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Amy Baugher Date

Perceived Religious Stigma and the Decision to Change Religion over the Lifetime: Characterizing Religiosity of Men who Have Sex with Men

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Master of Public Health

Epidemiology

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Perceived Religious Stigma and the Decision to Stay in the Same Religion over the Lifetime: Characterizing Religiosity of Men who Have Sex with Men

By

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Bachelor of Arts

Lewis & Clark College

2008

Thesis Committee Chair: Dr. Travis Sanchez, DVM, MPH

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Abstract

Perceived Religious Stigma and the Decision to Stay in the Same Religion over the Lifetime: Characterizing Religiosity of Men who Have Sex with Men

By Amy Baugher

Background: Men who have sex with men (MSM) have described perceived disapproval of homosexuality from organized religion, which is related to internalized homophobia and depression in previous literature.

Objective: This research sought to explore whether MSM who perceive homophobia from their current religion choose to stay in that religion ("religious consistency").

Methods: A cross-sectional analysis was conducted, recruiting MSM in the metropolitan Atlanta area using time-space venue sampling. All MSM in this sample are HIV-negative, African-American or white race, and 18-39 years old. Modeling analyses were restricted to MSM who were raised in and currently practice a religion (n=119). Bivariate analyses were conducted using chi-square tests. Multivariate analyses were conducted using logistic regression.

Results: The majority of MSM in this sample reported that their childhood religion disapproved of homosexuality. MSM with consistent religion were more likely to believe their current religion disapproves of homosexuality ($p<0.0001$), their community has positive perceptions of MSM ($p=0.02$), and report Baptist affiliation ($p<0.0001$). In the multivariate model, the outcome of religious consistency was related to perceived current religious disapproval of homosexuality (aOR=2.42, 95%CL: 1.45, 4.05), lower income (aOR=0.71, 95%CL: 0.55, 0.93), and non-Baptist affiliation (aOR=0.21, 95%CL: 0.06, 0.73). Race, age, internalized homophobia, community perceptions, depression, and resiliency were not related to religious consistency.

Discussion: The three main findings from this analysis are: MSM are more likely to stay in their religion over time when the religion disapproves of homosexuality, MSM report high levels of childhood disapproval of homosexuality, and no psychosocial factors were significantly related to religious consistency. These findings have implications for public health professionals and researchers interested in church-based interventions related to MSM health and researchers interested in the relationship between MSM and organized religion. Future studies should examine both HIV-positive and –negative MSM and both religious and non-religious MSM.

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CHAPTER 1

BACKGROUND

In previous qualitative studies, African American men who have sex with men (MSM) have described some organized religions' overt disapproval of homosexuality, which has led to some MSM to experience adverse psychosocial outcomes. Since religion is an important social determinant of health, playing a key role in many individual's psychological and sexual health, it is relevant to examine the relationship between perceived religious disapproval of homosexuality ("religious stigma") and whether MSM choose to stay in that religion ("religious consistency"). This analysis could have public health implications for the fields of sexual minority health, mental health, and religion.

In order to conceptualize how religion and psychosocial factors relate to each other, it is necessary to summarize the previous literature about organized religion and MSM in the United States. First, we will define and describe organized religion, especially for African American MSM. Then, we will introduce how organized religion has sometimes stigmatized MSM historically and in the present. Third, we will use previous qualitative and quantitative literature to describe the negative psychosocial effects of stigma among MSM, including internalized homophobia, minority stress, and poor mental health outcomes. Finally, we will describe how organized religion has positively impacted MSM heath by introducing resiliency and gay-affirming church's integration of HIV-prevention efforts.

Religion is "an organized system of beliefs, practices, rituals, and symbols that foster a closeness to the sacred and in a higher power or God"[1]. Religiosity is the extent to which an individual is involved in an organized religion (e.g., attendance frequency,

importance). This is a fundamentally different construct from spirituality, which may or may not exist within the confines of an organized religion. This analysis is only concerned with how MSM view organized religion, especially in the context of their sexual identity.

Organized religion is integral to the fabric of the black community in the United States. This is a primary reason why these analyses observe religiosity over the lifetime in the context of race. While religion can be adaptive for many health issues by providing social support and feelings of community and optimism, religion has been described as a barrier to HIV prevention efforts in predominantly black churches[1]. One hypothesized reason for this barrier is the frequent conflict between religion and science. When public health professionals have entered churches in the past to integrate them into HIV prevention, they have emphasized scientific evidence. This was ineffective, as many churches viewed HIV from a moral, not scientific, perspective, feeling that public health officials were imposing a strategy on them[1]. Researchers and community leaders recommend that an effective church-based HIV intervention should integrate both morality and science, using the strengths of religion and public health. However, this may be difficult if churches continue to stigmatize homosexuality.

One of the primary negative effects that stigma can have on MSM is internalized homophobia[2]. Internalized homophobia occurs when a lesbian, gay, or bisexual (LGB) individual internalizes negative beliefs and stereotypes about her or himself, which can lead to great emotional distress and alienation from other LGB people. Black MSM report higher levels of internalized homophobia than white MSM do[1]. They are also more likely to perceive their friends and neighbors as disapproving of homosexuality[1,3].

Affiliation with a non gay-affirming religion is associated with internalized homophobia[4]. Since religiosity is often associated with positive mental health, internalized homophobia may suppress an otherwise satisfying relationship between religion and mental health among MSM[5]. Since religious beliefs, especially in childhood, shape social norms, it is especially critical to examine the relationship between changing religious affiliation and internalized homophobia[6].

While not every individual facing this situation experiences internalized homophobia, those who do may be susceptible to a variety of mental health issues. Previous research has suggested that internalized homophobia among MSM is related to depression, anxiety, as well as suicide, when the association is mediated by depression[7]. Internalized homophobia is also related to poor coping with HIV diagnoses and poor sexual functioning[8], as well as dysfunctional relationships when mediated by depression[9].

Internalized homophobia is one of many psychological factors related to minority stress, which is the phenomenon whereby minorities are subjected to lifetime chronic stress due to stigmatization related to their minority status, leading to adverse mental health outcomes[10]. Dr. Ilan Meyer suggested that internalized homophobia is one of the main processes of minority stress, alongside expectations of rejection and actual experienced prejudiced events[10]. In Meyer's study describing the main process of minority stress, internalized homophobia was significantly related to feelings of demoralization, guilt, suicide ideation, sex problems, and traumatic stress related to the HIV/AIDS epidemic[10].

In qualitative interviews, black MSM identified a strong tension among their churches, sexuality, and homophobia[9]. They also drew the connection between the non-

responsiveness of churches in the early years of the HIV epidemic and stigmatization of gay men within the church[9]. Additionally, many black MSM said that homophobia and stigma occurred in their family lives[11]. Black MSM have suggested in interviews that highly religious MSM may be less educated about healthy sex behavior, partly due to the church's stigma towards homosexuality[12]. MSM growing up in a church unsupportive of homosexuality might internalize those views.

Internalized homophobia is a major barrier to HIV prevention efforts. Since MSM who report high levels of internalized homophobia are less likely to use sexual health services (e.g., testing) or disclose their sexual identity[3], it is difficult to identify who is MSM. Other studies have found that MSM with high ratings of internalized homophobia may pursue same-sex sexual activity in secrecy, with less discussion of HIV and condom use[13], which could increase risk of acquiring HIV or STIs.

It is unknown whether MSM who experience internalized homophobia choose to stay in their non-gay affirming church. Based on previous qualitative studies, many black MSM continue to be active members in their religious communities and often hold important positions within the church, regardless of that church's view of homosexuality[1]. A qualitative study suggested that religion is central to the lives of MSM despite that religion's negative views of homosexuality[14]. However, MSM interviewed that they believe they are expected not to share their sexual orientation at church[15]. Some men described this as a "role flex," in which they adapt separate roles in the church and in the gay community[11]. The fact that many churches avoided the HIV/AIDS epidemic and disapprove of homosexuality has led some MSM to leave the church[11]. Many black MSM may feel a conflict between the disapproving religion and the church as

community[15]. Other authors studying religiosity and homophobia suggested that MSM do not experience dissonance between their religious views and their sexuality[16]. The relationship among organized religion, internalized homophobia/stigma, race, and HIV appear to be qualitatively intertwined.

One factor that might illuminate whether MSM choose to stay in their religion is resiliency, which is a personality characteristic believed to ameliorate the negative effects of stress and has been associated with health[17]. If an individual feels stigmatized in his church, but is resilient, he may choose to stay in that church. Conversely, someone who is less resilient may leave a church that stigmatizes him.

It is clear that organized religion can be important in the lives of many MSM, in particular black MSM. Effective interventions for sexual health issues like HIV need to involve the church. One study suggested that black clergy could initiate inclusive dialogues to help reduce stigma[13]. Another study described how integrating predominantly black churches helped reach black MSM who are not "out" [12]. Gay-affirming churches have effectively implemented efforts for their MSM congregations[18,19,20].

Although much of the previous research focuses on black MSM, it is necessary to consider both black and white MSM to see if there is a meaningful racial difference in perceived religious stigma. Additionally, Atlanta, Georgia is an ideal location in which to perform research about religiosity and sexual minorities. Atlanta has both a large religious[21] and a large MSM population[22], so it is highly likely to sample MSM with a diverse range of religious experiences.

The driving force behind this analysis is how perceived homophobia can impact religiosity over the lifetime, which may drive apart communities and cause significant emotional distress, alienation, and maladaptive health behaviors. While the cross-sectional design of this analysis cannot demonstrate true cause, the findings may be of interest to those researching religion, health disparities, and sexual minorities.

The specific aims of this analysis were: 1.) to use cross-sectional data to characterize religious consistency between black and white men who have sex with men in the Atlanta, Georgia area; 2.) to observe whether religious MSM are currently in a religion that disapproves of homosexuality; and 3.) to observe whether internalized homophobia is an important factor in religious consistency

CHAPTER 2

INTRODUCTION

In the United States, 85% of black Americans reported a religious affiliation, more than any other ethnic group[21]. Black MSM are more likely than other MSM racial groups to rank organized religion as "very important" in their lives[23]. While affiliation with organized religion has been associated with positive mental health outcomes for many populations[23], it is unknown if MSM would reap the same benefits[1].

Since many religions, including predominantly black churches, believe that homosexuality is amoral, it is important to examine how MSM negotiate their sexual identity with a religion that disapproves of their sexual orientation[1]. MSM who feel a strong connection to their church may experience psychosocial problems such as depression and anxiety when they feel rejected by their church[3]. They may also experience internalized homophobia, where MSM internalize negative stereotypes about themselves. High levels of psychosocial distress among MSM are related to less utilization of sexual health services, weaker connection with the MSM community, and fewer but riskier same-sex sexual experiences[3], which could facilitate the spread of HIV and sexually transmitted infections (STIs), hinting that MSM may not experience the expected mental health benefits of organized religion. Black MSM have long experienced a disproportionate burden of HIV and account for approximately 37% of new HIV cases each year in the United States[25]. Additionally, many churches were unresponsive to the HIV/AIDS epidemic in its nascent years, further stigmatizing HIV and homosexuality[1].

For the purposes of this paper, churches that disapprove of homosexuality may be referred to as "non-gay affirming" or "non-affirming."

Most of the previous research about religiosity and MSM has been qualitative. These interviews and focus groups have yielded fascinating observations from black MSM about their relationship with church and sexuality. Black MSM have described organized religion as a primary root of stigma and homophobia in their communities[26]. Many of these men have been connected to their church and community since childhood, while other MSM have chosen to leave. Previous researchers have called for quantitative analysis describing why some MSM choose to stay in a religion that disapproves of their sexual identity[4]. Based on these qualitative findings and suggestions from other authors, this thesis aims to define the characteristics related to MSM's decision to stay in a childhood religion they perceived as homophobic. The main exposure variable is whether MSM are currently affiliated with a religion that disapproves of homosexuality, which will be compared to the binary outcome of staying in their childhood religion. This outcome will be alternately referred to as "religious consistency," "staying in the childhood religion," or "staying in the religious in which they were raised."

METHODS

Study Population and Procedures

The InvolveMENt study is a currently enrolling, ongoing, cohort study at Emory University which examines the individual-, dyadic-, and community-level factors that may contribute to the disparities in HIV and sexually transmitted infection incidence

between black and white MSM in Atlanta, Georgia. This analysis is cross-sectional, as it is restricted to the month 18 follow-up visit (n=232) because the religion questions were only asked in the month 18 visit. The participants were recruited from Atlanta, Georgia using time-space venue sampling, with a sampling frame inspired by the National HIV Behavioral Surveillance System (NHBS). Facebook was included in the venue sampling frame. The inclusion criteria: MSM aged 18-39 years old regardless of HIV status; self-identified black or white race; residence in the Atlanta metropolitan area with no solid plan to move in the next two years; reported sex with another man in the previous three months from the time of recruitment; could complete surveys in English; not enrolled in another HIV study; and reported not currently in a monogamous relationship. Men who self-identified as Hispanic were not enrolled. Those who were not eligible for the study were thanked for their time.

At each study visit, the participant experienced the informed consent process. All participants regardless of HIV status were tested for HIV using a rapid test with confirmatory ELISA and western blot. They completed a detailed computer-assisted self-interview (CASI) questionnaire to evaluate demographic, individual-, dyadic-, and community-level HIV risk. All HIV-positive men, regardless of previous diagnosis, received viral load testing and those not already in HIV care were linked to care. Since participants discontinued the study after testing positive for HIV, nearly all MSM in this analysis are HIV-negative. Participants who are HIV-negative are prospectively followed for up to 24 months and receive HIV testing and behavioral questionnaires every six months. The participants were given an incentive for each visit completed. As of November 2012, the retention of HIV-negative participants to month 18 was 82.1%**.** This

data for the month 18 follow-up visit used in this thesis were collected between January 2012 and February 5th, 2013. The study is ongoing, but the data were frozen for this thesis on February 5th, 2013. The Institutional Review Board of Emory University approved this study.

Measures

The exposure variable of interest was the degree to which the participant agrees with the prompt: "my current religion disapproves of homosexuality." The outcome variable of interest was whether or not the individual chose to stay in his childhood religion ("religious consistency"). This binary variable was derived from the "what was the religion in which you were raised?" and "what is your current religion?" variables. If they had a different religion than their childhood religion, they were categorized as having changed their religion. If a participant did not answer both questions, they were categorized as missing.

Since previous quantitative research has not analyzed the factors related to why MSM change religions over time, potential confounders were decided based on previous qualitative studies and the investigators' knowledge. Several potential confounders were considered, including age, educational attainment, annual income, internalized homophobia, depression, resiliency, and community perceptions. Age was examined both as a binary variable, dichotomized at the age of 25, and a multi-level categorical variable used in the NHBS, categorized thusly: 18-19 years, 20-24 years, 25-29 years, and 30 years or greater. Education and income were included to ascertain whether socioeconomic factors were related to religious consistency.

Religious affiliation - childhood and current - was categorized to improve effect size and interpretability. The categories were: Catholic, Baptist, Other Protestant, Pentecostal, Other Religion, or No Religion. All participants who identified as Episcopalian, Presbyterian, Lutheran, Methodist, Unitarian Universalist, non-denominational Protestant, or Other Christian were categorized as "Other Protestant." All participants identifying as Jewish, Hindu, Buddhist, or Muslim were categorized as "Other Religion."

Participants who selected "other" in the religious affiliation questions were given the chance to write in a religious denomination. Participants affiliated with Jehovah's Witness, Church of Christ, or non-denominational Christianity were categorized as "Other Protestant." Participants who wrote that they were "spiritual, but not religious" were categorized as "no religion."

Other religiosity questions measured religious behavior and attitudes using Likert scales. Two of the religiosity questions - "how frequently do you attend organized church services or events?" and "religion is important in my life" - were previously used in the Pew Forum on Religion & Public Life[21]. The frequency of religious attendance variable included the options: "more than once a week," "once a week," "once a month or so," "only for major holidays or less" and "never." The author collaborated with faculty to develop two questions about religious stigma: "the religion in which I was raised disapproves of homosexuality" and "my current religion disapproves of homosexuality." These two questions have not been previously validated. The disapproval and religious importance questions were ranked on a five-point scale from *strongly disagree* to *strongly agree*.

Several scales were measured (Appendix A). Internalized homophobia was evaluated using the Internalized Homophobia Scale[8]. Three items were reverse scored. All items were then summarized into a continuous score. Although the scale is continuous for modeling purposes, it was dichotomized at the mean for descriptive analysis. The Cronbach's alpha coefficient was assessed for internal consistency in all scales. The Cronbach's alpha for the Internalized Homophobia Scale was 0.87.

Community perceptions were considered to examine whether those with a consistent religion had different views about their community's attitudes towards MSM than their counterparts who changed their religion using a survey developed by one of the InvolveMENt co-investigators. Although typically this scale is analyzed as a single variable, the author noticed two emerging themes in this scale: how the MSM participant's community views MSM and another about how the MSM participant views his community. Therefore, the author decided to divide the scale into two separate variables to see if this nuance in community perception differently relates to religious consistency. A higher score indicates more positive community perceptions. Five items were reverse scored. The items in each scale were averaged to create a single, continuous score. Although the scales are continuous for modeling purposes, they were dichotomized at the mean for descriptive analysis. For the scale measuring how the community perceives MSM, the Cronbach's alpha was 0.82. For the scale measuring how MSM view their community, the Cronbach's alpha was 0.74.

Depression was another covariate included in the analysis, based on previous research linking internalized homophobia and depression. The Center for Epidemiological Studies Depression (CESD) scale was used to assess depression[27]. The

CESD is used to measure symptoms of depression based on the criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). There were no reverse-scored items. The items were summarized into a single continuous score. Depression was considered both continuously and categorically. The score was categorized thusly: 0-14 is not depressed, 15-20 is mildly depressed, and a score of ≥21 indicates symptoms of clinical depression. The Cronbach's alpha was 0.69.

Another covariate considered for analysis was resiliency, using the 10-item resiliency scale developed by Wagnild and Young[17]. No items were reverse scored. All items were summed into a single continuous score. A higher score indicates higher resiliency. Although the scale is continuous for modeling purposes, it was dichotomized at the mean for descriptive analysis. The Cronbach's alpha was 0.93.

The author hypothesized that these demographic, religious, and psychosocial factors relate to each other in a directional acyclic graph (Figure 1).

Missing Data

Initially, this analysis intended to include MSM who are currently atheist, agnostic, or have no religion; however, due to a skip pattern error, participants who did not identify with a religion could not be included in the modeling because they did not receive the questions about religious stigma. Descriptive statistics about these MSM were still included. Therefore, the multivariate analysis was limited only to MSM who were raised in and continue to practice a religion (n=119). Additionally, we removed three participants from the analysis who did not answer the childhood religious affiliation question. Figure 2 is a flow chart illustrating how missing data were handled (Figure 2).

Analyses

All data cleaning and analyses were conducted using SAS 9.3 (Appendix B), which was developed by the SAS Institute from Cary, North Carolina. The statistical significance cutoff was $p<0.05$.

Descriptive statistics were organized to show how MSM in this sample varied based on four possible religious history outcomes: 1.) MSM who were raised with no religion and currently are not religious ("Lifetime No Religion"), 2.) MSM who were raised in a religion, but currently do not practice a religion ("Religious -> No Religion), 3.) MSM who were raised with no religion, but currently practice a religion ("No Religion ->Religious"), and 4.) MSM who were raised in and currently practice a religion ("Lifetime Religious"). Fisher's exact tests were used due to sparse data. Although "no religion" was an option for both childhood and current religious affiliation, it is not included in this table, since the religious history categories are defined using those two variables.

Bivariate analyses were conducted to ascertain whether each candidate variable was significantly related to religious consistency ($p<0.05$) using chi-square tests of association. Potential two-way interaction terms were vetted through chi-square analyses and Cochran Mantel-Haenszel tests. No interaction terms were used in this analysis.

Multivariate analyses were performed using *proc logistic.* The initial full model included all variables described in this methods section. Although not significant in the bivariate analyses, race and age were kept in the model to demonstrate that they were considered. Variables that were not in the final reduced model include: religious

attendance frequency, education, resiliency, childhood religious affiliation, the scale assessing how community views gay/bisexual men, and internalized homophobia.

Through backwards hierarchical elimination, insignificant variables were eliminated one-at-a-time until the model contained mostly significant variables and had an acceptable goodness of fit. Goodness of fit was considered using the Hosmer and Lemeshow test statistic. Variables that were not significant were kept in the model if they meaningfully improved goodness of fit.

Referent groups were selected for ease of interpretation. In the race variable, white MSM are the referent group because they were expected to stay in their religion less than black MSM. In the religious affiliation category, the Baptist affiliation was selected as the referent group because Baptist was the most common religious affiliation in this sample. In the demographics, the religious affiliation variables had more categories than they did in the modeling. While it is important to describe the distribution of religious affiliation in the sample, the goodness of fit of the model was too poor with more than two affiliation categories due to sparse data. In the model, all non-Baptist affiliations were lumped together in "Other Religion."

Additionally, the scales were treated differently in the descriptive and the modeling sections. The depression scale was categorized in the descriptive statistics, but since the data were sparse in some categories, it was treated continuously in the model. All other scales were dichotomized at the mean in the descriptive section, but treated continuously in the model.

RESULTS

Univariate Analyses

Demographics

Demographics of MSM were compared in a univariate analysis (Table 1). MSM across the four possible religious history categories did not vary significantly by race, age, or educational levels. Although not significant, MSM who earn less than $20,000 per year were most represented in the "lifetime religious" group. MSM earning between $20,000-$29,999 per year were most represented in the group of MSM who were raised in a religion, but currently have no religion. MSM in the highest three income categories were most represented in the "lifetime religious" category.

Religiosity

The religious history of MSM was compared with religious affiliation. The majority of participants were raised in the Baptist church (n=88). MSM who were raised Baptist (65.9%) and Pentecostal (90.9%) were the most likely to be "lifetime religious;" while MSM who were raised Catholic (62.5%) or Other Protestant (46.9%) were the most likely to have no religion as adults. Among MSM who currently have a religion, the most common religious affiliations were Baptist (36.4%) and Other Protestant (29.8%).

The majority of MSM reported that their childhood religion disapproved of homosexuality, with 24.2% (n=50) endorsing "strongly agree" and 17.9% (n=37) selecting "agree," compared to the current religion's disapproval of homosexuality, which was evenly distributed across the scale.

Psychosocial Factors

Several psychosocial factors were analyzed, including internalized homophobia, community perceptions of MSM, MSM's perception of their community, depression, and

resiliency. Contrary to the hypothesis, there were no differences in internalized homophobia among the four religious history groups. While not significant, 51.8% of MSM scored lower than the average on the scale assessing how the community views MSM. There were no differences in MSM's views towards their own community based on religious history.

Depression was also not significantly different among the four religious history groups. Although not significant, MSM who were not depressed were most represented in the "lifetime religious" category (53.9%) and MSM who were "mildly depressed" were most represented in the "raised in a religion but have no religion as an adult" category (58.3%). There were no differences in resiliency.

Bivariate Analyses

Demographics

Education was the only significant demographic factor related to religious consistency (Table 2). MSM who have an education level of "high school" and "some college" are the most likely to stay in their religion.

Religiosity

Among the religiosity variables, MSM who currently identify as Catholic (75.0%), Baptist (84.1%), or Pentecostal (60.0%) were significantly more likely to stay in their religion, compared to MSM who affiliate with Other Protestant (40.0%) or Other Religion (27.3%), who were more likely to change their religious affiliation.

MSM who "strongly agree" (84.2%) or "agree" (81.5%) that their current religion disapproves of homosexuality were more likely to stay in their religion.

The importance of current religion was not related to staying in the same religion. MSM who strongly agreed or agreed with importance of religion in their lives were represented more in the "religious consistent" category.

Psychosocial Factors

Among the psychosocial factors compared to staying in the same religion, 48.4% of MSM who believed that their community had more positive views of MSM stayed in their religion. Other psychosocial factors such as internalized homophobia, MSM perceptions of their community, depression, and resiliency were unrelated to religious consistency.

Multivariate Modeling

Demographic

In a multivariate logistic model, several factors were related to religious consistency, controlling for other variables (Table 3). Figure 3 illustrates the adjusted odds ratios in the model in a forest plot. Among the demographic factors, MSM with higher income were less likely to stay in their childhood religion (aOR=0.71, 95%CL {0.55, 0.93}).

Religiosity

MSM who are currently affiliated with a religion that is not Baptist were less likely to stay in their religion relative to MSM who are currently Baptist (aOR=0.21, 95%CL: 0.06, 0.73). While not significant, MSM who were raised in a religion that disapproved of homosexuality were less likely to stay in that same religion (aOR=0.55, 95%CL: 0.30, 1.01). Perceived current religion's disapproval of homosexuality was

significant, adjusting for affiliation, importance of current religion, and MSM community perception. MSM who reported higher current religious disapproval were 2.4 times more likely to have stayed in that religion throughout their lives (95%CL: 1.45, 4.04). MSM who believe that their organized religion is important in their lives were not more likely to stay in their religion than MSM who did not. There were no significant psychosocial factors in the model.

The model's goodness of fit was assessed using the Hosmer and Lemeshow Goodness-of-Fit Test. This model has a fairly good fit (χ^2=4.40, p=0.82). There were no bins that were less than 10, suggesting the fit test is not unstable.

DISCUSSION

Men who have sex with men who were raised in and currently practice a religion were more likely to stay in their childhood religion if they were affiliated with the Baptist church. MSM who were raised in a religion that disapproved of homosexuality may tend to leave that religion; however, if their current religion disapproves of homosexuality they tend to stay in that religion, a counterintuitive finding. Descriptively, the majority of MSM in this sample reported that their childhood religion disapproved of homosexuality.

Demographic

Approaching this analysis, the author hypothesized that religiosity would vary by race and age, with black and older MSM reporting high religious consistency in the objective to characterize religiosity among black and white MSM in the Atlanta area. In this sample, neither race nor age was related to religious consistency. This is different

from a wide range of previous studies showing that black MSM rank religion as important in their lives more than white MSM do. One reason why this sample might have produced different results is its location in Atlanta, Georgia, which has a large religious population[21].

Socioeconomic variables were considered, but only income was meaningfully related to religious consistency. Since organized religion can be an effective source of social support and public service[24], it is no surprise that MSM with lower income would choose to stay in their religion.

Religiosity

The majority of participants in this sample were affiliated with the Baptist church, which is a common affiliation in Atlanta[21]. For many men in Atlanta, the Baptist church may be a significant, inextricable part of their community and their lives. Leaving the church might mean leaving behind their friends, family, and community. Some MSM who believe that religion is very important to them may not need their church to approve of their homosexuality because they believe it is separate from their religious and community life.

The key discovery in this thesis was that MSM are more likely to stay in their religion when their current religion disapproves of homosexuality, which relates to the second objective measuring MSM's current affiliation with a religion that disapproves of their homosexuality. This is a highly counterintuitive result. There are a number of speculative reasons why this might occur, drawing on previous qualitative literature. It is likely that the religions identified as currently disapproving of homosexuality were also

disapproving when these men were growing up in that church. Some men may have a strong relationship with their religion that is more important to them than their sexual identity; others may perform "role flex"[11], mentally separating their religious identity from their private sexual identity. It is also possible that future analyses comparing this sample of lifetime religious MSM to MSM who currently do not practice a religion do not find this result.

Psychosocial Factors

Many psychosocial factors were hypothesized to relate to religious consistency, but were not significant in this sample. While not significant, MSM who were not depressed were more likely to be "lifetime religious."

Internalized homophobia was found in previous studies to be related to poor mental health[4,5], but not in this sample. The third objective of this thesis was to observe whether internalized homophobia was related to religious consistency, but it was not. There were many reasons why this might have occurred. The sample size was somewhat small and most of the MSM in the sample were HIV-negative. Additionally, perceptions of how the community views gay and bisexual men was hypothesized to be a potential confounder under the assumption that for many of these men, the community in question is their religious community. Nevertheless, community perceptions were not a significant factor for staying in a religion over the lifetime.

These findings contradicted previous literature, especially regarding internalized homophobia. Previous research has suggested that internalized homophobia is related to depression as well as affiliation with a non-gay affirming church. In this sample, there

was no association between internalized homophobia and religious consistency. This topic requires further, in-depth consideration in future studies about MSM and religion.

Strengths & Limitations

There were five limitations and five strengths to this analysis. The first limitation is the sampling of only HIV-negative MSM, due to the religiosity questionnaire occurring in a follow-up survey. HIV-positive MSM might have a systematically different view of religion than HIV-negative MSM. These views could range from more positive, due to religious coping related to their HIV diagnosis to more negative, which could be due to many churches ignoring the HIV epidemic.

The second limitation involves a skip pattern error that resulted in only MSM who have always been in a religion receiving the questions about religious disapproval. There are certainly differences between MSM who have always been religious and MSM who have no religion. Future studies should examine this difference.

The third limitation is that there were only questions asking about a single childhood and current religion. These data do not account for participants who have changed religions multiple times over the course of their lifetime. Additionally, there is no data about an individual's migration patterns, which may influence the accessibility of a certain religion. An individual from a rural area may have attended a church in their town, but upon moving to Atlanta, could no longer attend that church. This dynamic may influence variables such as religious attendance frequency. There is also no data available in this analysis on level of "out-ness" to their friends, families, or communities - religious

or otherwise. This variable could theoretically be related to religious consistency. All questions were self-report and could have been susceptible to reporting bias.

The fourth limitation was the small sample size. Since the month 18 follow-up data collection is still in progress, this thesis could only utilize data gathered before February 5th, 2013. This affected the number of people in the sample, as did the necessary limitation of removing all MSM who have no religion. Finally, although the researchers utilized validated survey questions when possible, two of the religiosity questions were created by the research team and have yet to be validated.

The fifth limitation is a difficulty exactly pinpointing complex social phenomena such as internalized homophobia in quantitative surveys. There might be dimensions to internalized homophobia not previously considered or not on the survey, perhaps directly related to religion.

Despite these important limitations, there are five strengths to this thesis. First, this thesis analyzed a multitude of psychosocial factors that could plausibly be related to staying in one's religion, including depression, resiliency, and community perceptions. Second, the follow-up retention is excellent, from baseline to the month 18 survey on which this analysis is based. This suggests that, besides the necessary exclusion of HIV-positive MSM, there are few systematic differences between the baseline MSM and those in this sample.

Third, the research question is based on multiple qualitative interviews from other researchers. This thesis is based on the ideas from African-American MSM's observations from previous qualitative studies. Fourth, Atlanta, Georgia is an ideal location to perform research about religion and MSM. Atlanta has both a large religious[21]

and MSM population[22], making it highly likely to encounter MSM who grew up in a religion. Additionally, the churches that are most frequently described as disapproving of homosexuality are prominent in Atlanta.

Fifth, many of the religiosity questions were taken from reputable sources like the Pew Report. The psychosocial scales used in this analysis have been validated for the MSM population.

This analysis sought to explore the characteristics that drive MSM staying in the same religion throughout their lives. Despite the limitations to this analysis, the key finding was that MSM are more likely to stay in their childhood religion when that religion disapproves of homosexuality, even though no psychosocial factors were significant in the model. Public health professionals may find this result useful in church-based prevention interventions. Future studies should observe both HIV-positive and –negative MSM, comparing MSM who are religious with MSM who are not religious.

CHAPTER 3: PUBLIC HEALTH IMPLICATIONS

The results from this thesis could inspire future public health research and interventions. There were three main findings in this analysis: MSM reporting religious consistency when their religion disapproves of homosexuality, MSM reporting high childhood religious disapproval of homosexuality, and the lack of association between psychosocial factors and religious consistency.

1. High Religious Consistency Related to Current Religion's Disapproval of Homosexuality

Men who have sex with men who perceive that their current religion disapproves of homosexuality are more likely to have stayed in that religion throughout their lives. This finding begs the question: why would someone be more likely to stay in a religion that disapproves of his sexual identity? Since internalized homophobia was not related, what else could it be? Some hypotheses include family history with the church, family influencing religious affiliation, or simply that the religious teachings are the most similar to that individual's religious beliefs. It would be interesting to have MSM rate the importance each of these factors, then compare religious consistency. Future studies considering the relationship between MSM and organized religion should begin to delve into this question, qualitatively and quantitatively, to locate the complex psychological, social, and community factors that might illuminate this counterintuitive finding.

As previous researchers have suggested, organized religion has great potential to be a resource for public health interventions[24]. First, these results may be able to help churches find ways to reach out to their MSM laity. These results provide some evidence

that religion is important in shaping how MSM view their sexuality and indicate that a church's view of sexual orientation is important for MSM and their mental health.

Since most of the participants in this sample were raised in and currently affiliated with the Baptist church, public health professionals in Atlanta should focus on reaching out to Baptist churches to address sexual identity issues among their laity. While this is challenging for both public health professionals and Baptist church leaders, it is possible to come to a compromise about church teachings in an effort to avoid alienating and stigmatizing MSM church members.

Previous studies in other geographic areas have achieved some similar success with the Baptist church and HIV interventions. In Kansas City, Missouri, a study called Taking it to the Pews (TIPS) measured community-based participatory research of an HIV intervention in multiple predominantly African-American Baptist churches[28]. The researchers and intervention leaders fully involved the religious leaders in every aspect of the intervention. Among the participants, 84% heard a sermon about HIV and most believed it is appropriate for the church to discuss HIV (87%). This is an exceptional example of how thoughtful, culturally appropriate collaboration can help churches become involved in HIV and sexual health research and interventions. In this project, the researchers integrated community health organizations, and twelve mostly African-American churches. It is critical as we move forward with HIV and public health interventions that we continue to listen to the community we are trying to help, involving them every step of the way.

Applying the TIPS study to this analysis, a church-based intervention about homophobia could frame the issue from a community-based, mental health perspective. It

would need to integrate the thoughts and views of the church leaders and community organizations. In the end, an intervention will probably not solve the problem with homophobia and may not change every person's mind, but it may be able to help others see homophobia in a new light, cultivating familiarity with sexual minorities, and encouraging community building that is inclusive of people of all sexual identities without forcing a viewpoint or introducing study results in a dry, unapproachable way.

2.) Most MSM Reported Childhood Religious Disapproval of Homosexuality

The second finding from this analysis that could have public health implications is that most MSM either strongly agreed or agreed that their childhood religion disapproved of homosexuality. This result is consistent with research about non-gay affirming churches and internalized homophobia[4]. As in the previous section, collaborative, participatory, church-based efforts could theoretically help take steps towards a more inclusive religious community.

Studies that observed the childhood experiences of MSM suggest that childhood experiences can influence adult behavior[29]. In a recent series about HIV and MSM in *The Lancet*, several authors called for studies exploring how societal homophobia impacts health disparities and how MSM can successfully adapt when they have faced lifetime discrimination[29].

The result from this analysis about childhood religious stigma could inspire an interdisciplinary study integrating psychology, sociology, and epidemiological research in an effort to understand on a qualitative and quantitative level how childhood stigma can impact adult behavior and health. I recommended an interdisciplinary study to avoid

a piecemeal approach and embrace a multi-level conceptualization of stigma and the social determinants of health, which could ultimately serve as evidence for MSM-related policy changes.

On a psychological level, we need to understand what individual factors influence whether MSM adapt or fail to adapt in the face of stigma experienced in childhood. On a sociological level, we still need to learn more about how religious institutions view homosexuality and whether or not that view is changing as LGBTQ individuals continue to gain more positive exposure in the media and progressive, equal civil liberties. On an epidemiological level, we need measure stigma over the lifetime and its potential causal influence on adverse health outcomes. This could include a cohort measuring MSM in adolescence throughout adulthood to measure internalized homophobia, mental health, shifting community attitudes, and sexual risk behaviors over time. As it becomes more socially normative for sexual minorities to come out earlier in life, a cohort study measuring MSM over the lifetime could be possible.

3.) Psychosocial Factors are Not Related to Religious Consistency

The final key finding in this analysis was the lack of significance of psychosocial factors in predicting religious consistency among MSM. Since this finding was unusual relative to earlier studies about religion and internalized homophobia, I continue to recommend studying these factors in the case that these results were an anomaly.

Since depression, community perceptions, resiliency, and internalized homophobia were not related to religious consistency, there must be other factors beyond the psychological that predict why MSM might stay in a church that disapproves of their

homosexuality. Future studies observing the relationship between religion and MSM should include a qualitative component to better understand this relationship, beyond mental health factors.

After conducting this analysis, I highly recommend continuing to ask MSM open-ended, qualitative questions about religion and stigma so we can continue to build the scales and conduct the quantitative studies that best represent the lived experiences of MSM in the United States, especially as the political climate and public discourse progress towards greater inclusiveness. Additionally, I also recommend revisiting current scales to ensure that they continue to reflect modern attitudes about sexual identity.

These data could be useful for public health professionals planning to use churches in their sexual health interventions for MSM and could inspire future studies to continue to research perceived religious stigma. Overall, this thesis contributes to the understanding of the relationship among religion, sexual orientation, and mental health among MSM in Atlanta, Georgia.

Future Directions

There are several interesting directions that future public health studies could take this research. First, future studies could observe both HIV-positive and -negative MSM. A future study could look at perceived religious stigma in childhood religion, comparing MSM who are still religious and those who identify as atheist/agnostic/no religion. A future study could observe individual-, dyadic-, and community-level risk factors for HIV to determine whether experiencing perceived homophobia as a child is related to risk behaviors and psychosocial factors in adulthood. Researchers could also ask the

individual to elaborate on why he left the religion. Last, a future study could expand the question to Hispanic MSM and to MSM who are not white or black, as well as expanding these questions to include all LGBTQ people.

Conclusion

MSM make dynamic decisions about religion throughout their lifetime. While there were many challenges to this research, these analyses uncovered a fascinating, counterintuitive finding that perceived religious disapproval of homosexuality in a current religion is related to MSM's decision to stay in that religion throughout their lives.

As the research field examining religion and sexual orientation develops, and as American society gradually grows closer to equal rights for MSM, public health professionals can use the findings from this thesis to better understand the complicated dynamic between religion and sexual identity in the United States.

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Figure 1. Directional acyclic graph illustrating the theoretical relationship between current perceived religious stigma and religious consistency, accounting for demographic, religious, and psychosocial factors

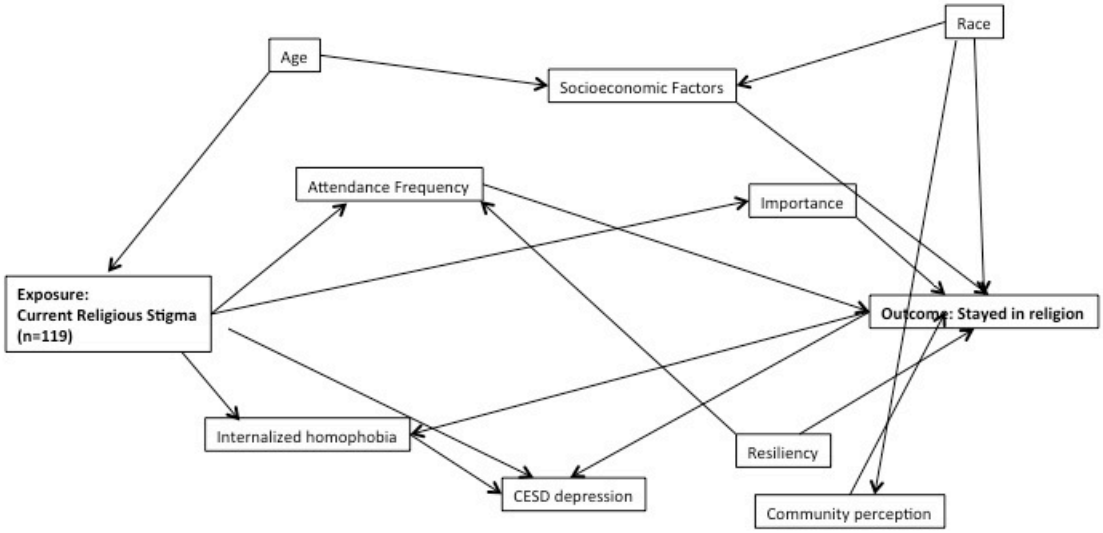


Figure 2. Flow chart illustrating the sample selection method of participants in the final analysis

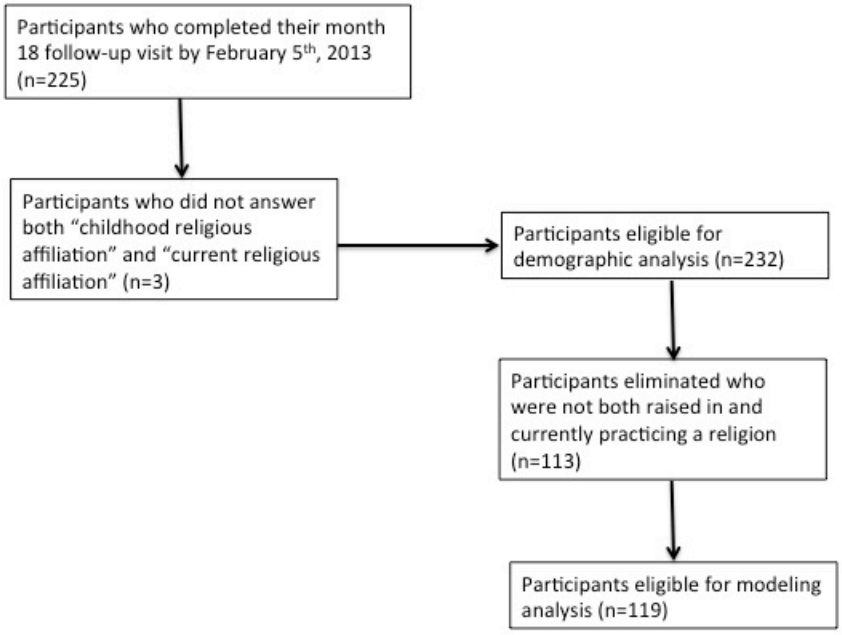


Table 1. Univariate analyses showing the demographic distribution of MSM organized by religious history (n=232)

Characteristic	Total	Lifetime No Religion	Religious -> No Religion	No Religion-> Religious	Lifetime Religious	*p*-value
Race						0.37
Black/ African-American	132 (56.9%)	12 (9.1%)	53 (40.2%)	1 (0.8%)	66 (50.0%)	
White/Caucasian	100 (43.1%)	11 (11.0%)	35 (35.0%)	1 (1.0%)	53 (53.0%)	
Age						0.76
Mean (SD)	27.5 (6.7)					
18-19	14 (6.0%)	1 (7.1%)	5 (35.7%)	0 (0.0%)	8 (57.1%)	
20-24	79 (34.1%)	10 (12.7%)	29 (36.7%)	0 (0.0%)	40 (50.6%)	
25-29	55 (23.7%)	4 (7.3%)	24 (43.6%)	1 (1.8%)	26 (47.3%)	
30+	84 (36.2%)	8 (9.5%)	30 (35.7%)	1 (1.2%)	45 (53.6%)	
Education						0.50
College	97 (41.8%)	11 (11.3%)	34 (35.1%)	1 (1.0%)	51 (52.6%)	
Some College	94 (40.5%)	11 (11.7%)	37 (39.4%)	1 (1.1%)	45 (47.9%)	
High School/GED	36 (15.5%)	1 (2.8%)	14 (38.9%)	0 (0.0%)	21 (58.3%)	
<High School	5 (2.2%)	0 (0.0%)	3 (60.0%)	0 (0.0%)	2 (40.0%)	
Income (n=219)						0.09
<$20,000	94 (42.9%)	11 (11.7%)	39 (41.5%)	0 (0.0%)	44 (46.8%)	
$20,000-$29,999	31 (14.2%)	4 (12.9%)	13 (41.9%)	2 (6.5%)	12 (38.7%)	
$30,000-$39,999	32 (14.6%)	3 (9.4%)	11 (34.4%)	0 (0.0%)	18 (56.3%)	
$40,000-$49,999	19 (8.7%)	0 (0.0%)	8 (42.1%)	0 (0.0%)	11 (57.9%)	
≥$50,000	43 (19.6%)	5 (11.6%)	12 (27.9%)	0 (0.0%)	26 (60.5%)	
Childhood Religious Affiliation						0.01
Catholic	32 (15.5%)	-	20 (62.5%)	-	12 (37.5%)	
Baptist	88 (42.5%)	-	30 (34.1%)	-	58 (65.9%)	
Other Protestant	49 (23.7%)	-	23 (46.9%)	-	26 (53.1%)	
Pentecostal	11 (5.3%)	-	1 (9.1%)	-	10 (90.9%)	
Other Religion	27 (13.0%)	-	14 (51.9%)	-	13 (48.2%)	

Current Religious Affiliation						0.52
Catholic	8 (6.6%)	-	-	0 (0.0%)	8 (100.0%)	
Baptist	44 (36.4%)	-	-	0 (0.0%)	44 (100.0%)	
Other Protestant	36 (29.8%)	-	-	1 (3.3%)	35 (96.7%)	
Pentecostal	10 (8.3%)	-	-	0 (0.0%)	10 (100.0%)	
Other Religion	23 (19.0%)	-	-	1 (4.4%)	22 (95.7%)	
Childhood Religion Disapproves of Homosexuality (n=207)						No statistic computed
Strongly Agree	50 (24.2%)	-	-	-	50 (100.0%)	
Agree	37 (17.9%)	-	-	-	37 (100.0%)	
Neutral	18 (8.7%)	-	-	-	18 (100.0%)	
Disagree	10 (4.8%)	-	-	-	10 (100.0%)	
Strongly Disagree	3 (1.4%)	-	-	-	3 (100.0%)	
Missing	89 (43.0%)	-	88 (77.2%)	-	1 (0.8%)	
Current Religion Disapproves of Homosexuality						No statistic computed
Strongly Agree	19 (16.0%)	-	-	-	19 (100.0%)	
Agree	27 (22.7%)	-	-	-	27 (100.0%)	
Neutral	28 (23.5%)	-	-	-	28 (100.0%)	
Disagree	24 (20.2%)	-	-	-	24 (100.0%)	
Strongly Disagree	21 (17.6%)	-	-	-	21 (100.0%)	
Current Religious Attendance Frequency (n=119)						0.73
More than once/week	20 (16.5%)	-	-	0 (0.0%)	20 (100.0%)	
Once/week	37 (30.6%)	-	-	1 (0.0%)	36 (100.0%)	
Once/month or so	27 (22.3%)	-	-	1 (0.0%)	26 (96.3%)	
Only for major holidays or less	26 (21.5%)	-	-	0 (0.0%)	26 (96.3%)	
Never	11 (9.1%)	-	-	0 (0.0%)	11 (100.0%)	
Current Religion Importance (n=121)						0.79
Strongly Agree	11 (9.1%)	-	-	0 (0.0%)	11 (100.0%)	
Agree	16 (13.2%)	-	-	0 (0.0%)	16 (100.0%)	
Neutral	40 (33.1%)	-	-	2 (5.0%)	38 (95.0%)	
Disagree	38 (31.4%)	-	-	0 (0.0%)	38 (100.0%)	

Strongly Disagree	16 (13.2%)	-	-	0 (0.0%)	16 (100.0%)	
Missing	0 (0.0%)	-	-	0 (0.0%)	0 (0.0%)	
Internalized Homophobia (n=226)						0.82
Mean (SD)	1.2 (0.80)					
≥1.2	92 (40.9%)	9 (9.7%)	32 (34.4%)	1 (1.1%)	50 (53.8%)	
<1.2	134 (59.1%)	14 (10.5%)	52 (3.8%)	1 (0.8%)	67 (50.0%)	
Community Perception of MSM (n=228)						0.53
Mean (SD)	3.49 (0.79)					
≥3.49	110 (48.2%)	8 (7.1%)	42 (37.3%)	1 (0.9%)	61 (54.5%)	
<3.49	118 (51.8%)	15 (12.7%)	44 (36.4%)	1 (0.9%)	58 (50.0%)	
MSM Perception of Community (n=224)						0.31
Mean (SD)	3.78 (0.62)					
≥3.78	101 (45.1%)	10 (9.9%)	33 (32.7%)	1 (1.0%)	57 (56.4%)	
<3.78	123 (54.9%)	15 (12.2%)	45 (36.6%)	2 (1.6%)	61 (49.6%)	
Depression score (n=222)						0.62
Mean (SD)	9.6(4.5)					
Not Depressed	193 (86.9%)	19 (9.8%)	68 (35.2%)	2 (1.0%)	104 (53.9%)	
Mildly Depressed	24 (10.8%)	2 (8.3%)	14 (58.3%)	0 (0.0%)	8 (33.3%)	
Possible Clinical Depression	5 (2.3%)	1 (20.0%)	2 (40.0%)	0 (0.0%)	2 (40.0%)	
Resiliency Score (n=226)						0.99
Mean (SD)	45(6.8)					
≥45	121 (53.5%)	13 (10.7%)	42 (34.7%)	1 (0.8%)	65 (53.7%)	
<45	105 (46.5%)	11 (10.5%)	38 (36.2%)	1 (1.0%)	55 (52.4%)	

Table 2. Bivariate analyses examining the distribution of MSM with a consistent lifetime religious affiliation compared to the total sample of MSM (n=119)				
Characteristic	**Total (n%)**	**Consistent Religion (n%)**	χ^2	***p*-value**
Race			1.93	0.17
Black/African American	66 (55.5%)	42 (63.6%)		
White/Caucasian	53 (44.5%)	27 (50.9%)		
Age			2.41	0.49
18-19	8 (6.7%)	6 (75.0%)		
20-24	40 (33.6%)	23 (57.5%)		
25-29	26 (21.9%)	17 (65.4%)		
30+	45 (37.8%)	23 (51.1%)		
Education			9.23	0.03
College	51 (42.9%)	24 (47.1%)		
Some College	45 (37.8%)	33 (73.3%)		
High School/GED	21 (17.7%)	10 (47.6%)		
<High School	2 (1.7%)	2 (100.0%)		
Income (n=111)			8.71	0.06
<$20,000	44 (39.6%)	33 (75.0%)		
$20,000-$29,000	12 (10.8%)	6 (50.0%)		
$30,000-$39,000	18 (16.2%)	9 (50.0%)		
$40,000-$49,000	11 (9.9%)	6 (54.5%)		
>$50,000	26 (23.4%)	11 (42.3%)		
Childhood Religious Affiliation			6.42	0.17
Catholic	12 (10.1%)	6 (50.0%)		
Baptist	58 (48.7%)	38 (65.5%)		
Other Protestant	26 (21.9%)	10 (38.5%)		
Pentecostal	10 (8.4%)	6 (60.0%)		
Other Religion	13 (10.9%)	9 (69.2%)		
Current Religious Affiliation (n=114)			25.92	<0.0001
Catholic	8 (6.1%)	6 (75.0%)		
Baptist	44 (38.6%)	37 (84.1%)		
Other Protestant	35 (26.3%)	14 (40.0%)		
Pentecostal	10 (8.8%)	6 (60.0%)		
Other Religion	22 (20.2%)	6 (27.3%)		
Childhood Religion Disapproves of Homosexuality (n=118)			9.86	0.07
Strongly Agree	50(42.0%)	25 (50.0%)		
Agree	37 (31.1%)	20 (54.1%)		
Neutral	18 (15.1%)	15 (83.3%)		

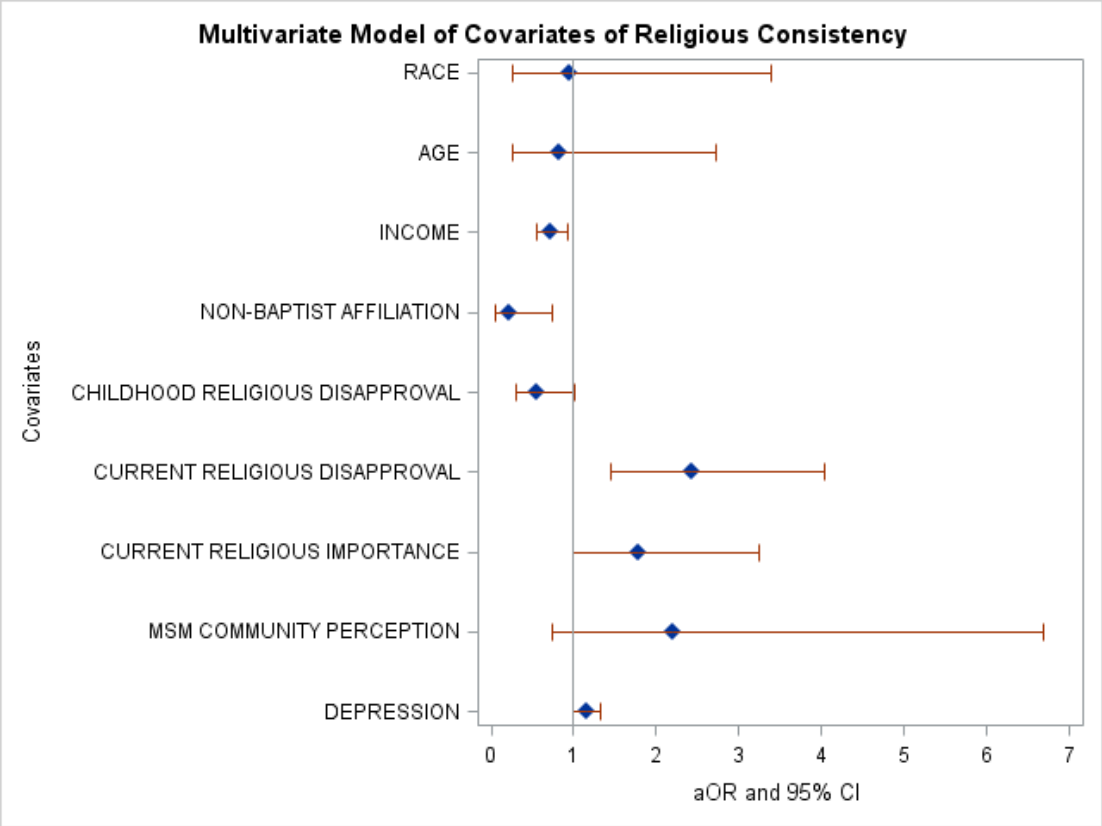
Disagree	10 (8.4%)	6 (60.0%)		
Strongly Disagree	3 (2.5%)	3 (100.0%)		
Current Religion Disapproves of Homosexuality			28.68	<0.0001
Strongly Agree	19 (16.0%)	16 (84.2%)		
Agree	27 (22.7%)	22 (81.5%)		
Neutral	28 (23.5%)	14 (50.0%)		
Disagree	24 (20.2%)	15 (62.5%)		
Strongly Disagree	21 (17.7%)	3 (14.3%)		
Current Religious Attendance Frequency (n=118)			1.86	0.76
More than once/week	11 (9.2%)	5 (7.3%)		
Once/week	26 (21.9%)	16 (23.2%)		
Once/month or so	26 (21.9%)	17 (24.6%)		
Only for major holidays or less	36 (30.3%)	19 (27.5%)		
Never	20 (16.8%)	12 (17.4%)		
Current Religion Importance			8.87	0.06
Strongly Agree	16 (13.5%)	12 (75.0%)		
Agree	38 (31.9%)	26 (68.4%)		
Neutral	38 (31.9%)	19 (50.0%)		
Disagree	16 (13.5%)	9 (56.3%)		
Strongly Disagree	11 (9.2%)	3 (27.3%)		
Internalized Homophobia	50 (42.0%)	30 (60.0%)	0.14	0.70
Mean (SD)	1.2 (0.80)			
Community Perceptions of MSM	64 (53.8%)	31 (48.4%)	5.18	0.02
Mean (SD)	3.49 (0.79)			
MSM Perception of Community	57 (47.9%)	33 (57.9%)	0.0004	0.99
Mean (SD)	3.78 (0.62)			
Depression score (n=114)			1.26	0.53
Not Depressed	104 (91.2%)	60 (57.7%)		
Mildly Depressed	8 (7.0%)	3 (37.5%)		
Possible Clinical Depression	2 (1.8%)	1 (50.0%)		
Resiliency Score	65 (54.6%)	38 (58.5%)	0.01	0.91
Mean (SD)	45(6.8)			

Table 3. Final adjusted model showing factors related religious consistency, among MSM who were raised in and currently practice a religion.		
Characteristic	**aOR (95%CL)**	**p-value**
Race		
Black/African American	0.94 (0.26, 3.40)	0.93
White/Caucasian	1.0 (ref)	-
Age		
≥25 years	1.0 (ref)	-
<25 years	0.82 (0.25, 2.72)	0.75
Income[a]	0.71 (0.55, 0.93)	0.01
Current Religious Affiliation[b]		
Baptist	1.0 (Ref)	-
Other Religion	0.21 (0.06, 0.73)	0.01
Childhood Religion Disapproves of Homosexuality	0.55 (0.30, 1.01)	0.054
Current Religion Disapproves of Homosexuality	2.42 (1.45, 4.04)	<0.001
Current Religion Importance[a]	1.78 (0.98, 3.24)	0.06
MSM Perception of Community[a]	2.21 (0.73, 6.69)	0.16
Depression[a]	1.15 (1.0, 1.33)	0.05

[a]Variable treated continuously

[b]Religious affiliation was recategorized to improve the model fit. All other religions besides Baptist were categorized as "Other religion."

Figure 3. The relationship between covariates and religious consistency among MSM



APPENDIX A. SURVEY INSTRUMENTS

Note: These are just the instruments from InvolveMENt used for this analysis.

Education
What is the highest level in school that you completed?

1=College, post graduate, or professional school
2=Some college, Associate's degree, and/or Technical school
3=High school or GED
4=Some high school
5=Less than high school
6=Never attended
9=Don't know

Income
What was your household income last year from all sources before taxes?

0=0 to $417 (monthly) / 0 to $4,999 (yearly)
1=$418 to $833 (monthly) / $5,000 to $9,999 (yearly)
2=$834 to $1250 (monthly) / $10,000 to $14,999 (yearly)
3=$1251 to $1667 (monthly) / $15,000 to $19,999 (yearly)
4=$1668 to $2500 (monthly) / $20,000 to $29,999 (yearly)
5=$2501 to $3333 (monthly) / $30,000 to $39,999 (yearly)
6=$3334 to $4167 (monthly) / $40,000 to $49,999 (yearly)
7=$4168 to $6250 (monthly) / $50,000 to $74,999 (yearly)
8=$6251 or more (monthly) / $75,000 or more (yearly)
9=Don't know

Childhood Religious Affiliation
What was the religion in which you were raised?

Christian
1=Catholic
2=Baptist
3=Methodist
4=Lutheran
5=Presbyterian
6=Episcopalian
7=Pentecostal
8=Other Christian
Non-Christian
9=Jewish
10=Muslim
11=Buddhist
12=Hindu
13=Unitarian/Universalist
14=Other religion
No religion

15=No religion/Atheist/Agnostic

Please specify the other religion you indicated above:

Current Religious Affiliation

What is the religion you currently practice?

Christian
1=Catholic
2=Baptist
3=Methodist
4=Lutheran
5=Presbyterian
6=Episcopalian
7=Pentecostal
8=Other Christian
Non-Christian
9=Jewish
10=Muslim
11=Buddhist
12=Hindu
13=Unitarian/Universalist
14=Other religion
No religion
15=No religion/Atheist/Agnostic

Please specify the other religion you indicated above:

Religious Attendance Frequency

How frequently do you attend organized religious services or events?

1=Never
2=Only for major holidays or less
3=Once a month or less
4=Once a week
5=More than once a week

Current Religious Importance

Please tell us how you feel about this statement:
Organized religion is important in my life

1=Strongly disagree
2=Disagree
3=Neutral
4=Agree
5=Strongly agree

Childhood Religion Disapproves of Homosexuality (Religious Stigma)

Please tell us how you feel about these statements:
The religion in which I was raised disapproves of homosexuality.

1=Strongly disagree
2=Disagree
3=Neutral
4=Agree
5=Strongly agree

Current Religion Disapproves of Homosexuality (Religious Stigma)
My current religion disapproves of homosexuality.

1=Strongly disagree
2=Disagree
3=Neutral
4=Agree
5=Strongly agree

Internalized Homophobia Scale
The following questions relate to your sexual orientation.
Please indicate whether you disagree or agree with each statement.

1=Strongly Disagree
2=Disagree
3=Neutral
4=Agree
5=Strongly Agree

1.) I wish I weren't gay/bisexual.
2.) I have tried to stop being attracted to men in general.
3.) If someone offered me the chance to be completely heterosexual, I would accept the chance.
4.) I feel that being gay/bisexual is a personal shortcoming for me.
5.) I would like to get professional help in order to change my sexual orientation from gay/bisexual to straight.

Community Perceptions of MSM
Please answer each of the following items by checking the box that best fits your response.

1=strongly disagree
2=disagree
3=neutral
4=agree
5=strongly agree
9=not applicable

1.) Most people in my city/town believe that a gay man is just as trustworthy as the average heterosexual citizen
2.) Most employers in my city/town will hire a gay man if he is qualified for the job

3.) Most people in my city/town feel that homosexuality is a sign of personal failure (reverse-scored)
4.) Most people in my city/town would not hire a gay man to take care of their children (reverse-scored)
5.) Most people in my city/town think less of a person who is gay. (reverse-scored)
6.) Most people in my city/town would treat a gay man just as they would treat anyone
7.) Most people in my city/town will willingly accept a gay man as a close friend

MSM Perception of Community

Please answer each of the following items by checking the box that best fits your response.

1=strongly disagree
2=disagree
3=neutral
4=agree
5=strongly agree
9=not applicable

1.) I feel that I am a member of my city/town gay community
2.) I plan to stay in my city/town for a long time
3.) I have many gay male friends in my city/town
4.) I have many lesbian/bisexual women in my city/town
5.) I wish that I could live someplace with a stronger gay/bisexual community than the place I live (reverse-scored)
6.) I regularly attend gay events and meetings in my city/town
7.) My town/city is a bad place for me to live as a gay man (reverse-scored)
8.) I feel at home in my city/towns' gay community
9.) As a gay man, I enjoy living in my city/town

Resiliency Scale

Please check the box indicating how much you disagree or agree with each statement

1=Strongly disagree
2=Disagree
3=Neutral
4=Agree
5=Strongly Agree
9=Not Applicable

1.) I usually manage one way or another
2.) I feel proud that I have accomplished things in my life
3.) I usually take things in stride
4.) I am friends with myself
5.) I am determined
6.) I keep interested in things
7.) My belief in myself gets me through hard times
8.) My life has meaning

9.) When I am in a difficult situation, I can usually find my way out of it
10.) I have enough energy to do what I have to do

Center for Epidemiology Studies Depression (CESD) Scale
Please choose the answer that best fits how you have felt and behaved during the past week

0=Rarely or none of the time (<1day)
1=Some or little of the time (1-2 days)
2=Occasionally or a moderate amount of the time (3-4 days)
3=Most or all of the time (5-7 days)

1.) I was bothered by things that don't usually bother me
2.) I had trouble keeping my mind on what I was doing
3.) I felt depressed
4.) I felt everything I did was an effort
5.) I felt hopeful about the future
6.) I felt fearful
7.) My sleep was restless
8.) I was happy (reverse-scored)
9.) I felt lonely
10.) I could not get "going"

APPENDIX B. SAS CODE

```
libname thesis 'h:\thesis';

%include 'T:\EpiProjs\MSM cohort\SAS\include\autoexec - t drive.sas';
options nofmterr nodate ;

proc sort data=survey.status;
        by study_id;
run;

proc sort data=survey.participants_survey_baseline;
        by study_id;
run;

proc sort data=month18.full_18_month;
        by study_id;
run;

proc sort data=thesis.full_12_month;
        by study_id;
run;

**SECTION 1: DATA PREPARATION & SCALE SCORING**;

data thesis.thesis;
        merge   survey.status (keep=study_id race_inc baseline_hiv age_baseline)

                        survey.participants_survey_baseline (keep=study_id educ income
                        comm_trust comm_hire comm_failure comm_child comm_opinion
                        comm_treat comm_friend comm_member comm_stay
                        comm_gayfriends comm_lesbian comm_bettercom comm_events
                        comm_badplace comm_athome comm_enjoy res_manage
                        res_proud res_stride res_selflove res_determined res_interest
                        res_persevere res_meaning res_getout res_energy cesd_bother
                        cesd_concentrate cesd_depressed cesd_effort cesd_hopeful
                        cesd_fearful cesd_badsleep cesd_happy cesd_lonely
                        cesd_getgoing)

                        month18.full_18_month(keep=study_id datestrt religionraised
                        religionraisedother  religioncurrent religioncurrentother
                        religioncurrentfreq religioncurrentimportant
                        religionraiseddisapproves religioncurrentdisapproves
                        religionraiseddiscussion)
```

```
                thesis.full_12_month (keep=study_id var3673 var3674 var3675
                var3676 var3677)
        ;
run;


data prep;
        set thesis.thesis (rename=
                (var3673        =       ih_notgay
                var3674         =       ih_stopattract
                var3675         =       ih_straight
                var3676         =       ih_shortcoming
                var3677         =       ih_pro));


        *primary outcome var*;
        if religionraised ~= religioncurrent then religion_consistent=0;
        else if religionraised=. and religioncurrent=. then religion_consistent=.;
        else religion_consistent=1;

        *four levels of religious history, gradient from least to most religious:
        lifetime not religious, religious -> not religious, not religious -> religious, lifetime
        religious;


        where religionraised ~=.;
        if religionraised=15 and religioncurrent=15 then religion_lifetime=1; *lifetime
        not religious*;
        else if religionraised in (1,2,3,4,5,6,7,8,9,10,11,12,13,14,16,17,18,19) and
        religioncurrent~=15 then religion_lifetime=4; *lifetime religious*;
        else if religionraised~=15 and religioncurrent=15 then religion_lifetime=2;
        *religious -> not religious*;
        else if religionraised=15 and religioncurrent~=15 then religion_lifetime=3; *not
        religious -> religious*;
        else religion_lifetime=.;

*Limit analyses to only ppl who answered both raised and current*;
        where religionraised~=. and religioncurrent~=.;

        *Age dichotomy*;
        if age_baseline >25 then age_dich=1; *older msm*;
        if age_baseline <= 25 then age_dich=0; *young msm*;

        *Cut age into NHBS categories*;
        if age_baseline>=18 and age_baseline<=19 then age_cat=0; *18-19 yo*;
        else if age_baseline>=20 and age_baseline<=24 then age_cat=1; *20-24 yo*;
```

```
else if age_baseline>=25 and age_baseline<=29 then age_cat=2; *25-29*;
else if age_baseline>=30 then age_cat=3; *30-40 yo*;
else age_baseline=.;

*This is the internalized homophobia scoring. It creates an interpretable score f
rom 1 (low)-5 (high)*;

ih_combo=((ih_notgay + ih_stopattract + ih_straight + ih_shortcoming +
ih_pro)/5);

*Create a binary ih_combo variable for ease of interpretation. Dichotomize
ih_combo at the mean=1.6*;
if ih_combo < 1.6 then ih_combo_bin=0;
else if ih_combo >=1.6 then ih_combo_bin=1;
else ih_combo_bin=.;

*Create a "missing/prefer not to answer" level for these variables*;
if religionraiseddisapproves=. then religionraiseddisapproves=9;
else religionraiseddisapproves=religionraiseddisapproves;

if religioncurrentimportant=. then religioncurrentimportant=9;
else religioncurrentimportant=religioncurrentimportant;

*If an "other" was popular (>3 people), I make it into category. If not, keep as
other.*;
if religionraisedother="Non Denomination" or religionraisedother="Non-
Denominational" or religionraisedother="Non demoninational" or
religionraisedother="Non-Denominational Christian" or religionraisedother="Non
denominational" or religionraisedother="Non-Denominational Protestant" or
religionraisedother="non denom born again christian" then religionraised=16;
*non-denominational Christian*;

if religionraisedother="Church of Christ" then religionraised=17; *Church of
Christ*
if religionraisedother="Jehovah's Witness" or religionraisedother="Jehovahs
Witness" or religionraisedother="Jehovah Witness" then religionraised=18;
*Jehovah's Witness*;

if religionraisedother="Seventh Day Adventist" or religionraisedother="seventh
day" then religionraisedother=19; *seventh day Adventist*


if religioncurrentother="Non-Denominational" or religioncurrentother="non
denominational m" or religioncurrentother="nondenominational"
or religioncurrentother="non" or religioncurrentother="nondenominational" or
religioncurrentother="smae same as b4" then religioncurrent=16;
```

```
if study_id=0201391 then religion_consistent=1; *he wrote in other: "same as
before"*;


*If someone put "spiritual not religious" or something else to indicate they didn't
have an org religion, they get "no religion"*;
if religioncurrentother="Spiritual, not religious" or religioncurrentother="I'm
christian and I pray, I don't belong to any one church" or
religioncurrentother="just spirituality" or religioncurrentother="independant" or
religioncurrentother="Independent Spiritual" or religioncurrenother="Spritual" or
religioncurrentother="spiritual with no organized affiliation" or
religioncurrentother="Spirituality" then religioncurrent=15; *no religion*;

if religioncurrentother="Jehovah Witness" or religioncurrenother="Jehovah's
Witness" then religioncurrent=18;
if religioncurrenother="Seventh Day Adventist" then religioncurrent=19;

*Religious affiliation groupings for ease of interp:
1=Catholic, 2=Baptist, 3=Other protestant, 4=Pentecostal, 5=Other religion, 9=No
religion;

if religionraised=1 then religionraised_cat=1; *Catholic*;
else if religionraised=2 then religionraised_cat=2; *Baptist*;
else if religionraised in (3,4,5,6,8) then religionraised_cat=3; *Other protestant*;
else if religionraised=7 then religionraised_cat=4; *Pentecostal*;
else if religionraised in (9,10,11,12,13,14, 16, 17, 18, 19) then
religionraised_cat=5; *Other relgiion*;
else if religionraised=15 then religionraised_cat=9; *No religion*;

if religioncurrent=1 then religioncurrent_cat=1; *Catholic*;
else if religioncurrent=2 then religioncurrent_cat=2; *Baptist*;
else if religioncurrent in (3,4,5,6,8) then religioncurrent_cat=3; *Other
protestant*;
else if religioncurrent=7 then religioncurrent_cat=4; *Pentecostal*;
else if religioncurrent in (9,10,11,12,13,14,16,17,18,19) then
religioncurrent_cat=5; *Other relgiion*;
else if religioncurrent=15 then religioncurrent_cat=9; *No religion*;
else religioncurrent_cat=.;

*Categorize income variable*;
if income in (00, 01, 02, 03) then income_cat=1; *<20,000*;
else if income=04 then income_cat=2; *20-29;
else if income=05 then income_cat=3; *30-39*;
else if income=06 then income_cat=4; *40-49;
else if income in (07, 08) then income_cat=5; *50+*;
else income_Cat=.;
```

```
*SCALE SCORING*;
        *reverse code the "negative" comm vars. We want a comm score that is: higher
        value, more positive comm perception*;

        ARRAY convert{5} comm_failure comm_child comm_opinion comm_bettercom
        comm_badplace;
                DO i = 1 TO 5 ;
                IF i IN (1, 2, 3, 4, 5) THEN DO ;
                convert{i} = 6 - convert{i} ;
                END ;
                END;
                DROP i ;

                *CESD - reverse score*;
        ARRAY define{1} cesd_happy;
                DO j = 1 TO 1 ;
                IF j IN (1) THEN DO ;
                define{j} = 4 - define{j} ;
                END ;
                END;
                DROP j ;

*the "not applicable=8" turned into -2. Turn those variables into zeroes, so we can score
them*;
        if comm_failure = -2 then  comm_failure =0;
        if comm_child=-2 then comm_child=0;
        if comm_opinion =-2 then comm_opinion =0;
        if comm_bettercom=-2 then comm_bettercom=0;
        if comm_badplace=-2 then comm_badplace=0;

        *Month 18 dataset was refreshed after Feb 5th, adding the guys who completed
        18 after the thesis freeze. This
        statement removes them so I can continue analyzing my 232 guys*;
        if datestrt < '05feb2013'd then output;

run;

data thesis.thesis;
        set prep;
run;

data score;
        set thesis.thesis;
        *Community's perception towards MSM*;
```

```
        comm_score_others=(comm_trust + comm_hire + comm_failure  + comm_child
        + comm_opinion + comm_treat + comm_friend)/7;

        *MSM's perceptions of his community*;
        comm_score_me= (comm_member + comm_stay +  comm_gayfriends +
        comm_lesbian + comm_bettercom +  comm_events + comm_badplace +
        comm_athome + comm_enjoy)/9;

        *dichotomize at mean (only including those in Month18)
                Comm_score_me (mean): 3.78, SD=0.69. The n=232
                comm_score_others (mean): 3.49 (SD=0.819);

if comm_score_others >= 3.49 then comm_score_others_bin=1;
else if comm_score_others < 3.49 then comm_score_others_bin=0;

if comm_score_me >= 3.78 then comm_score_me_bin=1;
else if comm_score_me < 3.78 then comm_score_me_bin=0;

*Scoring CESD depression scale*;
cesd_score= (cesd_bother + cesd_concentrate + cesd_depressed + cesd_effort +
cesd_hopeful + cesd_fearful + cesd_badsleep +
cesd_happy + cesd_lonely + cesd_getgoing);

if cesd_score >0 and cesd_score<15 then cesd_cat=1;
        else if cesd_score >=15 and cesd_score<21 then cesd_cat=2;
        else if cesd_score>=21 then cesd_cat=3;
        else cesd_cat=.;

*Resiliency - just the summation *;
res_score = (res_manage + res_proud + res_stride + res_selflove + res_determined +
res_interest + res_persevere + res_meaning
+ res_getout + res_energy);

*Categorized at the mean*;
if res_score >=45 then res_cat=1;
        else if res_score < 45 then res_cat=0;
        else res_score=.;

        format religion_lifetime religion_lifetime.
                        religionraised_cat religion_cat.
                        religioncurrent_cat religion_cat.
                        income_cat income_cat.
                       religion_consistent binary_prefernot.
                       cesd_cat cesd_cat.
;
run;
```

```
data thesis.thesis;
        set score;
run;


proc format library=library;
        value religion_lifetime
          1 = 'Lifetime No Religion'
          2 = 'Religious -> No Religion'
          3 = "No Religion -> Religious "
          4 = "Lifetime Religious"
          ;
          value religion_cat
          1="Catholic"
          2="Baptist"
          3="Other Protestant"
          4="Pentecostal"
          5="Other Religion"
          9="No Religion/Atheist/Agnostic"
          ;
          value income_cat
          1="<$20,000"
          2="$20,000-$29,999"
          3="$30,000-$39,999"
          4="$40,000-$49,999"
          5=">=$50,000"
          ;
          value cesd_cat
          1="Not depressed"
          2="Mildly depressed"
          3="May have depression"
          ;
run;

**SECTION 2: ANALYSIS**;
%include "H:\thesis\thesis prep program.sas";

***TABLE 1 - DEMOGRAPHICS
Look at "religion_lifetime" variable: four levels:
1.) lifetime atheist
2.) religionraised -> current atheist
3.) raised atheist -> currently religious
4.) lifetime religious

Due to some sparse data, a Fisher's exact test was conducted
```

```
***;
proc freq data=thesis.thesis;
        tables race_inc * religion_lifetime / chisq nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime. religioncurrentdisapproves resiliency.;
run;

proc freq data=thesis.thesis;
        tables age_cat * religion_lifetime /chisq  nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime. age_cat age_cat.;
run;

proc freq data=thesis.thesis;
        tables educ * religion_lifetime / chisq  nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime. educ educ.;
run;

proc freq data=thesis.thesis;
        tables income_cat * religion_lifetime /chisq  nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime. income_cat income_cat.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime in (2,4);
        tables religionraised_cat* religion_lifetime /chisq  nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime. religionraised_cat religion_cat.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime in (3,4);
        tables religioncurrent_cat* religion_lifetime /chisq  nocol nopercent cm fisher;
        format religion_lifetime religion_lifetime. religioncurrent_cat religion_cat.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religionraiseddisapproves* religion_lifetime /chisq  nocol nopercent cmh;
        format religion_lifetime religion_lifetime. religionraiseddisapproves resiliency.;
run;

proc freq data=thesis.thesis;
        tables religioncurrentdisapproves* religion_lifetime /chisq  nocol nopercent cmh
        fisher;
        format religion_lifetime religion_lifetime. religioncurrentdisapproves resiliency.;
run;

proc freq data=thesis.thesis;
```

```
        where religion_lifetime in (3,4);
        tables religioncurrentfreq* religion_lifetime /chisq  nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime. religioncurrentfreq religion_freq.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime in (3,4);
        tables religioncurrentimportant* religion_lifetime /chisq  nocol nopercent cmh
        fisher;
        format religion_lifetime religion_lifetime. religioncurrentimportant resiliency;
run;

proc freq data=thesis.thesis;
        tables ih_combo_bin* religion_lifetime /chisq  nocol nopercent cmh fisher;
        format religion_lifetime religion_lifetime.;
run;

proc freq data=thesis.thesis;
        tables comm_score_others_bin* religion_lifetime /chisq  nocol nopercent cmh;
        exact fisher;
format religion_lifetime religion_lifetime.;
run;

proc freq data=thesis.thesis;
        tables comm_score_me_bin* religion_lifetime /chisq  nocol nopercent cmh;
        exact fisher;
        format religion_lifetime religion_lifetime.;
run;

proc freq data=thesis.thesis;
        tables cesd_cat* religion_lifetime /chisq  nocol nopercent cmh;
        exact fisher;
        format religion_lifetime religion_lifetime. cesd_cat cesd_cat.;
run;

proc freq data=thesis.thesis;
        tables res_cat* religion_lifetime /chisq  nocol nopercent cmh;
        exact fisher;
        format religion_lifetime religion_lifetime. ;
run;


*****Table 2. Bivariates: observe religion_consistent * every variable, limited to MSM
with a lifetime religion. Also assess the total number*;

*Race categories*;
```

```
proc freq data=thesis.thesis;
        where religion_lifetime=4; *limited to MSM with lifetime religion*;
        tables race_inc / chisq nocol;
run;

*Race categories - consistent*;
proc freq data=thesis.thesis;
        where religion_lifetime=4; *this limits my analysis to month18 only*;
        tables  race_inc * religion_consistent / chisq nocol nopercent cmh;
run;

*Age categories*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables age_cat / chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables age_cat * religion_consistent/ chisq nocol nopercent cmh;
run;

*Education*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;*this limits my analysis to month18 only*;
        tables educ/ chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * educ / chisq nocol nopercent;
run;

*income*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables income_cat/ chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * income_cat / chisq nocol nopercent cmh;
run;

*Raised Religious Affiliation*;
proc freq data=thesis.thesis;
```

```
        where religion_lifetime=4;
        tables religionraised_cat/ chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religionraised_cat * religion_consistent/ chisq nocol nopercent cmh;
        format religionraised religion.;
run;

*Current Religious Affiliation*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religioncurrent_cat/ chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * religioncurrent_cat/ chisq nocol nopercent;
run;

*Relig important*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religioncurrentimportant / chisq nocol;
        format religioncurrentimportant resiliency.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * religioncurrentimportant  / chisq nocol nopercent
        cmh;
        format religioncurrentimportant resiliency.;
run;

*Relig attendance freq*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religioncurrentfreq / chisq nocol;
        format religioncurrentfreq religion_freq.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * religioncurrentfreq/ chisq nocol nopercent;
        format religioncurrentfreq religion_freq.;
```

```
run;

*Relig raised disapprove;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religionraiseddisapproves/ chisq nocol;
        format religionraiseddisapproves resiliency.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables  religion_consistent * religionraiseddisapproves/ chisq nocol nopercent;
        format religionraiseddisapproves resiliency.;
run;

*Relig currentdisapprove;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religioncurrentdisapproves/ chisq nocol;
        format religioncurrentdisapproves resiliency.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * religioncurrentdisapproves / chisq nocol nopercent;
        format religioncurrentdisapproves resiliency.;
run;

*ih_combo_bin;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables ih_combo_bin/ chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * ih_combo_bin / chisq nocol nopercent;
run;

*Comm perceptions - how others view gay men. Dichotomized at mean*;
proc freq data=thesis.thesis;
        where religion_lifetime=4; *this limits my analysis to month18 only*;
        tables comm_score_others_bin/ chisq nocol;
run;

proc freq data=thesis.thesis;
```

```
        where religion_lifetime=4;
        tables religion_consistent * comm_score_others_bin/ chisq nocol nopercent;
run;

*Comm perceptions - how MSM views his community Dich at mean*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;*this limits my analysis to month18 only*;
        tables  comm_score_me_bin/ chisq nocol;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent *  comm_score_me_bin/ chisq nocol nopercent;
run;

*Depression*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;*this limits my analysis to month18 only*;
        tables  cesd_cat/ chisq nocol;
        format cesd_cat cesd_cat.;
run;

proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent *  cesd_cat/ chisq nocol nopercent;
        format cesd_cat cesd_cat.;
run;

*Resiliency*;
proc freq data=thesis.thesis;
        where religion_lifetime=4;*this limits my analysis to month18 only*;
        tables  res_cat/ chisq nocol;
run;
proc freq data=thesis.thesis;
        where religion_lifetime=4;
        tables religion_consistent * res_cat/ chisq nocol nopercent;
run;

**SCALE - Internal validity*;

*Coefficient correlation alpha for comm_score_me*;
proc corr data=thesis.thesis nomiss alpha;
        var comm_member comm_stay comm_gayfriends comm_lesbian
        comm_bettercom comm_events comm_badplace comm_athome comm_enjoy;
run;
```

```
*Cronbach's for comm_score_others*;

proc corr data=thesis.thesis nomiss alpha;
        var comm_trust comm_hire comm_failure comm_child comm_opinion
        comm_treat comm_friend;
run;

*Cronbach's for depression*;
proc corr data=thesis.thesis nomiss alpha;
        var cesd_bother  cesd_concentrate  cesd_depressed  cesd_effort  cesd_hopeful
        cesd_fearful  cesd_badsleep cesd_happy  cesd_lonely cesd_getgoing;
run;

*Cronbach's for IH*;
proc corr data=thesis.thesis nomiss alpha;
        var ih_notgay ih_stopattract ih_straight ih_shortcoming ih_pro;
run;

*Cronbach's for resiliency*;
proc corr data=thesis.thesis nomiss alpha;
        var res_manage res_proud res_stride  res_selflove  res_determined  res_interest
        res_persevere  res_meaning res_getout res_energy;
run;


*****MODELING***************;

*it was necessary to reduce the number of categories in the affiliation variables because
the model couldn't run with more than two categories*;

data interact;
        set thesis.thesis;

        if religionraised=2 then religionraised_cat=2; *Baptist*;
        else if religionraised in (3,4,5,6,8, 1, 7, 9,10,11,12,13,14, 16, 17, 18, 19) then
        religionraised_cat=5; *Other relgiion*;
        else if religionraised=15 then religionraised_cat=.; *No religion*;

        if religioncurrent=2 then religioncurrent_cat=2; *Baptist*;
        else if religioncurrent in (3,4,5,6,8, 1, 7, 9,10,11,12,13,14, 16, 17, 18, 19) then
        religioncurrent_cat=5; *Other relgiion*;
        else if religioncurrent=15 then religioncurrent_cat=.; *No religion*;
run;

data thesis.thesis;
        set interact;
```

```
run;

*Full model*;
proc logistic data=thesis.thesis descending;
	where religion_lifetime=4;

	format religioncurrentimportant resiliency. religionraiseddisapproves resiliency.
	religioncurrentdisapproves resiliency. religioncurrentfreq religion_freq.;

	class race_inc (ref="White/Caucasian") age_dich educ (ref="College, post
	graduate, or professional school,") income_cat (ref="<$20,000")
	religioncurrent_cat (ref="Baptist") religionraised_cat (ref="Baptist") / param=ref;

	model religion_consistent = race_inc age_dich income religioncurrentfreq
	religioncurrentimportant religioncurrentdisapproves religionraiseddisapproves
	religionraised_cat religioncurrent_cat comm_score_others comm_score_me
	ih_combo cesd_score res_score;
run;


*Backwards hierarchical elimination yields this final, reduced model. Hosmer-Lemeshow
statistic shows goodness of fit;

proc logistic data=thesis.thesis descending;
	where religion_lifetime=4;

	format religioncurrentimportant resiliency. religionraiseddisapproves resiliency.
	religioncurrentdisapproves resiliency. religioncurrentfreq religion_freq.;

	class race_inc (ref="White/Caucasian") age_dich educ (ref="College, post
	graduate, or professional school,") religioncurrent_cat (ref="Baptist")
	religionraised_cat (ref="Baptist") / param=ref;

	model religion_consistent = race_inc age_dich income religioncurrentimportant
	religioncurrentdisapproves religionraiseddisapproves religioncurrent_cat
	comm_score_me cesd_score /lackfit; *hosmer-lemeshow*;
run;



*Forest Plot*;

proc import out=forest datafile="h:\thesis\forest.xlsx"

    dbms=xlsx replace;

    getnames=yes;
```

```
run;
ods graphics output on;
        var=upcase(var);
run;
title "Multivariate Model of Covariates of Religious Consistency";
proc sgplot data=foresty;
        scatter x=oddsratio y=var / xerrorlower=lowercl
        xerrorupper=uppercl
        markerattrs=or
        (symbol=DiamondFilled size=8);
        refline 1.0 / axis=x;
        xaxis label="aOR and 95% CI " min=0
                        VALUES= (0 1 2 3 4 5 6 7);
        yaxis label="Covariates";
run;
proc template;
        define statgraph forest;
        begingraph;
        layout overlay / xaxisopts=(label="OR and 95% CI"
         linearopts=(viewmin=0))
         yaxisopts=(label="Covariates");
        scatterplot x=oddsratio y=var / xerrorlower=lowercl
         xerrorupper=uppercl
         markerattrs=or (symbol=DiamondFilled size=8);
```

```
        referenceline x=1.0 ;
        endlayout;
        endgraph;
end;
run;
proc sgrender data=forest template="forest";
run;
ods graphics off;
```