejudice. These items were revised in light of feedback provided by a member of a gay organization. A preliminary 50-item version of

the MHS was administered to a sample of 353 university students who self-identified as heterosexual. Their responses were analyzed, and 37 items were eliminated as a result of applying stringent inclusion criteria. Another item was eliminated after it loaded on the same factor as HNS items in a subsequent study. The 12 items that were retained constitute the current version of the MHS. This process of item selection is consistent with the recommendations of DeVellis (2012) and Frankfort-Nachmias and Nachmias (2008) for scale construction.

Empirical validity. Another form of test validity is empirical validity, which is the degree to which an instrument yields scores that correlate with scores obtained with other measures of the same phenomenon or related phenomena (Frankfort-Nachmias & Nachmias, 2008). In numerous studies, MHS scores were correlated with scores on other measures of antigay prejudice, including the ATLG-R (Eldridge & Johnson, 2011; Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2011; Rosik et al., 2013; Summers, 2010; Wiley & Bottoms, 2010), the IAH (Hugelshofer, 2006), the HNS (Morrison & Morrison, 2002), and the Modern Homophobia Scale (MHPS) developed by Raja and Stokes (1998; Morrison, 2003). MHS scores were also correlated with known correlates of antigay prejudice, including sex (Dinh et al., 2014; Glotfelter, 2012; Hugelshofer, 2006; Kwon & Hugelshofer, 2012; Mahoy, 2013; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2002, 2011; Morrison et al., 2009; Summers, 2010; Wiley & Bottoms, 2013), political orientation (Cabeldue et al., 2016; Dinh et al., 2014; Morrison, 2003; Morrison & Morrison, 2002, 2011; Satcher & Leggett, 2007; Summers, 2010), and contact with gay

people (Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003; Morrison & Bearden, 2007; Satcher & Leggett, 2007; Wiley & Bottoms, 2013), among others (see Appendices C and D). These findings attest to the empirical validity of the MHS.

Construct validity. Yet another form of test validity is construct validity, which is the degree to which an instrument yields scores that are consistent with predictions based on theory about the phenomenon it is meant to measure (Frankfort-Nachmias & Nachmias, 2008). The relevant theory in this case is Morrison and Morrison's (2002) conception of old-fashioned and modern antigay prejudice as related yet distinct constructs. As previously noted, Morrison and Morrison argued that traditional measures of antigay prejudice assess only old-fashioned prejudice against gay people, and they developed the MHS for the express purpose of assessing modern antigay prejudice. To test the conceptual distinctiveness of the MHS from the HNS—a traditional measure of old-fashioned antigay prejudice—Morrison and Morrison (2002) administered these scales to a sample of heterosexual Canadian university students and then factor analyzed the items on the two scales. Analyses for both the MHS-G and the MHS-L produced two-factor solutions with MHS items and HNS items loading on separate factors. These results suggest that the MHS is conceptually distinct from measures of old-fashioned antigay prejudice.

In separate studies, Morrison (2003) administered the MHS and the ATLG-R to samples of heterosexual university students in Canada and the United States. In both studies, factor analyses for the MHS-G and the MHS-L produced two-factor solutions with MHS items and ATLG-R items loading on separate factors. These findings

constitute additional evidence that the MHS is conceptually distinct from measures of old-fashioned antigay prejudice.

The MHS and Social Desirability Bias

Considerable evidence suggests that the influence of social desirability bias on MHS scores is negligible. In several investigations, scores on measures of social desirability bias did not predict MHS scores (Glotfelter, 2012; Mahoy, 2013; Morrison & Morrison, 2002; Romero et al., 2015).

Do MHS scores reflect social desirability bias to a lesser degree than scores on traditional measures of antigay prejudice? The answer to this question is unclear because few investigators have administered the MHS, a measure of old-fashioned antigay prejudice, and a measure of social desirability bias to the same sample. When Morrison and Morrison (2002) took this approach, they found no significant relationship between MCSDS-C scores and MHS scores, yet they found a significant negative relationship between MCSDS-C scores and HNS scores among male participants ($r = –.23$). The relationship between MCSDS-C scores and HNS scores among female participants was not significant. More recently, however, Rosik et al. (2013) found significant relationships between SDRS-5 scores and both MHS-G and ATG scores. These relationships were of the same magnitude ($r = –.18$).

Summary and Conclusions

Many measures of antigay prejudice have been developed in recent decades. The most widely used of these measures are the IAH, HPS, and ATLG (Costa et al., 2013). Evidence indicates that each of these three measures is both reliable and valid. And yet,

according to Morrison and Morrison (2002), these traditional measures of antigay prejudice and others like them assess only old-fashioned antigay prejudice—a type of prejudice against gay people that is rooted in religious and moral objections. Morrison and Morrison proposed that there are two types of antigay prejudice: the old-fashioned type described above and a modern type that is rooted in more abstract, contemporary concerns. Morrison and Morrison developed the MHS for the express purpose of assessing modern antigay prejudice.

The results of numerous studies suggest that the MHS is a reliable and valid measure of modern antigay prejudice. However, most of these studies were conducted with college students. The extent to which the results of these studies may generalize to other populations is unclear. Consequently, there is a gap in the literature concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in nonstudent populations.

There is also a gap in the literature concerning the extent to which MHS scores and scores on traditional measures of antigay prejudice reflect social desirability bias. As mainstream attitudes toward homosexuality become more positive, social desirability bias is an issue of growing concern in the assessment of attitudes toward gay people (Breen & Karpinski, 2013). The MHS is designed to be a more subtle measure of antigay prejudice than its traditional counterparts (Rye & Meaney, 2010a), and consequently, the MHS appears less likely than traditional measures of antigay prejudice to elicit responses that reflect social desirability bias. Whether this is actually the case remains unclear because relevant findings are both limited and mixed.

In the present study, surveys were conducted to address the gaps in the literature identified above. The research design and methods employed in this study are presented in the following chapter.

Chapter 3: Research Method

The primary purpose of the present quantitative study was to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. The reliability of the MHS was assessed in terms of internal consistency. The empirical validity of the MHS was assessed in terms of the difference in MHS scores between people who self-identified as homosexual or bisexual and those who did not, the relationship between MHS scores and scores on a traditional measure of antigay prejudice, and the relationships between MHS scores and scores on measures of the following known correlates of antigay prejudice: sex, age, educational level, income level, religious self-schema, religious behavior, political conservatism, contact with gay people, and antigay behavior. The construct validity of the MHS was assessed in terms of the relationship between MHS scores and scores on a traditional measure of antigay prejudice, the relationship between MHS scores and scores on a measure of social desirability bias, and the results of factor analyses conducted to determine whether items on the MHS and items on a traditional measure of antigay prejudice loaded on different factors.

A secondary purpose of this study was to determine whether MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice in the target population. This purpose was to be achieved by comparing (a) the degree of relationship between scores on a measure of social desirability bias and MHS scores with (b) the degree of relationship between scores on the same measure of social desirability bias and scores on a traditional measure of antigay prejudice.

In this chapter, I present the research design used in the present study and the rationale for its use, methodology employed in the study, threats to the validity of results, and procedures used to ensure compliance with ethical standards for psychological research.

Research Design and Rationale

A quantitative cross-sectional survey design was used in the present study. A quantitative approach was appropriate for this study because the study was meant to produce generalizable findings about the reliability and validity of the MHS. Whereas qualitative methods yield in-depth information about small numbers of people in specific contexts, quantitative methods may be used to obtain findings with samples of participants that generalize to the larger populations from which those samples were drawn (Patton, 2002).

In cross-sectional research designs, all data are collected at the same time (Bourque, 2007). Cross-sectional research may be contrasted with longitudinal research, in which data are collected on multiple occasions from the same participants (Bourque, 2007; Groves et al., 2009). A cross-sectional design was appropriate for this study because all the hypotheses in the study could be tested by analyzing data collected on a single occasion.

A survey design was appropriate for this study because (a) survey research methods enable investigators to collect information from large samples in an efficient and cost-effective manner (Frankfort-Nachmias et al., 2015) and (b) this type of design was used extensively in previous studies conducted with the MHS. In the development of the

proposal for this study, I identified and reviewed 33 articles and dissertations about research conducted with unaltered versions of the MHS. All these articles described studies that employed quantitative cross-sectional research designs. Thus, the use of such a design in the present study facilitates comparison of results across studies.

Methodology

Population

The target population in the present study was heterosexual adults 18 years of age and older who reside in 14 southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. A total of 84,739,556 adults were estimated to be residing in this region in 2015 (U.S. Census Bureau, 2015).

Sampling

The sampling frame in this study was to be a list of mailing addresses for households in the states listed above. This list is maintained by a vendor known as LeadsPlease. LeadsPlease constructs mailing lists from data provided by Experian, an information services company (LeadsPlease, 2013). Resources provided by the U.S. Postal Service and others are used to evaluate and code addresses at LeadsPlease. Address records are updated monthly, and LeadsPlease guarantees delivery rates of 90% or greater (LeadsPlease, 2013).

I purchased a list of addresses for 1,000 randomly selected households in the target region from LeadsPlease immediately before data collection, and I sent an

invitation to participate in the study to each address on the list. All adults at each address were invited to take part in the study.

Unfortunately, the strategy described above proved to be unsuccessful, yielding only 22 responses. Therefore, an alternative strategy was implemented. I purchased survey responses from adult residents of the target region from SurveyGizmo, which is a secure online survey platform. For a fee, SurveyGizmo connects researchers with panels of prospective survey respondents. Purchasing survey responses is an efficient means of collecting data from large numbers of participants targeted by demographic variables such as age and place of residence. In this study, SurveyGizmo delivered 691 survey responses within 2 days.

Sample Size

Inadequate sample size can result in an unrepresentative sample, "failing to find a real effect," or "finding apparent effects that cannot be replicated" (Acheson, 2010, p. 1300). According to Trochim (2006), the minimum sample size needed to conduct a statistical test can be computed if the values of three other factors are specified. Those factors are effect size, alpha level, and statistical power. Alpha level is the probability of rejecting a null hypothesis that is actually true. Statistical power is the probability of rejecting a null hypothesis that is actually false. Effect size is an indication of the magnitude of a treatment effect or the strength of a relationship (Burkholder, n.d.; Sheperis, n.d). By convention, alpha level and power are typically specified as .05 and .80, respectively. Effect size can be specified on the basis of prior findings or, in the absence of relevant data, on the basis of sound reasoning by the researcher.

Several statistical procedures were to be used to test hypotheses in the present study, including calculating Cronbach's alpha coefficients, conducting independent-samples *t* tests, calculating correlation coefficients, conducting Steiger's *z* tests, and conducting factor analyses. The sample-size requirements associated with all these statistical procedures were considered in determining that a minimum of 600 participants were needed for this study, as explained below.

In previous studies, Cronbach's alpha coefficients for the MHS ranged from .85 (Romero et al., 2015) to .96 (Eldridge & Johnson, 2011). A sample of at least 150 participants is needed to calculate a Cronbach's alpha coefficient with an expected value of .80 and a 5% margin of error (Rouquette & Falissard, 2011). Only 50 participants are needed to calculate a Cronbach's alpha coefficient with an expected value of .90 and a 5% margin of error.

Independent-samples *t* tests were to be used in this study to evaluate differences in MHS scores by sex and sexual orientation. Significant sex differences in MHS scores of medium effect size were found in previous studies (e.g., Morrison et al., 2009). To detect a medium effect ($d = .50$) when conducting an independent-samples *t* test, with an alpha level of .05 and statistical power of .80, a sample of at least 102 participants is needed (Faul, Erdfelder, Lang, & Buchner, 2007).

Correlations were to be calculated in this study to gauge the relationships between MHS scores and several variables, including social desirability bias as assessed with the MCSDS-C. In several previous studies, the correlations between MHS scores and scores on measures of social desirability bias were not significant (Glotfelter, 2012;

Hugelshofer, 2006; Mahoy, 2013; McCutcheon & Morrison, 2015; Morrison & Morrison, 2002; Romero et al., 2015). However, Rosik et al. (2013) found a small but statistically significant correlation ($r = –.18$) between MHS scores and social desirability bias as assessed with the SDRS-5. To detect a small effect ($r = .15$) when calculating bivariate correlations, with an alpha level of .05 and statistical power of .80, a sample of at least 273 participants is needed (Faul et al., 2007).

Steiger's *z* tests were to be conducted in this study to compare the correlation between MCSDS-C scores and MHS scores with the correlation between MCSDS-C scores and scores on the ATLG-R. Assuming that these are weak correlations of $r = –.15$ and $r = –.20$, respectively, and that the correlation between MHS scores and ATLG-R scores is strong (as it was in a study by Morrison and Morrison [2011] at $r = .75$), a sample of 135 participants is needed to detect a significant difference between these correlations with a Steiger's *z* test (one-tailed test, $\alpha = .05$; Preacher, 2016).

Factor analyses were to be conducted in this study to test the hypothesis that, among heterosexual adult residents of the southern United States, MHS scores and ATLG-R scores reflect different constructs. The finding that the 12 items on the MHS and the five items on the ATLG-R load on two separate factors would support this hypothesis. Such findings emerged in previous studies conducted with college students (Morrison, 2003; Morrison et al., 2009). According to Mundfrom, Shaw, and Ke (2005), as few as 40 participants may be needed to conduct a factor analysis that results in a two-factor solution with five variables (in this case, scale items) loading on each factor if

communality is high (i.e., the solution accounts for a large share of variance among the variables), and as many as 150 participants may be needed if communality is low.

Based on these sample-size requirements, I determined that at least 300 participants were needed to use the statistical procedures identified above to analyze data collected from a single group. In the present study, these statistical procedures were to be used to analyze data collected from two groups: (a) participants who completed a survey including the version of the MHS that assesses prejudice against gay men and (b) participants who completed a survey including the version of the MHS that assesses prejudice against lesbian women. Consequently, I determined that two samples of at least 300 participants were needed for this study.

Recruitment, Participation, and Data Collection

Invitations to participate in the study were mailed to 1,000 randomly selected addresses in the target region. All adult residents at each selected address were invited to take part in an online survey. Census data indicate that the average number of adults 18 years of age or older living in each United States household was 1.94 in 2014 (U.S. Census Bureau, 2014). In this study, 1,000 invitations were sent in hopes of contacting 2,000 prospective participants and receiving 1,000 completed surveys for a response rate of 50%.

Because initial mailings in survey research typically result in response rates of less than 50% (Dialsingh, 2008), a follow-up mailing of reminder invitations was sent 2 weeks after the first mailing. In addition, a dollar bill was enclosed with each initial invitation as a noncontingent incentive to participate. Conducting follow-up mailings and

providing incentives are both effective means of boosting response rates in survey research (Dialsingh, 2008).

Invitations consisted of a cover letter, a detailed consent form, and instructions for completing the survey. Fifty percent of the selected households were sent instructions directing recipients to a website where they could complete a survey including the MHS-L and the ATL-R, which assess attitudes toward lesbians. The remaining 50% of selected households were sent instructions directing recipients to a different website where they could complete a survey including the MHS-G and the ATG-R, which assess attitudes toward gay men. The surveys were initially to be conducted with SurveyMonkey, a secure online survey platform.

As previously noted, the strategy described above proved to be unsuccessful, yielding only 22 responses. Therefore, an alternative strategy was implemented. I purchased survey responses from adult residents of the target region from SurveyGizmo, which is another secure online survey platform. For a fee, SurveyGizmo connects researchers with panels of prospective survey respondents. Within 2 days, SurveyGizmo delivered 691 survey responses.

Informed consent was obtained from all participants in this study. A detailed consent form appeared at the beginning of each online survey. This consent form included (a) background information about the study, (b) a description of its voluntary nature, (c) an explanation of risks and benefits of participation, (d) a privacy statement indicating that participation was anonymous and explaining data protection measures, (e)

my contact information, and (f) contact information for a Walden University representative who could address participants' questions and concerns about the study.

As explained in the consent form, participation in this study posed only minimal risk to participants, survey responses were submitted anonymously, and data have been stored securely. Participants were asked to provide informed consent by contingent action. Specifically, they were asked to complete the survey only if they agreed to the stated terms of consent.

Operationalization of Constructs

In the present study, old-fashioned antigay prejudice was operationally defined as scores on the ATLG-R. Modern antigay prejudice was to be operationally defined as scores on the MHS only if support was found for the hypothesis that the ATLG-R and the MHS measure different constructs; if not, then the validity of the MHS as a measure of modern antigay prejudice in the target population was to be questioned. Social desirability bias was operationally defined as scores on the MCSDS-C. Antigay behavior was operationally defined as scores on the BTGP. Nine additional variables known to be correlated with antigay prejudice were each operationally defined in terms of responses to a single item on the PIQ. These nine variables included sex, age, educational level, income level, religious self-schema, religious behavior, political conservatism, contact with gay people, and sexual orientation. State of residence was also assessed with a questionnaire item, as this variable was to be used in the process of weighting cases in data analysis.

Instrumentation

The instruments used to measure all variables assessed in this study are described below.

MHS. As the focus of the present study, the MHS and its psychometric properties are described at considerable length in the preceding chapter. The MHS is a self-report measure designed by Morrison and Morrison (2002) to assess a modern form of antigay prejudice that stems from abstract contemporary concerns rather than traditional religious or moral concerns. There are two parallel versions of the MHS: the MHS-L, which measures attitudes toward lesbian women, and the MHS-G, which measures attitudes toward gay men.

The MHS consists of 12 Likert items with five response options for each item ranging from *strongly disagree* to *strongly agree.* Scoring is accomplished by summing item values (1 = *strongly disagree*, 2 = *disagree somewhat*, 3 = *neither agree nor disagree*, 4 = *agree somewhat*, 5 = *strongly agree*). Three of the items are reverse-scored. Scale scores range from 12 to 60 with higher scores indicating higher levels of modern antigay prejudice.

Many investigations have produced evidence concerning the reliability and validity of the MHS. The MHS demonstrated high levels of internal consistency in numerous studies (e.g., Cabeldue et al., 2016; Cramer, Miller et al., 2013; Eldridge & Johnson, 2011). MHS scores were correlated with scores on other measures of antigay prejudice, such as the ATLG-R (Eldridge & Johnson, 2011; Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003, 2011; Rosik et al., 2013; Summers, 2010;

Wiley & Bottoms, 2010). MHS scores were also correlated with known correlates of antigay prejudice, such as political orientation (Cabeldue et al., 2016; Dinh et al., 2014; Morrison, 2003; Morrison & Morrison, 2002, 2011; Satcher & Leggett, 2007; Summers, 2010). In factor analyses conducted to assess the construct validity of the MHS, MHS items and items on traditional measures of antigay prejudice loaded on different factors as predicted (Morrison, 2003; Morrison & Morrison, 2002; Morrison et al., 2009). This body of evidence suggests that the MHS is a reliable and valid measure of modern antigay prejudice. However, it should be noted that most of these studies were conducted with college students.

Permission to use the MHS in the present study is documented in Appendix E.

ATLG-R. The ATLG is also discussed at some length in the preceding chapter. It is designed to assess the attitudes of heterosexual people toward gay people (UCD, n.d.). The ATLG was developed in the 1980s and revised in the 1990s (Herek, n.d.). There are two parallel versions of the revised ATLG (ATLG-R): the ATL-R, which measures attitudes toward lesbian women, and the ATG-R, which measures attitudes toward gay men. The ATLG-R was selected for use in this study because (a) it is the most widely used measure of antigay prejudice (Clarke et al., 2010) and (b) it has been used in numerous prior studies conducted with the MHS.

The ATLG-R consists of five Likert items with response anchors of *strongly disagree* and *strongly agree.* Scoring is accomplished by summing item values (e.g., 1 = *strongly disagree*, 5 = *strongly agree*). Two of the items are reverse-scored. The range of scale scores depends on the number of item response options. There were five item

response options on the ATLG-R in this study, and scale scores ranged from 5 to 25. Higher scores on the ATLG-R indicate higher levels of antigay prejudice.

Reliability. The ATLG (both before and after its revision) has been used extensively in antigay prejudice research, and high levels of internal consistency have been reported for the scale (UCD, n.d.). In most studies conducted with college students, alpha coefficients for the ATLG were greater than .85; in most studies conducted with nonstudent samples, alpha coefficients for the ATLG were greater than .80. The results of studies conducted with alternate forms of the ATLG also attest to its reliability, with *r* values greater than .80.

Validity. Items included in the ATLG were selected through a rigorous process consistent with the recommendations of Frankfort-Nachmias et al. (2015) for scale development. The content validity of the ATLG is ensured to some degree by this rigorous process of item selection. Researchers have found that "the ATLG subscales [i.e., the ATL and the ATG] are reliably correlated with other theoretically relevant constructs," including religiosity, interpersonal contact with gay people, gender-role attitudes, and others (UCD, n.d., "Reliability and Validity," para. 2). In studies conducted with the ATLG, members of gay organizations scored "at the extreme positive end" of the scale, and proponents of a gay-rights ballot measure scored significantly lower on the ATLG (indicating more positive attitudes toward gay people) than opponents of the measure (UCD, n.d., "Reliability and Validity," para. 2). These findings attest to the empirical validity of the ATLG, as well as its construct validity.

UCD (n.d.) has posted the following information about permission to use the ATLG-R:

> Doctoral-level social and behavioral scientists, as well as students and researchers working under their supervision, may use the ATLG in not-for-profit research that is consistent with the American Psychological Association's *Ethical Principles of Psychologists*. **It is *not* necessary to obtain formal permission from Dr. Herek to use the scale in research that meets these conditions, and such permissions are not provided, even upon request.** (UCD, n.d., "Permissions," para. 1, emphasis [both italics and boldface] in the original.)

In light of this information, permission to use the ATLG-R in the present study was not requested.

MCSDS-C. The 13-item MCSDS-C was developed by Reynolds (1982) from the original 33-item social desirability scale developed by Crowne and Marlowe (1960). The MCSDS-C is a self-report measure designed to assess "the tendency to respond in a culturally appropriate manner" (Morrison & Morrison, 2002, p. 22). An example of a MCSDS-C item is "I am always courteous, even to people who are disagreeable" (Reynolds, 1982, p. 122). The MCSDS-C was selected as a measure of social desirability bias in this study because it was used for that purpose in the initial validation of the MHS (Morrison & Morrison, 2002).

The MCSDS-C consists of 13 true-or-false items. Scoring is accomplished by summing item values (0 = *true*, 1 = *false*). Five items are reverse-scored. Scale scores range from 0 to 13 with higher scores indicating higher levels of social desirability bias.

Reliability. Results of a study by Reynolds (1982) indicate that the MCSDS-C has an acceptable level of reliability. The Kuder-Richardson formula 20 reliability coefficient for the MCSDS was .76, and item-total correlations for the 13-item scale ranged from .32 to .47. These results compare favorably with those for the original 33-item Marlowe-Crowne scale, which had a Kuder-Richardson formula 20 coefficient of .82 and item-total correlations ranging from .13 to .49.

Validity. Reynolds (1982) reported that the correlation between scores on the MCSDS-C and scores on the original Marlowe-Crowne scale was .93 ($p < .001$). This finding suggests that the validity of the MCSDS-C is virtually the same as that of the original scale. The correlation between the MCSDS-C and the Edwards Social Desirability Scale (Edwards, cited in Reynolds, 1982) was low at .41 ($p < .001$). Reynolds (1982) speculated that the relative weakness of this relationship is "probably due to restricted range of scores on the Edwards scale" (p. 124).

Permission to use the MCSDS-C in the present study is documented in Appendix E.

PIQ. I developed the PIQ specifically for use in this study. The PIQ includes items to measure the following variables: sex, age, state of residence, educational level, income level, religious self-schema, religious behavior, political conservatism, contact with gay people, and sexual orientation. Each of these variables is assessed with a single item.

The items to assess sex, age, income level, and religious behavior are modeled after items presented by Bradburn, Sudman, and Wansink (2004) in their guide to

questionnaire design. The item to assess educational level is modeled after a question posed in the 2010 U.S. Census (U.S. Census Bureau, 2010). Response options included in the items to assess religious self-schema, political conservatism, and sexual orientation are modeled after those used by Morrison and Morrison (2011). I wrote the item to assess contact with gay people. The PIQ appears in Appendix B.

BTGP. I also developed the BTGP specifically for use in this study. There are existing self-report measures of antigay behavior, including the Self-Report of Behavior Scale–Revised (SBS; Patel, Long, McCammon, & Wuensch, 1995), the Homophobic Behavior of Students Scale (HBS; Van de Ven, Bornholt, & Bailey, 1996), and the Behavior Toward Homosexuals Questionnaire (BTH; Schope & Eliason, 2000). However, these existing measures were deemed unsuitable for use in this study, as explained below.

The BTH consists of questions about various pro-gay and antigay behaviors but does not yield scale scores. The SBS and the HBS both yield scale scores, but items on these scales are not weighted. This suggests that all pro-gay and antigay behaviors identified (e.g., being avoided for being gay and being physically hit for being gay) are equally serious and have much the same impact, which is not the case. In addition, both the SBS and the HBS include items that are likely to be irrelevant to nonstudents, such as "I would NOT like to have a gay person or lesbian address the class about homosexual issues" on the HBS.

The BTGP is designed for administration to both students and nonstudents. Unlike other measures of antigay behavior, this scale includes two subscales to assess

two different types of antigay behavior. These subscales are (a) a nonabusive behavior subscale, which is designed to assess relatively nonabusive negative behaviors directed toward gay people in general (e.g., belonging to an organization that opposes homosexuality), and (b) an abusive behavior subscale, which is designed to assess clearly abusive behaviors directed toward individual gay persons (e.g., threatening someone because he or she is gay). Examples of BTGP items are "(Since this time last year, have you) Belonged to a religious or political organization that opposes homosexuality" and "(Since this time last year, have you) Verbally attacked someone because he or she was gay?"

The BTGP does not yield an overall scale score. Instead, it yields a separate score for each subscale. The response to each item is scored as 1 for *Yes* or 0 for *No*, with the exception of two items that are scored as –1 for *Yes* or 0 for *No*. The score for each subscale is determined by summing the scores for the items that constitute that subscale and adding 1 so that scores are equal to or greater than 0. Subscale scores range from 0 to 6 with higher scores reflecting more negative behavior toward gay people within the past year. The BTGP appears in Appendix A.

Cronbach's alpha coefficients were calculated to assess the reliability of the two subscales of the BTGP in terms of internal consistency. Its empirical validity was assessed in terms of the relationships between BTGP subscale scores and ATLG-R scores. If the alpha coefficient for either subscale of the BTGP was less than .70 or the relationships between BTGP subscale scores and ATLG-R scores was not positive and statistically significant, then responses to the BTGP were to be analyzed item by item.

Data Analysis Plan

IBM SPSS computer software was used to analyze data collected in the present study. To improve the quality of data analyzed in this study, the following decision rules were applied.

- Exclude the case if the participant's response is either *strongly agree* to both of these items or *strongly disagree* to both of these items: "Female (or male) homosexuality is a perversion" and "Female (or male) homosexuality is a natural expression of sexuality in women (or men)." These response patterns are contradictory and would suggest that the participant's scores on the ATLG-R or MHS may not accurately reflect his or her attitudes toward gay people.
- Exclude the case if the participant's response is either *strongly agree* to both of these items or *strongly disagree* to both of these items: "Female (or male) homosexuality is a perversion" and "Female (or male) homosexuality is merely a different kind of lifestyle that should not be condemned." These response patterns are contradictory and would suggest that the participant's scores on the ATLG-R or MHS may not accurately reflect his or her attitudes toward gay people.
- If any responses to the MHS are missing, exclude the case.
- If the total number of missing responses is greater than 5 (10%), exclude the case.

- If there is no response to the item to assess sex, assign a value at random by using a random number generator.
- If there is no response to the item to assess age, impute the median response.
- If there is no response to the item to assess state of residence, assign a value at random by using a random number generator.
- If there is no response to any of the other items on the PIQ, the ATLG-R, the MCSDS-C, or the BTGP, impute the modal response.

After these decision rules were applied, cases were to be weighted according to U.S. Census data regarding sex, age, educational level, and income for the states targeted in this study. Weighting is a procedure often used in survey research to compensate for "departure from distributions on key variables that are known from outside sources for the population" (Groves et al., 2009, p. 348). For example, if males and females are each known to constitute 50% of a given population, but 60% of participants in a survey of that population are male, then participants' responses may be weighted to compensate for overrepresentation of males and underrepresentation of females in that survey. Due to problems related to weighting cases in IBM SPSS, however, cases were not weighted in this study. The rationale for this decision is described in Chapter 4.

Data received from all participants were analyzed to test Hypothesis 2.1. To test all other hypotheses, only the data received from participants who self-identified as "mostly heterosexual" or "exclusively heterosexual" were analyzed, for these were the only data necessary to test those hypotheses. Recent estimates indicate that 3.8% of adults in the United States identify themselves as lesbian, gay, bisexual, or transgender

(Newport, 2015). Consequently, it was anticipated that at least 90% of participants would self-identify as mostly or exclusively heterosexual.

Data analysis in this study began with (a) tabulating frequencies for all items on all measures and (b) calculating measures of central tendency and dispersion for each. Participants' scores on the three standardized scales (the MHS, the ATLG-R, and the MCSDS-C) and the BTGP were then determined, and measures of central tendency and dispersion were calculated for scale scores as well.

Specific hypotheses were tested as described below. All of the hypotheses were tested twice. They were tested once with the version of the MHS designed to assess modern prejudice against lesbian women (the MHS-L), and they were tested again with the version of the MHS designed to assess modern prejudice against gay men (the MHS-G).

Before conducting each statistical test, the data were examined to determine whether the assumptions for that test were met. In some cases they were not, and statistical methods were adjusted accordingly (see Chapter 4).

Research Question 1: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 1: When used with the target population, the MHS has an acceptable level of internal consistency, defined as Cronbach's alpha ≥ .70.

$H_0$1: Cronbach's $\alpha < .70$

$H_1$1: Cronbach's $\alpha \geq .70$

This hypothesis was tested by calculating a Cronbach's alpha coefficient. The null hypothesis was to be retained if the Cronbach's alpha coefficient was less than .70. If the Cronbach's alpha coefficient was equal to or greater than .70, then the null hypothesis was to be rejected.

Research Question 2: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 2.1: Among adult residents of the southern United States, people who self-identify as homosexual or bisexual score lower on the MHS than those who do not.

$H_0 2.1$: $\mu_{\text{bisexual or homosexual}} = \mu_{\text{not bisexual or homosexual}}$

$H_1 2.1$: $\mu_{\text{bisexual or homosexual}} < \mu_{\text{not bisexual or homosexual}}$

To test this hypothesis, a one-tailed *t* test for two independent samples was conducted. The null hypothesis of no difference between groups was to be retained if the *p* value calculated in this *t* test was equal to or greater than .05. If the *p* value calculated in this *t* test was less than .05, then the null hypothesis was to be rejected.

Hypothesis 2.2: Within the target population, there is a positive relationship between MHS scores and scores on the ATLG-R.

$H_0 2.2$: $\rho = 0$

$H_1 2.2$: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the

correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.3: Within the target population, males' scores on the MHS are higher than females' scores on the MHS.

$H_0 2.3$: $\mu_{males} = \mu_{females}$

$H_1 2.3$: $\mu_{males} > \mu_{females}$

To test this hypothesis, a one-tailed *t* test for two independent samples was conducted. The null hypothesis of no difference between groups was to be retained if the *p* value calculated in this *t* test was equal to or greater than .05. If the *p* value calculated in this *t* test was less than .05, then the null hypothesis was to be rejected.

Hypothesis 2.4: Within the target population, there is a positive relationship between MHS scores and age.

$H_0 2.4$: $\rho = 0$

$H_1 2.4$: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.5: Within the target population, there is a negative relationship between MHS scores and educational level.

$H_0 2.5$: $\rho = 0$

$H_1 2.5$: $\rho < 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.6: Within the target population, there is a negative relationship between MHS scores and income level.

$H_0$2.6: $\rho = 0$

$H_1$2.6: $\rho < 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.7: Within the target population, there is a positive relationship between MHS scores and religious self-schema.

$H_0$2.7: $\rho = 0$

$H_1$2.7: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.8: Within the target population, there is a positive relationship between MHS scores and religious behavior.

$H_0$2.8: $\rho = 0$

$H_1$2.8: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.9: Within the target population, there is a positive relationship between MHS scores and political conservatism.

$H_0$2.9: $\rho = 0$

$H_1$2.9: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.10: Within the target population, there is a negative relationship between MHS scores and contact with gay people.

$H_0$2.10: $\rho = 0$

$H_1$2.10: $\rho < 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.11: Within the target population, there is a positive relationship between MHS scores and nonabusive antigay behavior as assessed with the BTGP.

$H_0$2.11: $\rho = 0$

$H_1$2.11: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 2.12: Within the target population, there is a positive relationship between MHS scores and abusive antigay behavior as assessed with the BTGP.

$H_0$2.12: $\rho = 0$

$H_1$2.12: $\rho > 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05, and the null hypothesis was to be rejected if the *p* value was less than .05.

Research Question 3: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? This question was to be addressed by testing Hypothesis 2.2 above and the following hypotheses:

Hypothesis 3.1: Within the target population, there is a relationship between MHS scores and scores on the MCSDS-C.

$H_0$3.1: $\rho = 0$

$H_1$3.1: $\rho \neq 0$

To test this hypothesis, a Spearman rank-order correlation coefficient was calculated. The null hypothesis of no relationship was to be retained if the *p* value for the correlation was equal to or greater than .05. The null hypothesis was to be rejected if the *p* value was less than .05.

Hypothesis 3.2: Within the target population, scores on the MHS and ATLG-R reflect different constructs.

$H_0$3.2: At least one MHS item and one ATLG-R item load on the same factor.

$H_1$3.2: MHS items and ATLG-R items load on different factors.

This hypothesis was to be tested by factor analysis. Following the example of Morrison and Morrison (2002), I conducted factor analyses with maximum-likelihood extraction and oblique rotation. The null hypothesis that the MHS and the ATLG-R do not reflect different constructs was to be retained if at least one MHS item and one ATLG-R item load on the same factor; otherwise the null hypothesis was to be rejected.

Research Question 4: Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice? This question was to be addressed by testing the following hypothesis:

Hypothesis 4: Within the target population, the degree of relationship between MHS scores and MCSDS-C scores is less than the degree of relationship between ATLG-R scores and MCSDS-C scores.

$H_0 4$: $\rho_{ay} = \rho_{by}$

$H_0 4$: $\rho_{ay} < \rho_{by}$

To test this hypothesis, Spearman rank-order correlation coefficients were calculated to (a) determine the degree of relationship between MHS scores and MCSDS-C scores and (b) determine the degree of relationship between ATLG-R scores and MCSDS-C scores. These two correlation coefficients were to be compared by conducting a Steiger's *z* test. The null hypothesis of no difference was to be retained if the *p* value was equal to or greater than .05. The null hypothesis was to be rejected if the *p* value was less than .05. For reasons explained in Chapter 4, Steiger's *z* tests were not conducted.

Threats to Validity

As noted in Chapter 1, participants in this study were adult residents of the target region who belonged to panels of prospective survey respondents. The characteristics of adults who join such panels may differ from those of adults who do not join them. This limitation is a threat to external validity because it reduces the generalizability of the results of this study. This limitation was unavoidable given the design of the study, a modest research budget, and challenges encountered in data collection.

Potential violation of statistical assumptions constituted a threat to the statistical conclusion validity of this study. To address this threat, the data were examined to determine whether assumptions were met for each statistical test that was conducted. In some cases they were not met, and statistical methods were adjusted accordingly.

Ethical Procedures

The present study was conducted with approval of the Walden University Institutional Review Board (approval # 05-02-17-0336213). The study was conducted in full compliance with standards for ethical research established by the American Psychological Association (2010).

Treatment of Human Participants

Informed consent was obtained in advance from participants in the study. In the process of seeking informed consent from prospective participants, they were informed of the purpose of the study and how its results may be used. They were told what they would be asked to do and what they could expect if they chose to participate. They were notified that participation in the study was voluntary and that participants could withdraw from the study at any time. They were advised of risks and benefits associated with taking part in the study and the steps that would be taken to ensure the privacy of their responses. Prospective participants were invited to ask questions at any time, and they were provided with contact information for a university representative who could address their questions about the rights of research participants. Participants were asked to provide informed consent by contingent action; specifically, they were asked to participate in the study only if they agreed to the terms outlined in the consent form.

Participation in this study involved only minimal risk of the minor discomforts that occur in daily life (e.g., becoming upset). There was no risk to participants' safety or wellbeing. Data about medical or psychological conditions that might require referral to treatment providers were not collected. No experimental manipulation occurred. Data

were collected by using a secure online survey platform, and participation was completely anonymous.

Treatment of Data

The data collected in this study have been stored on electronic media, which are kept in a locked file cabinet in my office. The personal computer used to analyze the data is password-protected. Data will be destroyed by deleting the electronic files that contain them in 5 years' time.

Use of Incentives

As noted previously in this chapter, a dollar bill was enclosed with each initial invitation to participate in this study as a noncontingent incentive to take part. This incentive was not deemed coercive because it was provided to all prospective participants who were contacted by mail.

Summary

The present study employed a quantitative cross-sectional survey design to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. Invitations to participate in this study were mailed to 1,000 randomly selected household addresses in the target region, and all adult residents at each of those addresses were invited to take part in the study. When that strategy proved to be unsuccessful, survey responses were purchased from SurveyGizmo, which is a secure online survey platform. Participants completed five instruments: the MHS, the ATLG-R, the MCSDS-C, and two measures I developed for

use in this study: the PIQ, which is a questionnaire designed to assess known correlates of antigay prejudice, and the BTGP, which is a scale designed to assess antigay behavior.

Several statistical procedures were used in hypothesis testing, including calculating Cronbach's alpha coefficients, conducting independent-samples t tests, calculating correlation coefficients, and conducting factor analyses. These procedures and the results of this study are presented in the following chapter.

Chapter 4: Results

The primary purpose of the present study was to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. A secondary purpose of this study was to determine whether MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice in the target population. A quantitative cross-sectional survey design was used to address the following research questions and test the following hypotheses:

Research Question 1: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 1: When used with the target population, the MHS has an acceptable level of internal consistency, defined as Cronbach's alpha $\geq .70$.

Research Question 2: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 2.1: Among adult residents of the southern United States, people who self-identify as homosexual or bisexual score lower on the MHS than those who do not.

Hypothesis 2.2: Within the target population, there is a positive relationship between MHS scores and scores on the ATLG-R.

Hypothesis 2.3: Within the target population, males' scores on the MHS are higher than females' scores on the MHS.

Hypothesis 2.4: Within the target population, there is a positive relationship between MHS scores and age.

Hypothesis 2.5: Within the target population, there is a negative relationship between MHS scores and educational level.

Hypothesis 2.6: Within the target population, there is a negative relationship between MHS scores and income level.

Hypothesis 2.7: Within the target population, there is a positive relationship between MHS scores and religious self-schema.

Hypothesis 2.8: Within the target population, there is a positive relationship between MHS scores and religious behavior.

Hypothesis 2.9: Within the target population, there is a positive relationship between MHS scores and political conservatism.

Hypothesis 2.10: Within the target population, there is a negative relationship between MHS scores and contact with gay people.

Hypothesis 2.11: Within the target population, there is a positive relationship between MHS scores and nonabusive antigay behavior as assessed with the BTGP.

Hypothesis 2.12: Within the target population, there is a positive relationship between MHS scores and abusive antigay behavior as assessed with the BTGP.

Research Question 3: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? This question was addressed by testing Hypothesis 2.2 above and the following hypotheses:

Hypothesis 3.1: Within the target population, there is a relationship between MHS scores and scores on the MCSDS-C.

Hypothesis 3.2: Within the target population, scores on the MHS and ATLG-R reflect different constructs.

Research Question 4: Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice?

Hypothesis 4: Within the target population, the degree of relationship between MHS scores and MCSDS-C scores is less than the degree of relationship between ATLG-R scores and MCSDS-C scores.

All hypotheses were tested twice. They were tested once with the version of the MHS designed to assess modern prejudice against lesbian women (the MHS-L), and they were tested again with the version of the MHS designed to assess modern prejudice against gay men (the MHS-G).

In this chapter, I describe the data collection procedures used in the present study. The characteristics of participants in the study are also described, and the results of statistical analyses are presented as they relate to the research questions and hypotheses listed above.

Data Collection

On May 22, 2017, the data collection plan outlined in Chapter 3 was implemented. At the end of the predetermined 4-week data collection period, only 22 survey responses had been received. An alternative data collection strategy was clearly

needed. Therefore, with approval of the Walden University IRB, I purchased survey responses from adult residents of 14 southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Survey responses were purchased from SurveyGizmo, which is a secure online survey platform. For a fee, SurveyGizmo connects researchers with panels of prospective survey respondents. Two parallel surveys—the Survey of Reactions to Lesbians (SRL), which included the MHS-L and the ATL-R, and the Survey of Reactions to Gay Men (SRG), which included the MHS-G and the ATG-R—were launched in SurveyGizmo on August 25, 2017. Within 2 days, SurveyGizmo delivered 345 responses to the SRL and 346 responses to the SRG.

Data cleaning was accomplished by applying the decision rules listed in the data analysis plan that appears in Chapter 3. Application of those rules resulted in the elimination of numerous cases. The predominant reason why cases were excluded was contradictory responses to items on the ATLG-R, suggesting that scores may not accurately reflect attitudes toward gay people. A total of 258 cases were excluded for this reason. There were 195 participants in the final sample for the SRL and 187 participants in the final sample for the SRG.

Although the characteristics of participants in this study were similar to those of adults in the target region, there were some notable differences (see Table1). For example, the proportion of adults in the target region 65 years of age and over (18.5%) was considerably larger than the proportion of participants in this age group who completed the SRL (7.2%) and the SRG (5.9%).

Table 1

Participant Characteristics as Percentages of the Samples and Population

Characteristic	SRL Participants $N = 195$	SRG Participants $N = 187$	Adult Residents of Target Region $N = 84{,}739{,}556$
Sex			
Male	48.2	45.5	48.4
Female	51.8	54.5	51.5
Age			
18 to 24 years	10.3	19.3	12.9
25 to 34 years	16.4	23.0	17.6
35 to 44 years	27.7	23.0	17.0
45 to 64 years	38.5	28.9	33.8
65 years and over	7.2	5.9	18.5
Educational Level			
Less than 9th Grade	2.6	1.1	5.6
9th to 12th Grade, No Diploma	4.6	3.2	9.5
High School Graduate (Includes GED)	14.9	29.4	29.1
Some College, No Degree	25.1	24.6	23.8
Associate's Degree	14.4	12.3	7.2
Bachelor's Degree	23.6	18.7	15.9
Graduate or Professional Degree	14.9	10.7	8.5
Household Income			
Less than $10,000	11.8	10.2	8.1
$10,000 to $14,999	5.1	4.3	5.8
$15,000 to $24,999	9.7	13.9	11.7
$25,000 to $34,999	14.4	12.3	11.0
$35,000 to $49,999	13.3	13.9	14.2
$50,000 to $74,999	21.5	19.8	17.8
$75,000 to $99,999	15.4	11.8	11.3
$100,000 to $149,999	5.6	11.2	11.5
$150,000 to $199,999	1.5	1.6	4.1
$200,000 or More	1.5	1.1	4.2

Note: The target region comprises 14 southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Statistics for adult residents of the target region are derived from census data (U.S. Census Bureau, 2015).

To compensate for departures from known distributions on key variables, cases in this study were to be weighted by sex, age, educational level, and household income before testing hypotheses. However, the Weight Cases command in IBM SPSS version 23 is not designed for multivariate weighting. Moreover, the consequences of weighting cases in IBM SPSS vary depending on the statistical procedure used. According to the IBM Knowledge Center (2011),

> Fractional [weight] values are valid [in SPSS] and some procedures . . . will use fractional weight values. However, most procedures treat the weighting variable as a replication weight and will simply round fractional weights to the nearest integer. Some procedures ignore the weighting variable completely . . . . (para. 1)

In consideration of these limitations of IBM SPSS, cases in this study were not weighted.

Results of Analyses

The results of statistical analyses conducted in this study are presented below. Results for the SRL and SRG are presented separately.

Results of Preliminary Analyses for the SRL

Evaluation of statistical assumptions. Analyses of SRL data were conducted to determine whether the statistical assumptions of normality and linearity were met. A series of Shapiro-Wilk tests revealed that the only variable that was normally distributed was MHS-L scores. A series of tests for deviation from linearity was conducted for the 12 pairs of variables to be included in correlational analyses. The results of these tests and examination of scatterplots indicated that the relationship between the variables in 11

pairs was linear. The relationship between MHS-L scores and scores on the nonabusive behavior subscale of the BTGP did not appear to be linear.

Whereas the Pearson product-moment correlation coefficient assumes that variables are normally distributed, the Spearman rank-order correlation coefficient does not. Because only one variable measured in the SRL was normally distributed, all correlational analyses were conducted by calculating Spearman rank-order correlation coefficients in hypothesis testing.

Descriptive statistics for scales. Means, standard deviations, and Cronbach's alpha coefficients for all scales administered in the SRL are presented in Table 2. Because the MHS-L and ATL-R are designed specifically to assess antigay prejudice among heterosexual individuals, statistics for heterosexual participants only appear in this table.

Table 2

Descriptive Statistics and Cronbach's Alpha Coefficients for Scales Administered to Heterosexual Participants in the SRL (n = 166)

Scale	Mean	Standard Deviation	Cronbach's Alpha
MHS-L	39.54	9.02	.87
ATL-R	14.20	4.01	.69
MCSDS-C	7.56	2.90	.70
BTGP			
Nonabusive Behavior	1.63	1.28	.51
Abusive Behavior	.92	1.05	.67

Note: Possible MHS-L scores range from 12 to 60; possible ATL-R scores range from 5 to 25; possible MCSDS-C scores range from 0 to 13; possible scores on the BTGP nonabusive behavior subscale range from 0 to 6; possible scores on the BTGP abusive behavior subscale also range from 0 to 6.

The mean score of 39.54 on the MHS-L was above the midpoint of 36, whereas the mean score of 14.20 on the ATL-R was just below the midpoint of 15. The mean score of 1.62 on the nonabusive behavior subscale of the BTGP was well below the midpoint of 3. The mean score of .92 on the abusive behavior subscale of the BTGP was also well below the midpoint of 3.

The MHS-L demonstrated a high level of internal consistency, with a Cronbach's alpha coefficient of .87. The ATL-R and MCSDS-C demonstrated acceptable levels of internal consistency, with Cronbach's alpha coefficients of .69 and .70, respectively.

If the BTGP is a valid measure of antigay behavior, then one would expect to find a positive correlation between ATL-R scores and scores on the BTGP. In this study, there was a significant positive correlation between ATL-R scores and scores on both subscales

of the BTGP. The correlation between ATL-R scores and scores on the nonabusive behavior subscale was strong, $r_s = .56$, $p = .000$, and the correlation between ATL-R scores and scores on the abusive behavior subscale was moderate, $r_s = .26$, $p = .000$. However, only the abusive behavior subscale had a level of internal consistency that approached acceptability, with a Cronbach's alpha coefficient of .67. The Cronbach's alpha coefficient for the nonabusive behavior subscale was low at .51, which indicates that this subscale had poor internal consistency.

Results of Hypothesis Testing for the SRL

Research Question 1: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 1. A Cronbach's alpha coefficient was calculated to test the hypothesis that the MHS-L has an acceptable level of internal consistency, defined as alpha ≥ .70. This hypothesis was supported. As noted above, the Cronbach's alpha coefficient for the MHS-L was .87, indicating that the MHS-L had a high level of internal consistency in this study.

Research Question 2: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 2.1. An independent-samples *t* test was conducted to test the hypothesis that among adult residents of the southern United States, people who self-identify as homosexual or bisexual score lower on the MHS-L than those who do not. This hypothesis was not supported. The mean MHS-L score for participants who self-

identified as homosexual or bisexual (M = 38.00, SD = 9.55) was not significantly different from the mean MHS-L score for participants who did not self-identify as homosexual or bisexual (M = 39.35, SD = 9.06), $t(193) = -.65$, $p = .515$, 95% CI [–5.42, 2.72]. The effect size was small at $d = .145$.

Hypothesis 2.2. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and scores on the ATL-R. This hypothesis was supported. The correlation between MHS-L scores and ATL-R scores was positive and significant, $r_s = .47$, $p = .000$.

Hypothesis 2.3. An independent-samples t test was conducted to test the hypothesis that within the target population, males' scores on the MHS-L are higher than females' scores on the MHS-L. This hypothesis was supported. The mean MHS-L score for males (M = 40.95, SD = 8.94) was significantly higher than the mean MHS-L score for females (M = 38.13, SD = 8.92), $t(164) = 2.03$, $p = .044$, 95% CI [.082, 5.56]. The effect size was moderate at $d = .316$.

Hypothesis 2.4. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and age. This hypothesis was not supported. The correlation between MHS-L scores and age was not significant, $r_s = .05$, $p = .246$.

Hypothesis 2.5. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a negative relationship between MHS-L scores and educational level. This hypothesis was not supported. The

correlation between MHS-L scores and educational level was not significant, $r_s = -.04$, $p = .292$.

Hypothesis 2.6. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a negative relationship between MHS-L scores and income level. This hypothesis was not supported. The correlation between MHS-L scores and income level was not significant, $r_s = -.05$, $p = .277$.

Hypothesis 2.7. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and religious self-schema. This hypothesis was not supported. The correlation between MHS-L scores and religious self-schema was not significant, $r_s = .05$, $p = .282$.

Hypothesis 2.8. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and religious behavior. This hypothesis was not supported. The correlation between MHS-L scores and religious behavior was not significant, $r_s = .06$, $p = .239$.

Hypothesis 2.9. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and political conservatism. This hypothesis was supported. The correlation between MHS-L scores and political conservatism was positive and significant, $r_s = .35$, $p = .000$.

Hypothesis 2.10. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a negative relationship between MHS-L scores and contact with gay people. This hypothesis was supported. The correlation between MHS-L scores and contact with gay people was negative and significant, $r_s = -.14$, $p = .038$.

Hypothesis 2.11. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and nonabusive antigay behavior as assessed with the BTGP. This hypothesis was supported. The correlation between MHS-L scores and scores on the nonabusive behavior subscale of the BTGP was positive and significant, $r_s = .41$, $p = .000$. This finding should be interpreted with caution because (a) the nonabusive behavior subscale demonstrated a low level of internal consistency in the SRL, and (b) the relationship between MHS-L scores and scores on the nonabusive behavior subscale did not appear to be linear. The Spearman rank-order correlation coefficient assumes linear relationships between variables.

Hypothesis 2.12. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-L scores and abusive antigay behavior as assessed with the BTGP. This hypothesis was not supported. The correlation between MHS-L scores and scores on the abusive behavior subscale of the BTGP was not significant, $r_s = .08$, $p = .165$.

Research Question 3: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of

the southern United States? This question was addressed by testing Hypothesis 2.2 above and Hypotheses 3.1 and 3.2 below.

Hypothesis 3.1. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a relationship between MHS-L scores and scores on the MCSDS-C. This hypothesis was not supported. The correlation between MHS-L scores and MCSDS-C scores was not significant, $r_s = .12$, $p = .125$.

Hypothesis 3.2. A factor analysis was conducted on the 17 items that constitute the MHS-L and ATL-R to test the hypothesis that within the target population, scores on these two measures reflect different constructs. The analysis was conducted with maximum-likelihood extraction and oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin measure verified sampling adequacy for the analysis, KMO = .819. In this analysis, four factors had eigenvalues greater than 1. In combination, these factors explained 63.59% of the variance. Factor loadings after rotation are presented in Table 3. The hypothesis that MHS-L scores and ATL-R scores reflect different constructs was not supported, as items from both scales had high loadings (greater than .4) on the fourth factor.

Table 3

Results of Factor Analysis of Items from the MHS-L and ATL-R

Item	Rotated Factor Loadings			
	Factor 1	Factor 2	Factor 3	Factor 4
If lesbians want to be treated like everyone else, then they need to stop making such a fuss about their sexuality/culture.	**.886**			
Lesbians should stop complaining about the way they are treated in society, and simply get on with their lives.	**.810**		–.164	
Lesbians have become far too confrontational in their demand for equal rights.	**.700**			
Celebrations such as "Gay Pride Day" are ridiculous because they assume that an individual's sexual orientation should constitute a source of pride.	**.615**	–.124	.189	.164
Lesbians should stop shoving their lifestyle down other people's throats.	**.556**		.170	
In today's tough economic times, Americans' tax dollars shouldn't be used to support lesbians' organizations.	**.520**	.230		
Lesbians seem to focus on the ways in which they differ from heterosexuals, and ignore the ways in which they are the same.	**.439**	.102	.171	–.104
The notion of universities providing students with undergraduate degrees in Gay and Lesbian Studies is ridiculous.	**.411**	–.279	.152	
Many lesbians use their sexual orientation so that they can obtain special privileges.	**.377**	.135	.186	
Lesbians still need to protest for equal rights.		**–.920**		
Lesbians do not have all the rights they need.		**–.667**		
Lesbians who are "out of the closet" should be admired for their courage.		**–.473**		**.401**
Female homosexuality is a perversion.			**.854**	
I think lesbians are disgusting.		–.122	**.716**	
Sex between two women is just plain wrong.	.151	.122	**.529**	.342

(table continues)

Item	Rotated Factor Loadings			
	Factor 1	Factor 2	Factor 3	Factor 4
Female homosexuality is merely a different kind of lifestyle that should not be condemned.				**.796**
Female homosexuality is a natural expression of sexuality in women.		–.143		**.699**

Note: Factor loadings with absolute values greater than .350 are printed in boldface type.

The first factor was defined by nine MHS-L items. The second factor was defined by the three MHS-L items that are reverse-scored. The third factor was defined by three ATL-R items. The fourth factor was defined by the two reverse-scored ATL-R items and one reverse-scored MHS-L item ("Lesbians who are 'out of the closet' should be admired for their courage"). This MHS-L item had comparably high loadings on both the second and fourth factors (–.473 and .410, respectively).

*Research Question 4***:** Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice?

Hypothesis 4. A two-step process was to be used to test the hypothesis that within the target population, the degree of relationship between MHS-L scores and MCSDS-C scores is less than the degree of relationship between ATL-R scores and MCSDS-C scores. In the first step, correlation coefficients were to be calculated to (a) determine the degree of relationship between MHS-L scores and MCSDS-C scores, and (b) determine the degree of relationship between ATL-R scores and MCSDS-C scores. In the second

step, these two correlation coefficients were to be compared by conducting a Steiger's *z* test.

This hypothesis was not supported. As noted above, the correlation between MHS-L scores and MCSDS-C scores in this study was not significant, $r_s = .12$, $p = .125$. The correlation between ATL-R scores and MCSDS-C scores was not significant either, $r_s = -.01$, $p = .863$. In consideration of the fact that neither of these correlations approached statistical significance, a Steiger's *z* test was not conducted.

Results of Preliminary Analyses for the SRG

Evaluation of statistical assumptions. Analyses of SRG data were conducted to determine whether the statistical assumptions of normality and linearity were met. A series of Shapiro-Wilk tests revealed that the only variable that was normally distributed was MHS-G scores. A series of tests for deviation from linearity was conducted for the 12 pairs of variables to be included in correlational analyses. The results of these tests and examination of scatterplots indicated that the relationship between the variables in 10 pairs was linear. It was not clear whether the relationship between MHS-G scores and contact with gay people was linear. The relationship between MHS-G scores and scores on the nonabusive behavior subscale of the BTGP did not appear to be linear.

Whereas the Pearson product-moment correlation coefficient assumes that variables are normally distributed, the Spearman rank-order correlation coefficient does not. Because only one variable measured in the SRG was normally distributed, all correlational analyses were conducted by calculating Spearman rank-order correlation coefficients in hypothesis testing.

Descriptive statistics for scales. Means, standard deviations, and Cronbach's alpha coefficients for all scales administered in the SRG are presented in Table 4. Because the MHS-G and ATG-R are designed specifically to assess antigay prejudice among heterosexual individuals, statistics for heterosexual participants only appear in this table.

Table 4

Descriptive Statistics and Cronbach's Alpha Coefficients for Scales Administered to Heterosexual Participants in the SRG (n = 157)

Scale	Mean	Standard Deviation	Cronbach's Alpha
MHS-G	38.03	9.15	.86
ATG-R	14.55	3.74	.61
MCSDS-C	8.03	2.76	.67
BTGP			
Nonabusive Behavior	1.62	1.30	.55
Abusive Behavior	.90	1.04	.62

Note: Possible MHS-G scores range from 12 to 60; possible ATG-R scores range from 5 to 25; possible MCSDS-C scores range from 0 to 13; possible scores on the BTGP nonabusive behavior subscale range from 0 to 6; possible scores on the BTGP abusive behavior subscale also range from 0 to 6.

The mean score of 38.03 on the MHS-G was above the midpoint of 36, whereas the mean score of 14.55 on the ATG-R was just below the midpoint of 15. The mean score of 1.62 on the nonabusive behavior subscale of the BTGP was well below the midpoint of 3. The mean score of .90 on the abusive behavior subscale of the BTGP was also well below the midpoint of 3.

The MHS-G demonstrated a high level of internal consistency, with a Cronbach's alpha coefficient of .86. The ATG-R demonstrated a questionable level of internal consistency, with a Cronbach's alpha coefficient of .61. The MCSDS-C demonstrated a level of internal consistency that approached acceptability, with a Cronbach's alpha coefficient of .67.

If the BTGP is a valid measure of antigay behavior, then one would expect to find a positive correlation between ATG-R scores and scores on the BTGP. In this study, there was a significant positive correlation between ATG-R scores and scores on both subscales of the BTGP. The correlation between ATG-R scores and scores on the nonabusive behavior subscale was strong, $r_s = .52$, $p = .000$, and the correlation between ATG-R scores and scores on the abusive behavior subscale was weak, $r_s = .19$, $p = .009$. However, neither subscale had a level of internal consistency that approached acceptability. The nonabusive behavior subscale demonstrated low internal consistency, with a Cronbach's alpha coefficient of .55. The abusive behavior subscale demonstrated questionable internal consistency, with a Cronbach's alpha coefficient of .62.

Results of Hypothesis Testing for the SRG

Research Question 1: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 1. A Cronbach's alpha coefficient was calculated to test the hypothesis that the MHS-G has an acceptable level of internal consistency, defined as alpha ≥ .70. This hypothesis was supported. As noted above, the Cronbach's alpha

coefficient for the MHS-G was .86, indicating that the MHS-G had a high level of internal consistency in this study.

Research Question 2: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Hypothesis 2.1. An independent-samples *t* test was conducted to test the hypothesis that among adult residents of the southern United States, people who self-identify as homosexual or bisexual score lower on the MHS-G than those who do not. This hypothesis was not supported. The mean MHS-G score for participants who self-identified as homosexual or bisexual ($M = 37.83$, $SD = 7.98$) was not significantly different from the mean MHS-G score for participants who did not self-identify as homosexual or bisexual ($M = 38.08$, $SD = 9.08$), $t(185) = –.11$, $p = .911$, 95% CI [–4.65, 4.15]. The effect size was small at $d = .029$.

Hypothesis 2.2. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and scores on the ATG-R. This hypothesis was supported. The correlation between MHS-G scores and ATG-R scores was positive and significant, $r_s = .53$, $p = .000$.

Hypothesis 2.3. An independent-samples *t* test was conducted to test the hypothesis that within the target population, males' scores on the MHS-G are higher than females' scores on the MHS-G. This hypothesis was not supported. The mean MHS-G score for males ($M = 38.70$, $SD = 8.98$) was not significantly different from the mean

MHS-G score for females (M = 37.45, SD = 9.31), $t(155) = .851$, $p = .396$, 95% CI [–1.65, 4.14]. The effect size was small at $d = .137$.

Hypothesis 2.4. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and age. This hypothesis was supported. The correlation between MHS-G scores and age was positive and significant, $r_s = .15$, $p = .033$.

Hypothesis 2.5. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a negative relationship between MHS-G scores and educational level. This hypothesis was not supported. The correlation between MHS-G scores and educational level was not significant, $r_s = –.01$, $p = .440$.

Hypothesis 2.6. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a negative relationship between MHS-G scores and income level. This hypothesis was not supported. The correlation between MHS-G scores and income level was not significant, $r_s = –.02$, $p = .391$.

Hypothesis 2.7. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and religious self-schema. This hypothesis was not supported. The correlation between MHS-G scores and religious self-schema was not significant, $r_s = .12$, $p = .063$.

Hypothesis 2.8. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and religious behavior. This hypothesis was supported. The correlation between MHS-G scores and religious behavior was positive and significant, $r_s = .17$, $p = .014$.

Hypothesis 2.9. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and political conservatism. This hypothesis was supported. The correlation between MHS-G scores and political conservatism was positive and significant, $r_s = .28$, $p = .000$.

Hypothesis 2.10. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a negative relationship between MHS-G scores and contact with gay people. This hypothesis was supported. The correlation between MHS-G scores and contact with gay people was negative and significant, $r_s = –.16$, $p = .025$. This finding should be interpreted with caution because it was not clear whether the relationship between MHS-G scores and contact with gay people was linear.

Hypothesis 2.11. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and nonabusive antigay behavior as assessed with the BTGP. This hypothesis was supported. The correlation between MHS-G scores and scores on the nonabusive behavior subscale of the BTGP was positive and significant, $r_s = .48$, $p =$

.000. This finding should be interpreted with caution because (a) the nonabusive behavior subscale demonstrated a low level of internal consistency in the SRG and (b) the relationship between MHS-G scores and scores on the nonabusive behavior subscale did not appear to be linear. The Spearman rank-order correlation coefficient assumes linear relationships between variables.

Hypothesis 2.12. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a positive relationship between MHS-G scores and abusive antigay behavior as assessed with the BTGP. This hypothesis was supported. The correlation between MHS-G scores and scores on the abusive behavior subscale of the BTGP was positive and significant, $r_s = .23$, $p = .002$. This finding should be interpreted with caution because the abusive behavior subscale demonstrated a questionable level of internal consistency in the SRG

Research Question 3: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? This question was addressed by testing Hypothesis 2.2 above and Hypotheses 3.1 and 3.2 below.

Hypothesis 3.1. A Spearman rank-order correlation coefficient was calculated to test the hypothesis that within the target population, there is a relationship between MHS-G scores and scores on the MCSDS-C. This hypothesis was not supported. The correlation between MHS-G scores and MCSDS-C scores was not significant, $r_s = –.002$, $p = .492$.

Hypothesis 3.2. A factor analysis was conducted on the 17 items that constitute the MHS-G and ATG-R to test the hypothesis that within the target population, scores on these two measures reflect different constructs. The analysis was conducted with maximum-likelihood extraction and oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin measure verified sampling adequacy for the analysis, KMO = .861. In this analysis, four factors had eigenvalues greater than 1. In combination, these factors explained 64.12% of the variance. Factor loadings after rotation are presented in Table 3. The hypothesis that MHS-G scores and ATG-R scores reflect different constructs was not supported, as items from both scales had high loadings (greater than .35) on the second factor.

Table 5

Results of Factor Analysis of Items from the MHS-G and ATG-R

Item	Rotated Factor Loadings			
	Factor 1	Factor 2	Factor 3	Factor 4
If gay men want to be treated like everyone else, then they need to stop making such a fuss about their sexuality/culture.	**.889**		–.113	
Gay men have become far too confrontational in their demand for equal rights.	**.782**			
Gay men should stop complaining about the way they are treated in society, and simply get on with their lives.	**.746**			
Gay men should stop shoving their lifestyle down other people's throats.	**.721**			
In today's tough economic times, Americans' tax dollars shouldn't be used to support gay men's organizations.	**.632**			
Celebrations such as "Gay Pride Day" are ridiculous because they assume that an individual's sexual orientation should constitute a source of pride.	**.623**		.149	.140
The notion of universities providing students with undergraduate degrees in Gay and Lesbian Studies is ridiculous.	**.545**		.127	
Gay men still need to protest for equal rights.	.188	**.783**		–.135
Gay men do not have all the rights they need.		**.737**	.146	
Gay men who are "out of the closet" should be admired for their courage.	.164	**.657**		
Male homosexuality is merely a different kind of lifestyle that should not be condemned.	–.159	**.470**		
Male homosexuality is a natural expression of sexuality in men.		**.353**	–.240	.222
Gay men seem to focus on the ways in which they differ from heterosexuals, and ignore the ways in which they are the same.			**.815**	.126
Many gay men use their sexual orientation so that they can obtain special privileges.	.220		**.462**	.156

(table continues)

Item	Rotated Factor Loadings			
	Factor 1	Factor 2	Factor 3	Factor 4
I think male homosexuals are disgusting.				**.702**
Male homosexuality is a perversion.				**.661**
Sex between two men is just plain wrong.	.302			**.546**

Note: Factor loadings with absolute values greater than .350 are printed in boldface type.

The first factor was defined by seven MHS-G items. The second factor was defined by all of the items on the MHS-G and ATG-R that are reverse-scored. The third factor was defined by two MHS-G items, and the fourth factor was defined by three ATG-R items.

Research Question 4: Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice?

Hypothesis 4. A two-step process was to be used to test the hypothesis that within the target population, the degree of relationship between MHS-G scores and MCSDS-C scores is less than the degree of relationship between ATG-R scores and MCSDS-C scores. In the first step, correlation coefficients were to be calculated to (a) determine the degree of relationship between MHS-G scores and MCSDS-C scores and (b) determine the degree of relationship between ATG-R scores and MCSDS-C scores. In the second step, these two correlation coefficients were to be compared by conducting a Steiger's *z* test.

This hypothesis was not supported. As noted above, the correlation between MHS-G scores and MCSDS-C scores in this study was not significant, $r_s = -.002$, $p = .492$. The correlation between ATG-R scores and MCSDS-C scores was not significant either, $r_s = .09$, $p = .124$. In consideration of the fact that neither of these correlations approached statistical significance, a Steiger's z test was not conducted.

Responses to Measures of Antigay Prejudice

Heterosexual participants' responses to the MHS are summarized in Table 6. A majority of these participants indicated that they agreed with each of the following statements:

- Lesbians (gay men) should stop shoving their lifestyle down other people's throats,
- If lesbians (gay men) want to be treated like everyone else, then they need to stop making such a fuss about their sexuality/culture,
- Lesbians (gay men) should stop complaining about the way they are treated in society, and simply get on with their lives, and
- In today's tough economic times, Americans' tax dollars shouldn't be used to support lesbians' (gay men's) organizations.

Table 6

Summary of Heterosexual Participants' Responses to the MHS

Item	SRL Heterosexual Participants *n* = 166			SRG Heterosexual Participants *n* = 157			All Heterosexual Participants *n* = 323		
	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat
Many lesbians (gay men) use their sexual orientation so that they can obtain special privileges.	**75 45.2%**	48 28.9%	43 25.9%	**63 40.1%**	53 33.8%	41 26.1%	**138 42.7%**	101 31.3%	84 26.0%
Lesbians (gay men) seem to focus on the ways in which they differ from heterosexuals, and ignore the ways in which they are the same.	51 30.7%	52 31.3%	**63 38%**	41 26.1%	48 30.6%	**68 43.3%**	92 28.5%	100 31.0%	**131 40.6%**
Lesbians (gay men) do not have all the rights they need.	**64 38.6%**	45 27.1%	57 34.3%	55 35.0%	40 25.5%	**62 39.5%**	**119 36.8%**	85 26.3%	**119 36.8%**
The notion of universities providing students with undergraduate degrees in Gay and Lesbian Studies is ridiculous.	34 20.5%	45 27.1%	**87 52.4%**	38 24.2%	53 33.8%	**66 42.0%**	72 22.3%	98 30.3%	**153 47.4%**
Celebrations such as "Gay Pride Day" are ridiculous because they assume that an individual's sexual orientation should constitute a source of pride.	46 27.7%	41 24.7%	**79 47.6%**	56 35.7%	42 26.8%	**59 37.6%**	102 31.6%	83 25.7%	**138 42.7%**

(table continues)

Item	SRL Heterosexual Participants *n* = 166			SRG Heterosexual Participants *n* = 157			All Heterosexual Participants *n* = 323		
	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat
Lesbians (gay men) still need to protest for equal rights.	**69 41.6%**	40 24.1%	57 34.3%	54 34.4%	48 30.6%	**55 35.0%**	**123 38.1%**	88 27.2%	112 34.7%
Lesbians (gay men) should stop shoving their lifestyle down other people's throats.	26 15.7%	40 24.1%	**100 60.2%**	32 20.4%	43 27.4%	**82 52.2%**	58 18.0%	83 25.7%	**182 56.3%**
If lesbians (gay men) want to be treated like everyone else, then they need to stop making such a fuss about their sexuality/culture.	29 17.5%	28 16.9%	**109 65.7%**	35 22.3%	29 18.5%	**93 59.2%**	64 19.8%	57 17.6%	**202 62.5%**
Lesbians (gay men) who are "out of the closet" should be admired for their courage.	42 25.3%	57 34.3%	**67 40.4%**	37 23.6%	58 36.9%	**62 39.5%**	79 24.5%	115 35.6%	**129 39.9%**
Lesbians (gay men) should stop complaining about the way they are treated in society, and simply get on with their lives.	35 21.1%	42 25.3%	**89 53.6%**	31 19.7%	46 29.3%	**80 51.0%**	66 20.4%	88 27.2%	**169 52.3%**
In today's tough economic times, Americans' tax dollars shouldn't be used to support lesbians' (gay men's) organizations.	29 17.5%	45 27.1%	**92 55.4%**	41 26.1%	42 26.8%	**74 47.1%**	70 21.7%	87 26.9%	**166 51.4%**

(table continues)

Item	SRL Heterosexual Participants *n* = 166			SRG Heterosexual Participants *n* = 157			All Heterosexual Participants *n* = 323		
	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat
Lesbians (gay men) have become far too confrontational in their demand for equal rights.	33 19.9%	66 39.8%	**67** **40.4%**	35 22.3%	55 35.0%	**67** **42.7%**	68 21.1%	121 35.5%	**134** **41.5%**

Note: Boldface type indicates the response was selected by the greatest number of participants.

Heterosexual participants' responses to the ATLG-R are summarized in Table 7. A majority of these participants indicated that they disagreed with the statement *I think lesbians (male homosexuals) are disgusting*. Still, more than 15% of heterosexual participants indicated that they do think gay people are disgusting, more than 26% of them agreed that homosexuality is a perversion, and nearly 43% agreed that sex between two women or two men is just plain wrong.

Table 7

Summary of Heterosexual Participants' Responses to the ATLG-R

Item	SRL Heterosexual Participants *n* = 166			SRG Heterosexual Participants *n* = 157			All Heterosexual Participants *n* = 323		
	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat	Strongly Disagree or Disagree Somewhat	Neither Agree nor Disagree	Strongly Agree or Agree Somewhat
I think lesbians (male homosexuals) are disgusting.	**92 55.4%**	50 30.1%	24 14.5%	**86 54.8%**	46 29.3%	25 15.9%	**178 55.1%**	96 29.7%	49 15.2%
Female (male) homosexuality is a perversion.	58 34.9%	**65 39.2%**	43 25.9%	**64 40.8%**	51 32.5%	42 26.8%	**122 37.8%**	116 35.9%	85 26.3%
Female (male) homosexuality is a natural expression of sexuality in women (men).	**64 38.6%**	55 33.1%	47 28.3%	**58 36.9%**	56 35.7%	43 27.4%	**122 37.8%**	111 34.4%	90 27.9%
Sex between two women (men) is just plain wrong.	51 30.7%	49 29.5%	**66 39.8%**	36 22.9%	49 31.2%	**72 45.9%**	87 26.9%	98 30.3%	**138 42.7%**
Female (male) homosexuality is merely a different kind of lifestyle that should not be condemned.	37 22.3%	58 34.9%	**71 42.8%**	45 28.75	55 35.0%	**57 36.3%**	82 25.4%	113 35.0%	**128 39.6%**

Note: Boldface type indicates the response was selected by the greatest number of participants.

Responses to the BTGP

Participants' responses to the BTGP are summarized in Table 8. Note that 36.9% of participants reported that they had expressed support for gay rights within the preceding 12 months, and 39.8% reported that they had defended someone who was mistreated for being gay. However, 34.8% indicated that they had expressed disapproval of homosexuality in a private conversation when no gay people were around, and 15.4%

indicated that they expressed disapproval of homosexuality in a public discussion, either in person or online. Nearly 30% of participants reported that they had belonged to a religious or political organization that opposes homosexuality within the preceding 12 months. More than 8% of participants indicated that they had verbally attacked someone because he or she was gay, and nearly 7% indicated that they had physically attacked someone because he or she was gay.

Table 8

Summary of Responses to the BTGP

Item	SRL Participants $N = 195$		SRG Participants $N = 187$		All Participants $N = 382$	
Since this time last year, have you . . .	Yes	No	Yes	No	Yes	No
Expressed disapproval of homosexuality in a private conversation when no gay people were around?	72 36.9%	123 63.1%	61 32.6%	126 67.4%	133 34.8%	249 65.2%
Threatened someone because he or she was gay?	16 8.2%	179 91.8%	11 5.9%	176 94.1%	27 7.1%	355 92.9%
Damaged someone's property because he or she was gay?	16 8.2%	179 91.8%	14 7.5%	173 92.5%	30 7.9%	352 92.1%
Belonged to a social group that does not allow gay people, such as a private club, fraternity, or sorority?	16 8.2%	179 91.2%	14 7.5%	173 92.5%	30 7.9%	352 92.1%
Physically attacked someone because he or she was gay?	13 6.7%	182 93.3%	13 7.0%	174 93.0%	26 6.8%	356 93.2%
Expressed disapproval of homosexuality in a public discussion, either in person or online?	33 16.9%	162 83.1%	26 13.9%	161 86.1%	59 15.4%	323 84.6%
Defended someone who was mistreated for being gay?	76 39%	119 61%	76 40.6%	111 59.4%	152 39.8%	230 60.2%
Taken part in a peaceful demonstration against homosexuality, such as a march or a rally?	21 10.8%	174 89.2%	15 8.0%	172 92.0%	36 9.4%	346 90.6%
Belonged to a religious or political organization that opposes homosexuality?	57 29.2%	138 70.8%	56 29.9%	131 70.1%	113 29.6%	269 70.4%
Expressed support for gay rights?	71 36.4%	124 63.6%	70 37.4%	117 62.6%	141 36.9%	241 63.1%
Verbally attacked someone because he or she was gay?	19 9.7%	176 90.3%	13 7.0%	174 93.0%	32 8.4%	350 91.6%
Publicly humiliated someone because he or she was gay?	11 5.6%	184 94.4%	13 7.0%	174 93.0%	24 6.3%	358 93.7%

Note: Statistics presented in this table are for participants of all sexual orientations.

Summary

The primary purpose of the present study was to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. A secondary purpose was to determine whether MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice in the target population. A quantitative cross-sectional survey design was used to address research questions and test hypotheses in this study.

Data were collected by conducting two parallel surveys: the SRL, which included the MHS-L and the ATL-R, and the SRG, which included the MHS-G and the ATG-R. These surveys were conducted through SurveyGizmo, which is a secure online survey platform. SurveyGizmo delivered 345 responses to the SRL and 346 responses to the SRG. Data cleaning was accomplished according to the data analysis plan outlined in Chapter 3. There were 195 participants in the final sample for the SRL and 187 participants in the final sample for the SRG.

Results of hypothesis testing are summarized in Table 9. Note that the pattern of results of the SRL differs from that of the SRG. Whereas six of the 16 hypotheses in this study were supported in the SRL, eight hypotheses were supported in the SRG.

Table 9

Summary of Results of Hypothesis Testing

Hypothesis	Results of the SRL	Results of the SRG
When used with the target population, the MHS has an acceptable level of internal consistency, defined as Cronbach's alpha ≥ .70.	**The hypothesis was supported. Cronbach's alpha = .87**	**The hypothesis was supported. Cronbach's alpha = .86**
Among adult residents of the southern United States, people who self-identify as homosexual or bisexual score lower on the MHS than those who do not.	The hypothesis was not supported. $t(193) = -.65$, $p = .515$	The hypothesis was not supported. $t(185) = -.11$, $p = .911$
Within the target population, there is a positive relationship between MHS scores and scores on the ATLG-R.	**The hypothesis was supported. $r_s = .47$, $p = .000$**	**The hypothesis was supported. $r_s = .53$, $p = .000$**
Within the target population, males' scores on the MHS are higher than females' scores on the MHS.	**The hypothesis was supported. $t(164) = 2.03$, $p = .044$**	The hypothesis was not supported. $t(155) = .851$, $p = .396$
Within the target population, there is a positive relationship between MHS scores and age.	The hypothesis was not supported. $r_s = .05$, $p = .246$	**The hypothesis was supported. $r_s = .15$, $p = .033$**
Within the target population, there is a negative relationship between MHS scores and educational level.	The hypothesis was not supported. $r_s = -.04$, $p = .292$	The hypothesis was not supported. $r_s = -.01$, $p = .440$
Within the target population, there is a negative relationship between MHS scores and income level.	The hypothesis was not supported. $r_s = -.05$, $p = .277$	The hypothesis was not supported. $r_s = -.02$, $p = .391$
Within the target population, there is a positive relationship between MHS scores and religious self-schema.	The hypothesis was not supported. $r_s = .05$, $p = .282$	The hypothesis was not supported. $r_s = .12$, $p = .063$

(table continues)

Hypothesis	Results of the SRL	**Results of the SRG**
Within the target population, there is a positive relationship between MHS scores and religious behavior.	The hypothesis was not supported. $r_s = .06$, $p = .239$	**The hypothesis was supported. $r_s = .17$, $p = .014$**
Within the target population, there is a positive relationship between MHS scores and political conservatism.	**The hypothesis was supported. $r_s = .35$, $p = .000$**	**The hypothesis was supported. $r_s = .28$, $p = .000$**
Within the target population, there is a negative relationship between MHS scores and contact with gay people.	**The hypothesis was supported. $r_s = –.14$, $p = .038$**	**The hypothesis was supported. $r_s = –.16$, $p = .025$** This finding should be interpreted with caution.
Within the target population, there is a positive relationship between MHS scores and nonabusive antigay behavior as assessed with the BTGP.	**The hypothesis was supported. $r_s = .41$, $p = .000$** This finding should be interpreted with caution.	**The hypothesis was supported. $r_s = .48$, $p = .000$** This finding should be interpreted with caution.
Within the target population, there is a positive relationship between MHS scores and abusive antigay behavior as assessed with the BTGP.	The hypothesis was not supported. $r_s = .08$, $p = .165$	**The hypothesis was supported. $r_s = .23$, $p = .002$** This finding should be interpreted with caution.
Within the target population, there is a relationship between MHS scores and scores on the MCSDS-C.	The hypothesis was not supported. $r_s = .12$, $p = .125$	The hypothesis was not supported. $r_s = –.002$, $p = .492$
Within the target population, scores on the MHS and ATLG-R reflect different constructs.	The hypothesis was not supported. In factor analysis, items from both scales had high loadings on the same factor.	The hypothesis was not supported. In factor analysis, items from both scales had high loadings on the same factor.
Within the target population, the degree of relationship between MHS scores and MCSDS-C scores is less than the degree of relationship between ATLG-R scores and MCSDS-C scores.	The hypothesis was not supported. Neither the correlation between MHS-L and MCSDS-C scores ($r_s = .12$, $p = .125$) nor the correlation between ATL-R and MCSDS-C scores ($r_s = –.01$, $p = .863$) was statistically significant.	The hypothesis was not supported. Neither the correlation between MHS-G and MCSDS-C scores ($r_s = –.002$, $p = .492$) nor the correlation between ATG-R and MCSDS-C scores ($r_s = .09$, $p = .124$) was statistically significant.

The first research question in this study was: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? As noted above, the MHS-L and the MHS-G demonstrated high levels of internal consistency, with Cronbach's alpha coefficients of .87 and .86, respectively. These findings suggest that the MHS is highly reliable as a measure of modern antigay prejudice in the target population.

The second research question in this study was: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? Findings related to this question were mixed. Of the 12 variables that were expected to predict MHS scores, only four were correlated with scores on both the MHS-L and the MHS-G as hypothesized. Those four variables were old-fashioned antigay prejudice as assessed with the ATLG-R, political conservatism, contact with gay people, and relatively nonabusive antigay behavior as assessed with the BTGP. These findings suggest that, in the target population, the MHS demonstrates empirical validity as a measure of modern antigay prejudice to a limited extent.

The third research question in this study was: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States? As hypothesized, MHS scores were positively correlated with scores on a traditional measure of antigay prejudice (the ATLG-R), and MHS scores were not correlated with scores on a measure of social desirability bias (the MCSDS-C). In factor analyses, however, MHS items and ATLG-R

items did not load on different factors as predicted. In the SRL, only one MHS-L item loaded on a factor with ATL-R items, but in the SRG, all reverse-scored items from both the MHS-G and the ATG-R loaded on a single factor. These findings suggest that, in the target population, the MHS demonstrates construct validity as a measure of modern antigay prejudice (as opposed to old-fashioned antigay prejudice) to a limited extent.

The fourth research question in this study was: Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice? In this study, neither MHS scores nor scores on a traditional measure of antigay prejudice (the ATLG-R) were correlated with scores on a measure of social desirability bias (the MCSDS-C). These findings suggest that, in the target population, MHS scores do not reflect social desirability bias to a lesser (or greater) degree than scores on a traditional measure of antigay prejudice.

In the following chapter, the results of the present study are discussed in the context of other relevant findings. The results of this study are interpreted in terms of the conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002). Limitations of the study are noted, recommendations for further research are provided, and the implications of the results of this study are discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Findings suggest that prejudice against gay people is particularly pervasive and damaging in the southern United States (Barton, 2010, 2012; Pew Research Center, 2014). Appropriate measures are needed for investigations of antigay prejudice in this region. The MHS is a measure of modern antigay prejudice that may be useful in such investigations.

Numerous studies have produced evidence concerning the reliability and validity of the MHS (e.g., Morrison, 2003; Morrison & Morrison, 2002, 2011). However, most of these studies were conducted with college students. The extent to which the results of these studies may generalize to other populations is unclear. Consequently, there is a gap in the literature concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in nonstudent populations.

The primary purpose of the present study was to assess the reliability and validity of the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. A secondary purpose of this study was to determine whether MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice in the target population. A quantitative cross-sectional survey design was used to address the following research questions:

Research Question 1: How reliable is the MHS as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Research Question 2: To what extent does the MHS demonstrate empirical validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Research Question 3: To what extent does the MHS demonstrate construct validity as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States?

Research Question 4: Among heterosexual adult residents of the southern United States, do MHS scores reflect social desirability bias to a lesser degree than scores on a traditional measure of antigay prejudice?

Data were collected by conducting two parallel surveys: the SRL, which included the MHS-L and the ATL-R, and the SRG, which included the MHS-G and the ATG-R. Both the MHS-L and the MHS-G demonstrated high levels of internal consistency in this study, which suggests that the MHS is a reliable measure of modern antigay prejudice in the target population.

Findings with respect to the empirical validity of the MHS were mixed. Of the 12 variables that were expected to predict MHS scores, only four were correlated with scores on both the MHS-L and the MHS-G as hypothesized. Findings with respect to the construct validity of the MHS were also mixed. As hypothesized, MHS scores were positively correlated with ATLG-R scores, and MHS scores were not correlated with MCSDS-C scores. In factor analyses, however, MHS items and ATLG-R items did not load on different factors as predicted. These findings suggest that, in the target population, the MHS demonstrates empirical and construct validity as a measure of

modern antigay prejudice (as opposed to old-fashioned antigay prejudice) to a limited extent.

Neither MHS scores nor ATLG-R scores were correlated with MCSDS-C scores in this study. These findings suggest that, in the target population, MHS scores do not reflect social desirability bias to a lesser (or greater) degree than scores on a traditional measure of antigay prejudice.

In this chapter, I discuss the results of the present study in the context of other relevant findings, and I interpret the results of this study in terms of the conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002). Limitations of the study are noted, recommendations for further research are provided, and the implications of the results of this study are discussed.

Interpretation of Results in the Context of Earlier Findings

Reliability of the MHS

The reliability of the MHS was assessed in terms of internal consistency. As noted above, the MHS demonstrated a high level of internal consistency in this study, with Cronbach's alpha coefficients of .87 and .86 for the MHS-L and MHS-G, respectively. These findings suggest that the MHS is a highly reliable measure of modern antigay prejudice in the target population, and they are consistent with the results of many earlier studies (Cabeldue et al., 2016; Cramer, Miller et al., 2013; Eldridge & Johnson, 2011; Hugelshofer, 2006; Kwon & Hugelshofer, 2012; McCusker & Galupo, 2011; McCutcheon & Morrison, 2015; McDermott & Blair, 2012; Meaney & Rye, 2010; Morrison, 2003; Morrison, Kenny, & Harrington, 2005; Morrison & Bearden, 2007;

Morrison & Morrison, 2002, 2011; Morrison et al., 2009; Romero et al., 2015; Rye & Meaney, 2010a; Satcher & Leggett, 2007; Satcher & Schumacker, 2009; Wiley & Bottoms, 2013).

Empirical Validity of the MHS

The empirical validity of the MHS was assessed in terms of (a) the relationship between MHS scores and ATLG-R scores, and (b) the relationships between MHS scores and several known correlates of antigay prejudice. As hypothesized, there were positive correlations between MHS-L scores and ATL-R scores and between MHS-G scores and ATG-R scores; these findings are consistent with the results of several earlier studies (Eldridge & Johnson, 2011; Hugelshofer, 2006; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2011; Rosik et al., 2013). MHS scores were also correlated as hypothesized with political conservatism, contact with gay people, and nonabusive antigay behavior. These findings are consistent with the results of earlier studies in which MHS scores were predicted by political orientation (Cabeldue et al., 2016; Dinh et al., 2014; Morrison, 2003; Morrison & Morrison, 2002, 2011; Satcher & Leggett, 2007; Summers, 2010), contact with gay people (Hugelshofer, 2006; Wiley & Bottoms, 2013), antigay behavior (Morrison & Morrison, 2002), and antigay behavioral intentions (Morrison & Morrison, 2011).

The pattern of relationships that emerged between MHS scores and other known correlates of antigay prejudice was largely unexpected. Neither MHS-L scores nor MHS-G scores were related as hypothesized to sexual orientation (i.e., identifying as gay or bisexual or not identifying as such), educational level, income level, or religious self-

schema. Sex predicted MHS-L scores, but not MHS-G scores. MHS-G scores were correlated as hypothesized with age, religious behavior, and abusive antigay behavior, but MHS-L scores were not correlated with those variables.

One would expect gay and bisexual people to harbor less antigay prejudice than people who are not gay or bisexual. Consequently, one would also expect gay and bisexual people to score lower on measures of antigay prejudice. In the present study, however, the MHS scores of participants who identified as gay or bisexual were not significantly different from the MHS scores of participants who did not identify as gay or bisexual. One possible explanation for this finding is that, in the southern United States, gay and bisexual people harbor no less modern antigay prejudice than people who are not gay or bisexual. This explanation assumes that the MHS measures the construct it purports to measure in the target region. Another explanation for these findings is that the validity of the MHS as a measure of modern antigay prejudice in the South (i.e., the extent to which the MHS measures the construct it purports to measure in this region) is limited.

Given that MHS scores were correlated with educational level and income level in only one prior study (Morrison & Morrison, 2011), it was not especially surprising that these variables were not correlated with MHS scores in the present study. Nor was it especially surprising that the results concerning the relationship between age and MHS scores were mixed in this study, as results concerning this relationship were mixed in prior studies (McDermott & Blair, 2012; Rosik et al., 2013; Summers, 2010). By contrast, the results with respect to MHS scores and religiosity were quite surprising.

Whereas religious self-schema (i.e., how religious one considers oneself to be) predicted MHS scores in six earlier investigations (Dinh et al., 2014; Klotzbaugh & Spencer, 2014; Morrison, 2003; Morrison & Morrison, 2002, 2011; Rye & Meaney, 2010a), it did not predict MHS-L scores or MHS-G scores in the present study. In addition, whereas religious behavior (i.e., frequency of attendance at religious services) predicted MHS scores in five earlier investigations (Morrison & Morrison, 2002, 2011; Summers, 2010; Wiley & Bottoms, 2013; Satcher & Leggett, 2007), religious behavior did not predict MHS-L scores in this study. These findings suggest that the validity of the MHS as a measure of modern antigay prejudice in the South is limited. It seems unlikely that religiosity and any form of antigay prejudice are unrelated in the southern United States.

Males scored higher than females on the MHS in 11 prior studies (Glotfelter, 2012; Hugleshofer, 2006; Kwon & Hugelshofer, 2012; Mahoy, 2013; McDermott & Blair, 2012; Morrison, 2003; Morrison & Morrison, 2002, 2011; Morrison et al., 2009; Romero et al., 2015; Summers, 2010). In this study, however, findings with respect to sex and MHS scores were mixed. Males' MHS-L scores were higher than those of females, but males' MHS-G scores were not significantly different from those of females. These findings could be interpreted as evidence that, within the target population, men harbor more modern prejudice against lesbians than women do, but men and women harbor modern prejudice against gay men to the same degree. Alternatively, these findings could be interpreted as further evidence that the validity of the MHS as a measure of modern antigay prejudice in the South is limited.

There was a positive correlation between abusive antigay behavior and MHS-G scores in this study, but abusive antigay behavior was not correlated with MHS-L scores. That is, participants with higher MHS-G scores were more likely to report engaging in abusive behavior toward gay people than participants with lower MHS-G scores, but participants with higher MHS-L scores were no more likely to report engaging in abusive behavior toward gay people than participants with lower MHS-L scores. Direct comparison of these results with those of other studies is not possible because no comparable studies have been conducted. Although at least two earlier studies examined relationships between abusive antigay behavior and scores on measures that included MHS items (Grollman, 2008; Lottes & Grollman, 2010), no prior studies have assessed the relationship between scores on unaltered versions of the MHS and clearly abusive behavior directed toward gay people specifically because they were gay.

It should be noted that three of four hypotheses regarding the relationship between antigay behavior and MHS scores were supported in this study; relatively nonabusive antigay behavior was positively correlated with both MHS-L and MHS-G scores, and abusive antigay behavior was positively correlated with MHS-G scores. These findings suggest that, on the whole, modern antigay prejudice as assessed with the MHS predicts antigay behavior in the South. These findings should be interpreted with caution, however, because the subscales of the BTGP, which were used to assess nonabusive and abusive antigay behavior in this study, demonstrated questionable levels of internal consistency. Moreover, some participants may not have understood that questions on the BTGP are about behavior that has occurred within the past year, as opposed to behavior

that has occurred at any time in the past. This possibility is discussed at greater length in the Recommendations for Further Research section of this chapter.

Overall, the pattern of relationships between MHS scores and known correlates of antigay prejudice found in this study suggests that the empirical validity of the MHS as a measure of modern antigay prejudice in the southern United States is limited. Findings with respect to the construct validity of the MHS as a measure of modern antigay prejudice in the South are discussed below.

Construct Validity of the MHS

As noted above, MHS scores were correlated with ATLG-R scores in this study as hypothesized. In addition, MHS scores were unrelated to MCSDS-C scores. These results suggest that (a) the MHS assesses a construct that is related to the construct assessed by traditional measures of antigay prejudice, and (b) MHS scores do not reflect social desirability bias. Consequently, these results may be considered evidence that the MHS demonstrates a degree of construct validity as a measure of antigay prejudice in the target population.

To assess the construct validity of the MHS as a measure of a distinct modern form of antigay prejudice in the target population, two factor analyses were conducted: one on the items that constitute the MHS-L and the ATL-R, and one on the items that constitute the MHS-G and the ATG-R. In each of these factor analyses, the null hypothesis that MHS scores and ATLG-R scores do not reflect different constructs was to be rejected only if items on the two measures loaded on different factors. In neither factor

analysis did this occur; both analyses produced four-factor solutions, and items from both measures loaded on one of the factors in each analysis.

Results of the factor analysis on MHS-L items and ATL-R items nearly met the criterion for rejecting the null hypothesis; only one MHS-L item had a high loading on a factor with ATL-R items, and that particular MHS-L item had a comparably high loading on a factor with other MHS-L items. In the analysis conducted on MHS-G and ATG-R items, however, three MHS-G items and two ATG-R items had high loadings on a single factor. This factor was defined by all of the reverse-scored items on both scales. These findings are not consistent with the results of earlier studies in which MHS items and items on traditional measures of antigay prejudice loaded on different factors (Morrison, 2003; Morrison & Morrison, 2002; Morrison et al., 2009).

The results of the factor analyses conducted in the present study suggest that MHS scores and ATLG-R scores do not reflect different constructs in the South. In combination with the observed relationships between MHS scores and scores on the ATLG-R and MCSDS-C, these results suggest that the construct validity of the MHS as a measure of a distinct modern form of antigay prejudice in the target population is limited.

The MHS and Social Desirability Bias

As noted in Chapter 2, the issue of social desirability bias is an issue of growing concern in the assessment of attitudes toward gay people. This concern stems from the possibility that people may be more reticent about expressing blatantly antigay attitudes today than they were in the past, when such attitudes were more widely accepted. However, the results of the present study suggest that responses to self-report measures of

antigay attitudes do not reflect social desirability bias in the South; neither MHS scores nor ATLG-R scores were correlated with scores on the MCSDS-C. The finding that MHS scores and MCSDS-C scores were unrelated in this study is consistent with the results of several earlier studies in which scores on measures of social desirability bias did not predict MHS scores (Glotfelter, 2012; Mahoy, 2013; Morrison & Morrison, 2002; Romero et al., 2015).

Interpretation of Results in the Context of the Conceptual Framework

The conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002) served as the conceptual framework for this study. Morrison and Morrison proposed that there are two types of antigay prejudice: (a) an old-fashioned type based on religious and moral concerns, and (b) a modern type based on more abstract contemporary concerns. These contemporary concerns include questions about the legitimacy of the gay community's objectives, doubts that antigay discrimination is still a problem in modern society, and the view that gay people overstate the importance of their sexual orientation. Morrison and Morrison conceived of old-fashioned and modern antigay prejudice as related yet distinct constructs.

The findings from the present study included mixed results concerning the conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002). Scores on a traditional measure that presumably assesses old-fashioned antigay prejudice—the ATLG-R—were positively correlated with scores on the MHS, which was specifically designed to assess modern antigay prejudice. This finding is consistent with the idea that old-fashioned and modern antigay prejudice are related

constructs. However, the results of factor analyses on ATLG-R items and MHS items were not consistent with the idea that old-fashioned and modern antigay prejudice are distinct constructs. If the ATLG-R measures old-fashioned antigay prejudice and the MHS measures modern antigay prejudice, and if old-fashioned and modern antigay prejudice are distinct constructs, then one would expect items on these two scales to load on different factors. In this study, one MHS-L item loaded on a factor with ATL-R items, and three MHS-G items loaded on a factor with two ATG-R items. Overall, the results of this study suggest that, in the southern United States, old-fashioned and modern antigay prejudice are related constructs, but they may not be distinct constructs.

Limitations of the Study

The characteristics of the samples constitute a limitation of this study. In terms of the demographic variables assessed in this study, participants were similar to the target population; however, there were some notable departures from known distributions on those variables. Older adults were underrepresented in the two samples, as were individuals with annual household incomes of $150,000 or more. High school graduates were overrepresented in both samples. In terms of variables not assessed in this study, members of the target population who join panels of prospective survey respondents may differ from those who do not join such panels, and panel members who accepted the invitation to participate in this study may differ from those who declined. Any differences between the characteristics of the target population as a whole and the characteristics of the samples in this study reduce the generalizability of results.

The number of participants may also be considered a limitation of this study. In consideration of sample-size requirements associated with the statistical procedures to be used in hypothesis testing, it was initially determined that a minimum of 300 participants were needed for each survey. The number of participants in the SRL and the SRG were 345 and 346, respectively. After data cleaning, however, there were only 195 participants in the final sample for the SRL and 187 participants in the final sample for the SRG.

A sample size of 150 is sufficient for all of the statistical procedures used in this study with the possible exception of calculating correlation coefficients. When calculating bivariate correlations, with an alpha level of .05 and statistical power of .80, a sample of at least 273 participants is needed to detect a small effect of $r = .15$ (Faul et al., 2007). A sample size of 187 is not sufficient to detect such a small effect, but it is sufficient to detect an effect of $r = .18$.

All but one of the hypotheses in this study were tested by analyzing data from heterosexual participants only. The number of heterosexual participants in the final samples for the SRL and the SRG were 166 and 157, respectively. When calculating bivariate correlations, with an alpha level of .05 and statistical power of .80, a sample of 157 participants is sufficient to detect an effect of $r = .20$.

Recommendations for Further Research

The present study produced evidence concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in samples of heterosexual adult residents of 14 southern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas,

Virginia, and West Virginia. Similar studies conducted with community samples in other regions of the United States are recommended to produce evidence concerning the reliability and validity of the MHS as a measure of modern antigay prejudice in areas beyond the South and in the nation as a whole.

Neither sexual orientation—that is, identifying as gay or bisexual or not identifying as such—nor religiosity predicted MHS scores in this study, and although sex predicted MHS-L scores as hypothesized, sex did not predict MHS-G scores. These findings were unexpected and warrant further investigation. A first step in this regard would be to repeat this study, preferably with larger samples to increase sensitivity in correlational analyses, and compare the results of the present study with those of the replication.

If MHS scores prove to be unrelated to religiosity in a replication of this study, then a different type of study may be warranted. For example, investigations that involve administering the MHS and measures of religiosity other than the single-item measures used in the present study would be helpful in determining whether religiosity and modern antigay prejudice as assessed with the MHS are truly unrelated in the South.

The results of the present study include findings about the incidence of antigay behavior in the southern United States that are implausible. For example, 6.8% of participants indicated that, within the preceding 12 months, they had physically attacked someone for being gay. Such incredible findings may be due to the nature of the BTGP, which was used to measure antigay behavior in this study. The BTGP is formatted such that the beginning of a question—"Since this time last year, have you . . ."—appears at

the top of the page, and listed below it are 12 behaviors that complete the question—including "Physically attacked someone because he or she was gay?" Some participants may have overlooked the words at the top of the page and responded as if the question was whether they had ever engaged in each of the behaviors listed on the BTGP. It is implausible that 6.8% of heterosexual adults in the South physically attacked a gay person within a 12-month period, but it is conceivable that 6.8% of them physically attacked a gay person at some time in the past. Better understanding of the incidence of antigay behavior in the southern United States may be achieved by measuring this behavior with a modified version of the BTGP—a version in which the words "Since this time last year, have you" appear next to each behavior listed on the scale instead of at the top of the page.

The results of this study should aid investigators in the process of selecting instruments to use in research concerning antigay prejudice in the southern United States. Future studies to assess the reliability and validity of instruments other than the MHS as measures of antigay prejudice in the South should also aid in this process.

Practical and Conceptual Implications

The results of the present study suggest that the MHS is a highly reliable measure of modern antigay prejudice in the southern United States, but that its validity as a measure of modern antigay prejudice in this region is limited. In practical terms, the implication of these results is that investigators designing studies of modern antigay prejudice in the South would do well to consider not only the MHS but also other instruments when choosing measures of this construct to use in their research.

In conceptual terms, the results of this study raise questions about the conception of old-fashioned and modern antigay prejudice advanced by Morrison and Morrison (2002) and its relevance in studies of antigay prejudice in the South. Morrison and Morrison conceived of old-fashioned and modern antigay prejudice as related yet distinct constructs. The results of the present study suggest that old-fashioned and modern antigay prejudice are related constructs, but they may not be distinct constructs—at least not in the southern United States. If they are not distinct constructs in the South, then attempts to distinguish between old-fashioned and modern antigay prejudice in this region may be futile.

Social Change Implications

The results of this study should aid investigators in the selection of appropriate measures to use in future research concerning antigay prejudice in the southern United States. Such research promises to result in better understanding of this prejudice and the development of more effective interventions to reduce antigay prejudice in the South—but such studies will produce useful findings only to the extent that the instruments used are reliable and valid measures of the constructs they purport to measure in this region. Curbing prejudice against marginalized minorities is an important form of positive social change.

In addition to producing evidence about the reliability and validity of the MHS as a measure of modern antigay prejudice in the South, this study has produced up-to-date information about the incidence of antigay prejudice in the southern United States. Responses to the MHS revealed that majorities of heterosexual participants in this study

thought gay people should "stop shoving their lifestyle down other people's throats," "stop making such a fuss about their sexuality/culture," and "stop complaining about the way they are treated in society." Responses to the ATLG-R showed that sizable minorities of heterosexual participants thought gay people are "disgusting" (15.2%), that homosexuality is "a perversion" (26.3%), and that sex between two men or women is "just plain wrong" (42.7%). This information about antigay prejudice in the southern United States may be useful to gay advocacy groups in their efforts to raise awareness of prejudice against gay people. This information may also be useful to public officials in the development of policies that ensure equal rights for gay people. Securing equal rights for marginalized minorities is another important form of positive social change.

Conclusion

To simply ask whether a particular psychometric instrument is reliable and valid is to ask an unanswerable question. The reliability and validity of psychometric instruments are matters of degree, and they are context-specific. Therefore, a better question to ask is how reliable and valid a particular instrument is as a measure of a specific construct in a specific population. This is a question that can be effectively addressed through empirical research.

The present study was conducted to address the question of how reliable and valid the MHS is as a measure of modern antigay prejudice among heterosexual adult residents of the southern United States. The results suggest that the MHS is highly reliable as a measure of modern antigay prejudice in this population, but that its validity as such is limited. In other words, the results of this study raise doubts about the degree to which

the MHS measures what it purports to measure—a distinct modern form of antigay prejudice—among members of the target population. Therefore, investigators designing studies of prejudice against gay people in the South would do well to consider not only the MHS, but also other instruments when choosing measures of modern antigay prejudice to use in their research.

This study has produced further evidence that antigay prejudice in the southern United States remains a pervasive problem. In light of this evidence, the choice of measures to use in future studies of antigay prejudice in this region is particularly important. The results of this study should aid researchers in the selection of appropriate instruments to use in future studies of prejudice against gay people in the South. Such studies promise to result in the development of more effective interventions to reduce antigay prejudice in the southern United States—but such studies will produce useful findings only to the extent that the instruments used are reliable and valid measures of the constructs they purport to measure in this region.

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Appendix A: BTGP

In this questionnaire, the terms *gay*, *gay person*, and *gay people* refer to gay women and girls (lesbians) as well as gay men and boys.

Since this time last year, have you . . .

1. Expressed disapproval of homosexuality in a private conversation when no gay people were around?

   _____ Yes _____ No

2. Threatened someone because he or she was gay?

   _____ Yes _____ No

3. Damaged someone's property because he or she was gay?

   _____ Yes _____ No

4. Belonged to a social group that does not allow gay people, such as a private club, fraternity, or sorority?

   _____ Yes _____ No

5. Physically attacked someone because he or she was gay?

   _____ Yes _____ No

6. Expressed disapproval of homosexuality in a public discussion, either in person or online?

   _____ Yes _____ No

7. Defended someone who was mistreated for being gay?

   _____ Yes _____ No

8. Taken part in a peaceful demonstration against homosexuality, such as a march or a rally?

_____ Yes _____ No

9. Belonged to a religious or political organization that opposes homosexuality?

_____ Yes _____ No

10. Expressed support for gay rights?

_____ Yes _____ No

11. Verbally attacked someone because he or she was gay?

_____ Yes _____ No

12. Publicly humiliated someone because he or she was gay?

_____ Yes _____ No

* * *

About the Scale

The Behavior Toward Gay People Scale (BTGP) is designed to assess negative behavior toward gay people. Unlike other measures of such behavior, this scale includes two subscales to assess two different types of negative behavior. These subscales are (a) the Non-Abusive Behavior Subscale (Items 1, 4, 6, 8, 9, and 10), which is designed to assess relatively non-abusive negative behaviors directed toward gay people in general (e.g., belonging to an organization that opposes homosexuality), and (b) the Abusive Behavior Subscale (Items 2, 3, 5, 7, 11, and 12), which is designed to assess clearly abusive behaviors directed toward individual gay persons (e.g., threatening someone because he or she is gay). The item order is random (i.e., determined with a random number generator).

The BTGP does not yield an overall scale score. Instead, it yields a separate score for each subscale. The response to each item is scored as 1 for *Yes* or 0 for *No*, with the exception of responses to Items 7 and 10, which are scored as –1 for *Yes* or 0 for *No*. The score for each subscale is determined by summing the scores for the items that comprise that subscale and adding 1. Subscale scores range from 0 to 6 with higher scores reflecting more negative behavior toward gay people within the last year.

Items 2, 5, and 7 of the BTGP were adapted from the Behavior Toward Homosexuals survey (Schope & Elaison, 2000). Items 3 and 8 were adapted from the Self-Report of Behavior Scale – Revised (Patel, Long, McCammon, & Wuensch, 1995). Item 11 was adapted from a question posed in a study by Lottes and Grollman (2010). The following items of the BTGP were written by the present researcher:

Item 1: (Since this time last year, have you) Expressed disapproval of homosexuality in a private conversation when no gay people were around?

Item 4: (Since this time last year, have you) Belonged to a social group that does not allow gay people, such as a private club, fraternity, or sorority?

Item 6: (Since this time last year, have you) Expressed disapproval of homosexuality in a public discussion, either in person or online?

Item 9: (Since this time last year, have you) Belonged to a religious or political organization that opposes homosexuality?

Item 10: (Since this time last year, have you) Expressed support for gay rights?

Item 12: (Since this time last year, have you) Publicly humiliated someone because he or she was gay?

Appendix B: PIQ

Please respond to the following items as accurately as possible.

1. What is your sex? (Please check one.)

   _____ Female

   _____ Male

2. What is your current age?

   _____ years old

3. What state do you live in?

   (drop-down menu in online survey)

4. What is the highest grade of school you have completed or the highest degree you have received? (Please check one.)

   _____ None

   _____ Some school, but did not complete 8th grade

   _____ Completed 8th grade

   _____ Some high school, but no diploma or G.E.D.

   _____ High school diploma or G.E.D.

   _____ Some college, but no degree

   _____ Associate's degree

   _____ Bachelor's degree

   _____ Master's degree

   _____ Professional or doctoral degree (for example, D.D.S., Ed.D, J.D., M.D., or Ph.D.)

5. What is your yearly household income before taxes? (Please check one.)

_____ Less than $10,000

_____ $15,000 to $24,999

_____ $25,000 to $34,999

_____ $35,000 to $49,999

_____ $50,000 to $74,999

_____ $75,000 to $99,999

_____ $100,000 to $149,999

_____ $150,000 to $199,999

_____ $200,000 or more

6. How religious do you consider yourself? (Please check one.)

_____ Very religious

_____ Fairly religious

_____ Slightly religious

_____ Not at all religious

7. How often do you attend religious services? (Please check one.)

_____ At least once a week

_____ Less than once a week, but at least once a month

_____ Less than once a month, but at least once a year

_____ Occasionally, but less than once a year

_____ Never

8. How would you describe your political views? (Please check one.)

   _____ Very conservative

   _____ Somewhat conservative

   _____ Somewhat liberal

   _____ Very liberal

9. How many of your close family members, friends, or familiar acquaintances are gay? (Examples of familiar acquaintances are coworkers, classmates, teammates, church members, and other people you know and see regularly.)

   _____ None _____ 1 to 3 _____ 4 to 6 _____ 7 to 9 _____ 10 or more

10. How would you describe your own sexual orientation? (Please check one.)

    _____ Exclusively heterosexual

    _____ Mostly heterosexual

    _____ Bisexual

    _____ Mostly homosexual

    _____ Exclusively homosexual

    _____ Other

    _____ Do not know

Appendix C: Correlations Between Selected Variables and Modern Antigay Prejudice as Assessed with the MHS

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
Alderson, Orzeck, & McEwen, 2009	223 high school guidance counselors in Alberta, Canada	Knowledge about homosexuality (HIS)		–.42	
Cabeldue et al., 2016	403 adults in the United States	Negative views of hate-crime legislation and number of protected groups (HCBS)		.63	
		Support for enhanced penalties for hate crimes (HCBS)		–.33	
		The view that hate-crime legislation serves as a deterrent (HCBS)		–.14	
		Support for victim damages and the view that hate-crime victims suffer more than others (HCBS)		–.31	
		Symbolic racism (SR)		.54	
		Transphobia (TS)		.77	
		Bias in favor of one's own faith group and against others (IIS)		.52	
		Political liberalism		**–.48**	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
Cramer, Miller et al., 2013	187 students at a public university in the mid-Atlantic United States (George Mason University)	Openness to novel and diverse experiences (IPIP)		–.46	
		Right-wing authoritarianism (RWAS)		.65	
	243 students at a public university in the southeastern United States (University of Alabama)	Openness to novel and diverse experiences (IPIP)		–.49	
		Right-wing authoritarianism (RWAS)		.71	
Cramer, Nobles, Amacker, & Dovoedo, 2013	240 students at a public university in the southeastern United States	Blaming the victim in a fictitious capital murder case (PVBS)		.23	
	196 students at a public university in the mid-Atlantic United States	Blaming the victim in a fictitious capital murder case (PVBS)		*ns*	
Cramer, Wakeman, Chandler, Mohr, & Griffin, 2013	409 students from a public university in the southeastern United States and a public university in the mid-Atlantic United States	Recommending the death penalty in a fictitious capital murder case		.20	
		Blaming the victim in a fictitious capital murder case (PVBS)		.15	
		Right-wing authoritarianism (RWAS)		.72	
Dinh et al., 2014	535 students at a public university	**Political liberalism**			**–.33**

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
	in the northeastern United States	**Religiosity**			**.13**
		Racism (perceived threat; RAQ)			.37
		Racism (intergroup anxiety; RAQ)			.21
		Sexism (NS)			.54
		Physical disability bias			.46
		Body size bias			.53
		Anti-immigrant sentiment (ITS)			.38
Eldridge & Johnson, 2011	129 heterosexual adults in the United States	Social Dominance Orientation Scale (SDO) scores (desire for one's ingroup to dominate outgroups)			.58
		Structural Violence Scale (SVS) scores (negative attitudes regarding social justice and human rights)			.67
		Old-fashioned antigay prejudice (ATLG)			**.82**
Glotfelter, 2012	399 heterosexual students at a university in the Midwestern United States (Indiana State University)	Gender Bashing (GTS)	.32	.33	
		Transphobia/Genderism (GTS)	.72	.72	
		Transphobia (TS)	.67	.64	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Social desirability (SDS-17)	***ns***	***ns***	
		Gender self-esteem (females; CSES)	*ns*	*ns*	
		Gender self-esteem (males; CSES)	.30	.32	
Herbstrith, Tobin, Hesson-McInnis, & Schneider, 2013	535 heterosexual students at a university in the Midwestern United States	Negative rating of an ambiguous visual stimulus presented after a photo of two men kissing	.38	.39	
		Negative rating of an ambiguous visual stimulus presented after a photo of a family with same-sex parents who are men	.36	.42	
		Negative rating of an ambiguous visual stimulus presented after a photo of two women kissing	.09	*ns*	
		Negative rating of an ambiguous visual stimulus presented after a photo of a family with same-sex parents who are women	.33	.35	
		Negative rating of an ambiguous visual stimulus presented after a photo of a man and woman kissing	–.12	–.10	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Negative rating of an ambiguous visual stimulus presented after a photo of a family with opposite-sex parents	–.11	–.11	
Hubbard & Hegarty, 2014	69 heterosexual adults	Belief in the historical universality of heterosexual love			*ns*
		Belief in the historical universality of homosexual love			–.52
		Belief in the historical universality of heterosexual identity			*ns*
		Belief in the historical universality of homosexual identity			*ns*
		Belief in the historical universality of heterosexual behavior			*ns*
		Belief in the historical universality of homosexual behavior			–.36
		Belief in the historical universality of heterosexual desire			*ns*
		Belief in the historical universality of homosexual desire			–.51

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
Hugelshofer, 2006	214 heterosexual students at a university in the northwestern United States	**Old-fashioned prejudice against lesbians (ATL)**	**.65**	**.64**	
		Old-fashioned prejudice against gay men (ATG)	**.75**	**.78**	
		Affective component of old-fashioned antigay prejudice (IAH)	**.65**	**.68**	
		Perceived stability and legitimacy of bisexuality (ARBS-S)	–.55	–.53	
		Perceived morality and tolerability of bisexuality (ARBS-T)	–.76	–.75	
		Feminism (ATWS)	–.49	–.50	
		Religiosity (ROS)	**.25**	**.26**	
		Social desirability (MSCDS)	***ns***	***ns***	
		Number of gay, lesbian, or bisexual friends, relatives, or close acquaintances	**–.27**	**–.30**	
Klotzbaugh & Spencer, 2014	91 Magnet hospital chief nursing officers	Personal self-efficacy in advocating for lesbian, gay, bisexual, and transgender patients and staff			–.33
		Professional self-efficacy in advocating for lesbian, gay, bisexual, and transgender patients and staff			–.48

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
Mahoy, 2013	226 heterosexual students at a university in the Midwestern United States (Indiana State University)	Gender self-esteem (CSES)	*ns*	*ns*	
		Social desirability (SDS-17)	***ns***	***ns***	
McCutcheon & Morrison, 2015	148 students at a university in western Canada (These participants read vignettes describing gay male adoptive couples.)	Perceived suitability of a (gay male) couple as adoptive parents and the environment they would provide their adoptive child (AVS)	–.62	–.62	
		Hostile sexism (ASI)	.49	.50	
		Benevolent sexism (ASI)	.48	.49	
		Belief that sexual orientation is a result of social learning or personal choice (as opposed to biological factors; EBS)	.63	.64	
		Traditional gender role attitudes (SRQ)	.57	.58	
		Social desirability (SDS-17)	***ns***	***ns***	
	156 students at a university in western Canada (These participants read vignettes describing lesbian adoptive	Perceived suitability of a (lesbian) couple as adoptive parents and the environment they would provide their adoptive child (AVS)	–.53	–.49	
		Hostile sexism (ASI)	.61	.59	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
	couples.)	Benevolent sexism (ASI)	.44	.43	
		Belief that sexual orientation is a result of social learning or personal choice (as opposed to biological factors; EBS)	.66	.63	
		Traditional gender role attitudes (SRQ)	.57	.59	
		Social desirability (SDS-17)	***ns***	***ns***	
McCusker & Galupo, 2011	403 adults in the United States	Attitudes Toward Seeking Professional Psychological Help Scale (ATSPPH-SF) scores		–.34	
		Traditional masculinity (MRNI-R total score)		.72	
		Avoidance of femininity (MRNI-R)		.67	
		Fear and hatred of homosexuals (MRNI-R)		.78	
		Extreme self-reliance (MRNI-R)		.43	
		Aggression (MRNI-R)		.57	
		Dominance (MRNI-R)		.66	
		Non-relational attitudes toward sexuality (MRNI-R)		.53	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Restrictive emotionality (MRNI-R)		.60	
McDermott & Blair, 2012	135 members of the general population of Canada	**Age**	***ns***	**.20**	
		Religiosity	**.32**	**.32**	
		Education	***ns***	***ns***	
		Knowing gay men	**–.26**	**–.34**	
		Knowing lesbians	**–.19**	**–.23**	
		Frequency of contact with gay men	***ns***	***ns***	
		Frequency of contact with lesbians	**–.20**	**–.22**	
		Old-fashioned prejudice against gay men (ATG)	**.82**	**.82**	
		Old-fashioned prejudice against lesbians (ATL)	**.72**	**.69**	
	272 members of the general population of the United States	**Age**	**.20**	**.18**	
		Religiosity	**.35**	**.36**	
		Education	**–.15**	**–.14**	
		Knowing gay men	**–.19**	**–.20**	
		Knowing lesbians	**–.13**	***ns***	
		Frequency of contact with gay men	**–.24**	**–.29**	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Frequency of contact with lesbians	**–.27**	***ns***	
		Old-fashioned prejudice against gay men (ATG)	**.81**	**.76**	
		Old-fashioned prejudice against lesbians (ATL)	**.79**	**.73**	
	101 members of the general population of the U.K.	**Age**	***ns***	***ns***	
		Religiosity	**.25**	***ns***	
		Education	***ns***	***ns***	
		Knowing gay men	**–.44**	**–.44**	
		Knowing lesbians	**–.35**	**–.34**	
		Frequency of contact with gay men	**–.23**	**–.29**	
		Frequency of contact with lesbians	***ns***	***ns***	
		Old-fashioned prejudice against gay men (ATG)	**.75**	**.76**	
		Old-fashioned prejudice against lesbians (ATL)	**.76**	**.73**	
	129 members of the general population of the Republic of Ireland	**Age**	***ns***	***ns***	
		Religiosity	***ns***	**.24**	
		Education	**–.27**	**–.24**	
		Knowing gay men	***ns***	***ns***	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Knowing lesbians	***ns***	***ns***	
		Frequency of contact with gay men	**–.23**	**–.27**	
		Frequency of contact with lesbians	***ns***	***ns***	
		Old-fashioned prejudice against gay men (ATG)	**.75**	**.74**	
		Old-fashioned prejudice against lesbians (ATL)	**.61**	**.60**	
Morrison, 2003	180 heterosexual students at a university in Canada (University of Ottawa)	**Old-fashioned prejudice against gay men (ATG)**		**.72**	
		Old-fashioned prejudice against gay men (ATG) with concern about appearing prejudiced and modern homophobia toward gay men (MHPS-G) controlled		***ns***	
		Old-fashioned prejudice against gay men (ATG) with concern about appearing prejudiced and gender controlled		***ns***	
		Modern homophobia toward gay men (MHPS-G)		.77	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Modern homophobia toward gay men (MHPS-G) with concern about appearing prejudiced and old-fashioned prejudice against gay men (ATG) controlled		.38	
		Modern homophobia toward gay men (MHPS-G) with concern about appearing prejudiced and gender controlled		.35	
		Concern about appearing prejudiced		–.18	
		Number of same-sex gay male or lesbian acquaintances		**–.19**	
		Number of opposite-sex gay male or lesbian acquaintances		**–.24**	
		Number of same-sex gay male or lesbian close friends		***ns***	
		Number of opposite-sex gay male or lesbian close friends		**–.21**	
	182 heterosexual students at a university in	**Old-fashioned prejudice against lesbians (ATL)**	**.63**		

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
	Canada (University of Ottawa)	**Old-fashioned prejudice against lesbians (ATL) with concern about appearing prejudiced and modern homophobia toward lesbians (MHPS-L) controlled**	***ns***		
		Old-fashioned prejudice against lesbians (ATL) with concern about appearing prejudiced and gender controlled	***ns***		
		Modern homophobia toward lesbians (MHPS-L)	.72		
		Modern homophobia toward lesbians (MHPS-L) with concern about appearing prejudiced and old-fashioned prejudice against lesbians (ATL) controlled	.46		
		Modern homophobia toward lesbians (MHPS-L) with concern about appearing prejudiced and gender controlled	.44		
		Concern about appearing prejudiced	–.26		
		Number of same-sex gay male or lesbian acquaintances	***ns***		

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Number of opposite-sex gay male of lesbian acquaintances	**–.25**		
		Number of same-sex gay male or lesbian close friends	**–.30**		
		Number of opposite-sex gay male or lesbian close friends	***ns***		
	292 heterosexual students at a university in the Midwestern United States (Purdue University)	**Old-fashioned prejudice against gay men (ATG)**		**.83**	
		Old-fashioned prejudice against gay men (ATG) with concern about appearing prejudiced and modern homophobia toward gay men (MHPS-G) controlled		**.46**	
		Old-fashioned prejudice against gay men (ATG) with concern about appearing prejudiced and gender controlled		**.46**	
		Modern homophobia toward gay men (MHPS-G)		.78	
		Modern homophobia toward gay men (MHPS-G) with concern about appearing prejudiced and old-fashioned prejudice against gay men (ATG) controlled		.12	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Modern homophobia toward gay men (MHPS-G) with concern about appearing prejudiced and gender controlled		*ns*	
		Modern sexism (NS)		.54	
		Old-fashioned sexism (ATWS)		.56	
		Concern about appearing prejudiced		–.34	
		Political conservatism		**.39**	
		Religious self-schema		**.15**	
		Number of same-sex gay male of lesbian acquaintances		**–.21**	
		Number of opposite-sex gay male of lesbian acquaintances		***ns***	
		Number of same-sex gay male or lesbian close friends		***ns***	
		Number of opposite-sex gay male or lesbian close friends		**–.25**	
	306 heterosexual students at a university in the	**Old-fashioned prejudice against lesbians (ATL)**	**.70**		

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
	Midwestern United States (Purdue University)	**Old-fashioned prejudice against lesbians (ATL) with concern about appearing prejudiced and modern homophobia toward lesbians (MHPS-L) controlled**	**.20**		
		Old-fashioned prejudice against lesbians (ATL) with concern about appearing prejudiced and gender controlled	**.22**		
		Modern homophobia toward lesbians (MHPS-L)	.72		
		Modern homophobia toward lesbians (MHPS-L) with concern about appearing prejudiced and old-fashioned prejudice against lesbians (ATL) controlled	.29		
		Modern homophobia toward lesbians (MHPS-L) with concern about appearing prejudiced and gender controlled	.27		
		Modern sexism (NS)	.62		
		Old-fashioned sexism (ATWS)	.57		
		Concern about appearing prejudiced	–.22		

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Political conservatism	**.36**		
		Religious self-schema	**.22**		
		Number of same-sex gay male or lesbian acquaintances	***ns***		
		Number of opposite-sex gay male of lesbian acquaintances	***ns***		
		Number of same-sex gay male or lesbian close friends	***ns***		
		Number of opposite-sex gay male or lesbian close friends	***ns***		
Morrison & Bearden, 2007	212 college students	Experiencing religion as a quest (QS)		-.38	
		Belief in an active satan (BIASS)		.32	
		Number of gay male friends		**-.23**	
Morrison & Morrison, 2002	353 heterosexual students at a university in British Columbia	**Political conservatism (males)**			**.46**
		Political conservatism (females)			**.53**
		Religious behavior (males)			**.23**

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Religious behavior (females)			**.28**
		Religious self-schema (males)			**.20**
		Religious self-schema (females)			**.28**
	308 heterosexual students at a university in British Columbia	**(Negative) attitudes toward women (males; ATWS)**			**.41**
		(Negative) attitudes toward women (females; ATWS)			**.32**
		Old-fashioned antigay prejudice (males; HNS)			**.57**
		Old-fashioned antigay prejudice (females; HNS)			**.56**
		Social desirability (males; MCSDS-C)			***ns***
		Social desirability (females; MCSDS-C)			***ns***
		Modern sexism (males; NS)			.59
		Modern sexism (females; NS)			.57
Morrison & Morrison, 2011	1085 heterosexual nonstudent employees at a	**Education (males)**	**–.29**	**–.29**	
		Education (females)	**–.42**	**–.40**	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
	university in western Canada	**Political conservatism (males)**	**.58**	**.59**	
		Political conservatism (females)	**.59**	**.59**	
		Religious behavior (males)	**.33**	**.32**	
		Religious behavior (females)	**.27**	**.28**	
		Religious self-schema (males)	**.25**	**.25**	
		Religious self-schema (females)	**.27**	**.28**	
		Income (males)	**–.11**	**–.12**	
		Income (females)	**–.21**	**–.21**	
		Old-fashioned antigay prejudice against gay men (males; ATG)	**.75**	**.77**	
		Old-fashioned antigay prejudice against gay men (females; ATG)	**.75**	**.78**	
		Old-fashioned antigay prejudice against lesbians (males; ATL)	**.71**	**.71**	
		Old-fashioned antigay prejudice against lesbians (females; ATL)	**.73**	**.75**	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Values based on communal principles (males; HE)	–.51	–.52	
		Values based on communal principles (females; HE)	–.56	–.55	
		Modern racism (males; NR)	.68	.69	
		Modern racism (females; NR)	.69	.66	
		Modern sexism (males; NS)	.73	.70	
		Modern sexism (females; NS)	.65	.63	
		Protestant work ethic (males; PE)	.45	.45	
		Protestant work ethic (females; PE)	.45	.44	
	196 heterosexual nonstudents residing primarily in Saskatoon, Saskatchewan	Positive behavioral intentions toward a fictitious gay man		–.42	
		Positive behavioral intentions toward a fictitious straight man		*ns*	
Rye & Meaney, 2010a	252 students at a university in Canada	**Religiosity**		**.31**	
Rosik et al., 2013	183 students at a private Christian university in California	**Old-fashioned prejudice against gay men (ATG)**		**.79**	
		Age		***ns***	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Parents' education		.18	
		Social desirability (SDRS-5)		**–.18**	
		Intrinsic religious orientation		**.46**	
		Harm/fairness moral orientation (MFQ)		–.15	
		Ingroup/authority moral orientation (MFQ)		.26	
		Purity/sanctity moral orientation (MFQ)		.37	
Summers, 2010	701 heterosexual students at a university in Texas (University of Houston)	Violent homonegativity and homophobic intolerance (LGB-KASH Hate scale)	.42	.43	
		Basic knowledge of the history, symbols, and organizations related to the lesbian, gay, and bisexual community (LGB-KASH LGB Knowledge scale)	–.21	–.20	
		(Positive) attitudes and beliefs about the civil rights of lesbian, gay, and bisexual people (LGB-KASH LGB Civil Rights scale)	–.59	–.59	

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Conflicted attitudes toward lesbian, gay, and bisexual people caused by religious beliefs (LGB-KASH Religious Conflict scale)	**.54**	**.52**	
		Comfort with same-sex attraction, willingness to engage in pro-lesbian, gay, and bisexual activism, and comfort having lesbian, gay, and bisexual friends (LGB-KASH Internalized Affirmativeness scale)	–.55	–.54	
		Age	***ns***	***ns***	
		Frequency of church attendance	**.35**	**.35**	
		Religious fundamentalism (RFS)	**.54**	**.53**	
		Spiritual wellbeing (modified FACIT-Sp)	.17	.17	
Wiley & Bottoms, 2013	99 students at a university in the Midwestern United States	**Frequency of religious worship**			**.25**
		Being gay or having gay acquaintances			**–.50**
		Old-fashioned antigay prejudice (ATG)			**.78**

Source	Sample	Variable	Correlation with MHS Scores		
			MHS-L	MHS-G	MHS-FS
		Endorsing the stereotype that gay men are likely to sexually abuse children (SGCA)			.60

Note. Correlations with variables that are the same as or similar to variables assessed in this study are printed in boldfaced type. Abbreviations are defined as follows:

ARBS-S = Attitudes Regarding Bisexuality Scale – stability subscale (Mohr & Rochlen, 1999)
ARBS-T = Attitudes Regarding Bisexuality Scale – tolerance subscale (Mohr & Rochlen, 1999)
ASI = Ambivalent Sexism Inventory (Glick & Fiske, 1996)
ATG = Attitudes Toward Lesbians and Gay Men Scale – gay men version (Herek, 1988)
ATL = Attitudes Toward Lesbians and Gay Men Scale – lesbian version (Herek, 1988)
ATLG = Attitudes Toward Lesbians and Gay Men Scale (Herek, 1988)
ATSPPH-SF = Attitudes Toward Seeking Professional Psychological Help Scale – Shortened Form (Fischer & Farina, 1995)
ATWS = Attitudes Toward Women Scale (Spence, Helmreich, & Stapp, 1973)
AVS = Adoption Vignette Scale (Rye & Meaney, 2010b)
BIASS = Belief in Active Satan Scale (Wilson & Huff, 2001)
CSES = Collective Self-Esteem Scale (Luhtanen & Crocker, 1992)
EBS = Etiology Beliefs Scale (Rye & Meaney, 2010b)
GTS = Gender and Transphobia Scale (Hill & Willoughby, 2005)
HE = Humanitarianism-Egalitarianism Scale (Katz & Hass, 1988)
HCBS = Hate Crimes Beliefs Scale (Cabeldue et al., 2016)
HIS = Homosexual Information Scale (Wells & Franken, 1987)
HNS = Homonegativity Scale (Morrison et al., 1999)
IAH = Index of Attitudes Toward Homosexuals (Hudson & Ricketts, 1980)
IIS = Interfaith Intolerance Scale (Crosby & Varela, 2014)
IPIP = International Personality Item Pool (Goldberg, 1999)
ITS = Immigrant Threat Scale (Stephan, Ybarra, Martinez, Schwarzwald, & Tur-Kaspa, 1998)
LGB-KASH = Lesbian, Gay, and Bisexual Knowledge and Attitude Scale for Heterosexuals (Worthington, Dillon, & Becker-Schutte, 2005)
MCSDS = Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960)
MCSDS-C = Marlowe-Crowne Social Desirability Scale – Short Form C (Reynolds, 1982)
MFQ = Moral Foundations Questionnaire (Graham et al., 2011)

MHPS-G = Modern Homophobia Scale – gay men version (Raja & Stokes, 1998)
MHPS-L = Modern Homophobia Scale – lesbian version (Raja & Stokes, 1998)
MHS-FS = Modern Homonegativity Scale – full scale/gay and lesbian versions (or not otherwise specified; Morrison & Morrison, 2002)
MHS-G = Modern Homonegativity Scale – gay men version (Morrison & Morrison, 2002)
MHS-L = Modern Homonegativity Scale – lesbian version (Morrison & Morrison, 2002)
MRNI-R = Male Role Norm Inventory – Revised (Levant, Rankin, Williams, Hasan, & Smalley, 2010)
NR = Neoracism Scale (Tougas, Desriusseaux, Desrochers, St-Pierre, Perrino, & De La Sablonnière, 2004)
NS = Neosexism Scale (Tougas, Brown, Beaton, & Joly, 1995)
PE = Protestant Ethic Scale (Katz & Hass, 1988)
PVBS = Perceptions of Victim Blame Scale (Rayburn, Mendoza, & Davison, 2003)
QS = Quest Scale (Altemeyer & Hunsberger, 1992)
RAQ = Racial Attitudes Questionnaire (Stephan et al., 2002)
ROS = Religious Orthodoxy Scale (Putney & Middleton, 1961)
RWAS = Right-Wing Authoritarianism Scale (Altemeyer, 1988, 1996)
SDO = Sexual Dominance Orientation Scale (Pratto, Sidanius, Stallworth, & Malle, 1994)
SDRS-5 = 5-item Socially Desirable Response Set Measure (Hays et al., 1989)
SDS-17 = Social Desirability Scale-17 (Stöber, 2001)
SGCA = Stereotypes about Gays and Child Abuse Scale (Wiley & Bottoms, 2013)
SQR = Social Roles Questionnaire (Baber & Tucker, 2006)
SR = Symbolic Racism 2000 Scale (Henry & Sears, 2002)
SVS = Structural Violence Scale (Akbar, 2006)
TS = Transphobia Scale (Nagoshi et al., 2008)

Appendix D: Significant Differences in MHS Scores Between and Within Groups

Source	Sample	Significant Difference in MHS Scores
Brinson, Denby, Crowther, & Brunton, 2011	157 university students in the United States	Psychology and criminal justice majors had higher MHS-FS scores than counseling and social work majors Mormon/LDS students had higher MHS-FS scores than Catholic, Buddhist, Spiritualist, and Jewish students, as well as those self-identified as atheist, agnostic, or without religious identification. Among males, MHS-L scores were higher than MHS-G scores. Among females, MHS-L scores were higher than MHS-G scores.
Cramer, Miller et al., 2013	403 students at public universities in the United States	Students at a southeastern university had higher MHS-G scores than students at a mid-Atlantic university.
Dinh et al., 2014	535 students at a public university in the northeastern United States	**Males had higher MHS-FS scores than females**
Esterline & Galupo, 2013	219 heterosexual adults in the United States	Males who had requested same-sex sexual behavior had higher MHS-L scores than males who had not. Females who had not agreed to participate in same-sex sexual behavior had higher MHS-L scores than females who had.
Glotfelter, 2012	399 heterosexual students at a university in the United States (Indiana	**MHS-G: males' scores greater than females' scores**

Source	Sample	Significant Difference in MHS Scores
	State University)	**MHS-L: males' scores greater than females' scores** **Among men only, MHS-G scores were greater than MHS-L scores.**
Hugelshofer, 2006	214 heterosexual students at a university in the northwestern United States	**MHS-G: males' scores greater than females' scores at pretest** **MHS-L: males' scores greater than females' scores at pretest**
	194 heterosexual students at a university in the northwestern United States	**MHS-G: males' scores greater than females' scores at posttest** **MHS-L: males' scores greater than females' scores at posttest**
Klotzbaugh & Spencer, 2014	115 Magnet hospital chief nursing officers	**Participants who described themselves as very religious had higher MHS-FS scores than participants who described themselves as not at all religious.**
Kwon & Hugelshofer, 2012	185 heterosexual students at a university in the northwestern United States	**MHS-G: males' scores greater than females' scores at pretest**
	184 heterosexual students at a university in the northwestern United States	**MHS-G: males' scores greater than females' scores at posttest** **MHS-L: males' scores greater than females' scores at posttest only**
Mahoy, 2013	226 heterosexual students at a university in the Midwestern United States (Indiana State University)	**MHS-G: males' scores greater than females' scores** **MHS-L: males' scores greater than females' scores**

Source	Sample	Significant Difference in MHS Scores
McDermott & Blair, 2012	637 members of the general populations of Canada, the United States, the U.K., and the Republic of Ireland	**MHS-G: males' scores greater than females' scores** MHS-G: scores for United States greater than scores for Republic of Ireland **MHS-L: males' scores greater than females' scores** MHS-L: scores for United States greater than scores for Canada MHS-L: scores for United States greater than scores for Republic of Ireland MHS-G scores greater than old-fashioned prejudice against gay men scores (ATG) MHS-L scores greater than old-fashioned prejudice against lesbians scores (ATL)
Morrison, 2003	180 heterosexual students at a university in Canada (University of Ottawa)	**Participants without lesbian or gay male acquaintances had higher MHS-G scores than those with both lesbian and gay male acquaintances.** **Participants without lesbian or gay male acquaintances had higher MHS-G scores than those with lesbian but not gay male acquaintances.** **Participants without lesbian or gay acquaintances had higher MHS-G scores than those with lesbian and gay male close friends.**
	182 heterosexual students at a university in Canada (University of Ottawa)	**Participants without lesbian or gay male acquaintances had higher MHS-L scores than those with both lesbian and gay male acquaintances.**

Source	Sample	Significant Difference in MHS Scores
		Participants without lesbian or gay male close friends had higher MHS-L scores than those with both lesbian and gay male close friends.
	292 heterosexual students at a university in the Midwestern United States (Purdue University)	**MHS-G: males' scores greater than females' scores** **Participants without lesbian or gay male acquaintances had higher MHS-G scores than those with both lesbian and gay male acquaintances.** **Participants without lesbian or gay male acquaintances had higher MHS-G scores than those with gay male but not lesbian acquaintances.** **Participants without lesbian or gay male close friends had higher MHS-G scores than those with both lesbian and gay male close friends.** **Participants without lesbian or gay male close friends had higher MHS-G scores than those with gay male but not lesbian close friends.**
	306 heterosexual students at a university in the Midwestern United States (Purdue University)	**MHS-L: males' scores greater than females' scores** **Participants without lesbian or gay male acquaintances had higher MHS-L scores than those with both lesbian and gay male acquaintances.** **Participants without lesbian or gay male acquaintances had higher MHS-L scores than those with gay male but not lesbian acquaintances.**

Source	Sample	Significant Difference in MHS Scores
Morrison & Bearden, 2007	212 college students	**Participants without gay male close friends had higher MHS-G scores than participants with close gay male friends.**
Morrison & Morrison, 2002	308 heterosexual students at a university in British Columbia, Canada	Correlation between MHS-FS scores and modern sexism scores (NS) greater than the correlation between MHS-FS scores and old-fashioned sexism scores (ATWS) Correlation between MHS-FS scores and modern sexism scores (NS) greater than correlation between old-fashioned sexism scores (HNS) and modern sexism scores.
	233 heterosexual students at a university in Alberta, Canada	**MHS-G: males' scores greater than females' scores** **MHS-L: males' scores greater than females' scores** Males' average response to items on the MHS-G greater than their average response to items on the ATG Females' average response to items on the MHS-G greater than their average response to items on the ATG Males' average response to items on the MHS-L greater than their average response to items on the ATL Females' average response to items on the MHS-L greater than their average response to items on the ATL

Source	Sample	Significant Difference in MHS Scores
	36 heterosexual students at a university in British Columbia, Canada	**If their prejudice could be concealed, fewer participants with high MHS-FS scores chose to sit next to an apparently gay same-sex confederate. (Not so if their prejudice could be detected.)**
Morrison & Morrison, 2011	1085 heterosexual nonstudent employees at a university in western Canada	**MHS-G: males' scores greater than females' scores** **MHS-L: males' scores greater than females' scores** MHS-G and MHS-L scores greater than ATG and ATL scores Correlation between MHS-G scores and education greater for females than for males Correlation between MHS-L scores and education greater for females than for males
Morrison et al., 2009	180 heterosexual students at a university in Canada	Male's MHS-G scores greater than their ATG scores Female's MHS-G scores greater than their ATG scores **MHS-G: males' scores greater than females' scores**
	182 heterosexual students at a university in Canada	Male's MHS-L scores greater than their ATL scores Female's MHS-L scores greater than their ATL scores

Source	Sample	Significant Difference in MHS Scores
		MHS-L: males' scores greater than females' scores
	292 heterosexual students at a university in the Midwestern United States	Male's MHS-G scores greater than their ATG scores Female's MHS-G scores greater than their ATG scores **MHS-G: males' scores greater than females' scores**
	396 heterosexual students at a university in the Midwestern United States	Male's MHS-L scores greater than their ATL scores Female's MHS-L scores greater than their ATL scores **MHS-L: males' scores greater than females' scores**
Piwowarski, Christopher, & Walter, 2011	149 college students, college faculty, and residents of a small town in the Midwestern United States	Participants prompted to think about their own mortality and reassured that there is an afterlife had lower MHS-FS scores than those not prompted to think about their own mortality and/or not reassured that there is an afterlife.
Romero et al., 2015	778 predominantly Mexican-American students at a university in Texas, United States	**MHS-G: males' scores greater than females' scores** **MHS-L: males' scores greater than females' scores**
Rowniak, 2015	90 nursing students at a university in the western United States (University of San Francisco)	Non-Catholic Christian participants had higher MHS-FS scores than atheist/agnostic participants.

Source	Sample	Significant Difference in MHS Scores
Satcher & Leggett, 2007	215 female school counselors in a southern state in the United States	White participants had higher MHS-FS scores than African American participants. **Participants without gay male or lesbian friends or acquaintances had higher MHS-FS scores than those with gay male or lesbian friends or acquaintances.** Participants without training in gay and lesbian issues scored higher on the MHS-FS than those with such training. Participants without experience counseling clients with gay and lesbian issues had higher MHS-FS scores than those who had such experience. **Republicans had higher MHS-FS scores than Democrats.** **Participants who attended church 3 to 6 times per month had higher MHS-FS scores than those who did not attend church or attended 1 or 2 times per month.** **Participants who attended church 7 or more times per month had higher MHS-FS scores than all other church attendance groups.**
Summers, 2010	701 heterosexual students at a university in the southern United States (University of Houston)	**MHS-G: males' scores greater than females' scores** **MHS-L: males' scores greater than females' scores**

Source	Sample	Significant Difference in MHS Scores
		MHS-G: Asian-Americans' scores greater than those of Blacks and Latinos MHS-L: Asian-Americans' scores greater than those of Blacks and Latinos MHS-G: Baptists' and non-denominational Christians' scores greater than those of Catholics MHS-L: Baptists' and non-denominational Christians' scores greater than those of Catholics **MHS-G: Conservatives' and moderates' scores greater than those of liberals** **MHS-L: Conservatives' and moderates' scores greater than those of liberals**
Wiley & Bottoms, 2013	99 students at a university in the Midwestern United States	**Males' MHS-FS scores greater than those of females.** Participants who found the defendant guilty in a fictitious case of alleged sexual abuse of a boy by a gay male teacher had higher MHS-FS scores than those who found the defendant not guilty.

Note. Significant differences with respect to variables that are the same as or similar to variables assessed in this study are printed in boldface type. Abbreviations are defined as follows:

ATG = Attitudes Toward Lesbians and Gay Men Scale – gay men version (Herek, 1988)
ATL = Attitudes Toward Lesbians and Gay Men Scale – lesbian version (Herek, 1988)
ATWS = Attitudes Toward Women Scale (Spence et al., 1973)
HNS = Homonegativity Scale (Morrison et al., 1999)

MHS-FS = Modern Homonegativity Scale – full scale/gay and lesbian versions (or not otherwise specified; Morrison & Morrison, 2002)
MHS-G = Modern Homonegativity Scale – gay men version (Morrison & Morrison, 2002)
MHS-L = Modern Homonegativity Scale – lesbian version (Morrison & Morrison, 2002)
NS = Neosexism Scale (Tougas et al., 1995)

Appendix E: Permissions

Permission to Use the MHS

Permission to use the MHS was granted by one of its developers in the following email, which was received September 25, 2016:

Dear John,

By all means, feel free to use the MHS. I think your research plans sound excellent, and I would love to be kept informed about your results. The more work on homonegativity that is conducted in the South, the better.

Best wishes,

Melanie

****

Dr. Melanie A. Morrison
Professor, Department of Psychology
Room 68, Arts Building
College of Arts and Science, University of Saskatchewan
Saskatoon, SK, S7N 5A5
CANADA
E-mail: melanie.morrison@usask.ca
Tel: 1 (306) 966-2564
Fax: 1 (306) 966-6630

Permission to Use the MCSDS-C

Permission to use the MCSDS-C was granted in the following email, which was received August 4, 2015:

Dear John Gavlas,

Thank you for your request.

Permission is granted for you to use the material requested for your thesis/dissertation subject to the usual acknowledgements and on the understanding that you will reapply for permission if you wish to distribute or publish your thesis/dissertation commercially. You must also duplicate the copyright notice that appears in the Wiley publication in your use of the Material.

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UK