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RELATIONSHIPS BETWEEN RELIGION AND PREJUDICE: IMPLICIT AND EXPLICIT MEASURES.

by

H. TED DENNEY, JR.

Under the direction of Dr. Eric Vanman

ABSTRACT

This study examined the relationship among implicit and explicit measures of prejudice (against African-Americans, homosexuals, and Muslims), Right-Wing Authoritarianism (RWA), Religious Fundamentalism (RF), and Christian Orthodoxy (CO). The implicit measure of prejudice was Facial EMG, which is the measurement of the activity of key facial muscles when participants were exposed to pictures of members of the minority groups, as well as to pictures of the corresponding group. The explicit measure of prejudice was the Social Distance Scale, which measures how willing people are to have someone in a variety of close relationships. The primary hypothesis was that one's score on the implicit (and some of the explicit) measures of prejudice can be predicted using RF, CO, and RWA. The analyses revealed that RWA was predictive of prejudice against homosexuals and Muslims, but not against African-Americans.

INDEX WORDS: Prejudice, Racism, Religion, Religiosity, Implicit Prejudice, Facial EMG, Fundamentalism

RELATIONSHIPS BETWEEN RELIGION AND PREJUDICE: IMPLICIT AND EXPLICIT MEASURES.

by

H. TED DENNEY, JR.

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Science

in the College of Arts and Sciences

Georgia State University

2008

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Horace Ted Denney, Jr.

2008

RELATIONSHIPS BETWEEN RELIGION AND PREJUDICE: IMPLICIT AND EXPLICIT MEASURES

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August, 2008

DEDICATION

I would like to dedicate this thesis to my wife, Mindy Bell. It is only with her unwavering love, understanding and support that this thesis was developed, investigated, and completed.

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Introduction

The world has entered the 21st Century, but prejudice, racism and discrimination are still serious problems today. Though the situation has improved, one still hears daily about prejudice-motivated acts all over the world. For example, in the U.S. African-Americans, Muslims, and Homosexuals are frequent targets of racism and discrimination (Landrine & Klonoff, 1996). Research has also shown that White Americans hold prejudiced opinions toward African-Americans (Dovidio, Gaertner, Kawakami & Hodson, 2002). A 2006 CNN/ Opinion Research Corporation poll indicated that 84% of Blacks and 66% of Whites in the United States considered racism to be either a very serious or a somewhat serious problem. Nosek et al (2006) found that people tended to be strongly prejudiced against Muslims, African-Americans, Homosexuals and many other groups. These conditions have resulted in prejudice being the subject of a great deal of research. To clarify, in most of this research prejudice has been defined as "a negative evaluation of a social group or a negative evaluation of an individual that is significantly based on the individual's group membership" (Crandall & Eschleman, 2003).

Religion has frequently been suggested as one possible cause of prejudice, since the teachings of many religious institutions encourage adherents to reject people based on their membership in certain groups. For example, many Christian, Islamic, and Jewish groups teach that homosexuality is a sin and that homosexuals should be shunned. Many of these same groups also teach that people outside of their group are doomed to an unpleasant afterlife and that members should avoid contact with them. However, many of these same groups teach that their members should feel compassion unconditionally toward their fellow men and women, regardless of their in-group or out-group status. Thus, religion's influence on prejudice is frequently contradictory.

Religion is also a potentially important factor due to its large role in the lives of many Americans. According to the Pew Global Attitudes Project Survey (2002), more Americans (59%) feel that religion is a "Very important part of their lives" than do citizens of any other "Developed" country.

In the following pages, I will provide an overview of the study of religion and prejudice. I will begin with a description of early research into prejudice and religiosity, and the various criticisms of this research. I will then describe how the field became more complex through its study of a variety of constructs used to represent religiosity. These will include several concepts that are not religious in nature, but have nonetheless been suggested to explain and further clarify the relationship between prejudice and religion. Finally, I will delve into the current trends in prejudice research, and detail how my thesis will further clarify this relationship.

Early Studies of Prejudice and Religiosity

Gordon Allport was one of the early researchers to study the relationship between prejudice and religiosity. He contended that people who were prejudiced against a certain group would be more likely to be prejudiced against other groups as well. This led Allport and others to conclude that there was a "prejudiced personality" that predisposed one to show these consistent biases (Allport, 1954). Allport and his colleagues later indicated that one's religiosity is tied together with the degree to which one has a "prejudiced personality" (Allport & Ross, 1967). The existence of a "prejudiced personality" was supported by a particularly intriguingly designed experiment that gauged participants' levels of prejudice against real-world groups as well as against two completely fictional groups. The results showed that people who were prejudiced against the real groups were also prejudiced against the fictional groups (Hartley, 1946).

Some of the first studies to examine the relationship between prejudice and religiosity used frequency of church attendance as a measure of religiosity. Most of these studies found that, as frequency of church attendance increased, so did prejudice against groups of people ranging from African-Americans, minorities and Indians to Jews and Communists (Allport & Kramer, 1946, Levinson & Sanford, 1944, Merton, 1940, Pettigrew, 1959, Rosenblith, 1949, Sanford & Levinson, 1948).

Dimensional Approaches to Prejudice and Religiosity

Researchers soon realized, though, that frequency of church attendance was not the best way to gauge religiosity. The main criticism of this approach was that it failed to consider the differences in how and why people are involved in religion. One of the early successful attempts to take this into consideration was Allport's Intrinsic/Extrinsic Religious Orientation Scale (1967), which was originally proposed as a way to quantify how religious a person is. Participants who score high on the Intrinsic (I) dimension (and low on the Extrinsic dimension) are considered to have internal motivations for their religious involvement, and view religion as an end unto itself (e.g., "important to spend time in prayer;" "my whole approach to life is based on my religion"). It has also been suggested that high Intrinsics are more concerned with appearing to be a good person than are low Intrinsics (Batson, Naifeh, & Pate, 1978). Participants who score high on the Extrinsic scale (and low on the Intrinsic dimension) are thought to be externally motivated to be involved in religious activities. Participants who score high on both are motivated by both external and internal reasons. Scores on the Intrinsic subscale are typically negatively correlated with self-report measures of racial prejudice, whereas one's score on the Extrinsic subscale is positively correlated with survey measures of racial prejudice (Allen & Spilka, 1967, Allport & Ross, 1967, Johnson, 1977, Duck & Hunsberger,

1999). This result has been found with enough regularity that it is largely considered to be definitively proven (Gorsuch, 1988; Spilka, Hood & Gorsuch, 1985). In other words, Intrinsic people have been generally found to be less prejudiced, and Extrinsic people have been generally found to be more prejudiced. People who score as highly religious on both scales are even more prejudiced than Extrinsic people. The scale has been used extensively in psychology research over the years, and has been sometimes shown to have good psychometric properties (Gorsuch & McPherson, 1989). However, some researchers have pointed out that the scale has a variety of theoretical as well as conceptual problems (Batson, 1976, Batson & Ventis, 1982, Dittes, 1971, Donahue, 1985, Hunt & King, 1971).

A factor analysis by Kirkpatrick (1989) of the Intrinsic/Extrinsic scales indicated that Extrinsic Scale could be divided into two scales, personally oriented extrinsicness, and socially orientated extrinsicness. As a result of this finding, Gorsuch and McPherson (1989) produced a modified version of the Intrinsic/Extrinsic Religiosity scale with three subscales: Intrinsic, Extrinsic-Personal, and Extrinsic-Social. Their version of Allport's scale defined the Intrinsic (I) dimension the same way, but it divides the Extrinsic scale into the Extrinsic-Personal (E-P) and the Extrinsic-Social (E-S) scales. The distinction between the two Extrinsic scales is that E-P involves personal external motivations (e.g., "helps one to gain relief and protection;" "offers one comfort") while E-S involves social external motivations (e.g., "making friends;" "spending time with friends"). Although an improvement, these scales retain many of the issues of the original scale.

Researchers next developed the concept of Quest Orientation (Batson & Ventis, 1982) in an effort to better explain the relationship between religiosity and prejudice, as well as in response to the theoretical and conceptual problems with the Intrinsic/Extrinsic Religious

Orientation Scale. Batson and Ventis (1982) defined Quest Orientation as the degree to which a person's religion is focused on existential questions that one is compelled to answer. People who score high on the Quest Orientation scale tend to have lower levels of explicit racial prejudice (Altemeyer & Hunsberger, 1992; Batson, Flink, Schoenrade, Fultz, & Pych, 1986).

Although many researchers studied Religious Orientation extensively, other researchers turned their attention to specific aspects of religiosity that could be readily defined. The two most frequently examined aspects are Religious Fundamentalism (RF) and Christian Orthodoxy (CO). According to Altemeyer and Hunsberger (1992), RF measures the degree to which one believes

> . . . that there is one set of religious teachings that clearly contains the fundamental, basic, intrinsic, essential, inerrant truth about humanity and deity; that this essential truth is fundamentally opposed by forces of evil which must be vigorously fought; that this truth must be followed today according to the fundamental, unchangeable practices of the past; and that those who believe and follow these fundamental teachings have a special relationship with the deity. (p. 118).

RF has been frequently found to be significantly correlated with prejudice, even when other religiosity measures and RWA are controlled for (Altemeyer & Hunsberger, 1992; Kirkpatrick, 1993; Rowatt et al., 2006).

Christian Orthodoxy (CO) simply measures the extent to which one agrees with standard tenets of the Christian church. Participants high on Christian Orthodoxy are more likely to be prejudiced against homosexuals, but they also tend to be less racially prejudiced (Rowatt et al.,

2006). This is explained by the common teaching of many churches that it is acceptable to be biased against homosexuals, but that it is not acceptable to be biased against other races.

Other Concepts Relevant to the Study of Prejudice and Religiosity

Still other researchers have turned to concepts that are only indirectly religious in nature. Universalism was defined by Sagiv and Schwartz (1995) to be a motivational value that involves "understanding, appreciation, tolerance and protection for the welfare of all people and for nature (broadminded, social justice, equality, a world at peace, a world of beauty, protecting the environment)" (p. 438). Burris and Tarpley (1998) defined it as "concern for the welfare of all persons and for nature." (p. 73). Phillips and Ziller (1997) suggested that universalism is the tendency of some people (High Universalists) to pay selective attention to similarities between the self and others, which eventually results in the two being integrated more completely than in other people (Low Universalists). According to their findings, people who are Low Universalists have the potential to be more prejudiced, but their study did not directly examine the question of Universalism being the converse of Prejudice.

Right-Wing Authoritarianism (RWA) is generally defined as a confluence of three attitudinal clusters: authoritarian submission, authoritarian aggression, and conventionalism (Altemeyer, 1981, 1988). As the name indicates, people who score as high RWA are much more likely to be right-wing conservatives. According to a variety of researchers, peoples' scores on the RWA have been found to be positively correlated with prejudice against a number of minority ethnic groups (Altemeyer & Hunsberger, 1992; Wylie & Forest, 1992). Several studies have found that RWA is highly correlated with Religious Fundamentalism, frequent church attendance, reading scripture more often, having little religious doubt, thinking the Bill of Rights should be repealed, and being more forgiving of the use of torture (Altemeyer & Hunsberger,

1992; Hunsberger, 1995, 1996; Wylie & Forest, 1992). By definition, people who score as high in RWA will tend to be more politically conservative. Thus, it is important to gauge participants' political stance.

Explicit Measures of Prejudice

Another approach to clarifying the relationship between prejudice and religion lies in the area of prejudice research. The early focus of the study of prejudice was on questionnaires which basically asked, either blatantly or subtly, whether or not one feels biased for or against particular groups. The problem with this approach, though, is that the experimenters' motivations are transparent in such a way that many participants can tell that their prejudice levels are being investigated. Most people in such a situation would be motivated to conceal any prejudices they might possess, so the results would not be a true representation of their opinions. The type of consciously held, self-reported prejudice measured by these scales is called explicit prejudice. All of the preceding references to studies have involved this type of prejudice. A more subtle way to measure this is through the use of Bogardus's Social Distance Scale (Bogardus, 1925) which asks participants how comfortable they would be with a member of a specific group being anything from their next door neighbor to their president to their spouse. As measures of religiosity have developed, so have ways of measuring prejudice.

Implicit Measures of Prejudice

More recently, researchers have investigated prejudice by using implicit measures of prejudice, which measure prejudice without requiring conscious reflection. Such prejudice may reflect a primarily automatic negative evaluation of someone based upon their inclusion in some particular group. Implicit measures of prejudice may be strongly related to a variety of more

subtle discriminatory activities. Researchers have studied this with an assortment of more covert techniques.

One such technique is the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998) which measures participants' response latencies when reacting to (1) Faces from Group A paired with positive words (Group A-positive); (2) Faces from Group A paired with negative words (Group A-negative); (3) Faces from Group B paired with positive words (Group B -positive); and (4) Faces from Group B paired with negative words (Group B - negative). For example, if Participant 1 has a stronger association between Black faces and negative words than between White faces and negative words, then they would be judged to have a bias against Black faces. If Participant 2 has a weaker association between Black faces and negative words than between White faces and negative words, then they would be judged to have a bias against White faces. Based on this evidence, IAT researchers would then conclude that Participant 1 is more prejudiced towards Blacks than Participant 2. This approach can be modified to test prejudices against many different groups. Nosek et al (2006) found strong anti-white, anti-Muslim, and anti-Homosexual prejudices in a large sample using an on-line version of the IAT, as well as with an explicit measure of prejudice. Rowatt and Franklin (2004) and Rowatt et al. (2006) used the IAT in a study of prejudice and religion, and found that several religiosity and related scales (Religious Fundamentalism, Right-Wing-Authoritarianism, Christian Orthodoxy, and Impression Management), when analyzed in a multiple regression, were associated with prejudice against Homosexuals and prejudice against African-Americans, as measured by the IAT.

Another implicit measure of prejudice is through the use of facial electromyography (EMG). Facial EMG involves measuring the activity of certain facial muscles of participants

(specifically the cheek, which is involved in smiling, and the brow, which is involved in frowning) while they are exposed to a variety of types of stimuli. Muscle activation at the cheek (zygomaticus major), even if insufficient to cause a smile, is associated with positive feelings/attitudes, and muscle activation at the brow (corrugator supercilii), even if insufficient to cause a frown, is associated with negative feelings/attitudes. Fridlund and Cacioppo (1986) developed the rules for using this technique. It has been further explored by a variety of researchers. Vanman, Paul, Ito and Miller (1997) were among the first to examine prejudice through this method. They found that high-prejudiced White participants consistently showed greater muscle activation in the corrugator supercilii and less muscle activation in the zygomaticus major when exposed to pictures of African-Americans. As was expected, they also found that those same participants showed less muscle activation in the corrugator supercilii and more muscle activation in the zygomaticus major when exposed to pictures of other Whites. Vanman, Saltz, Nathan, & Warren, (2004) found that muscle activity in the zygomaticus major was associated with racially discriminatory behavior. However, corrugator supercilii was not shown to have this same significant relationship in this study.

Larsen, Norris, Cacioppo (2003), in studying the effect of positively and negatively valenced pictures, found that corrugator supercilii activity significantly increased after exposure to negative photos, but also that it decreased after exposure to positive photos. Zygomaticus major activity, however, only showed an increase in activity after exposure to positive photos. It did not display a corresponding decrease in activity after exposure to negative photos. Thus, the authors concluded that it is likely that ambivalent stimuli would have a smaller effect on corrugator supercilii activity, since the positive and negative aspects of the stimuli could cancel

each other out to some extent. Their results also showed that there is no reason to expect a strong correlation between zygomaticus major activity and corrugator supercilii activity.

Relationships Between Implicit and Explicit Measures of Prejudice

Researchers have been and continue to be curious about the relationship between implicit measures of prejudice and explicit measures of prejudice. Nosek (2005) suggested that differences between implicit measures of attitudes and explicit measures of attitudes could be caused by the participant's self-presentation concerns. Typically, one has these concerns regarding attitudes that one doesn't want others to know about, or attitudes that they don't think accurately reflect the way they really feel. Both of these situations could potentially apply to the concept of prejudice. Thus, one would expect implicit and explicit measures of prejudice to be less highly positively associated if they are directed toward groups that are considered by the society overall to be inappropriate targets of such feelings. For example, prejudice against African-Americans is almost universally condemned in today's society, so it would not be expected that implicit and explicit measures of prejudice against African-Americans would be associated. However, implicit and explicit measures of prejudice against homosexuals and Muslims would be more strongly associated, since many segments of the population view prejudice against them as acceptable.

Hypotheses

Thus, examining the relationship between prejudice (both implicit measures and explicit Measures), and the explicit religiosity and personality variables (Right-Wing Authoritarianism, Religious Fundamentalism, and Christian Orthodoxy) was the focus of this study. The aim of the study was to determine which of the explicit religiosity and personality variables are most closely associated with both implicit and explicit prejudice. Specifically, I used questionnaires

to gauge participants' scores on Religious Fundamentalism, Christian Orthodoxy, Right-Wing Authoritarianism and Social Distance. Social Distance was the explicit measure of prejudice against the target groups, and facial EMG was the implicit measure of prejudice against the same target groups. The explicit measures of prejudice will be included to allow the analysis of the implicit/explicit relationship, as well as to facilitate comparisons between the current study and previous studies. The resulting data were analyzed to see which explicit religiosity and personality variables, when other variables are controlled for, had an impact on the participants' implicit and explicit prejudice levels.

Based on previous research, I expected that participants' scores on the implicit measure of prejudice against one particular group will be strongly positively associated with their scores on the implicit measures of prejudice against the other target groups (Hypothesis 1). Additionally, I expected that these implicit measures of prejudice will be positively associated with their explicit measures of prejudice against the groups that it is still acceptable to be prejudiced against, namely homosexuals and Muslims (Hypothesis 2). This relationship should extend to the overall explicit measure of prejudice as well. However, the implicit measures of prejudice should not be associated with the explicit measures of prejudice against groups which are not considered acceptable to be prejudiced against (in this study, African-Americans).

Of the Explicit Religiosity and Personality variables, RWA and RF should be significantly predictive of participants' scores on the Implicit Measures of Prejudice (when CO is controlled for) (Hypothesis 3). Similarly, the same relationship should hold true for the Explicit Measures of Prejudice that are directed toward groups (as above) which are considered acceptable to be prejudiced against (once again, homosexuals and Muslims) (Hypothesis 4).

Distinctiveness of Current Research Paradigm

Past research has examined how religiosity is related to prejudice (both explicit and implicit measures), but key variables have often been excluded. Specifically, studies have rarely used implicit measures of prejudice. Additionally, few studies have examined prejudice along with RF, RWA and CO all together. Also, other researchers have only examined how this relationship works in regards to certain target groups. For example, Rowatt et al. (2006) looked at prejudice against homosexuals, but did not include other target groups. They also used the IAT instead of the facial EMG as their implicit measure of prejudice. Considering the topicality of anti-Muslim prejudice, there has been a surprisingly low number of studies that used Muslims as a target group. Using several groups is important so that one can compare levels of prejudice toward the different groups, as well as enabling the study of whether or not the "prejudiced personality" even exists. Apart from the main hypotheses of this study, another contribution of this project was to see if the facial EMG procedure yielded similar results to the IAT procedure in these situations, in that the same variables were related to facial EMG as an implicit measure of prejudice.

Method

Participants

Undergraduate Psychology 1100 and Psychology 1101 Students from Georgia State University (Fall Semester, 2007 & Spring Semester, 2008) were recruited and given class credit for taking part in this study. Data were collected from 183 total participants (51 men, 129 women; mean age = 21.5). However, for the purposes of this particular study only self-identifying Christians were used. This resulted in a sample of 107 (27 men, 80 women, mean age = 21.80). This final modified sample was ethnically diverse (48 African-Americans, 33

White Americans, 10 Asian Americans, 5 Hispanic-Americans, 10 Multi-racial participants, and 2 "Other." Participants received two experimental credits for taking part in the complete experiment.

Survey Procedure/Materials

The surveys were completed through the Survey Monkey webpage (www.surveymonkey.com). The series of surveys, which measured a variety of constructs, can be divided into two categories: religiosity scales and personality scales. The religiosity scales used were Religious Fundamentalism (Altemeyer & Hunsberger, 1992, 2004) and Christian Orthodoxy (Hunsberger, 1989).

Religious Fundamentalism (Altemeyer & Hunsberger, 1992) measures the degree to which one believes that their religion's teachings and scriptures contain the full truth of all existence; that they and their religion are working in direct opposition to evil; that rituals and practices today should be identical to those of the past; and that they, along with their fellow believers, enjoy a unique relationship to their higher power. Scores on this survey range from a low of 12 to a high of 82. Altemeyer & Hunsberger (1992) found that this scale has a reliability of $\alpha = 0.91$ (for students) and $\alpha = 0.92$ (for parents).

Christian Orthodoxy (Hunsberger, 1989) measures the extent to which one agrees with standard tenets of the church. In this project the Short Christian Orthodoxy scale was used to measure this construct. Scores on this survey range from a low of 6 to a high of 42. Hunsberger (1989) found that this scale has a reliability of $\alpha = 0.94$.

The personality scales were the Social Distance Scale (Bogardus, 1925) and Right-Wing Authoritarianism (Altemeyer & Hunsberger, 1992). The Social Distance Scale (SDS, Bogardus) was designed to measure how willing one is to interact with members of various kinds of groups.

It asks, “I would be willing to have a _____ person as my . . .” with the concluding statement covering a range of degree of closeness. The degree of closeness ranges from a member of your church (not very close) to your spouse (very close). Past research has used it to measure social distance from groups including African-Americans (Czopp & Monteith, 2006, Stewart, Weeks, & Lupfer, 2003), homosexuals (Fulton, Gorsuch, & Maynard, 1999), and Muslims (Goleblowska, 2004). Though still an explicit measure of prejudice, it is somewhat less transparent than other explicit measures. Scores on this survey range from a low of 14 to a high of 98. Stewart et al. determined that this scale has a reliability of $\alpha = 0.95$.

Right-Wing Authoritarianism (RWA, Altemeyer, 1981, 1988, Altemeyer & Hunsberger, 1992) is generally defined as a confluence of three attitudinal clusters: authoritarian submission, authoritarian aggression, and conventionalism. Authoritarian submission is defined as having a high degree of submission to the authorities who are perceived to be established and legitimate in the society in which one lives (e.g., "It is good to have a strong authoritarian leader"). Authoritarian aggression is defined as a general aggressiveness, directed against various persons, that is perceived to be sanctioned by established authorities (e.g., "It is acceptable to be cruel to those who do not follow the rules"). Conventionalism is defined as a high degree of adherence to the social conventions that are perceived to be endorsed by society and its established authorities (e.g., "Traditional ways are best.") Scores on this survey range from a low of 30 to a high of 210. Altemeyer and Hunsberger, in a series of studies, found that the scale has reliabilities ranging from $\alpha = 0.93$ to $\alpha = 0.95$.

EMG Procedure

Each participant came to the lab to complete both parts of the experiment. The order was such that participants completed the EMG procedure first, and then completed the survey in

another room. The EMG procedure involved the participants being individually seated in a room. A research assistant attached the leads for the EMG equipment in pairs to the brow and cheek regions of the participants face, according to published guidelines (Fridlund & Cacioppo, 1986). A ground electrode was attached to the participant's right forehead. The participant was told that the electrodes recorded "involuntary neural responses that emanate from the head." The experimenter then verified that the equipment was functioning correctly.

The electrodes attached to the brow specifically targeted the activity of the corrugator supercilii muscle. Activation of this muscle is associated with feelings of negativity and dislike. The electrodes attached to the cheek targeted the activity of the zygomaticus major muscle. Activation of this muscle is associated with positive feelings. These associations come about due to these muscles' involvement in smiling and frowning. The corrugator supercilii furrows the brow when one frowns, while the zygomaticus major helps the mouth to form a smile. Even if there is not sufficient activation to make one actually smile (or frown), any activation of these muscles indicates that one is feeling positively or negatively.

Stimulus Materials

The participants were shown a series of pictures of members of the various groups (White, Black, Homosexual, Muslim), while the EMG information was recorded. There were five sets of pictures: (1) four individual African-American men and four individual African-American women; (2) four individual White American men and four individual White American women; (3) four same-sex male White couples and four same-sex female White couples; (4) four different-sex White couples; and 5) four Muslim men & four Muslim women (the people in the Muslim photos were identifiably Muslim by their clothing and headwear). These pictures were compiled from a variety of internet sources, but most of them were purchased from the

IStockPhoto website (www.istockphoto.com). Care was taken to select pictures with roughly similar backgrounds and facial expressions. The pictures of the couples were carefully screened to avoid any involving passionate embraces or kisses, so as to keep them minimally emotionally evocative.

To test the suitability of the pictures of Muslims and the pictures of the same-sex couples, pilot testing was done. Specifically, a survey was constructed that contained all of the pictures selected to represent Muslims and same-sex couples, as well as similarly formatted pictures of people in exotic, "foreign" attire and pictures of two members of the same sex in close proximity to each other. These last two groups were included to insure that people clearly perceived the selected pictures as either Muslim or same-sex couples. All of these groups had equal numbers of pictures of men and pictures of women. After each picture was displayed, the participants were asked to indicate either ". . . how strongly this person looks like a Muslim," or ". . . how strongly these people look like a gay couple." The four top rated pictures from each category (Male Muslim, Female Muslim, Male Same-Sex Couple, & Female Same-Sex Couple) were chosen to be used in this experiment.

In the current experiment, each picture was presented for 6 seconds. After being exposed to a picture, participants were asked to indicate, via a 7-point Likert scale, how friendly they thought the people in the pictures were. The participants were then given a 10 second intertrial interval. The slides were displayed on a laptop screen sitting in front of the participant.

EMG Data

The mean amplitude of the EMG for each condition was used in the analysis as the implicit prejudice measure. A high amplitude indicates that there is greater muscle activation. As stated previously, muscle activation of the corrugator supercilii (brow) is consistent with a

negative response, whereas muscle activation of the zygomaticus major (cheek) is consistent with a positive response. The data from any session in which there were recording difficulties were not used in the analysis.

Results

Because of the high number of tests in this study, it was necessary to adjust the alpha levels for each analysis via the Bonferroni Correction in order to compensate for the greater likelihood of a type 1 error. However, the alpha level was different for each set of analyses, and will be discussed in each corresponding section.

Data Analysis Strategy

The facial EMG data were processed and analyzed according to the guidelines set out by Fridlund & Cacioppo (1986). The survey data were scored according to the instructions of each scale. To test for Hypothesis 1, a correlation matrix was constructed using only the implicit measures of prejudice. The matrix was examined to determine if there were any significant intercorrelations among the implicit measures of prejudice. Included among these variables was an overall implicit measure of prejudice, which was formed by combining the other variables. Next, to test for Hypothesis 2, the explicit measures of prejudice were added into the aforementioned correlation matrix. An overall explicit measure of prejudice was formed by combining the other variables and was included in the analysis. The only relationships that were acknowledged and examined in this stage were the ones that involved an explicit measure of prejudice, because the relationships between the implicit measures of prejudice were all examined in the preceding step. For Hypothesis 3, a correlation matrix was constructed using only the explicit measures of religiosity and personality to confirm that they were as strongly intercorrelated as had been predicted by past research. Continuing the investigation of

Hypothesis 3, a regression analysis was run, with CO as a covariate and RWA and RF as predictors of the implicit measures of prejudice. Finally, Hypothesis 4 was tested by running a similar regression analysis, except using all of the explicit measures of prejudice as the dependent variables. All of these regression analyses were closely examined to ensure that multicollinearity was not a problem. If multicollinearity had been a problem, the affected variables would have been removed from the study.

Implicit Measures of Prejudice - Data Analysis Details

Regarding the facial EMG results, not every participant yielded useful data. The facial EMG zygomaticus major data of 12 participants and the corrugator supercilii data of five participants had to be discarded due to artifacts or equipment difficulties. To simplify the analyses, participants with such problematic data in either of these two areas were not included in any of the remaining analyses. As a result, the data of 15 people were excluded from the analyses.

The analysis of the facial EMG data looked at participants' results in regards to their Ingroup. Thus, participants' bias scores were determined by subtracting their facial EMG reading when exposed to their Outgroup from their facial EMG reading when exposed to their Ingroup. For example, an African-American participant's bias score on the Zygo Bias for Race variable would be computed by subtracting their "White" facial EMG reading from their "African-American" facial EMG reading. Alternatively, a White participant's bias score on the Zygo Bias for Race dimension would be calculated by subtracting their "African-American" facial EMG reading from their "White" facial EMG reading. For the Bias for Race computations (both Zygo and Corr), only White participants and African-American participants were included

because they were the only participants who were exposed to pictures of members of their racial ingroup during that part of the facial EMG procedure.

Next, all of the implicit measures of prejudice were examined to determine whether or not the participants displayed the customary biases toward their outgroups as has been found in past research. This was done by using a *t*-test procedure to analyze the difference scores derived in the preceding steps to determine if they were significantly different from zero.

Explicit Religiosity and Personality Variables - Data Analysis Details

Right-Wing Authoritarianism, Religious Fundamentalism, and Christian Orthodoxy were all measured by the surveys detailed in the previous sections. The scores from each one were totaled (taking into account items that needed to be reverse-scored) and entered into the subsequent analyses. See Table 1 for their means and standard deviations.

Explicit Measures of Prejudice - Data Analysis Details

Like the explicit religiosity and personality variables, the explicit measures of prejudice were gauged by the surveys described previously. To make them more comparable to the implicit measures of prejudice, they were modified further. New variables were formed from the existing explicit measures of prejudice in such a way that each variable only included each participant's score against members of their outgroups. For example, the SDS-White and SDS-Black scales were combined together to create the SDS-Race variable. This was done by only including the SDS-White scores from African-Americans and the SDS-Black scores from Whites. Thus, the resulting SDS-Race score is a measure of the participant's bias against members of the other race. Unlike the implicit measure of racial prejudice, however, all races were used for this variable. The same technique was followed for the other explicit measures of prejudice. As a result, the data from any non-heterosexual participants on the SDS-Gay measure

were not used in the construction of the new SDS-Sexual Orientation variable. This led to the loss of the data of 31 participants on the SDS-Sexual Orientation variable. There was no comparable data loss on the SDS-Religion variable because only Christians were included in the analysis in the beginning; thus, no Muslim SDS-Religion results were included in the analysis. The scores from each new variable were averaged and entered into the subsequent analyses. An adjustment was necessary in the SDS-Sexual Orientation score computation because two of the questions from the survey were not applicable to this particular scale. Specifically, the questions, "I would be willing to have a Homosexual person as my romantic date" and "I would be willing to have a Homosexual person as my spouse," were invalid for anyone who was not homosexual or bisexual themselves. These two questions were removed from the total, thus resulting in the SDS-Sexual Orientation totals being lower than the totals of the other SDS surveys. Furthermore, all of the SDS scores were combined together to create an SDS-Overall variable. To compensate for the SDS-Sexual Orientation totals being lower (since this would result in prejudice against homosexuals having less of an influence than the other prejudices), each participant's means were substituted for the two missing values and added to the original SDS-Sexual Orientation total, The means and standard deviations of the SDS surveys can be found in Table 1.

Table 1: Variable Means, Standard Deviations, and N.

	M	SD	N
Explicit Religiosity and Personality Variables			
Right-Wing Authoritarianism	111.42	27.91	100
Religious Fundamentalism	49.83	10.84	100
Christian Orthodoxy	35.55	6.96	102
Explicit Measures of Prejudice (SDS)			

SDS-Race	87.78	13.65	99
SDS-Sexual Orientation	71.70	21.57	86
SDS-Religion	76.27	16.76	98
SDS-Overall	79.28	14.17	103
Implicit Measures of Prejudice (Facial EMG)			
Zygo Bias for Race	0.28	1.69	60
Zygo Bias for Sexual Orientation	-0.03	1.55	96
Zygo Bias for Religion	-0.15	1.09	104
Zygo Overall Bias	0.03	0.92	60
Corr Bias for Race	0.06	0.99	59
Corr Bias for Sexual Orientation	-0.01	1.06	95
Corr Bias for Religion	0.21	1.01	103
Corr Overall Bias	-0.03	0.75	60

Test of Biases

All of the implicit measures of prejudice were analyzed to determine if they indicated any biases were being exhibited by the entire group of participants. This was done by performing a single-sample *t*-test which judged if any of them were significantly different from zero. Due to the relatively large number of t-tests done, a Bonferroni correction of .006 was used to decrease the chance of a Type 1 error. None of the variables showed that the groups exhibited the expected biases (see Appendix 1). To further examine the data, the same analysis was performed on each ethnic group separately, with comparable results.

Hypothesis 1: Implicit prejudice against one group predicts implicit prejudice against other groups

To investigate Hypothesis 1, a correlation matrix was constructed using only the Implicit Measures of Prejudice. The Bonferroni correction (based upon the number of correlations; 28 in

this case) indicated that alpha should be .0018. There were, however no theoretically notable relationships that achieved significance. The only significant relationships among them were between variables that had some data overlap, like the Zygo Bias for Race variable and the Zygo Overall Bias variable. These would be expected to be correlated because the first is a constituent of the second. Further, there were no significant correlations between corresponding zygomaticus and corrugator measures. For the correlation matrix, see Appendix A.

Hypothesis 2: Implicit prejudice predicts explicit prejudice against homosexuals and Muslims

To investigate this hypothesis, the explicit measures of prejudice were added to the correlation matrix that was constructed in the previous step. The Bonferroni correction for this analysis (based upon the number of new correlations above and beyond the number in the previous analysis; 50) indicated that alpha should be .001. There were no significant correlations between any of the implicit measures of prejudice and the explicit measures of prejudice. There were, however, several intercorrelated explicit measures of prejudice. The explicit measures of prejudice against Muslims and against homosexuals were significantly correlated (r (81) = .575, $p < .0001$). Also, the Overall explicit measure of prejudice was significantly correlated with all of the other explicit measures of prejudice (Racial: r (99) = .649, $p < .0001$; Sexual Orientation: r (86) = .837, $p < .0001$; & Religion: r (98) = .823, $p < .0001$). However, there was one relationship that approached significance: Zygo Bias for Race and SDS-Race (r (55) = -.400, p = .002). For the remaining correlation values, see the correlation matrix in Appendix A.

Hypothesis 3: RWA & RF predict Implicit Measures of Prejudice, especially Overall Prejudice

To investigate this hypothesis, a correlation matrix was formed using the Explicit Religiosity and Personality Measures (Table 2). The Bonferroni correction for this correlational analysis indicated that alpha should be .017 (based on the number of correlations). All of these

variables turned out to be strongly intercorrelated. Once this was established, a series of regression analyses were run, using Christian Orthodoxy as a covariate with Right-Wing Authoritarianism and Religious Fundamentalism as predictors. The dependent variables were each implicit measure of prejudice, and were analyzed in separate procedures. The Bonferroni correction for this regression analysis indicated that alpha should be .0063 (based on the number of regression analyses). However, none of the analyses yielded significant predictive relationships. For the statistical values, please refer to Appendix B.

Table 2: Correlation Values of Explicit Religiosity & Personality Variables for Hypothesis 3

	1	2	3
1. Right-Wing Authoritarianism		.627*	.487*
2. Religious Fundamentalism			.669*
3. Christian Orthodoxy			

* Correlation is significant at the $p < .017$ level (2-tailed).

Hypothesis 4: RWA & RF predict Explicit Measures of Prejudice, but only for homosexuals and Muslims

To investigate this hypothesis, a series of regression analyses were conducted that were identical to the regression analyses for Hypothesis 3, except that the dependent variables were the explicit measures of prejudice. The Bonferroni correction for these regression analyses indicated that alpha should be .0125 (based on the number of analyses).

In three of the four analyses (SDS-Sexual Orientation, SDS-Religion & SDS-Overall), Right-Wing Authoritarianism was shown to have a significant effect ($\beta = -.472$, $p = .0003$; & $\beta = -.333$, $p = .007$; & $\beta = -.441$, $p = .0002$ respectively), while it did not in the other (SDS-Race) ($\beta = -.223$, $p = .094$). Religious Fundamentalism ($\beta = -.095$, $p = .506$; $\beta = .087$, $p = .537$, $\beta = -.016$,

$p = .906$ & $\beta = .088$, $p = .565$) had no significant relationships with any of these explicit measures of prejudice. For the statistical values, please refer to Appendix C.

Discussion

Test of Biases

The analysis of the implicit measures of prejudice data is somewhat revealing. Primarily, the complete lack of significant biases on the part of the overall sample is in contradiction to expectations, because past research has found this bias consistently.

Hypothesis 1: Implicit prejudice against one group predicts implicit prejudice against other groups

In the analyses of the correlations of the implicit measures of prejudice, the study failed to get any theoretically interesting significant correlations. If such a concept as a "prejudiced personality" exists, one would assume that there would be a plethora of intercorrelations among the implicit measures of prejudice. This statistical result provides no support for this concept.

Hypothesis 2: Implicit prejudice predicts explicit prejudice against acceptable groups

In contrast to past research, none of the implicit measures of prejudice variables were correlated with any of the explicit measures of prejudice. Rowatt and Franklin (2004) and Rowatt et al. (2006) found that there was a weak but significant correlation between most of their implicit measures of prejudice and most of their explicit measures of prejudice, so the scarcity of consistent relationships here fails to support this hypothesis. At the very least, it was expected that the two kinds of prejudice would be correlated when they were in reference to groups that many parts of society view as acceptable targets of prejudice, specifically homosexuals and Muslims. Previous research in the field of implicit attitudes Nosek (2005) found this to be the case.

Hypothesis 3: RWA & RF predict implicit measures of prejudice, especially Overall Prejudice

As anticipated, Right-Wing Authoritarianism, Religious Fundamentalism and Christian Orthodoxy were all strongly (and significantly) positively correlated with each other. The regression analyses that were performed yielded little interesting information, and once again the hypotheses were not supported. The lack of any significant relationship between any of the implicit measures of prejudice and Right-Wing Authoritarianism, Religious Fundamentalism, and Christian Orthodoxy is in direct contradiction to past research findings.

Hypothesis 4: RWA & RF predict explicit measures of prejudice, but only for acceptable groups

The pattern of results for the regression analyses looking at the explicit religiosity and personality variables and the explicit measures of prejudice does lend support to this hypothesis, in that Right-Wing Authoritarianism was found to be significantly predictive of several of the explicit measures of prejudice (against homosexuals, Muslims, and the overall variable). The finding that Right-Wing Authoritarianism was a significant predictor of explicit prejudice against homosexuals and Muslims as well as overall explicit prejudice is also backed up by a variety of past research (Altemeyer & Hunsberger, 1992; Kirkpatrick, 1993; Rowatt et al., 2006). However, that same research also suggests that Religious Fundamentalism and Christian Orthodoxy should have a similar relationship.

Summary

All in all, the results of this study are somewhat consistent with findings in the literature concerning both types of measures of prejudice. Where significant effects were found, they corroborated what researchers have found in the past. The strong associations of Right-Wing Authoritarianism, Religious Fundamentalism, and Christian Orthodoxy match up closely to what researchers have found previously. The discrepancies lie in the analyses with null results. It is

possible that researchers in the past did not pay sufficient attention to the need to compensate for the large number of significance tests that needed to be done.

In regards to the concept of a "prejudiced personality," the data provides very little support. It is encouraging that the "global" explicit measure of prejudice was significantly correlated with several of the variables of interest. It would, however, be much more encouraging if similar results had been obtained for the "global" implicit measure of prejudice as well, but perhaps this will be possible if the study is repeated and improved upon in the future.

Limitations and Possible Improvements

Unfortunately, this study did not achieve the results that were anticipated. There are a variety of potential explanations for the discrepancies between this research and prior research.

One major problem with this study is its lack of power. When the power analysis was originally performed, the alpha level was inadvertently assumed to be .05. The author failed to take into account the need to use a Bonferroni correction on the various analyses. The original computation assumed a moderate effect size, 90% power, three predictors and the aforementioned alpha of .05. This indicated that 99 participants were needed in order to achieve 90% power. The 107 participants seemed to be more than sufficient. However, when the Bonferroni correction is factored in, the lowest alpha becomes .0063 and as a result the required number of participants increases to 144. The power of the experiment as it exists in reality is only 74%, which is rather low. This could explain some of the lack of results, but the effect sizes are so small when predicting the implicit measures of prejudice with the explicit religiosity and personality variables that it is unlikely increasing the number of participants to 144 would lead to significant findings. However, the effect sizes are more substantial when predicting the explicit

measures of prejudice with the explicit religiosity and personality variables, so it could impact those relationships.

Another criticism that can be leveled at this study (as with most Psychology experiments performed currently) is that it is flawed due to its restricted sample. Most current psychological research uses University students as their participant pool, due to their easy accessibility. Of specific applicability to this study, one could make a case that these students are not representative of the general population, particularly when it comes to their levels of prejudice, as well as their levels of fundamentalism. An examination of the scores on RWA, Fundamentalism, and Christian Orthodoxy shows that no one in this sample scored in the extreme ranges (neither high nor low). This reduced range could be remedied somewhat by replicating the study at a variety of schools and in a variety of other settings. Recruiting a few churches to take part would be rather challenging, but ultimately worthwhile. Obviously, it would be very important to have a plethora of perspectives, from the very liberal to the very conservative to the very fundamentalist, and everywhere in between.

Another possible explanation for the lack of results is that the pictures were not sufficiently able to evoke the reactions necessary for the facial EMG apparatus to get usable readings. Remedying this issue, though, could be difficult. For this study, it was remarkably challenging to find pictures that would be clearly Muslim or obviously a homosexual couple without using emotionally charged images that would cause other psychophysiological reactions. For example, a couple in a passionate embrace (Same-Sex or Opposite-Sex) would likely be too "activating" and any subtle facial EMG reaction would be drowned out by the strong response. Likewise, due to the increasingly frequent association of Islam and terrorism (on the part of the Mass Media), many images that would be evocative of Islam or of Muslims would also be

evocative of terrorism and thus unusable. If this trend continues unabated, this has the potential to become a more and more significant problem.

Another way to improve the pictures would be to more precisely match them across groups. This could be done at a cost of money and time by personally staging and composing all of the photos. This would give the experimenter complete control of the composition of each photo, and would allow them to be equalized on characteristics such as background, facial expression, age, colorfulness of clothing and (for the couples) degree of closeness, among other things. Though expensive and time-consuming, this would enable the experimenter to cut down on the variability that is inevitable when photos are collected from several different sources. An additional potential problem here would be ensuring the accuracy and representativeness of such photos.

Yet another explanation of the results could be the exclusion of a variable that might have shed more light on certain aspects of the project. In the past, many researchers have made use of the concept of Social Desirability to explain differences between scores on explicit measures and scores on implicit measures. Specifically, Plant and Devine's (1998) concepts of Internal and External Motivation to Respond without Prejudice have been suggested as a possible explanation for this phenomenon. Internal Motivation to Respond without Prejudice is defined as the degree to which one is motivated by internal factors to respond to situations without appearing to be prejudiced. These internal factors are gleaned from questions such as: "I am personally motivated by my beliefs to be nonprejudiced towards Black people" and "Being non-prejudiced toward Black people is important to my self-concept." Similarly, External Motivation to Respond without Prejudice is defined as the degree to which one is motivated by external factors to respond to situations without appearing to be prejudiced. These factors would be illuminated

by questions like: "Because of today's PC standards now, I try to appear unprejudiced toward Black people" and "I attempt to appear non-prejudiced toward Black people in order to avoid disapproval from others (Plant & Devine, 1998). Akrami and Ekehammar (2005) found that when they controlled for the participants' motivational biases (by using the Internal and External Motivation to Respond without Prejudice), their previously unassociated explicit measure of prejudice and implicit measure of prejudice became strongly correlated. Thus, adding a survey measuring this in participants could be very helpful in explicating what the relationship between the two is.

Advice to Ministers and Seminary Students

If I was explaining these results to a religious leader or a seminary student, I would emphasize the influence of Right-Wing Authoritarianism. If they encounter someone in their congregation who seems to possess the characteristics of a Right-Wing Authoritarian, they should keep a close eye on their interactions with people who could conceivably be considered acceptable to be prejudiced against. Specifically, they would be very poor choices to serve on committee that has to deal with non-Christians or even homosexuals. People who are truly Right-Wing Authoritarians would be much more likely to be affiliated with more conservative churches, so the chances of encountering one would be less the more liberal your church environment is. All in all, this research seems to indicate that the "Prejudiced Christian" so often portrayed in the media is actually prejudiced because of a personality variable (RWA), not because of anything directly related to their religion.

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Appendices

Appendix A – Correlation Matrix of Implicit & Explicit Measures of Prejudice

		1	2	3	4	5	6	7	8	9	10	11	12
1.	SDS-Race		.237*	.320	.649**	-.400	-.034	-.170	-.317	.000	.243	.182	.331
2.	SDS-Sexual Orientation			.575**	.837**	-.308	.008	.113	-.198	-.099	-.065	.216	.040
3.	SDS-Religion				.823**	-.256	.116	-.097	-.088	-.060	.128	-.082	.009
4.	SDS-Overall					-.371	.014	-.050	-.226	-.071	.147	.097	.127
5.	Zygo Bias for Race						.030	-.268*	.807**	.123	-.196	-.330	-.128
6.	Zygo Bias for Sexual Orientation							.149	.559**	.034	.040	-.064	.113
7.	Zygo Bias for Religion								-.157	-.039	-.028	.182	.171
8.	Zygo Overall Bias									.152	-.025	-.194	.067
9.	Corr Bias for Race										-.027	.149	.669**
10.	Corr Bias for Sexual Orientation											-.036	.608**
11.	Corr Bias for Religion												.451**
12.	Corr Overall Bias												

* $p < .0018$
** $p < .001$

Appendix B – Regressions Predicting Implicit Measures of Prejudice with Christian Orthodoxy (CO), Right-Wing Authoritarianism (RWA) and Religious Fundamentalism (RF)

Analysis 1: Regression of Zygo Bias for Race on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	-1.525	1.370		-1.112	.271				$R = .261$
CO	-0.004	0.054	-0.014	-0.071	.944	.176	-.010	-.010	$R^2 = .068$
RWA	0.008	0.011	0.137	0.706	.483	.239	.099	.096	adj $R^2 = .012$
RF	0.022	0.032	0.156	0.692	.492	.242	.097	.094	$F(3,50) = 1.217$, $p = .313$

Analysis 2: Regression of Zygo Bias for Sexual Orientation on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	-1.341	1.010		-1.327	.188				$R = .173$
CO	0.042	0.034	0.173	1.237	.219	.165	.133	.132	$R^2 = .030$
RWA	-0.004	0.008	-0.064	-0.468	.641	.035	-.051	-.050	adj $R^2 = -.004$
RF	0.005	0.023	0.033	0.204	.839	.104	.022	.022	$F(3,85) = 0.870$, $p = .460$

Analysis 3: Regression of Zygo Bias for Religion on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	0.394	0.668		0.590	.557				$R = .161$
CO	0.011	0.023	0.066	0.482	.631	-.055	.050	.050	$R^2 = .026$
RWA	0.002	0.006	0.053	0.398	.691	-.054	.041	.041	adj $R^2 = -.006$
RF	-0.023	0.016	-0.222	-1.437	.154	-.146	-.148	-.148	$F(3,92) = 0.814$, $p = .489$

Analysis 4: Regression of Overall Zygo Bias on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	-0.622	0.762		-0.816	.418				$R = .162$
CO	0.002	0.030	0.012	0.062	.951	.122	.009	.009	$R^2 = .026$
RWA	0.002	0.006	0.051	0.255	.800	.137	.036	.036	adj $R^2 = -.032$
RF	0.009	0.018	0.113	0.491	.626	.157	.069	.069	$F(3,50) = 0.449$, $p = .719$

Analysis 5: Regression of Corr Bias for Race on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	0.048	0.820		0.058	.954				$R = .119$
CO	-0.021	0.032	-0.134	-0.665	.509	-.017	-.095	-.094	$R^2 = .014$
RWA	0.002	0.007	0.067	0.333	.741	.069	.047	.047	adj $R^2 = -.046$
RF	0.009	0.019	0.113	0.487	.628	.065	.069	.069	$F(3,50) = 0.236$, $p = .871$

Analysis 6: Regression of Corr Bias for Sexual Orientation on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	0.955	0.649		1.471	.145				$R = .234$

CO	-0.016	0.022	-0.104	-0.737	.463	-.168	-.080	-.078	R^2 = .055
RWA	0.007	0.005	0.168	1.225	.224	-.020	.132	.130	adj R^2 = .021
RF	-0.021	0.015	-0.221	-1.387	.169	-.183	-.150	-.147	$F(3,84) = 1.618$, $p = .191$

Analysis 7: Regression of Corr Bias for Religion on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	0.310	0.633		0.489	.626				R = .068
CO	-0.001	0.022	-0.006	-0.043	.965	-.007	-.005	-.005	R^2 = .005
RWA	-0.003	0.005	-0.086	-0.640	.524	-.051	-.067	-.067	adj R^2 = -.028
RF	0.006	0.015	0.060	0.386	.701	.003	.040	.040	$F(3,91) = 0.141$, $p = .935$

Analysis 8: Regression of Overall Corr Bias on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	0.533	0.606		0.880	.383				R = .155
CO	-0.006	0.024	-0.049	-0.243	.809	-.132	-.034	-.034	R^2 = .024
RWA	~0	0.005	-0.013	-0.063	.950	-.116	-.009	-.009	adj R^2 = -.034
RF	-0.007	0.014	-0.108	-0.467	.642	-.151	-.066	-.065	$F(3,91) = 0.413$, $p = .744$

[a] *p* values are for a two tailed test

Appendix C – Regressions Predicting Explicit Measures of Prejudice with Christian Orthodoxy (CO), Right-Wing Authoritarianism (RWA) and Religious Fundamentalism (RF)

Analysis 1: Regression of SDS-Race on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	104.155	8.844		11.777	.000				$R = .241$
CO	-0.264	0.317	-0.115	-0.833	.407	-.167	-.087	-.085	$R^2 = .058$
RWA	-0.115	0.068	-0.223	-1.693	.094	-.225	-.176	-.173	adj $R^2 = .027$
RF	0.115	0.198	0.088	0.577	.565	-.126	.061	.059	$F(3,90) = 1.853$, $p = .143$

Analysis 2: Regression of SDS-Sexual Orientation on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	122.425	12.585		9.728	.000				$R = .530$
CO	0.033	0.453	0.009	0.072	.943	-.297	.008	.007	$R^2 = .281$
RWA	-0.368	0.097	-0.472	-3.779	<.001	-.525	-.396	-.365	adj $R^2 = .253$
RF	-0.177	0.265	-0.095	-0.668	.506	-.379	-.076	-.065	$F(3,77) = 10.025$, $p < .001$

Analysis 3: Regression of SDS-Religion on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	115.551	8.555		13.506	.000				$R = .466$
CO	-0.657	0.299	-0.279	-2.199	.031	-.380	-.229	-.209	$R^2 = .217$
RWA	-0.193	0.070	-0.333	-2.765	.007	-.412	-.284	-.262	adj $R^2 = .190$
RF	0.126	0.203	0.087	0.620	.537	-.300	.066	.059	$F(3,87) = 8.051$, $p < .001$

Analysis 4: Regression of SDS-Overall on CO, RWA and RF

Variable	*B*	*SE B*	β	*t*	*p*[a]	*r*	*pr*	*sr*	Regression
Constant	114.554	6.884		16.641	<.001				$R = .522$
CO	-0.313	0.239	-0.156	-1.312	.193	-.355	-.135	-.117	$R^2 = .273$
RWA	-0.219	0.057	-0.441	-3.866	<.001	-.506	-.374	-.344	adj $R^2 = .249$
RF	0.020	0.165	0.016	0.118	.906	-.361	.012	.011	$F(3,92) = 11.498$, $p < .001$

[a] *p* values are for a two tailed test