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# The Effects of Pathogen and Moral Disgust on Implicit and Explicit Attitudes Regarding Male Homosexuality

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UNIVERSITY OF MIAMI

THE EFFECTS OF PATHOGEN AND MORAL DISGUST ON  
IMPLICIT AND EXPLICIT ATTITUDES REGARDING MALE HOMOSEXUALITY

By

Adam R. Smith

A THESIS

Submitted to the Faculty  
of the University of Miami  
in partial fulfillment of the requirements for  
the degree of Master of Science

Coral Gables, Florida

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Recent research has shown that heightened sensitivity to disgust predicts an increased level of bias against homosexuals. However, this research has some methodological issues. First, it confounds attitudes toward male and female homosexuality by studying attitudes toward “homosexuals” despite an accumulating body of evidence showing that attitudes toward gay men and lesbians differ. Second, past research has focused on a single domain of disgust, pathogen disgust. According to recent evolutionary models, there are at least three subtypes of disgust—pathogen, sexual, and moral disgust—each with different functional domains. It is currently unknown what types of disgust beyond pathogen disgust might underlie anti-gay attitudes. Third, existing research is correlational, and cannot speak to how disgust causes stigma toward gay men. Finally, no model has examined attitudes toward gay men at the implicit (non-conscious) level. To fill these gaps, the present study aims to determine how activation of, and sensitivity to, domain-specific disgust affects attitudes toward gay men at both explicit and implicit levels. This thesis discusses the results of the study, and comments on the interplay of disgust, morality and the stigmatization of gay men.

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## **Chapter 1: Introduction**

Recent research has shown that sensitivity to disgust predicts an increased level of bias against gay men (Inbar, Pizarro, Knobe & Bloom, 2009; Inbar, Pizarro, & Bloom, 2011). However, this research has focused primarily on one domain of disgust, pathogen disgust. According to recent evolutionary models (e.g., Fessler, & Navarrete, 2003; Tybur, Lieberman & Griskevicius, 2009), there are at least three subtypes of disgust—pathogen, sexual, and moral disgust—each designed by natural selection to solve different adaptive problems. These models have yet to be used to examine the factors governing the stigmatization, prejudice, and discrimination of male homosexuality. To fill this gap, the present study aims to determine whether total disgust sensitivity — or sensitivity to particular domains of disgust — underlie attitudes regarding male homosexuality.

### **Stigma and Male Homosexuality**

A main area of research within social psychology is on the processes underlying stigmatization, discrimination, and prejudice (e.g., Crocker, Major, & Steel, 1998; Goffman, 1963). Researchers have been interested in understanding the factors that contribute to the formation of negative attitudes toward different groups, including male homosexuals. Recent social psychological theories of stigmatization assert that stigma begins when a group of individuals possess an undesirable characteristic that makes them different from the norm, providing the foundation of an “us” versus “them” mentality (Link & Phelan, 2001). Once a group has become stigmatized and negative stereotypes have become widely associated with the group, a cycle of prejudice and discrimination can take hold (Major & O'Brien, 2005). As stigma increases, so too does the salience of the trait that originally acted to marginalize the stigmatized group, thus causing the

stigmatized group to experience a sense of devaluation and dehumanization (Steele, 1997, 1998).

As helpful as these models have been to further our understanding of stigma and related processes, they do not provide any theoretically rational ground for why certain groups yet not others are more prone to experience stigmatization. What, for example, counts as an undesirable characteristic? Are the characteristics that produce stigma random or are there patterns that connect different stigmatized groups?

Taking an evolutionary approach to stigma, Kurzban and Leary (2001) attempt to answer these questions and suggest that stigmatization and devaluation of others are really forms social exclusion that evolved to increase the fitness of our ancestors by protecting them from particular categories of individuals. For instance, there are fitness benefits from the social exclusion of individuals who are costly social exchange partners (i.e., individuals who would cheat or otherwise act unfairly in dyadic interactions) or individuals who might have harmed the group by disproportionately exploiting its resources. Kurzban and Leary (2001) also suggest that social exclusion functions to promote the avoidance of individuals who show signs of disease. This suggestion has been echoed by others who note that disgust, an emotion that functions to avoid contaminated substances, is the primary emotion governing the stigmatization of the terminally-ill, the obese, and the physically handicapped (Crandall, 1994; Crandall & Moriarty, 1995; Park, Faulkner, & Schaller, 2003).

With respect to male homosexuality, much of the stigmatization that occurs appears to be related to the pathogen/disease avoidance function of social exclusion as discussed by Kurzban and Leary (2001). The stigmatizing association of gay men with

disease and germs is a phenomenon dating back at least 2000 years (Nussbaum, 2010). More recently, male homosexuals have become associated with diseases such as AIDS (Crandall, Glor & Britt, 1997). Thus, at least some anti-gay attitudes appear to stem from disgust and its function in avoiding sources of contamination. What is not known, however, is whether this disease-disgust, or more social forms of disgust such as sexual and moral disgust underlie these attitudes.

### **Measuring Anti-Gay Attitudes**

Researchers interested in attitude formation toward gay men and women have used both explicit and implicit methods. With respect to explicit measures, studies have shown that heterosexual males typically espouse stronger negative attitudes toward male and female homosexuality and toward gay men in particular, than do heterosexual women (Whitley, 1988). There is variation, however, among the explicit attitudes of heterosexual women with white heterosexual females possessing significantly fewer negative attitudes toward gay men as compared to black heterosexual women (Whitley & Kite, 1995). In addition, less overall contact with gays is predictive of more negative attitudes toward gays (Brown & Henriquez, 2008), as is high social dominance orientation (Quist & Resendez, 2002), right-wing authoritarianism and religious fundamentalism (Jonathan, 2008; Rowatt, Tsang, Kelly, LaMartina, McCullers & McKinley, 2006). On the positive side, researchers have found that the personality trait of openness to experience is positively correlated with the acceptance of homosexuality (Barron, Struckman-Johnson, Quevillon & Banka, 2008). Lack of religiosity and liberal political beliefs also appear to contribute to pro-gay attitudes (Brown & Henriquez, 2008).

As with many stigmatized groups (e.g., minorities and the handicapped), attitudes toward homosexuals can be difficult to measure directly. For instance, Adams, Wright, and Lohr (1996) found that males who indicated they were homophobic were more aroused by erotic images of nude men than self-reported non-homophobic males. To circumvent the problems associated with response bias, such as social desirability, researchers have recently taken advantage measuring attitudes at the implicit level.

The Implicit Association Test (IAT) is a widely used and highly consistent measure of non-conscious attitudes (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). The IAT provides a measure of how strongly one associates pleasant and unpleasant (or positive and negative) terms with particular categories such as black/white, Christian/Muslim, American/foreigner or old/young (Rudman & Greenwald 1999). In the black/white IAT (termed the Race IAT), for example, one can test the strength of one's preference for white or black faces by measuring how easy it is for subjects to associate black faces and positive terms as compared to white faces and positive terms.

It is important to note that the IAT does not measure explicit or consciously-held attitudes. Rather the IAT was designed to measure implicit, non-conscious attitudes, which could contradict one's self-reported beliefs, which are subject to the effects of impression management and social desirability. For instance, in a study looking at the performance of black participants on the Race IAT, approximately one-third of the sample showed a slight to strong implicit preference for white faces, despite reporting overwhelming explicit preference for their own race (Nosek, Banaji & Greenwald, 2002).

Clearly the IAT can provide information about implicit, non-conscious, attitudes. But are these implicit attitudes sufficient to predict behavior? Gawronski (2002)

conducted an analysis of the real world validity of IATs, looking in particular at IATs that measure implicit prejudice, and found that implicit attitudes can predict behavior in spite of explicit attitudes. This explanatory power of the IAT is evidenced in a study conducted by Van der Bergh and colleagues (2010) that was able to explain unfair treatment by teachers of immigrant students. In spite of teachers' explicit reports of acting impartially, when assessed using an IAT, it became clear these teachers harbored prejudices about which they were unaware. In this case, implicit prejudice explained actual behavioral discrimination.

The present study used a modified version the IAT known as the Sexuality or "Gay-Straight" IAT to measure implicit, non-conscious, attitudes toward gay men. In an analysis of the psychometric properties of the Gay-Straight IAT (which combines attitudes toward both gay men and women), Banse and colleagues (2001) found that participants could fake explicit but not implicit attitudes toward homosexuals. For example, participants could mask bias against homosexuals on questionnaires and in interviews, but not on the Gay-Straight IAT. This is to say, it is impossible to fake pro-gay implicit attitudes if you do not possess these attitudes already. Consistent with self-reports of attitudes toward homosexuals, right-wing authoritarians (Jonathan, 2008) and religious fundamentalists (Rowatt, Tsang, Kelly, LaMartina, Mccullers & McKinley, 2006) possessed especially negative implicit attitudes toward homosexuals, and heterosexual males were also found to possess more negative implicit attitudes toward homosexuals than heterosexual female participants (Banse et al., 2001).

Although a number have studies have implemented the standard Gay-Straight IAT (Banse et al., 2001; Steffens, 2005; Rowatt, Tsang, Kelly, LaMartina, Mccullers &

McKinley, 2006; Gabriel, Banse & Hug, 2007; Tsang & Rowatt, 2007; Jonathan, 2008; Clow & Olson, 2010), the very design of this IAT confounds attitudes toward gay men and lesbians, and thus there is no study to date that has focused exclusively on implicit attitudes toward male homosexuality. In addition, no study has looked at how manipulating an individual's emotional state affects implicit attitudes toward male homosexuals. The one study that did examine emotions and implicit attitudes toward homosexual (men and women) focused on disgust, but was only a correlational study. Inbar, Pizarro, Knobe & Bloom (2009) found that individual differences in sensitivity to disgust predicted the degree of non-conscious negative attitudes felt toward homosexuality. That is, individuals who are more easily grossed-out also tend to be more easily upset by homosexuality. Though this discovery provides evidence that disgust is linked to the formation of attitudes toward homosexuality, there are a number of outstanding questions that have yet to be addressed.

### **Outstanding Questions**

First, the version of the Gay-straight IAT used by Inbar et al. (2009) combines implicit attitudes towards gay men and lesbians into a single concept (Nosek, Banaji & Greenwald, 2006). Thus, this IAT can only serve as a measure of implicit attitudes toward homosexuals in general. It is possible, however, that attitudes toward gay men and lesbians are different, with different factors contributing to the development of positive and negative attitudes toward each group.

Second, what is the causal relationship between disgust sensitivity and anti-gay attitudes? Inbar et al., (2009) found a positive correlation between individual differences in disgust sensitivity and implicit attitudes toward homosexuals. But correlation is not

causation and it is possible that the effect reported by Inbar et al. (2009) was due to an unknown third variable. It has yet to be determined experimentally whether attitudes regarding disgust directly affect attitudes toward homosexuals and homosexual males, in particular.

Third, do all types of disgust influence attitudes toward homosexual males or only a subset? Inbar et al., (2009) considered only one type of disgust, pathogen disgust, a consequence of the scale the researchers used to measure disgust sensitivity. In contrast, a growing body of research supports the proposal that disgust is not a singular emotion, but rather is comprised of three functionally distinct domains which were adaptive (i.e., improved fitness) in the ancestral past: pathogen disgust, which functions to promote the avoidance of disease-causing organisms; sexual disgust, which functions to promote the avoidance of biologically costly sexual behaviors; and moral disgust, which functions to promote the avoidance of social-norm violators (Lieberman, Tooby and Cosmides, 2007; Tybur, Lieberman and Griskevicius, 2009). If each domain of disgust was designed by natural selection to solve a different functional problem, it follows that activation of each disgust domain is dependent on the appearance of a domain-specific situational elicitor (Cosmides & Tooby, 1994). For example, seeing a bone sticking out of someone's leg should activate pathogen disgust, because blood and other bodily fluids were a reliable source of disease-causing agents. By contrast, witnessing a social-norm violation such as child abuse should activate moral disgust, and subsequent avoidance and perhaps punishment of the child abuser. It is currently an open question as to what type of disgust response is elicited in response to male homosexuality, and by what sorts of individuals this response is experienced.

Until recently, there was no instrument available to measure individual differences in sensitivity to the different domains of disgust. Rather, researchers have relied on the Disgust Scale (Haidt, McCauley & Rozin, 1994), which has a number of methodological problems (Tybur, Lieberman and Griskevicius, 2009; Tybur, 2010). Not only does the Disgust Scale not directly measure disgust, it mainly assays for sensitivity to a single functional domain: pathogen disgust. Thus, it is not suitable for measuring how sensitivities in sexual and moral disgust relate to different constructs including attitudes toward homosexuality.

Given these limitations, evolutionary-minded researchers developed a new scale to measure disgust sensitivity across all three domains. This scale, called the Three Domain Disgust Scale (Tybur et al., 2009) is a validated measure showing convergent and discriminant validity (e.g., DeBruine et al., 2010). The development of this scale now enables us to address the question of whether all types of disgust influence attitudes toward homosexuality or just a subset.

Last, Inbar et al. (2009) did not report sex differences in their results on the explicit and implicit measures of attitudes towards homosexuals, even though they detected sex differences in disgust sensitivity. Given that heterosexual males tend to possess stronger negative attitudes toward homosexuality than do heterosexual females on both the explicit (Cardenas & Barrientos, 2008) and implicit measures of homosexuality (Banse, Seise & Zerbes, 2001), it is not clear why Inbar et al. (2009) did not report on this matter.

## **The Present Study**

The goal of the present study is to examine whether negative implicit attitudes regarding male homosexuality stem from pathogen or moral disgust psychology. (Human subject considerations prevented inclusion of a sexual disgust condition.) A previous pilot study looking at the correlations between disgust domains and explicit anti-gay attitudes found that differences in pathogen disgust sensitivity predicted anti-gay male attitudes for men, not women. Sensitivity to moral disgust did not predict anti-gay male attitudes for either sex (Lieberman & Tybur, 2008).

This study builds on this previous study and will manipulate the activation of pathogen and moral disgust, and then measure implicit attitudes toward gay men via a modified Gay-Straight IAT. Previous research using the IAT has found that priming subjects with disgust can influence the strength of negative attitudes toward particular stigmatized groups. For instance, Park et al. (2007) found that priming subjects with concepts related to disease led to strengthened associations between illness and obesity. In the present study, a similar method will be used to explore implicit attitudes toward male homosexuality. As discussed in the methods section, subjects will be primed with pathogen disgust elicitor, moral disgust elicitor or a neutral condition, and then complete the Gay-Straight IAT to measure implicit attitudes regarding male homosexuality. In addition, this study will also look at the effect of disgust sensitivity and other personality measures on implicit and explicit attitudes toward homosexuality.

## Hypotheses

My first hypothesis examines whether an evolved disease psychology underlies attitudes toward gay men. If thoughts of male homosexuality conjure thoughts of contamination then attitudes toward male homosexuality might stem from pathogen avoidance. Thus I predict that as found by Inbar et al. (2009), disgust sensitivity toward pathogens will predict implicit and explicit bias toward gay men. Further, I predict that priming (i.e., activating) pathogen disgust, but not moral disgust, will lead to greater implicit bias against gay men.

My second hypothesis is that there will be a difference between genders. Specifically, given that past research has found a correlation between pathogen disgust sensitivity and attitudes toward gay men for males, but not females, I predict a stronger correlation between pathogen disgust sensitivity and implicit and explicit biases in men than in women. I also predict that priming pathogen disgust will cause an increase in anti-gay bias for men, not women.

Another aim of the study is to explore whether the causal relationship between the pathogen prime and performance on the Gay-Straight IAT is moderated by pathogen disgust sensitivity; this potential moderator will also be examined based on participant gender.

Last, I wanted to examine the relationship between implicit and explicit attitudes toward gay men and other psychological measures shown to correlate with them. I predict that as previously found, explicit bias toward gay men will positively correlate with the personality factors of neuroticism, obsessive compulsion, hypochondria, social dominance, religiosity, and right wing political belief. I predict explicit bias will

negatively correlate with the personality factor of openness to experience. Finally, I predict that these various factors will also correlate with implicit bias toward gay men.

## **Chapter 2: Method**

### **Design**

The study was designed to manipulate the activation of concepts relating to pathogen disgust and moral disgust and to determine how these concepts impact implicit attitudes toward homosexuals. (In consultation with the University of Miami Internal Review Board, the sexual disgust manipulation was removed from the study because the scientific benefit was determined to not outweigh the psychological cost of viewing the potentially disturbing material.) This study was a between-subjects experimental design. Participants were randomly assigned to one of three conditions: pathogen disgust, moral disgust, or neutral. Following each prime was the experimental task, the Gay-Straight IAT. The dependent measure was the D score, the difference in the reaction time between the trials that associate Gay with Negative concepts (Straight with Positive concepts) and the trials that associate Gay with Positive concepts (Straight with Negative concepts). Demographic data and survey data were collected following administration of the Gay-Straight IAT.

### **Participants**

Participants were 91 students (31 men) enrolled in undergraduate introductory psychology courses at the University of Miami, and were recruited through a research participation pool. Participant ages ranged from 18 to 39 years old (mean: 19 years old). As compensation for participation, participants were awarded two credits toward the completion of the introductory psychology course requirement. No participants were excluded from participation on the basis of sexual orientation (see Data Analysis). Three participants identified as bisexual. The rest identified as exclusively heterosexual.

## Materials

Participants were assigned to one of three experimental conditions in which they viewed a neutral video prime, or a video prime activating pathogen or moral disgust. Following this video prime, all participants completed an Implicit Association Task (IAT) examining the level of implicit bias toward male homosexuality. They then completed a questionnaire.

***Video Primes.*** Each priming condition (Pathogen Disgust, Moral Disgust and Neutral) involved viewing a video that was normed on a separate set of 30 participants to ensure the pathogen disgust video elicited pathogen disgust, but not moral disgust; the moral disgust video elicited moral disgust, but not pathogen disgust; and the neutral video elicited neither type of disgust and was rated as emotionally neutral. Additionally, videos were normed in respect to valence and emotional intensity (See Appendix A for norming information). Videos ranged in length from fifty-five seconds to one minute and five seconds (See Table 1). For the pathogen disgust condition, participants viewed a clip of a man squeezing puss from a cyst on his stomach (<http://www.stileproject.com/video/13239/gross-white-puss-squeezed-out-of-hole-in-stomach.html>); moral disgust: closed-circuit footage of a man mugging and beating an elderly woman (<http://www.stileproject.com/video/9753/old-lady-gets-beat-down-mugged.html>); neutral condition: a clothes dryer drying clothes (<http://www.youtube.com/watch?v=nhoXyUJye9g>).

Table 1. Video Primes

		
Pathogen Disgust: Cyst Extraction	Moral Disgust: Mugging	Neutral: Spinning Laundry

***Gay-Straight Implicit Association Test.*** This reaction-time dependent categorization task is administered in the style of Greenwald, McGhee and Schwartz (1998). The Gay-Straight IAT, as it is referred to in the current study, was adapted from the Sexuality IAT which is available on the Project Implicit website (<http://implicit.harvard.edu/>) Nosek, Banaji & Greenwald, 2006). Unlike the Sexuality IAT, which measures implicit attitudes to both male and female homosexuals, the Gay-Straight IAT developed for the current study only measured implicit attitudes toward male homosexuals.

In the Gay-Straight IAT, participants were presented with a series of target words and images, and asked to sort them as quickly as they can into one of four categories: Good, Bad, Gay People or Straight People (see Table 2). There were seven separate stages.

Table 2. IAT Stimuli

Category	Target Words and Images
Good	Joyful, Beautiful, Marvelous, Wonderful, Pleasure, Glorious, Lovely, Superb
Bad	Agony, Terrible, Horrible, Humiliate, Nasty, Painful, Awful, Tragic
Gay People	  Gay, Homosexual
Straight People	  Straight, Heterosexual

In the first stage, participants were asked to sort words and pictures into the category Straight People or Gay People. These category labels are displayed in the top corners of the computer screen. When a picture or word belongs to the category label (e.g., Straight People) in the left corner, the letter 'F' was pushed with the left index finger and when a picture or word belongs to the category label (e.g., Gay People) in the right corner of the screen, the letter 'J' was pushed with the right index finger. In stage one, Straight People as placed on the left side of the screen, Gay People on the right.

In stage two Good was placed on the left side of the screen and Bad on the right. In this stage, participants were asked to quickly sort the words belonging to both categories listed in Table 2. Stage one and stage two served the purpose of acclimating participants to the positioning of the categories and the process of sorting. These stages were not considered in the statistical analyses.

In the third stage, participants were presented with both category dimensions and asked to sort both words and images. In these double category trials, the labels were

paired in a manner hypothesized to describe the standard bias. Accordingly, Good was paired with Straight People and Bad was paired with Gay People.

The fourth stage was an exact repetition of the third stage. Data from the third and fourth stages were used in statistical analyses (see Data Analysis).

In the fifth stage, which was a single category trial, Gay People was placed on the left side of the screen, and Straight People was placed on the right side of the screen. The purpose of the fifth stage was to reacclimate participants to the position of the categories Gay People and Straight People. Data from the fifth stage was not used in analyses.

The sixth and seventh stages were identical with Good paired with Gay People and Bad paired with Straight People (see Appendix B for list of Stages). Data from these last two stages were used in analyses.

Although this pattern of IAT administration is the most widely used (Greenwald, Poehlman, Uhlmann & Banaji, 2009), an alternative IAT administration procedure does exist in which stages one, three and four, are reversed with stages five, six, and seven (Greenwald, Nosek, & Banaji, 2003). The present study did collect data using this method, but chose not to include this data in analysis because it did not provide adequate variability for statistical analysis.

**Surveys.** Directly after the IAT, all participants were asked to complete a survey packet. The surveys were compiled to assess individual differences in disgust sensitivity, personality, explicit attitudes towards homosexuals, and variety of demographics (see Appendix C).

The first page of the survey packet was a general demographic questionnaire consisting of basic questions on variables including gender, age, ethnicity and religious

affiliation. Information on sexual orientation was also collected here using a categorical measure (*exclusively heterosexual, exclusively homosexual, bisexual, or other*). Disgust sensitivity was measured by the Three Domain Disgust Scale (Tybur, Lieberman & Griskevicius, 2009). This scale is the only validated scale to measure disgust sensitivity across three separate domains. In addition to the TDDS, participants also completed the standard Disgust Scale developed by Haidt et al., (1994). Although the DS only measures sensitivity to pathogen disgust (see Tybur et al., 2009), since it is the most widely used disgust scale, it was included to help bridge the findings from this study to the rest of the literature on disgust.

Explicit attitudes toward homosexuals were measured using three different scales: The Homophobia Scale (Wright, Adams Bernat, 1999), the Attitudes Toward Lesbians and Attitudes Toward Gay Men scale (Herek, 1988), and the Universal Measure of Bias – Gay (Latner et al., 2008) scale. Each scale is composed of different factors and thus measures different aspects of anti-gay attitudes. In addition, we included three separate questions on the degree to which participants associated pathogen, sexual, and moral disgust with thoughts of male homosexuality. We called these three questions “Direct disgust toward gay men.”

Participants also completed eight different measures to examine individual differences and control for personality dimensions that might contribute to implicit biases against homosexuals. The Big Five Inventory (John & Srivastava, 1999) was used as a general personality measure. In addition, participants completed, the Maudsley Obsessive Compulsive Inventory (Hodgson and Rachman, 1977), the Psychopathy Scale (Levenson, Kiehl, Fitzpatrick, 1995), the Perceived Vulnerability to Disease scale (Duncan, Schaller,

& Park, 2009), the Social Dominance Orientation scale (Pratto Sidanius, Stallworth, & Malle, 1994), the Religious Fundamentalism scale (Saroglou, 2002), and the 10-item Right Wing Authoritarianism scale (McFarland, 2005).

### **Data Analysis**

Using the “Improved Scoring Algorithm” set forth by Greenwald, Nosek and, and Banaji (2003), a standardized assessment of the strength of a participant’s implicit preference for gay men or straight people was obtained.

The participant’s particular score is a known as an IAT “D” measure, which is a distance score reflecting the direction and strength of the participant’s implicit attitudes. (See Appendix B for information on calculating the IAT D score). Positive D scores represent an implicit association between both straight people and good concepts, and gay men and bad concepts, whereas negative D scores represent an implicit association between gay people and good concepts, and straight people and bad concepts. The magnitude of the D score correlates with the strength of this association, and can be interpreted as a slight implicit preference (.15), a moderate implicit preference (.35), or a strong implicit preference (.65) for heterosexual couples or gay men depending on the direction of the correlation.

Data for four participants was unable to be analyzed due to non-compliance with directions and one due to a contaminated survey packet.

### **Procedure**

Participants registered online for one one-hour session. The experimental portion of the study was described as a “watching a short video, and performing a sorting task.”

The survey portion of the study session was described as “a series of surveys on demographics, personality and opinions about sexuality.”

Upon arrival to the laboratory informed consent was obtained from participants. Reading from a standardized script, the researcher described the basic details of the computer experiment. First, participants were informed they would be watching a short video clip which is approximately one minute long, and that they should pay attention to video throughout the duration of its playback. Next, participants were informed that they would be performing a sorting task. The researcher explained that the purpose of the task was to sort different words which appear in the center of the screen into their appropriate categories, which appear in the upper corners of the screen. The participant was told that for the purposes of sorting, they should press the [F] key when the word belongs to the category on the upper left-hand corner of the screen, and the [J] key when the word belongs to the category in the upper right-hand corner of the screen. The researcher then emphasized the need to respond quickly and accurately during the sorting task. The researcher informed the participant that the entire computer experiment should take approximately fifteen minutes to complete. In addition, the researcher informed the participant that instructions for each part of the experiment are described on the computer as the experiment proceeds. After answering any questions, the researcher started the experiment. After completing the computer experiment, the researcher administered the surveys (see Appendix C) to the participant. To begin this portion of the study, the researcher read a script describing instructions for filling out the surveys, and then the researcher informed the participant that the surveys should take approximately

forty-five minutes to complete. Upon completing the surveys, the participant was thanked and then dismissed.

## Chapter 3: Results

### Dependent Variable - D Score

Effectiveness of the dependent variable, the D Score, which was designed to measure implicit bias toward gay men, was first checked by comparing mean reaction times (RT) differences between the bias-confirming stages three and four (where gay is associated with negative concepts) and the bias disconfirming stages six and seven (where gay is associated with positive concepts) of the Gay-Straight IAT. Previous research has found an average RT difference of 300 milliseconds between these conditions (Banse, Seise, & Zerbes, 2001). Although this RT difference is with the standard Sexuality IAT, it consistent with a 307 millisecond average increase in speed across participants in the bias-confirming trials of the present study's IAT,  $t(87) = -10.169$ ,  $p < .01$ . The average D Score across all participants was found to be .61, which differs significantly from zero,  $t(87) = 13.369$ ,  $p < .01$ , and can be interpreted as a "moderate" implicit bias against male homosexual couples. Considering these findings, it appears the D Score functioned properly as measure of implicit bias.

### **What is the relationship between disgust and implicit and explicit attitudes toward male homosexuality?**

I first examined the causal relationship between disgust primes and implicit bias against male homosexuals. In a univariate analysis of variance with D Score entered as the dependent variable and disgust prime (neutral, pathogen disgust, or moral disgust) entered as factor, I found there was no effect of disgust prime on IAT performance,  $F(2,86) = .220$ ,  $p = .803$ .

I next explored the correlations between individual differences in disgust sensitivity and both implicit and explicit measures of bias against male homosexuality (see Table 3).

Table 3. Disgust Sensitivity and Attitudes toward Gay Men

	TDDS				PVD	Direct Disgust toward Gay Men		
	Pathogen	Sexual	Moral	Total		Pathogen	Sexual	Moral
<b>D Score (Implicit Bias)</b>								
All Subjects	.06	.17	-.05	.08	-.06	.38**	.36**	.46**
<b>Homophobia Scale</b>								
Homophobia Cognitive	-.06	-.25*	-.21	-.26*	-.05	.68**	.66*	.63**
Homophobia Avoidance	-.11	-.21	-.22*	-.26*	-.08	.59**	.44**	.52**
Homophobia Behavioral	-.10	-.08	-.32**	-.25*	-.01	.68**	.61**	.54**
Total	-.10	-.18	-.29**	-.28**	-.05	.72**	.63**	.61**
<b>Attitudes toward Gay Men</b>								
Total	-.20	-.14	-.22*	-.27*	-.12	.64**	.56**	.74**
<b>Universal Measure of Gay Bias</b>								
Total	-.14	-.02	-.22*	-.18	-.20	.50**	.40**	.49**

\*  $p < .05$ .

\*\*  $p < .01$ .

No significant correlations were found between disgust sensitivity as measured by the Three Domain Disgust Scale (TDDS) and implicit bias against gay men as measured by D Scores. Correlations between D Scores and the three measures of Direct Disgust toward Gay Men, however, were found to be significant. Pathogen Disgust toward Gay men ( $r = .38$   $p < .01$ ), Sexual Disgust toward Gay Men ( $r = .36$   $p < .01$ ), and Moral Disgust toward Gay Men ( $r = .46$   $p < .01$ ) all predicted higher levels of implicit bias against gay men. These data indicate that implicit and explicit attitudes regarding homosexuals are correlated.

In an examination of correlations between disgust sensitivity and explicit measures of bias against gay men, only moral disgust sensitivity as measured by the TDDS was consistent predictive of explicit bias. It correlated negatively with total scores on The Homophobia Scale ( $r = -.29, p < .01$ ), Attitudes toward Gay Men ( $r = -.22, p < .05$ ), and the Universal Measure of Gay Bias ( $r = -.22, p < .05$ ). The direction of these correlations suggests that the more participants reported a disgust reaction in response to moral transgressions, the less likely they were to report explicit bias against gay men.

The three measures of Direct Disgust toward Gay Men were positively correlated with all of the study's explicit measures of bias against male homosexuals with correlation coefficients ranging from  $r = .40$  to  $r = .74, p < .01$ . This suggests that rather than domain-specific disgust sensitivity as measured by the TDDS, it is domain specific disgust sensitivity in response to gay men that is predictive of explicit bias against gay men.

**Does the relationship between disgust and implicit and explicit attitudes toward male homosexuals depend on gender?**

To examine the effects of gender, I first compared male and female performance on the Gay-Straight IAT. For male participants the average D Score was .80, which reflected the average increase in RT of 425 milliseconds for the bias confirming trials,  $t(31) = -9.451, p < .01$ . For female participants the average D Score was .51, which reflected an average increase in RT for bias confirming trials of was 228 seconds,  $t(56) = -6.572, p < .01$ . Using a standard interpretation of D Scores (Nosek, Banaji & Greenwald, 2006), the average male participant in the study can be said to have a “strong” implicit bias against male homosexuals, whereas the average female participant can be said to

have a “moderate” implicit bias against male homosexuals. An independent samples t-test confirmed the significance of this gender difference,  $t(86) = 3.168$ ,  $p < .01$ .

To test for an interaction between gender and type of prime univariate analysis of variance was run entering gender, prime, and interaction to see how they predicted D Scores. Although no significant interaction was found between type of prime and gender  $F(5,86) = 1.082$ ,  $p = .377$ , the overall pattern of IAT performance was in the expected directions (see Figure 1). While the pathogen prime condition contained the highest average D Score among males, it contained the lowest average D Score among females.

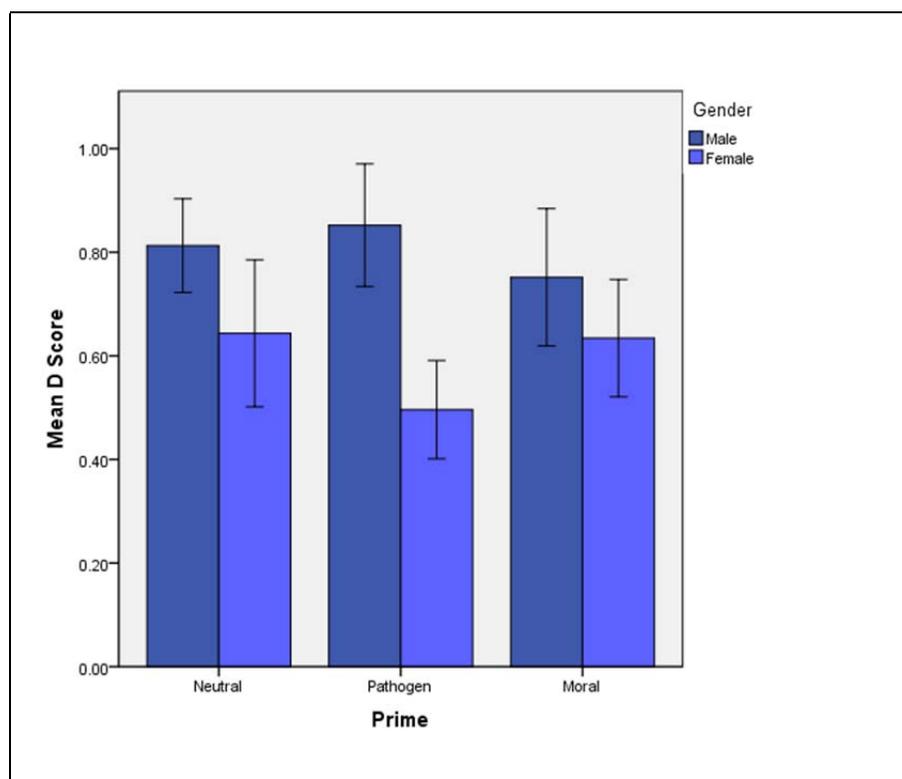


Figure 1. Mean D Score by prime for male and female participants. Error bars represent standard error.

A further analysis of gender differences was conducted by examining the gender specific effects of disgust sensitivity on explicit and implicit attitudes toward male homosexuals (see Table 4.)

Table 4. Disgust Sensitivity and Attitudes toward Gay Men by Gender

	TDDS			Total	Direct Disgust toward Gay Men		
	Pathogen	Sexual	Moral		Pathogen	Sexual	Moral
<b>D Score (Implicit Bias)</b>	-.04	.26	.01	.12	.12	.17	.31
	.17	.13	.17	.22	.43**	.38**	.52**
<b>Homophobia Cognitive</b>	.11	-.23	-.33	-.19	.71**	.68**	.65**
	-.08	-.30*	.02	-0.19	.62**	.61**	.63**
<b>Homophobia Avoidance</b>	.11	-.29	-.26	-.19	.59**	.41*	.48**
	-.14	-.22	.02	-.17	.53**	.38**	.56**
<b>Homophobia Behavioral</b>	.02	-.27	-.22	-.21	.65**	.57**	.56**
	-.02	-.06	.08	-.01	.66**	.55**	.60**
<b>Homophobia Total</b>	.08	-.29	-.29	-.22	.72**	.61*	.62**
	-.09	-.20	0.05	-.12	.68**	.57**	.67**
<b>Attitudes toward Gay Men</b>	-.08	-.11	-.44*	-.26	.46*	.38*	.70**
	-.19	-.20	0.07	-.15	.70**	.61**	.79**
<b>Universal Measure of Gay Bias</b>	-.13	-.01	-.19	-.14	.36	.16	.47*
	-.03	-.07	.17	.02	.50**	.39**	.54**

\*  $p < .05$ . (Male data is highlighted blue. Female data is not highlighted)

\*\*  $p < .01$ .

Once again, no significant correlations were found between disgust sensitivity as measured by the Three Domain Disgust Scale (TDDS) and implicit bias against gay men as measured by D Scores. Correlations between D Scores and the three measures of Direct Disgust toward Gay Men, however, were found to be significant but only for females. Pathogen Disgust toward Gay men ( $r = .43$   $p < .01$ ), Sexual Disgust toward Gay Men ( $r = .38$   $p < .01$ ), and Moral Disgust toward Gay Men ( $r = .52$   $p < .01$ ) all predicted higher levels of implicit bias against gay men. Furthermore, these correlations were all stronger than when male data was included in the analysis (compare Table 3 and Table 4).

In this gender specific analysis, the predicative power of the TDDS was reduced to just two correlations: sexual disgust sensitivity negatively predicted cognitive homophobia for females ( $r = -.30, p < .05$ ), and moral sensitivity disgust negatively predicted Attitudes toward Gay Men for males ( $r = -.44, p < .05$ ).

The correlations between disgust sensitivity and explicit measures of bias against gay men followed a similar pattern for both males and females, with the three measures of Direct Disgust toward Gay Men positively correlating with nearly all of the study's explicit measures of bias against male homosexuals. (Direct Disgust toward Gay Men in the pathogen and sexual domain did not significantly predict males' responses to the Universal Measure of Gay Bias.) As is also clear in Table 3, domain-specific disgust sensitivity in response to gay men is predictive of explicit bias against gay males and females.

**Is the effect of disgust on implicit attitudes toward male homosexuality moderated by pathogen disgust sensitivity?**

To examine this question, I first ran a univariate analysis of variance with D Score as dependent variable, prime as factor and overall pathogen disgust sensitivity as covariate. This revealed a statistically significant interaction between prime and pathogen disgust sensitivity  $F(2, 83) = 3.278, p < .05$ . In order to see which prime(s) was driving this interaction, I next split the data by prime and reran the same analysis. Both the neutral prime,  $F(1, 25) = 2.58, p = .121$ , and the moral prime,  $F(1, 28) = .564, p = .459$  were non-significant in their interaction with pathogen disgust sensitivity. The pathogen disgust prime, however, displayed a significant interaction with pathogen disgust sensitivity, acting as a moderator of D Score,  $F(1, 27) = 4.210, p < .05$ . I next ran a

bivariate correlation to see the direction and strength of the relationship between pathogen disgust sensitivity and D score in the pathogen prime condition,  $r = -.367$ ,  $p < .05$ . This correlation shows that among participants who received the pathogen prime, individuals low in pathogen disgust sensitivity tended to have higher D scores than individuals high in disgust sensitivity. Finally, to look at potential gender effects in the pathogen prime condition, I ran a two gender specific univariate analyses with D Score as dependent variable, pathogen prime as factor and overall pathogen disgust sensitivity as covariate. In this analysis the statistical significance of pathogen disgust sensitivity as a moderator in the pathogen prime condition disappeared for both male,  $F(1,9) = .232$ ,  $p = .643$ , and female participants  $F(1, 18) = .332$ ,  $p = .170$ .

### **What is the relationship between attitudes toward gay men and other personality measures?**

To examine the relationship between implicit and explicit attitudes towards gay men, and other psychological measures previously shown to correlate with these attitudes, an additional series of bivariate correlations was conducted (see Table 5).

Implicit bias against gay men as measured by the D Score was predicted by positive correlations with OCD Ruminating ( $r = .39$ ,  $p < .05$ ), Social Dominance Orientation ( $r = .50$ ,  $p < .01$ ), and Right Wing Authoritarianism ( $r = .46$ ,  $p < .05$ ) for male participants, and by Religious Fundamentalism ( $r = .42$ ,  $p < .01$ ) and Right Wing Authoritarianism ( $r = .44$ ,  $p < .01$ ) for female participants.

Explicit bias against gay men was predicted by a number of personality variables. OCD Cleaning positively predicted Behavioral Homophobia for males ( $r = .38$ ,  $p < .05$ ). The Big 5 personality trait of Agreeableness negatively predicted a number of explicit

bias measures for females, suggesting that females who are high in agreeableness tend to hold fewer explicit negative attitudes towards gay men, than males for who there are no correlations with this trait. Females high in conscientiousness also tended to report less homophobia avoidance ( $r = -.32, p < .01$ ). Primary psychopathy predicted behavioral homophobia ( $r = .38, p < .05$ ) and secondary psychopathy predicted negative Attitudes toward Gay Men ( $r = .50, p < .01$ ), for male participants. A perceived vulnerability to disease as concerns thoughts of infectability predicted behavioral homophobia for women ( $r = .34, p < .05$ ).

Three personality variables were highly predictive of explicit bias against gay men: Social Dominance Orientation (SDO), Religious Fundamentalism (RF), and Right Wing Authoritarianism (RWA). For male participants, SDO predicted performance on the Universal Measure of Gay Bias ( $r = .45, p < .05$ ), RF predicted higher scores on cognitive ( $r = .42, p < .05$ ) and overall homophobia ( $r = .41, p < .05$ ), and RWA predicted cognitive homophobia ( $r = .57, p < .01$ ), overall homophobia ( $r = .39, p < .05$ ), and attitudes toward gay men ( $r = .49, p < .01$ ). For female participants, SDO, RF, and RWA predicted every explicit measure of bias against gay men, with statistically significant correlation coefficients ranging from  $r = .34$  to  $r = .68$ .

Considering the similar patterns of correlations among RWA, RF, and SDO and D Scores, I predicted the existence of an underlying factor that unites these variables. Indeed, the literature supports this prediction, though not for SDO. Altermeyer and Hunsberger's (1992) research on connection between Right Wing Authoritarianism (RWA) and Religious Fundamentalism (RF) explains that these two scales measure a single underlying factor called *fundamentalism*. In order to test this hypothesis I ran an

exploratory factor analysis, and found evidence for the fundamentalism factor; all 30 items from both the RWA and RF significantly load onto this single factor at .40 or above.

To test the effectiveness of the *fundamentalism* factor I combined the RWA and RF scales to create a single score, and subsequently examined the correlations between this new variable and my dependent measure (see Table 6). For all participants, *fundamentalism* acted as a more parsimonious measure than RWA and RF. In the current sample, *fundamentalism* did not help to explain variance in D Scores for male participants.

Table 5. Personality Predictors of Attitudes toward Gay Men by Gender

	Homophobia Scale						
	D Score	Cog.	Avoid.	Behav.	Total	ATGM	UMGB
<b>OCD Checking</b>	.32	.12	-.12	.24	.10	.02	-.19
	.05	.02	-.02	-.02	-.01	.04	.07
<b>OCD Ruminating</b>	.39*	.10	.00	.05	.05	.09	-.08
	-.01	-.06	-.09	-.06	-.08	-.07	-.10
<b>OCD Cleaning</b>	-.07	.22	-.06	.38*	.22	.05	-.07
	-.01	-.09	-.15	-.08	-.012	-.14	-.20
<b>Big 5 - Extraversion</b>	.17	.29	.16	.34	.30	.20	.36
	-.15	-.03	.00	.06	.02	-.16	-.09
<b>Big 5 - Agreeableness</b>	.00	-.03	-.07	-.12	-.09	-.16	-.04
	-.12	-.16	-.33*	-.27*	-.30*	-.20	-.38**
<b>Big 5 - Conscientiousness</b>	.26	.35	.34	.16	.30	.01	.10
	-.11	-.18	-.32*	-.16	-.25	-.016	-.14
<b>Big 5 - Neuroticism</b>	-.03	-.07	.03	-.02	-.02	-.03	-.31
	.06	.08	.19	.17	.17	.17	.04
<b>Big 5 - Openness</b>	.16	.22	.15	.05	.14	.12	.05
	-.13	-.13	-.01	.02	-.03	-.05	-.11
<b>Primary Psychopathy</b>	.16	.35	.31	.38*	.39*	.15	-.02
	-.14	-.07	.17	.05	.06	-.05	-.14
<b>Secondary Psychopathy</b>	.20	.21	.15	.25	.23	.50**	.23
	.12	.09	.10	.07	.10	.17	.06
<b>PNS</b>	.25	.19	.28	.03	.17	.08	-.17
	.14	-.04	-.09	.00	-.05	.05	.01
<b>PVD Infectability</b>	.07	-.02	-.08	.09	.01	-.02	-.33
	.03	.10	.15	.34*	.24	.13	.07
<b>PVD Germ Aversion</b>	.00	.01	-.10	.05	-.01	-.06	-.33
	-.01	.01	.05	.18	.10	-.05	.00
<b>Social Dominance Orientation</b>	.50**	.33	.36	.26	.35	.33	.45*
	.20	.34*	.45**	.52**	.51**	.37**	.40**
<b>RF</b>	.27	.42*	.17	.37	.35	.41*	.36
	.42**	.52**	.46**	.42**	.51**	.61**	.38**
<b>Right Wing Authoritarianism</b>	.46*	.57**	.26	.30	.39*	.49**	.30
	.44**	.58**	.42**	.46**	.54**	.68**	.46**

\*  $p < .05$ . \*\*  $p < .01$ .  
 (Male data is highlighted in blue.  
 Female data is not highlighted.)

Table 6. Correlations of RWA, RF, and Fundamentalism with D Score

<b>Males</b>		<b>Females</b>		<b>All Participants</b>	
	D score		D score		D score
RWA	.46*	RWA	.44**	RWA	.42**
RF	.27	RF	.42**	RF	.32**
RWA_RF (Fundamentalism)	.36	RWA_RF (Fundamentalism)	.46**	RWA_RF (Fundamentalism)	.39**

\*  $p < .05$ .\*\*  $p < .01$ .

## Chapter 4: Discussion

Pathogen disgust video primes did not significantly increase implicit bias against male homosexuality. Therefore, the present study does not support the existence of a causal relationship between pathogen disgust and implicit bias against gay men. However, the study does not rule out the possibility of this causal relationship, either; average mean differences in implicit attitudes based upon type of video prime were in the predicted directions. For males, the highest average D Score was found in the pathogen prime condition, whereas for females the lowest average D Score was found in this same condition, reflecting a potential gender based inverse effect of pathogen primes on implicit attitudes toward gay men. These findings, though not statistically significant, may simply indicate an insufficient sample size.

Another possibility for the null finding with the pathogen disgust prime is the relatively nascent state of research on the formation of stigma at an implicit level. Park et al. (2007) were able to causally increase implicit bias against obese individuals by priming disease concepts. Yet it is not known whether implicit bias against male homosexuality is subject to the same causal processes as implicit bias against obese individuals. Both obese individuals and gay men clearly experience heightened levels of social stigma (Crocker, Major, & Steele, 1998); perhaps the nature of the implicit biases held against these two groups of stigmatized individuals are somehow fundamentally different. It could be that implicit biases against gay men are less subject to the influence of casual priming than implicit biases against obese individuals. It is also possible that implicit biases against gay men are stable attitudes that are resilient to short-term causal influence.

Pathogen disgust sensitivity as measured by the TDDS did not reliably predict explicit anti-gay attitudes for either males or females, contrary to the findings of a pilot study (Lieberman & Tybur, 2008). The TDDS pathogen disgust measure also failed to predict implicit bias against male homosexuality, as was hypothesized in response to the results of Inbar et al. (2009).

In fact, the present study was unable to replicate the results of Inbar et al. (2009), finding no correlations between implicit bias against gay males and both disgust sensitivity as measured by the Perceived Vulnerability to Disease (PVD) Scale and disgust sensitivity as measured by the TDDS. This could be due to the fact that the Inbar and colleagues measured implicit anti-gay bias using the traditional Gay-Straight IAT, which confounds attitudes toward gay men and lesbians. It is also possible that disgust sensitivity as measured by the PVD scale, only correlates with attitudes toward lesbians, not gay men. This possibility could easily be tested with a lesbian only version of the Gay-Straight IAT, constructed in a similar manner to the present investigation's Gay-Straight IAT.

Although I had no special expectations for these measures, the three domain-specific direct questions about disgust as experienced towards gay men turned out to be highly predictive. These questions actually predicted implicit bias against male homosexuality for female participants and explicit bias against male homosexuality for all participants regardless of gender. That these direct questions about disgust sensitivity toward gay men were so predictive of bias, suggests that disgust sensitivity as measured by the TDDS may not be sufficient for measuring the context specific disgust sensitivity that is of interest when exploring attitudes toward gay men. In other words, it appears that

disgust sensitivity as measured by the TDDS and questions about disgust felt towards gay men may tap divergent psychological processes.

Gender differences in performance on the Gay-Straight IAT were substantial, with males demonstrating significantly greater levels of implicit bias against-gay men than females. This result is consistent with the gender differences found by researchers who used versions of the Gay-Straight IAT that simultaneously measured attitudes toward both gay men and lesbians (Banse et al., 2001; Steffens, 2005; Rowatt, Tsang, Kelly, LaMartina, McCullers & McKinley, 2006; Gabriel, Banse & Hug, 2007; Tsang & Rowatt, 2007; Jonathan, 2008; Clow & Olson, 2010; Inbar, Pizarro, Knobe & Bloom, 2009; Inbar, Pizarro, & Bloom, 2011). Although gender effects were expected, this is the first time a study has shown a gender difference in implicit, non-conscious, bias against gay men specifically.

A further, and perhaps more interesting, gender effect was found in positive correlations between the direct questions about disgust felt toward gay men and D Scores. As mentioned earlier, these questions acted as strong predictors of implicit bias against gay men for females, but not males. This gender difference may simply be an issue of insufficient statistical power, as the male participant sample size is admittedly small. It appears, however, that there is something more substantial to this result, since the direct questions worked quite well as predictors of explicit gay bias for male participants across all of the study's various measures of bias. If this gender effect held for a larger sample of male participants, it would be evidence for a divergence between implicit and explicit anti-gay bias that is present males but not females.

It was not surprising to see a large number of additional gender differences in the correlational data between personality measures and implicit and explicit anti-gay bias. Social Dominance Orientation (SDO), Religious Fundamentalism (RF), and Right Wing Authoritarianism (RWA), showed the most interesting effects. Whereas for males SDO predicted higher implicit anti-gay bias, for females SDO was highly predictive of explicit anti-gay bias. RF, by comparison, predicted no explicit or implicit biases for males, but somehow predicted both implicit and explicit bias for females. RWA did well at predicting both implicit and explicit anti-gay bias for males and females. Finally, an analysis of the factor fundamentalism helped explain the correlations of RF and RWA with implicit anti-gay bias, though further investigation of the relationship between these particular personality variables and both implicit and explicit anti-gay attitudes could prove fruitful.

### **Limitations**

The present study reports on sample of 91 participants, only 31 of who are male. Considering the substantial gender differences in both implicit and explicit bias against gay men, it is difficult to make conclusive statements about gender differences with this relatively small sample size. Because the behavior and attitudes of heterosexual males are of particular interest to the present study, it is further disappointing that so few males comprise the pool of participants from which data is collected.

### **Future Directions**

It seems obvious that more data must be collected using the current study design. The effects of the disgust primes on implicit bias against gay men, though currently inconclusive, could be addressed with an increase in statistical power.

As for the highly predictive direct questions about the degree to which different domains of disgust factor into attitudes about gay men, I think further exploration is warranted. The explanatory power of these questions needs to be explained. Perhaps these questions could be expanded upon and turned into a freestanding measure of anti-gay bias.

Finally, as for the Gay-Straight IAT in its present form, I think it has a bright future as a test of implicit attitudes toward gay men. (It could even be used as a measure of “internalized homophobia” for gay men, something that is currently only measured by explicit questionnaires.)

### **Conclusion**

Though this study has not sufficiently explained variation in attitudes toward gay men (despite my best efforts), it has managed to provide a new measure for understanding these attitudes, and it has managed to shed light on how disgust both affects and is associated with these attitudes. That so many researchers have attempted to speak to questions of homosexuality without differentiating between male and female homosexuality and without differentiating between conscious and non-conscious attitudes toward homosexuality, has made this investigation all the more difficult. Attitudes regarding male homosexuality are not easily explained, but when explored from both implicit and explicit angles, the task of explaining them becomes feasible.

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## Appendix A – Disgust Video Prime Norming

Ten videos, which ranged in length from fifty seconds to one minute and ten seconds, were downloaded from video sharing websites, and were tested for their ability to elicit pathogen, sexual and moral disgust using a set of norming questions.

Participants were 29 students (9 men) enrolled in undergraduate introductory psychology courses at the University of Miami, and were recruited through a research participation pool. Participant ages ranged from 18 to 24 years old (mean: 19 years old). As compensation for participation, participants were awarded one credit toward the completion of the introductory psychology course requirement.

### Normed Videos

File Name (.mp4)	Description	Original URL
Pathogen Disgust 1	Removal of cyst from a man's back	<a href="http://www.youtube.com/user/94rastko#p/u/3/FzIVg615_cg">http://www.youtube.com/user/94rastko#p/u/3/FzIVg615_cg</a>
Pathogen Disgust 2	Removal of a bot fly larva from a man's back	<a href="http://www.youtube.com/watch?v=23eimVLAQ2c">http://www.youtube.com/watch?v=23eimVLAQ2c</a>
Pathogen Disgust 3	Removal of a cysts from a man's stomach	<a href="http://www.stileproject.com/video/13239/gross-white-puss-squeezed-out-of-hole-in-stomach.html">http://www.stileproject.com/video/13239/gross-white-puss-squeezed-out-of-hole-in-stomach.html</a>
Sexual Disgust 1	An old man kissing and licking a young woman's leg while she is in the shower	<a href="http://www.youtube.com/watch?v=ZYdY0czh7bM">http://www.youtube.com/watch?v=ZYdY0czh7bM</a>
Sexual Disgust 2	Two young women making out with two old men	<a href="http://www.youtube.com/watch?v=NDn6pO15Ohc">http://www.youtube.com/watch?v=NDn6pO15Ohc</a>
Sexual Disgust 3	And old lady and young man kissing after he helps her put her groceries in her car	<a href="http://www.youtube.com/watch?v=br6lW1Cn12g">http://www.youtube.com/watch?v=br6lW1Cn12g</a>
Moral Disgust 1	A man beating and kicking a bus driver	<a href="http://www.stileproject.com/video/11668/korean-bus-driver-gets-a-whoopin-kicked-hard-in-the-head-many-times.html">http://www.stileproject.com/video/11668/korean-bus-driver-gets-a-whoopin-kicked-hard-in-the-head-many-times.html</a>
Moral Disgust 2	A man mugging and beating an old woman	<a href="http://www.stileproject.com/video/9753/old-lady-gets-beat-down-mugged.html">http://www.stileproject.com/video/9753/old-lady-gets-beat-down-mugged.html</a>
Moral Disgust 3	Three men beating another man in a railway station	<a href="http://www.stileproject.com/video/12276/man-assaulted-with-kicks-to-head-by-black-men-at-railway-station.html">http://www.stileproject.com/video/12276/man-assaulted-with-kicks-to-head-by-black-men-at-railway-station.html</a>
Neutral	Laundry spinning in a washing machine	<a href="http://www.youtube.com/watch?v=nhoXyUJye9g">http://www.youtube.com/watch?v=nhoXyUJye9g</a>

## Video Prime Norming Questions

**In terms of disease and overall grossness, how disgusting did you find this video clip?**

1 2 3 4 5 6 7  
not disgusting extremely  
at all disgusting

**How sexually disgusting did you find this video clip?**

1 2 3 4 5 6 7  
not sexually extremely  
disgusting at all sexually disgusting

**How morally disgusting did you find this video clip?**

1 2 3 4 5 6 7  
not morally extremely  
disgusting at all morally disgusting

**How appealing did you find this video clip?**

1 2 3 4 5 6 7  
not appealing extremely  
at all appealing

**How angry were you made by this video clip?**

1 2 3 4 5 6 7  
not angry extremely  
at all angry

**How intense was this video clip?**

1 2 3 4 5 6 7  
not intense extremely  
at all intense

**Please rate your response this video clip.**

-5 -4 -3 -2 -1 0 1 2 3 4 5  
extremely neutral/ extremely  
negative neither positive positive  
or negative

**How morally wrong did you find this video clip?**

1 2 3 4 5 6 7  
not morally extremely  
wrong at all morally wrong

## Appendix B – Gay-Straight IAT Stages and Scoring Procedure

Stage	# of Trials	Categories on Left	Categories on Right
1	20 Trials	Straight People	Gay People
2	20 Trials	Good	Bad
3	20 Trials	Straight People and Good	Gay People and Bad
4	40 Trials	Straight People and Good	Gay People and Bad
5	40 Trials	Gay People	Straight People
6	20 Trials	Gay People and Good	Straight People and Bad
7	40 Trials	Gay People and Good	Straight People and Bad

D-score calculation after Lane, Banaji, Nosek & Greenwald (2007).

TABLE 3.3. Summary of IAT Scoring Procedures Recommended by Greenwald et al. (2003)

- 1 Delete trials greater than 10,000 msec
- 2 Delete subjects for whom more than 10% of trials have latency less than 300 msec
- 3 Compute the “inclusive” standard deviation for all trials in Stages 3 and 6 and likewise for all trials in Stages 4 and 7
- 4 Compute the mean latency for responses for each of Stages 3, 4, 6, and 7
- 5 Compute the two mean differences ( $\text{Mean}_{\text{Stage 6}} - \text{Mean}_{\text{Stage 3}}$ ) and ( $\text{Mean}_{\text{Stage 7}} - \text{Mean}_{\text{Stage 4}}$ )
- 6 Divide each difference score by its associated “inclusive” standard deviation
- 7  $D$  = the equal-weight average of the two resulting ratios

*Note.* From Greenwald, Nosek, and Banaji (2003, Table 4). Copyright 2003 by the American Psychological Association. Adapted by permission. This computation is appropriate for designs in which subjects must correctly classify each item before the next stimulus appears. If subjects can proceed to the next stimulus following an incorrect response, the following steps may be taken between Steps 2 and 3 in the table: (1) compute mean latency of correct responses for each combined Stage (3, 4, 6, 7); (2) replace each error latency with an error penalty computed optionally as “Stage mean + 600 msec” or “Stage mean + twice the SD of correct responses for that Stage.” Proceed as above from Step 3 using these error-penalty latencies. Stage numbers refer to the stages depicted in Figure 3.1. SPSS and SAS syntax for implementing the new scoring algorithm are available at [faculty.washington.edu/agg/iat\\_materials.htm](http://faculty.washington.edu/agg/iat_materials.htm) and [www.briannosek.com](http://www.briannosek.com), respectively.

As for calculating error penalties used in this assessment, I used the method based on participant-specific reaction time standard deviations that considered individual differences in overall response speed.

## Appendix C – Surveys

*Your answers to the following questions will let us know a little bit about the demographics of the students we are surveying. All answers are completely anonymous and you should feel comfortable answering as honestly as possible.*

What is your gender? M F What is your age? \_\_\_\_\_

What is your date of birth (month/year)? \_\_\_\_\_

What is your height? \_\_\_\_\_ feet \_\_\_\_\_ inches What is your weight? \_\_\_\_\_ pounds

What is your marital status? (circle one) single married widowed divorced

If you are single, are you presently in a long term committed relationship? Y N

During your childhood, what was your average family income?(circle one)

less than \$10,000 \$10,000-\$25,000 \$25,001-\$50,000 \$50,001-\$75,000  
more than \$75,000

How would you describe yourself your sexual orientation? (circle one)

exclusively heterosexual exclusively homosexual bisexual other: \_\_\_\_\_

If you are female, are you currently pregnant? Y N

Which of the following ethnic group(s) do you consider yourself a member of?

You can check multiple groups.

\_\_\_\_\_ African-American  
\_\_\_\_\_ Asian-American  
\_\_\_\_\_ Chinese  
\_\_\_\_\_ Hawaiian  
\_\_\_\_\_ Hispanic  
\_\_\_\_\_ Japanese  
\_\_\_\_\_ Korean  
\_\_\_\_\_ Native American  
\_\_\_\_\_ Non-Hispanic Caucasian  
\_\_\_\_\_ Pacific Islander  
\_\_\_\_\_ Other: \_\_\_\_\_

How religious do you consider yourself to be?

1 2 3 4 5 6 7  
Not religious at all Extremely religious

How religious do you consider your family to be?

1 2 3 4 5 6 7  
Not religious at all Extremely religious

What religion do you consider yourself to be? \_\_\_\_\_

In terms of all traits that people find attractive in a mate, I am:

1 2 3 4 5 6 7  
Less desirable About average More desirable  
than others than others



Maudsley Obsessive Compulsive Inventory (Hodgson & Rachman, 1977)

Instructions. Please answer each question by putting a circle around T for “true” or F for “false” in response to each question. There are no right or wrong answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the question.

- T F 1. I avoid using public telephones because of possible contamination.
- T F 2. I frequently get nasty thoughts and have trouble getting rid of them.
- T F 3. I am more concerned about honesty than most people.
- T F 4. I am often late because I can't seem to get through everything on time.
- T F 5. I don't worry unduly about contamination if I touch an animal.
- T F 6. I frequently have to check things (e.g., gas or water taps, doors, etc.) several times.
- T F 7. I have a very strict conscience.
- T F 8. I find that almost every day I am upset by unpleasant thoughts that come into my mind against my will.
- T F 9. I do not worry unduly if I accidentally bump into somebody.
- T F 10. I usually have serious doubts about the simple everyday things I do.
- T F 11. Neither of my parents were very strict during my childhood.
- T F 12. I tend to get behind in my work because I repeat things over and over again.
- T F 13. I use only an average amount of soap.
- T F 14. Some numbers are extremely unlucky.
- T F 15. I do not check letters over and over again before mailing them.
- T F 16. I do not take a long time to dress in the morning.
- T F 17. I am not excessively concerned about cleanliness.
- T F 18. One of my major problems is that I pay too much attention to detail.
- T F 19. I can use well-kept toilets without any hesitation.
- T F 20. My major problem is repeated checking.
- T F 21. I am not unduly concerned about germs and diseases.
- T F 22. I do not tend to check things more than once.
- T F 23. I do not stick to a very strict routine when doing ordinary things.
- T F 24. My hands do not feel dirty after touching money.
- T F 25. I do not usually count when doing a routine task.
- T F 26. I take rather a long time to complete my washing in the morning.
- T F 27. I do not use a great deal of antiseptics.
- T F 28. I spend a lot of time every day checking things over and over again.
- T F 29. Hanging and folding my clothes at night does not take up a lot of time.
- T F 30. Even when I do something very carefully I often feel that it is not quite right.

## Big Five Inventory (John & Srivastava, 1999)

Instructions. Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly

### I see Myself as Someone Who...

- |   |  |
|---|--|
| <input type="checkbox"/> 1. Is talkative                            | <input type="checkbox"/> 23. Tends to be lazy                              |
| <input type="checkbox"/> 2. Tends to find fault with others         | <input type="checkbox"/> 24. Is emotionally stable, not easily upset       |
| <input type="checkbox"/> 3. Does a thorough job                     | <input type="checkbox"/> 25. Is inventive                                  |
| <input type="checkbox"/> 4. Is depressed, blue                      | <input type="checkbox"/> 26. Has an assertive personality                  |
| <input type="checkbox"/> 5. Is original, comes up with new ideas    | <input type="checkbox"/> 27. Can be cold and aloof                         |
| <input type="checkbox"/> 6. Is reserved                             | <input type="checkbox"/> 28. Perseveres until the task is finished         |
| <input type="checkbox"/> 7. Is helpful and unselfish with others    | <input type="checkbox"/> 29. Can be moody                                  |
| <input type="checkbox"/> 8. Can be somewhat careless                | <input type="checkbox"/> 30. Values artistic, aesthetic experiences        |
| <input type="checkbox"/> 9. Is relaxed, handles stress well         | <input type="checkbox"/> 31. Is sometimes shy, inhibited                   |
| <input type="checkbox"/> 10. Is curious about many different things | <input type="checkbox"/> 32. Is considerate and kind to almost everyone    |
| <input type="checkbox"/> 11. Is full of energy                      | <input type="checkbox"/> 33. Does things efficiently                       |
| <input type="checkbox"/> 12. Starts quarrels with others            | <input type="checkbox"/> 34. Remains calm in tense situations              |
| <input type="checkbox"/> 13. Is a reliable worker                   | <input type="checkbox"/> 35. Prefers work that is routine                  |
| <input type="checkbox"/> 14. Can be tense                           | <input type="checkbox"/> 36. Is outgoing, sociable                         |
| <input type="checkbox"/> 15. Is ingenious, a deep thinker           | <input type="checkbox"/> 37. Is sometimes rude to others                   |
| <input type="checkbox"/> 16. Generates a lot of enthusiasm          | <input type="checkbox"/> 38. Makes plans and follows through with them     |
| <input type="checkbox"/> 17. Has a forgiving nature                 | <input type="checkbox"/> 39. Gets nervous easily                           |
| <input type="checkbox"/> 18. Tends to be disorganized               | <input type="checkbox"/> 40. Likes to reflect, play with ideas             |
| <input type="checkbox"/> 19. Worries a lot                          | <input type="checkbox"/> 41. Has few artistic interests                    |
| <input type="checkbox"/> 20. Has an active imagination              | <input type="checkbox"/> 42. Likes to cooperate with others                |
| <input type="checkbox"/> 21. Tends to be quiet                      | <input type="checkbox"/> 43. Is easily distracted                          |
| <input type="checkbox"/> 22. Is generally trusting                  | <input type="checkbox"/> 44. Is sophisticated in art, music, or literature |

Primary and Secondary Psychopathy (Levenson, Kiehl, & Fitzpatrick, 1995)

Instructions. Write in the number that corresponds to your selection next to each question.

- |  | <b>1</b>             | <b>2</b>             | <b>3</b>          | <b>4</b>          |
|--|----------------------|----------------------|-------------------|-------------------|
|  | Disagree<br>strongly | Disagree<br>somewhat | Agree<br>somewhat | Agree<br>strongly |
| 1. Success is based on survival of the fittest; I am not concerned about the losers.       |                      |                      |                   | _____             |
| 2. For me, what's right is whatever I can get away with.                                   |                      |                      |                   | _____             |
| 3. In today's world, I feel justified in doing anything I can get away with to succeed.    |                      |                      |                   | _____             |
| 4. My main purpose in life is getting as many goodies as I can.                            |                      |                      |                   | _____             |
| 5. Making a lot of money is my most important goal.  |                      |                      |                   | _____             |
| 6. I let others worry about higher values; my main concern is with the bottom line.        |                      |                      |                   | _____             |
| 7. People who are stupid enough to get ripped off usually deserve it.                      |                      |                      |                   | _____             |
| 8. Looking out for myself is my top priority.  |                      |                      |                   | _____             |
| 9. I tell other people what they want to hear so that they will do what I want them to do. |                      |                      |                   | _____             |
| 10. I would be upset if my success came at someone else's expense.                         |                      |                      |                   | _____             |
| 11. I often admire a really clever scam.   |                      |                      |                   | _____             |
| 12. I make a point of trying not to hurt others in pursuit of my goals.                    |                      |                      |                   | _____             |
| 13. I enjoy manipulating other people's feelings.  |                      |                      |                   | _____             |
| 14. I feel bad if my words or actions cause someone else to feel emotional pain.           |                      |                      |                   | _____             |
| 15. Even if I were trying very hard to sell something, I wouldn't lie about it.            |                      |                      |                   | _____             |
| 16. Cheating is not justified because it is unfair to others.                              |                      |                      |                   | _____             |
| 17. I find myself in the same kinds of trouble, time after time.                           |                      |                      |                   | _____             |
| 18. I am often bored.  |                      |                      |                   | _____             |
| 19. I find that I am able to pursue one goal for a long time.                              |                      |                      |                   | _____             |
| 20. I don't plan anything very far in advance.   |                      |                      |                   | _____             |
| 21. I quickly lose interest in tasks I start.  |                      |                      |                   | _____             |
| 22. Most of my problems are due to the fact that other people just don't understand me.    |                      |                      |                   | _____             |
| 23. Before I do anything, I carefully consider the possible consequences.                  |                      |                      |                   | _____             |
| 24. I have been in a lot of shouting matches with other people.                            |                      |                      |                   | _____             |
| 25. When I get frustrated, I often "let off steam" by blowing my top.                      |                      |                      |                   | _____             |
| 26. Love is overrated.   |                      |                      |                   | _____             |

## Personal Need for Structure (PNS) scale (Thompson, Naccarato, &amp; Parker, 1989, 1992)

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. It upsets me to go into a situation without knowing what I can expect from it.  
 2. I'm not bothered by things that interrupt my daily routine.  
 3. I enjoy being spontaneous.  
 4. I find that a well-ordered life with regular hours makes my life tedious.  
 5. I find that a consistent routine enables me to enjoy life more.  
 6. I enjoy having a clear and structured mode of life.  
 7. I like to have a place for everything and everything in its place.  
 8. I don't like situations that are uncertain.  
 9. I hate to change my plans at the last minute.  
 10. I hate to be with people who are unpredictable.  
 11. I enjoy the exhilaration of being in unpredictable situations.  
 12. I become uncomfortable when the rules in a situation are not clear.

## 15 item PVD scale (Duncan, Schaller, &amp; Park, 2009)

Instructions. The following questions are used in assessing general personality traits. Your answers are completely confidential, so please answer as honestly and accurately as possible.

	Strongly disagree						Strongly agree
1. It really bothers me when people sneeze without covering their mouths.	0	1	2	3	4	5	6
2. If an illness is 'going around', I will get it.	0	1	2	3	4	5	6
3. I am comfortable sharing a water bottle with a friend.	0	1	2	3	4	5	6
4. I do not like to write with a pencil someone else has obviously chewed on.	0	1	2	3	4	5	6
5. My past experiences make me believe I am not likely to get sick even when my friends are sick.	0	1	2	3	4	5	6
6. I have a history of susceptibility to infectious diseases.	0	1	2	3	4	5	6
7. I prefer to wash my hands pretty soon after shaking someone's hand.	0	1	2	3	4	5	6
8. In general, I am very susceptible to colds, flu, and other infectious diseases	0	1	2	3	4	5	6
9. I dislike wearing used clothes because you do not know what the past person who wore it was like.	0	1	2	3	4	5	6
10. I am more likely than the people around me to catch an infectious disease.	0	1	2	3	4	5	6
11. My hands do not feel dirty after touching money .	0	1	2	3	4	5	6
12. I am unlikely to catch cold, flu, or other illnesses, even if it is 'going around.'	0	1	2	3	4	5	6
13. It does not make me anxious to be around sick people.	0	1	2	3	4	5	6
14. My immune system protects me from most illnesses that other people get.	0	1	2	3	4	5	6
15. I avoid using public telephones because of the risk that I may catch something from the previous user.	0	1	2	3	4	5	6



## Homophobia Scale (Wright, Adams, & Bernat, 1999)

This questionnaire is designed to measure your thoughts, feelings, and behaviors with regard to homosexuality. It is not a test, so there are no right or wrong answers. Answer each item by circling the number after each question as follows:

1	2	3	4	5
strongly agree	agree	neither agree nor disagree	disagree	strongly disagree

1. Gay people make me nervous.  
1      2      3      4      5
2. Gay people deserve what they get.  
1      2      3      4      5
3. Homosexuality is acceptable to me.  
1      2      3      4      5
4. If I discovered a friend was gay I would end the friendship.  
1      2      3      4      5
5. I think homosexual people should not work with children.  
1      2      3      4      5
6. I make derogatory remarks about gay people.  
1      2      3      4      5
7. I enjoy the company of gay people.  
1      2      3      4      5
8. Marriage between homosexual individuals is acceptable.  
1      2      3      4      5
9. I make derogatory remarks like “faggot” or “queer” to people I suspect are gay.  
1      2      3      4      5
10. It does not matter to me whether my friends are gay or straight.  
1      2      3      4      5
11. It would not upset me if I learned that a close friend was homosexual.  
1      2      3      4      5
12. Homosexuality is immoral.  
1      2      3      4      5
13. I tease and make jokes about gay people.  
1      2      3      4      5
14. I feel that you cannot trust a person who is homosexual.  
1      2      3      4      5
15. I fear homosexual persons will make sexual advances towards me.  
1      2      3      4      5
16. Organizations which promote gay rights are necessary.  
1      2      3      4      5
17. I have damaged property of gay persons, such as “keying” their cars.  
1      2      3      4      5
18. I would feel comfortable having a gay roommate.  
1      2      3      4      5
19. I would hit a homosexual for coming on to me.  
1      2      3      4      5
20. Homosexual behavior should not be against the law.  
1      2      3      4      5
21. I avoid gay individuals.  
1      2      3      4      5
22. It does not bother me to see two homosexual people together in public.  
1      2      3      4      5
23. When I see a gay person I think, “What a waste.”  
1      2      3      4      5
24. When I meet someone I try to find out if he/she is gay.  
1      2      3      4      5
25. I have rocky relationships with people I suspect are gay.  
1      2      3      4      5



Universal Measure of Bias –Gay (Latner et al., 2008)

Please answer all of the following questions, using this scale:

1	2	3	4	5	6	7
strongly agree	moderately agree	slightly agree	neither agree nor disagree	slightly disagree	moderately disagree	strongly disagree

- \_\_\_\_\_ 1. Special effort should be taken to make sure that gay people have the same rights and privileges as other people.
- \_\_\_\_\_ 2. I would be comfortable having a gay person in my group of friends.
- \_\_\_\_\_ 3. I find gay people attractive.
- \_\_\_\_\_ 4. Gay people make good romantic partners.
- \_\_\_\_\_ 5. Gay people have bad hygiene.
- \_\_\_\_\_ 6. I find gay people to be sexy.
- \_\_\_\_\_ 7. Gay people tend towards bad behavior.
- \_\_\_\_\_ 8. I would not want to have a gay person as a roommate.
- \_\_\_\_\_ 9. Gay people are a turn-off.
- \_\_\_\_\_ 10. I find gay people pleasant to look at.
- \_\_\_\_\_ 11. Special effort should be taken to make sure that gay people have the same salaries as other people.
- \_\_\_\_\_ 12. Sometimes I think that gay people are dishonest.
- \_\_\_\_\_ 13. I try to understand the perspective of gay people.
- \_\_\_\_\_ 14. Special effort should be taken to make sure that gay people have the same educational opportunities as other people.
- \_\_\_\_\_ 15. In general, gay people don't think about the needs of other people.
- \_\_\_\_\_ 16. Gay people are sloppy., 64
- \_\_\_\_\_ 17. I like gay people.
- \_\_\_\_\_ 18. Special effort should be taken to make sure that gay people have the same housing opportunities as other people.
- \_\_\_\_\_ 19. I don't enjoy having a conversation with a gay person.
- \_\_\_\_\_ 20. I would like having a gay person at my place of worship or community center.

## Religious Fundamentalism (Saroglou, 2002)

Instructions. Please rate each statement to indicate the extent to which you agree or disagree with that particular statement.

- | 1                 | 2   | 3  | 4 | 5 | 6              |
|-------------------|-----|--|---|---|----------------|
| Strongly Disagree |     |  |   |   | Strongly Agree |
| ___               | 1.  | God has given mankind a complete, unfailing guide to happiness and salvations, which must be totally followed.   |   |   |                |
| ___               | 2.  | All of the religions in the world have flaws and wrong teachings.  |   |   |                |
| ___               | 3.  | Of all the people on this earth, one group has a special relationship with God because it believes the most in His revealed truths and tries the hardest to follow His laws. |   |   |                |
| ___               | 4.  | The long-established traditions in religion show the best way to honor and serve God, and should never be compromised.   |   |   |                |
| ___               | 5.  | Religion must admit all its failings, and adapt to modern life if it is to benefit humanity.   |   |   |                |
| ___               | 6.  | When you get right down to it, there are only two kinds of people in the world: the Righteous, who will be rewarded by God; and the rest, who will not.                      |   |   |                |
| ___               | 7.  | Different religions and philosophies have different versions of the truth, and may be equally right in their own way.  |   |   |                |
| ___               | 8.  | The basic cause of evil in this world is Satan, who is still constantly and ferociously fighting against God.  |   |   |                |
| ___               | 9.  | It is more important to be a good person than to believe in God and the right religion.  |   |   |                |
| ___               | 10. | No one religion is especially close to God, nor does God favor any particular group of believers.  |   |   |                |
| ___               | 11. | God will punish most severely those who abandon His true religion.   |   |   |                |
| ___               | 12. | No single book of religious writings contains all the important truths about life.   |   |   |                |
| ___               | 13. | It is silly to think people can be divided into "the Good" and "the Evil." Everyone does some good, and some bad things.   |   |   |                |
| ___               | 14. | God's true followers must remember that He requires them to constantly fight Satan and Satan's allies on earth.  |   |   |                |
| ___               | 15. | Parents should encourage their children to study all religions, without bias, and then make up their own minds about what to believe.  |   |   |                |
| ___               | 16. | There is a religion on this earth that teaches, without error, God's truth.  |   |   |                |
| ___               | 17. | "Satan" is just the name people give to their own bad impulses. There really is no such thing as a diabolical "Prince of Darkness" who tempts us.                            |   |   |                |
| ___               | 18. | Whenever science and sacred scripture conflict, science must be wrong.   |   |   |                |
| ___               | 19. | There is no body of teachings, or set of scriptures, which is completely without error.  |   |   |                |

## 10-item Right Wing Authoritarianism (McFarland, 2005)

Instructions. Please write a number between 1 and 7 next to each statement to indicate the extent to which you agree or disagree with that particular statement

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree

- \_\_\_ 1. There are many radical, immoral people in our country today, who are trying to ruin it for their own godless purposes, whom the authorities should put out of action.
- \_\_\_ 2. There is no "ONE right way" to live life; everybody has to create their own way.
- \_\_\_ 3. Our country will be destroyed someday if we do not smash the perversions eating away at our moral fiber and traditional beliefs.
- \_\_\_ 4. Gays and feminists should be praised for being brave enough to defy "traditional family values."
- \_\_\_ 5. Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.
- \_\_\_ 6. The only way our country can get through the crisis ahead is to get back to our traditional values, put some tough leaders in power, and silence the troublemakers spreading bad ideas.
- \_\_\_ 7. Our country needs free thinkers who will have the courage to defy traditional ways, even if this upsets many people.
- \_\_\_ 8. What our country really needs, instead of more "civil rights," is a good stiff dose of law and order.
- \_\_\_ 9. There is nothing wrong with premarital sexual intercourse.
- \_\_\_ 10. Obedience and respect for authority are the most important virtues children should learn.



