PLURALISTIC IGNORANCE WITHIN ATTITUDES TOWARD ATHEISTS

by

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A thesis submitted to the faculty of Radford University in partial fulfillment of the requirements for the degree of Master of Arts in the Department of Psychology

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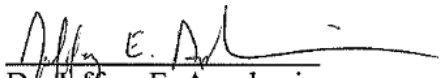
May 2022



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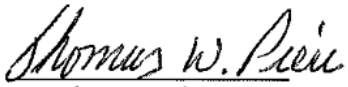

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Abstract

The present study examined whether pluralistic ignorance (PI) occurs within attitudes toward atheists, and whether this PI is moderated by public and private experimental conditions, religiosity, and social desirability. PI occurs when members of a group mistakenly assume that their viewpoints are different from the group, and, as a result, group members subsequently change their behaviors to be congruent with their misperceptions of group expectations (Lambert et al., 2013; Miller & Prentice, 1994; O'Gorman, 1986). Two hundred and fifty-four participants from the psychology undergraduate participant pool were recruited and completed measures of attitudes toward atheists (e.g., Gervais, 2011), which were completed with respect to participants' own attitudes (self-scores), and the attitudes they believe their peers hold. They also completed a measure of religiosity (e.g., Koenig & Büssing, 2010) and social desirability (e.g., Crowne & Marlowe, 1960) to examine whether they moderated PI within attitudes toward atheists. A series of 2 (target of rating: self vs. Other; within-subjects) x 2 (Experimental condition: public vs. private reporting; between subjects) mixed-model factorial ANOVAs revealed a weak PI effect. Individuals reported significantly lower levels of negative attitudes toward atheists compared to what they assumed their peers' attitudes were. Further, religiosity and social desirability moderated the PI effect, such that participants low in religious and social desirability reported significantly fewer negative attitudes toward atheists relative to participants high in religiosity and social desirability. The public and private conditions failed to moderate PI.

Keywords: pluralistic ignorance, atheist attitudes, social desirability, religiosity

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Statement of the Problem

The present study explores whether pluralistic ignorance (PI) within attitudes toward atheists exists, and whether it is moderated by public versus private experimental condition, religiosity, and social desirability. This research area is necessary to investigate due to prevalence of prejudice toward individuals who don't associate themselves with a higher power (Brewster, 2014). A prior study (Strosser et al., 2016) tested whether public versus private experimental conditions moderate PI but did not explore this alongside self and other attitudes, religiosity, and social desirability. The present research is necessary in order to examine whether PI within attitudes toward atheists is moderated by public versus private experimental conditions, religiosity, and social desirability.

Chapter 1

Pluralistic Ignorance within Attitudes Toward Atheists

The present study investigates pluralistic ignorance and how the views others hold of atheists differ between public and private conditions. There is little research currently published that focuses on attitudes toward atheists from a pluralistic ignorance perspective. Existing research on pluralistic ignorance and atheism demonstrated a divergence between how individuals report viewing atheists in public conditions versus reports made under more private conditions (Strosser et al., 2016). Participants rated themselves as having more positive attitudes toward atheists when they were in private compared to when they were being questioned about it in a public setting. The present study is unique in that it represents an attempt to replicate the findings of Strosser et al. (2016) and extends this work by assessing both personal opinions and estimates of peers' opinions using enhanced public and private conditions. A direct assessment of social desirability will also be included to both rule out potential alternative explanations of previous findings and to serve as a check for the experimental manipulation.

Pluralistic Ignorance

Pluralistic ignorance occurs when members of a group mistakenly assume that their viewpoints are different from the group, and, as a result, group members subsequently change their behaviors to be congruent with their misperceptions of group expectations (Lambert et al., 2013; Miller & Prentice, 1994; O'Gorman, 1986). Individuals within a group feel pressure to conform to the perceived expectations of the collective, even if it contradicts their own private attitudes. These "idealistic behaviors" are misinterpreted by other members of the group and serve to further reinforce group members' misperception of the true norm (Miller & Prentice, 1993).

In the first psychologically oriented social psychology textbook, Floyd Allport (1924) introduces the concept of impression of universality, which is the tendency for each group member to assume that all other group members share the same state of mind and subsequently have similar motivations for their shared behavior. Allport describes the illusion of universality in terms of a speaker presenting a picture, which is assumed to be viewed in the same light by everyone in the crowd and to illicit the same responses by every member of the crowd. Modern interpretations have interpreted the illusion of universality to reflect a tendency to underestimate variability in beliefs, attitudes, values, and behaviors within a group (Miller & Prentice, 1994). Pluralistic ignorance evolved as a special case of the impression of universality.

The term "pluralistic ignorance" was first introduced by Katz and Allport (1931, as cited in O'Gorman, 1986). In the Syracuse study, students at Syracuse University reported their opinions on several topics such as cheating, fraternity acceptances, and religious beliefs. Students were also asked about their perceptions of their peers' attitudes and behaviors. Male students involved in fraternities privately expressed they were open to having a more accepting environment within the fraternity but would not be willing to admit members of "certain groups" for fear of harming the image of the fraternity. These findings were consistent among members, which suggests that members mistakenly assumed they were alone in their beliefs. It was also found that at least half of the university students admitted to cheating on an exam or assignment, but students assumed that far fewer of their peers also cheated.

Schanck (1932), a student of Allport, also found evidence for PI in the Elm Hollow study. Schanck (1932) asked people living in a small community their opinions about several topics, such as the school system, church system, and moral opinions. People tended to maintain an impression of universality mainly because they were misinformed about the opinions of others

within their community. Schanck (1932) found that most community members privately disagreed with the community position on many issues (e.g., drinking, smoking, and playing cards), but believed everyone else agreed with the community position and therefore individuals continued to support it.

For some time after initial studies of pluralistic ignorance, little research intentionally focused on pluralistic ignorance (Breed & Ktsanes, 1961; O'Gorman, 1986). A substantial body of research has grown since the 1960s, however. Pluralistic ignorance has been found within a broad range of attitudes, including university hookup culture (Lambert et al., 2013), acceptance of people of other sexualities (Bourgeois & Bowen, 2001), viewpoints on political and environmental issues such as climate change (Geiger & Swim, 2016), the bystander effect (Darley & Latane, 1968), racial segregation (O'Gorman, 1975), and many more.

There are four different forms of pluralistic ignorance, which differ in terms of the source of the false norms believed to exist among group members (Miller & Prentice, 1994). The first type is situational ambiguity, where false norms arise within situations where the norms are undefined, or participants have no prior norm to guide behavior. PI in these situations is typically short lived and ends once the situation ends. The bystander effect (Darley & Latane, 1968) is an example of PI that arises from situational ambiguity. In the classic bystander effect, individuals faced with an emergency must decide whether a situation constitutes an emergency requiring action. However, with no information to guide them, individuals turn to others, who are mistakenly perceived to be more informed, to guide one's own behavior. As result, no one acts, which further reinforces each person's interpretation of the situation as a non-emergency.

A second type of PI is prototypical/idealized group identity, which arises from beliefs that group members hold about what it is to be a representative of a specific group, which are not

necessarily true. One example of this may be seen in hookup culture within universities (Lambert et al., 2013). College students consistently report being less comfortable with hookups than they believe their peers are. Though not directly tested, one explanation for this is that college students have stereotypes about how college students behave, and approval of non-comital sexual relations is part of the stereotype.

The third type of PI is cultural lag, where changes in individuals' personal beliefs change at a faster rate than changes in their beliefs about the larger group. This can be seen in the Breed and Ktsanes (1961) study on segregation, which evaluated attitudes toward desegregation of churches and schools within two samples of White participants in New Orleans. While many participants held positive or at least neutral attitudes toward integration, they believed their peers were still supportive of segregation.

The final type of PI is minority-enforced social norms. This form of PI occurs when a vocal and influential minority disproportionately influences the way a group views itself. For example, Korte (1972) assessed radicalism in the campus of Vassar College at a point in time where campus protests were common. College students in the sample mistakenly interpreted that their peers were more radical than they really were.

Pluralistic ignorance is undergirded by several fundamental social psychological phenomena. The principal phenomena include perceptions of a false norm, normative social influence, misattribution of group members' behavior, false uniqueness, and the illusion of universality. The false norm phenomenon occurs when individuals form a view of social norms that is incorrect and misinterpret the actual viewpoints of their peers. For example, looking at mask wearing attitudes or behaviors during COVID-19, a false norm may be demonstrated when participants report being more likely to wear a mask in public than they believe the rest of the

community is. In this example, participants' self-reports of mask wearing attitudes or behaviors represents the true group norm. The estimates that participants provide regarding their peers' attitudes or behaviors represent the perceived norm, and the mismatch between the true norm and the perceived provides evidence for the existence of a false norm. In studies of PI, the presence of a false norm is typically demonstrated when the ratings that participants make for their own attitudes are significantly different than the ratings they make as an estimate of their peers' attitudes (e.g., what the average student thinks, what others in the room think, or what their friends think). False norms can arise from various sources depending on the type of PI under investigation (Miller & Prentice, 1994).

Normative social influence also plays a significant role in the theory of pluralistic ignorance. Normative social influence is a form of conformity where individuals undergo a change in behavior to fit in with perceived group expectations and avoid negative evaluations from others (Prentice & Miller, 1993). This type of conformity is illustrated in the Asch (1956) line study, where each person in a group was asked to determine which line was the same size as the one being shown. The confederates in the study all answered incorrectly to determine whether the participant would also answer incorrectly to "fit in." It was found that most participants went along with the influence of the majority at least once across multiple trials (Asch, 1956). This type of conformity represents public compliance (participants went along with) without private acceptance (participants did not really believe the group's answer was correct). In PI, the pressure to conform arises from the perception of a false norm and the misperception that individuals are alone in their misalignment with the norm. When an individual believes something to be the norm, they will feel pressure to act in accordance with the norm and avoid potentially being ostracized or negatively evaluated by the larger group.

A subsequent component of PI is a misattribution of others' motives for their public behavior. Within PI, individuals are thought to fail to fully recognize that others in the group are conforming to a group standard the members themselves do not privately support. Individual group members are thought to interpret the behavior of other group members as representing private support for the norm. This interpretation of others' behavior occurs even though each member is aware that their own behavior, which is identical to the behavior of others within the same group, is due to a fear of rejection. This is explained through the fundamental attribution of errors (Jones & Harris, 1967). In the case of PI, there are two potential explanations for the misattribution of motives. The first is that participants do not have access to the private attitudes of others and therefore are unaware of the true motivations' others hold. The only interpretations individuals make are based on the public behaviors of the others within their group, which incorrectly implies that others are acting in an intentional manner based on their private support for the norm (Miller & Prentice, 1994). The second potential explanation is that people may potentially recognize that others are potentially conforming out of their fear of rejection, but their naïve theories about human behavior suggest that fear of embarrassment is a less influential motive for the behavior of others than are other competing motives. Multiple motives are identified, but fear of embarrassment gets insufficiently weighted compared to other motives.

The illusion of universality is an overestimation of the degree to which everyone in a group thinks, feels, or behaves the same way. According to Allport (1924), the assumption of the universality of thought, opinion, or action within the crowd emerges from members being unaware of the true feelings and principles of the individuals with the crowd. If individual group members notice the discrepancies, the illusion will disappear. Within PI, the illusion of universality is strengthened by both normative social influence and the misattribution of

behavior. The behaviors in question and private support assumed to underlie them become the basis from which inferences about group opinions are formed and subsequently their ubiquity within the group is overestimated. The illusion of universality in turn serves to further reinforce belief in the false norm.

False uniqueness is the idea that individuals mistakenly assume that they are alone in holding beliefs and values that differ from the perceived group norm (Miller & Prentice, 1994), which can cause individual group members to feel a sense of deviance and alienation. However, the reality is that most others in the group have the same values and beliefs and that individuals are not alone in their rejection of the perceived group norm. The feelings of deviance and alienation and the potential for embarrassment generated by false uniqueness beliefs is thought to create additional pressure toward normative social influence, where members change their behaviors to fit in with the rest of the cohort (Miller & McFarland, 1987). False uniqueness has the potential to be both a consequence and a reinforcer of the misattribution of motives phenomena. When comparing themselves to the others within their group, if individual group members conclude that the motivations for other members' behaviors (conforming to the norm) are different from their own, it may help strengthen feelings of aloneness and ostracism. Similarly, if individual group members assume they are alone in their rejection of false beliefs, it may create additional pressure to conclude that the motives for others' behavior (conforming to the norm) is different from the individual group member's own motives (avoiding embarrassment or rejection).

Attitudes Toward Atheists

Atheism is defined as the belief that no God or gods exist (Baggini, 2003). Therefore, an atheist is someone who endorses this belief. In America, about 5% of the population identifies as

atheists (Brewster, 2014). The term atheist was believed to be used as early as the sixteenth century (Martiall, 1566). When the term "atheist" first emerged, it was used in a negative way as an insult to one's character (Armstrong, 1999). It was not until the 18th century where atheism was used in Europe to describe the disbelief in a monotheistic God (Martin, 2006). One of the first studies conducted on the disbelief in a higher power was conducted by Leuba in a survey during 1914 (Larson & Witham, 1998; Leuba, 1934). It was found that 58% of 1,000 randomly selected U.S. scientists showed doubt in the existence of God. This survey was conducted differently 20 years later. It was found that scores increased to 67% and 85%, respectively. Another study focused on atheism was conducted in 1987 (Rosentiel, 2007). Participants were not directly asked about whether they viewed themselves as atheists, but rather, they were asked whether they questioned their views of God. This investigation showed that about 8% of American respondents from a community sample reported being unaffiliated with a religious tradition. This increased in 2006, going up to about 12%. The change in religious views may reflect generational differences. New cohorts are showing decreasing levels of commitment to a religious tradition (Rosentiel, 2007).

Historically, atheists have been viewed as one of the most reviled groups in both the U.S. and around the world (Edgell et al., 2006; International Humanist and Ethical Union, 2012). For many years, atheists have been one of the most excluded groups, especially in the U.S., which is among the most religious of the developed countries in the world (Brewster, 2014). In the U.S. specifically, there is a clear rejection of those who do not believe in a higher power. For example, when American citizens are given a list of groups that include Muslims, recent immigrants, homosexuals, and atheists, Americans view atheists as those least likely to share the vision of American society (Edgell et al., 2006). Participants who were more religiously

conservative are less likely to approve of an atheist as a presidential candidate or allowing their children to marry an atheist (Edgell et al., 2006). Religious conservatives also tend to view atheists as being some of the coldest people (Wormald, 2014). Similarly, an investigation of college students revealed that students find it more acceptable to express negative attitudes toward atheists than it is to express positive attitudes toward atheists (Strosser et al., 2016). Additionally, college students report that they prefer to engage with religious believers more than with atheists (Strosser et al., 2016). For example, asking participants if they would be likely to marry a religious believer or an atheist is the greatest difference. Participants indicated that they are far more likely to marry a religious believer than an atheist. The second greatest discrepancy focuses on voting for either a religious believer or an atheist. Again, participants were more likely to say they would vote for religious believers than an atheist.

There is some evidence that attitudes toward atheism may be moderated by religious beliefs (Bowman et al., 2017). College students identifying with non-Christian religions (Buddhist, Jewish, and Unitarian Universalist) and less traditional religious perspectives (agnostic, secular humanist, spiritual, and nonreligious) tend to have more appreciative attitudes toward their atheist peers than the average student. In contrast, students identifying with specific Christian religious traditions (including mainstream Protestants, evangelical Christians, Roman Catholics, LDS/Mormon students, and Eastern Orthodox students) or with Islam tended to have attitudes toward atheists that tend to be more negative than the average student.

Although research has primarily focused on the content and prevalence of anti-atheist attitudes, there has been minimal focus on why people hold and express these attitudes toward atheists. Pluralistic ignorance is one process that may contribute to the expression of negative

attitudes toward atheists, and there is some evidence that PI may exist within attitudes toward atheists (Strosser et al., 2016).

In study three of Strosser et al. (2016), participants' ratings of positive behavioral intentions toward and overall evaluations of atheists and religious believers were evaluated across two experimental conditions: a public reporting condition (thought to be most influenced by beliefs about others' opinions) and a private reporting condition (thought to reflect participants true, private attitudes). Those in the public condition filled out their responses and turned them in to a researcher at the front of the room, while those in the private condition put their responses in a manila envelope and put them through a hole in a sealed box on a table in the back of the room. Across both conditions, ratings of intentions of interacting with atheists in positive ways and overall positivity of feeling toward atheists were lower than ratings made for religious believers. This main effect for target of ratings was qualified by an interaction with experimental condition. Participants in the private reporting condition reported being more likely to interact positively with atheists and reported liking atheists more than did participants in the public reporting condition. This pattern of results potentially reflects pluralistic ignorance since the public reports are meant to be analogous to the estimates of the social attitudes of the larger group.

The Present Study

The present study investigates whether pluralistic ignorance within attitudes toward atheists exist. Additionally, this study tests whether altering the public or private setting for data gathering moderates the expression of pluralistic ignorance. The present study was designed to replicate the work of Strosser et al. (2016) and to address several limitations identified in this previous work. First, Strosser et al. (2016) lacked an experimental manipulation to which the

participants were blind. Participants in Strosser et al. (2016) participated in group settings and were aware that there were both public and private conditions, which could have created demand characteristics that account for the study's findings. The present study kept participants blind by having them participate individually and online. In public condition, participants were told that they would be contacted following the completion of the data collection and were asked to give contact information to make it believable that they were going to be contacted. In private conditions, participants were informed that they would not be asked for any identifying information and were frequently reminded that their data is anonymous. A second limitation was that Strosser et al. (2016) only measured participants' personal attitudes in the public and private conditions; they were not asked to estimate others' attitudes toward atheists to gather this pluralistic ignorance-based information. The present study included both self and other ratings under both the public and private conditions so that PI could be evaluated in a more direct manner. A third limitation involves the single item measure of attitudes toward atheists, which was assessed using a feelings thermometer. The present study utilized a multi-item measure of atheist attitudes. Additionally, the present study included measures of not only negative attitudes toward atheists but also acceptance of atheists/ism (Pittinsky et al., 2011). Finally, although Strosser et al. (2016) was attempting to eliminate the effects of social desirability in private responses, they did not directly assess social desirability in their study. In the present study, a social desirability scale was given to participants at the end of the study (1) to help determine whether the public versus private reporting experimental manipulation had the intended impact on participants' responding, and (2) to potentially rule out social desirability as a potential alternative explanation for observed PI.

The present study was conducted as a 2 (Target of rating: self vs. other; within-subjects) x 2 (Experimental condition: public vs. private reporting; between subjects) mixed, between and within-subject, experimental design.

Hypothesis 1. The main effect for target of ratings (self vs. other) is expected to be significant. Self-ratings will be significantly more positive than ratings for peers' attitudes, which reflects a pattern of pluralistic ignorance.

Hypothesis 2. The main effect for experimental condition (public vs. private) is expected to be significant. It is expected that overall ratings (self and other combined) in the private reporting condition will be significantly more positive than in the public reporting condition.

Hypothesis 3. It is expected that there will be an interaction between target of rating and condition. The self and other discrepancy will be greater in private reporting conditions than in the public condition. Self-reported attitudes will be less positive in the public reporting condition than in the private condition. No differences are expected between the ratings made for peers' attitudes in public and private conditions.

Chapter 2

Method

Participants

Participants included 254 undergraduate students from a medium-sized university in the Southeastern United States currently taking psychology courses, and who were receiving course credit for their participation. Participants ranged in age from 17-32, with a mean age of 19.23 (*SD* = 2.07). Most participants were female (74%) and Caucasian (72.1%). The majority of participants (14.6%) identified as African American, 2.8% East-/Southeast-Asian Americans, 0.8% Pacific Islander American, 0.8% Middle Eastern/North-African American, 3.5% Hispanic, Latino/a, Chicano/a American, 3.5% multi-ethnic, and 1.6% reported "other" ethnicity. Most participants indicated that they most strongly associate themselves with Christianity as their religious demographic (46.9%), while 0.4% of participants indicated that they are associated with Judaism, 0.4% with Islam, 1.2% with Buddhism, 9.4% with "Nothing in particular," 13.4% with Agnosticism, 5.5% with Atheism, and 7.9% with "Other."

Measures

Attitudes toward Atheists

Four measures were used to assess participants' views of atheists. Participants completed each measure twice: once for themselves, and once using a modified version of the measure to capture participants' beliefs about the average student at their university. The first measure was the Atheist Behavioral Intentions Scale (Strosser et al., 2016), which measured the likelihood of participants engaging in specific behaviors involving an atheist. The measure consisted of 12 items that participants rate on a 7-point scale of likelihood, ranging from 1 (extremely unlikely) to 7 (extremely likely). An example item that assessed "self" attitudes includes "How likely

would it be for you to hire as an employee an Atheist?" See Appendix A for a complete list of items. An example item that assessed "other" attitudes includes "How likely would it be for the average Radford student to hire as an employee an Atheist?" See Appendix B for a complete list of items. Scores were formed by averaging responses across items such that higher scores indicate greater likelihood of engaging in positive behaviors toward atheists.

The next scale, the Perceptions, Negative Beliefs, and Intentions of Atheists scale (Bloesch et al., 2004) measured participants' perceptions, negative beliefs, and intentions toward atheists/ism. It consisted of six items using a 7-point scale of agreement, ranging from 1 (strongly disagree) to 7 (strongly agree). An example item that assessed "self" attitudes includes "I could never be friends with an atheist." See Appendix C for a complete list of items. An example item that assesses "other" attitudes includes "I think the average Radford student believes they could never be friends with an atheist." See Appendix D for a complete list of items. Scores were formed by averaging responses across items such that higher scores indicated greater likelihood of engaging in negative behaviors toward atheists.

The Negative Attitudes toward Atheists Scale (Gervais, 2011) focused on general negative attitudes toward atheists. It consisted of seven items rated using 5-point scale of agreement, 1 = Strongly Agree to 5 = Strongly Disagree. An example item that assessed "self" attitudes included "I would be uncomfortable with an atheist teaching my child." See Appendix E for a complete list of items. An example item that assessed "other" attitudes includes "The average Radford student would be uncomfortable with an atheist teaching their child." See Appendix F for a complete list of items. Scores were formed by averaging responses across items such that higher scores indicated greater likelihood of engaging in negative behaviors toward atheists.

The final scale used to study attitudes toward atheists measured the positive views participants hold toward atheists, which was the Positive Attitudes toward Atheists Scale (Pittinsky et al., 2011). It consisted of seven items rated on a 7-point scale of agreement, ranging from 1 (very strongly disagree) to 7 (very strongly agree). An example item that assessed "self" attitudes includes "I am truly interested in understanding the points of view of atheists." See Appendix G for a complete list of items. An example item that assessed "other" attitudes includes "The average Radford student is truly interested in understanding the points of view of atheists." See Appendix H for a complete list of items. Scores were formed by averaging responses across items such that higher scores indicated more positive attitudes toward atheists.

Religiosity

Religiosity of the participants was assessed using the Duke University Religion Index scale (DUREL; Koenig & Büssing, 2010), which is a five-item measure that asked about the views of the participant and their religious experiences. There were two subscales. The first two items focused on how often the individual participates in religious activities. An example of this is "How often do you spend time in private religious activities, such as prayer, meditation, or Bible study?" Each rated on a 6-point scale: 1 - Rarely or never; 2 - A few times a month; 3 - Once a week; 4 - Two or more times/week; 5 - Daily; 6 - More than once a day. The last three questions focused on beliefs and experiences. An example of this is "In my life, I experience the presence of the Divine (i.e., God)." Each was rated using a 5-point scale, ranging from 1 - Definitely not true; 2 - Tends not to be true; 3 - Unsure; 4 - Tends to be true; 5 - Definitely true of me. See Appendix I for a complete list of items. These scores were dichotomized using a median split between those with low religiosity and high religiosity. The median was 3.00. If participants scored less than 3 for their mean, they were placed into group 1, which indicated low

religiosity (n = 125). If participants scored 3 or higher for their mean, they were placed into group 2, which indicated high religiosity (n = 128).

Social Desirability

One measure is used to assess participants' tendency to respond in a socially desirable manner. The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) gives the participants 34 true/false statements about their behavior in specific situations such as voting, gossiping, or checking the safety of their vehicle. An example of this is "On occasion I have had doubts about my ability to succeed in life." See Appendix J for a complete list of items. If participants scored less than 1.51 for their mean, they were placed into group 1, which indicates low social desirability (n = 126). If participants scored more than 1.51 for their mean, they were placed into group 2, which indicates high social desirability (n = 126).

Procedures

Participants were recruited from the Psychology Department Research Participant Pool. Participants logged into SONA (Sona Systems Ltd., Tallin, Estonia) and signed up to participate in an online questionnaire. Upon signing up via SONA, participants followed a link to a questionnaire administered via Qualtrics (Qualtrics Inc., Provo, UT). Before starting the questionnaire, participants were randomly assigned to one of two conditions: the public or private condition. Using balanced randomization, participants were directed to one of two informed consent forms. See Appendices K and L. The difference between these forms was that participants in the public condition received a form that stated, "After you complete the survey questions, your responses will be reviewed and you may be selected to participate in a follow up interview," as well as "You will be asked to provide your name and email address to be contacted for a follow up interview." Those in the private condition received a consent form that

said, “The data that you provide are anonymous.” Participants in the private condition were also reminded that their responses were anonymous at the beginning of each measure. One hundred twenty-six participants (49.6%) were randomly placed into the public condition, and the remaining 128 participants (50.4%) were in the private condition. Participants then completed a series of self-reported measures that included the Atheist Behavioral Intentions Scale (Strosser et al., 2016); the Perceptions, Negative Beliefs, and Intentions of Atheists scale (Bloesch et al., 2004); the Negative Attitudes toward Atheists Scale (Gervais, 2011); and the Positive Attitudes toward Atheists Scale (Pittinsky et al., 2011). Participants completed self-report and average-students’-attitudes versions of the measures of atheist attitudes within blocks that were randomized across participants, where participants either received all the self-report measures first or all the average-students’-attitudes measures first. The order of atheist attitudes measures was also randomized within their respective self and average-students’-attitudes blocks. Following this, participants were given the DUREL Scale (see appendix I) to complete as well as a Social Desirability Scale (see Appendix J) and manipulation check (see Appendix M). Participants then completed a demographic section, obtaining their general information (see Appendix N). Those in the public condition were debriefed regarding the deception introduced in the consent form, informed that their name and contact information were not actually recorded, and provided with a data release form (see Appendix O). Upon completion of all measures, participants were thanked for their participation and given an overview of the study goals (see Appendix P). All participants were compensated with SONA credit that they could use in their psychology courses.

Data Analysis Plan

First, data screening was based on duration, completeness, and correct responses to attention check items. Participants who completed at least 60% or more of the survey were included, and participants who spent less than 5 minutes on the survey were omitted. An attention check was also used to make sure there was variability in the responses of participants. If more than three of the attention check responses were incorrect, the participant was omitted. Finally, the Perceptions, Negative Beliefs, and Intentions of Atheists scale (Bloesch et al., 2004); the Negative Attitudes toward Atheists Scale (Gervais, 2011); and the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) scales all had item reversals. If more than one of these scales showed no variability, the participant was dropped. With these exclusions, the participant count went from $n = 283$ to $n = 254$.

Next, data reduction of the atheist attitudes measures was attempted using exploratory principal components analysis (factor analysis). Subsequently, there was a test of potential covariates that tests associations between demographic variables (age, gender, ethnicity, religious tradition, sexual orientation, highest education status of respondent's mother and father, urbanity, household income, and political party) and main variables of interest (Self and Other ratings of attitudes toward atheists, religiosity, and social desirability). Finally, hypotheses 1, 2, and 3 were tested using a 2 x 2 Mixed-Model Repeated Measures factorial ANOVA.

Chapter 3

Results

Manipulation Check

The manipulation check for this study focused on differences between attempts to appear socially desirable to the researcher made by participants in the public condition and participants in the private condition. Participants were asked how honest they were answering survey items, how much their answers represented their actual opinions, and how much they changed their answers to avoid looking bad. Social desirability scores were also analyzed to determine the extent to which participants alter their daily life to fit in with what is seen as more socially acceptable. The manipulation of the public and private conditions did not appear to have the intended effect. Contrary to expectations, no significant differences were found on any of the manipulation check items or on the Marlowe-Crown social desirability scores (see Table 1). Participants did not consciously alter their opinions based on the condition to which they were assigned.

Data Reduction Analyses

To test whether the four atheist attitudes scales could be condensed into one variable, principal components factor analyses with varimax rotation were conducted separately for the self and other versions of the atheist attitude measures. For both the self and other ratings, four variables were utilized in the analysis: the overall average of the Atheist Behavioral Intentions Scale (Strosser et al., 2016); the overall average of the Perceptions, Negative Beliefs, and Intentions of Atheists scale (Bloesch et al., 2004); the overall average of the Negative Attitudes toward Atheists Scale (Gervais, 2011); and the overall average of the Positive Attitudes toward Atheists Scale (Pittinsky et al., 2011). These factor analyses including the factor loadings,

communalities, eigenvalues, and percent variance accounted for are presented in Appendix Q in Table 2 for self-measures and Table 3 for other (average students' attitudes) measures. Each factor analysis identified a single factor with an eigenvalue greater than one, which accounted for more than 50% of the variance with the self and other versions. Inspection of the scree plots also suggest that a single factor should be extracted from the four scales for both the self and other version (see Appendix R for Figures 1-2).

The four scales were averaged to form a single score, both for self and other separately, where a higher score was indicative of more positive views toward atheists. The Perceptions, Negative Beliefs, and Intentions of Atheists scale (Bloesch et al., 2004) and the Negative Attitudes toward Atheists Scale (Gervais, 2011) were reverse scored before computing overall self and other scores.

Descriptive Analyses

The descriptive statistics are shown in Table 4 in Appendix Q, which presents descriptive data (*n*, mean, standard deviation, and scale correlations) and reliability for the main variables. Cronbach's alphas appear on the diagonal and all measures have at least adequate reliability (with the cut-off being .70 or higher). Participants' self-reported attitudes toward atheists and their perceptions of their peers' attitudes are significantly and positively correlated, $r(252) = .57$, $p < .001$. This indicates that people with a positive view of atheists have a strong tendency to assume their peers also have positive views of atheists. Religiosity was significantly and negatively associated with self-reported attitudes toward atheists, $r(251) = -.62$, $p < .001$ and with estimates of other students' attitudes toward atheists, $r(251) = -.17$, $p < .001$. The more religious someone is, the less positive they feel about atheists and the less positive they assume others feel about atheists. Religiosity was significantly and positively associated with social

desirability, $r(250) = .23$, $p < .001$, showing that the more religious an individual is, the more they tend to respond in a socially desirable manner. The scores for both self ($r(251) = -.22$, $p < .001$) and other attitudes ($r(251) = -.14$, $p = .026$) with social desirability were significantly correlated as well. The relationships between experimental conditions (public vs. private conditions) and the other study variables were not significant.

Demographic Analyses

A series of analyses tested associations between demographic variables (gender identity, age, ethnicity, religious traditions, relationship status, educational status of parents, urbanity, household income, political identity, and liberal or conservative views) and the main variables of interest (atheist attitudes self, atheist attitudes other, religiosity, social desirability, and condition) to identify potential covariates for the main analyses. Religious tradition originally included 11 categories: Christianity, Mormonism, Judaism, Islam, Hinduism, Buddhism, Unitarian Universalism, Nothing in particular, Agnosticism, Atheism, and Other. Because many of the groups had few or no responses, religious groups were condensed into the five major categories with resulting percentages for each being: 55.1% Christianity, 11.1% Nothing in particular, 15.7% Agnosticism, 6.5% Atheism, and 11.6% Other. Religious traditions were significantly associated with atheist attitudes self-scale, the social desirability scale, and religiosity (DUREL; see Table 5). In the case of self-ratings toward atheists, Christians ($M = 4.26$, $SD = .88$, $n = 119$) had significantly less positive views of atheists than all other religious groups. Atheists ($M = 5.83$, $SD = .30$, $n = 14$) have significantly more positive views of atheists than those who believe in nothing in particular ($M = 5.20$, $SD = .78$, $n = 24$) and those who endorsed other religious traditions ($M = 5.28$, $SD = .89$, $n = 25$). Agnostics' ($M = 5.54$, $SD = .63$, $n = 34$) attitudes toward atheists did not significantly differ from atheists, those who believe in nothing in particular, or

those who endorsed other traditions. With respect to social desirability, those who indicated their main religious faith was Christianity (M = 1.52, SD = .16, n = 119), nothing in particular (M = 1.46, SD = .13, n = 24), and other religious traditions (M = 1.46, SD = .15, n = 25) reported significantly higher social desirability than agnostics (M = 1.45, SD = .14, n = 34) and atheist participants (M = 1.43, SD = .16, n = 14). For religiosity (DUREL), people who endorse other religious traditions (M = 2.51, SD = .97, n = 25) reported significantly lower levels of religiosity than Christians (M = 3.60, SD = .94, n = 119) and significantly higher levels than the remaining groups. Religious tradition is highly related to religiosity (DUREL), which is one of the main variables of interest. Therefore, religious tradition will not be included as a covariate.

Urbanity/rurality was associated with both self-ratings of atheist attitudes as well as religiosity (see Table 6). For self-ratings of attitudes toward atheists, it was found that those living in a suburb, small town, or rural area (M = 4.54, SD = 1.07, n = 145) held significantly more positive attitudes toward atheists than participants who grew up in large cities (M = 5.05, SD = .80, n = 33), small cities (M = 5.00, SD = .89, n = 64), or the military (M = 5.91, SD = .32, n = 4). As for religiosity, those who lived in suburbs, small towns, or rural areas (M = 3.06, SD = 1.24, n = 145) reported significantly greater religiosity than participants from small cities (M = 2.42, SD = 1.25, n = 64) or from a military background (M = 1.65, SD = 1.17, n = 4). Since religiosity is a key predictor variable, and it is strongly associated with urbanity, urbanity is not included as a covariate.

Political party affiliation was significantly associated with the main variables of interest (see Table 7). For the self-ratings of attitudes toward atheists, those in the Republican party (M = 4.09, SD = .94, n = 76) had significantly less positive views of atheists than all other political groups. Those in “other” parties (M = 4.68, SD = .97, n = 36) had significantly less positive

views of atheists than Democrats (M = 5.14, SD = .87, n = 86) and independents (M = 5.10, SD = .92, n = 51). Participants' ratings of their peers' attitudes toward atheists were also significantly associated with political party affiliation. Republican participants estimate their peers' attitudes were significantly lower (M = 4.18, SD = .77, n = 76) than the estimates made by Democrats (M = 4.58, SD = .68, n = 86), Independents (M = 4.71, SD = .76, n = 51), and the other political affiliation groups (M = 4.60, SD = .77, n = 36). Social desirability was also significantly associated with political affiliation. Republicans (M = 1.53, SD = .16, n = 76) reported significantly higher social desirability than Democrats (M = 1.46, SD = .12, n = 86) and independents (M = 1.48, SD = .16, n = 51). When comparing religiosity scores and political affiliation, Democrats (M = 2.57, SD = 1.26, n = 86), Independents (M = 2.48, SD = 1.30, n = 51), and the other political affiliation groups (M = 2.82, SD = 1.30, n = 36) reported significantly less religiosity than Republicans (M = 3.35, SD = 1.08, n = 76). Political affiliation was not included as a covariate since it is associated with religiosity, which is a main variable of interest.

Liberal versus Conservative affiliation was the final demographic variable that was significantly associated with the main variables of interest. This variable represents a continuous score where 1 is "Very Conservative" and 7 is "Very Liberal," rather than discrete groupings of affiliations. Overall, participants' political attitudes were balanced across the conservative and liberal spectrum (M = 4.11, SD = 1.59, n = 247). Liberal-conservative attitudes were significantly and positively correlated with self-reported attitudes toward atheists, $r(245) = .56$, $p < .001$ as well as peer ratings, $r(245) = .25$, $p < .001$. Liberal participants tended to report more positive attitudes toward atheists for their self-rating and other rating. Liberal-Conservative attitudes were significantly and negatively correlated with social desirability, $r(245) = -.27$, $p < .001$, and religiosity scores, $r(245) = -.41$, $p < .001$). Those higher in conservativism tended to indicate

higher religiosity and social desirability levels. Liberal versus Conservative affiliation was not included as a covariate since it is associated with religiosity, which is a main variable of interest.

Main Analyses

To test the hypotheses that PI occurs within attitudes toward atheists and is moderated by public and private reporting conditions a 2 (Rating: self vs. other; within-subjects) x 2 (Public and private atheist attitudes: high vs. low; between subjects) mixed-model ANOVA was conducted (see Table 8). The main effect of target of rating was significant, $F(4, 211) = 23.61$, $p < .001$, $\eta_p^2 = .09$. Participants reported having more positive attitudes toward atheists ($M = 4.74$, $SD = 1.02$) than they believed their peers to hold ($M = 4.47$, $SD = .76$). The main effect for the experimental condition (public vs. private) was not significant, $F(1, 252) = 0.32$, $p = .572$, $\eta_p^2 = .00$. Overall ratings of attitudes toward atheists (self and other ratings combined) did not differ for participants in the public ($M = 4.58$, $SE = .07$) and private ($M = 4.63$, $SE = .07$) conditions. The interaction between target of rating and condition was not significant, $F(1, 252) = 0.04$, $p = .837$, $\eta_p^2 = .00$. These results can be seen in Figure 3 of Appendix R, which shows participants in both the public and private conditions expected their peers to have less positive views of atheists than themselves. These findings are contrary to the expected pattern of results, where only participants in the private condition were expected to feel more positively toward atheists than they believed their peers to be.

Exploratory Analyses

Two exploratory analyses conducted in this study to test whether social desirability and religiosity moderate pluralistic ignorance within attitudes toward atheists. A 2 (Target of rating: self vs. other; within subjects) x 2 (Social Desirability; high vs. low; between subjects) mixed-model factorial ANOVAs was conducted utilizing the dichotomized (median split) social

desirability scores (see Appendix Q, Table 9). The main effect of target (Self vs. Other) was significant, $F(1, 250) = 23.80$, $p = <.001$, $\eta_p^2 = .09$, which indicated that the mean of self-ratings was significantly higher than the mean of other ratings, showing a clear difference in self ($M = 4.74$, $SD = 1.02$) and other ($M = 4.48$, $SD = .76$) outcomes. The main effect of social desirability was significant, $F(1, 250) = 10.35$, $p = .001$, $\eta_p^2 = .04$, which shows that the overall ratings of attitudes toward atheists (self and other ratings combined) made by participants with low social desirability ($M = 4.77$, $SE = .07$, $n = 126$) were marginally significantly higher than the overall ratings made by participants with high social desirability ($M = 4.46$, $SE = .07$, $n = 126$). The interaction between target of rating and social desirability was significant, $F(1, 250) = 11.40$, $p = <.001$, $\eta_p^2 = .04$. The pattern of self and other ratings was different for the high and low social desirability groups (see Appendix Q, Figure 4). Among participants with high social desirability, participants' own attitudes toward atheists and their beliefs about their peers' attitudes did not significantly differ. For participants with low social desirability, participants' attitudes toward atheists were significantly more positive than they expected their peers' attitudes to be.

To test the potential moderating effect of religiosity on pluralistic ignorance within atheist attitudes, a 2 (Target of rating: self vs. other; within-subjects) x 2 (Religiosity; high vs. low; between subjects) mixed-model factorial ANOVAs were conducted utilizing the dichotomized (median split) social desirability scores (see Appendix Q, Table 10). The main effect of target (Self vs. Other) was significant, $F(1, 251) = 33.67$, $p = <.001$, $\eta_p^2 = .12$, which indicated that the mean of self-ratings was significantly higher than the mean of other ratings. This showed a clear difference in self ($M = 4.74$, $SD = 1.02$) and other ($M = 4.48$, $SD = .76$) outcomes. The main effect of religiosity was significant, $F(1, 251) = 69.11$, $p = <.001$, $\eta_p^2 = .22$. This shows that the overall ratings of attitudes toward atheists (self and other ratings combined)

made by participants with low religiosity (M = 4.98, SE = .06, n = 125) were significantly higher than the overall ratings made by participants with high religiosity (M = 4.24, SE = .06, n = 128). The interaction between target of rating and religiosity was significant, $F(1, 251) = 106.38$, $p = <.001$, $\eta_p^2 = .30$. The pattern of self and other ratings was different for the high and low religiosity groups (see Appendix Q, Figure 4). This shows that highly religious individuals believe others hold more positive attitudes toward atheists than themselves. For low religiosity groups, self-ratings are significantly higher than other ratings. This shows that individuals who are less religious believe others hold less positive attitudes toward atheists than themselves. Additionally, self and other discrepancies are much larger among less religious participants compared to highly religious participants. For the high religiosity group, self-ratings were significantly lower than other ratings.

Chapter 4

Discussion

The present study examined PI to determine whether it occurs within attitudes toward atheists. This study, replicating and expanding upon a study previously conducted by Strosser et al. (2016), found a presence of PI within attitudes toward atheists; participants tended to hold a more positive view of atheists than they believed their peers hold. The present study also tested whether PI within attitudes toward atheists would be moderated by whether participants reported their attitudes in public or private conditions. No evidence for the influence of reporting conditions was found, which failed to replicate the findings reported in Strosser et al. (2016). Review of the manipulation check items suggests that the public versus private reporting conditions did not have the intended effects on participants' response patterns. One potential limitation may be that, compared to Strosser et al. (2016), the present study was conducted online rather than in person. The online format may have interfered with the public versus private manipulation in this case. There is a possibility that students did not notice the manipulation in the online format. In contrast, Strosser et al. (2016) conducted their manipulations in person, and participants would have been forced to notice the manipulation, where participants in the public condition handed their responses to the researcher in front of the room in front of other participants and participants in the private condition sealed their answers in an envelope and put the envelope in a slot in a box located at the back of the room. There is also the potential that students did notice the manipulation but did not fully understand the implications of the "public" condition. This could have been because the condition was not "public" enough to generate socially desirable responses. Alternatively, the online survey format may allow for a heightened sense of privacy that undermined the effectiveness of public-

reporting manipulation. A future study could try to strengthen the salience of the public condition in the online study, potentially through a live completion of the survey, which could be done through a Zoom session or in a lockdown browser monitored by a researcher. Additionally, researchers could ask participants to submit pictures of themselves or have participants record their responses to the questions in videos that would be submitted to the researcher. Another change that could be made in future versions could be on the consent form for the public condition. In the present study, the consent form reads, "After you complete the survey questions, your responses will be reviewed and you may be selected to participate in a follow-up interview," which may not be sufficiently intimidating to students. In the future, this could be altered to read, "After you complete the survey questions, your responses will be reviewed and you will be contacted to participate in a follow-up interview," by a committee of their peers to make it clear to participants that they will be questioned about their answers. Another change that could be made has to do with the blindness of the participants to the research conditions. In study three by Strosser et al. (2016), data were collected in groups and participants were either given a manila envelope or given nothing. Participants with the envelopes were instructed to put their responses inside the envelope and turn the envelope in at the back of the room. Participants without the envelope were asked to place the responses face down on a pile at the front of the room by the researcher. Thus, participants knew about both conditions and were therefore not blind to condition. In the present study, participants were randomly assigned to a condition without knowing about the other condition. In the future, it may be beneficial to test whether awareness of condition was responsible for the effect of public and private reporting on the social desirability of participants' responses.

Additional exploratory analyses revealed that social desirability as a trait moderated PI within attitudes toward atheists. Participants with higher social desirability did not demonstrate PI within attitudes toward atheists; their self and other ratings were equal. Participants with low social desirability demonstrated the highest degree of PI within attitudes toward atheists; they had more positive attitudes toward atheists than they expect their peers to have. The findings of the present study help rule out social desirability as an alternative explanation for the PI effect. Specifically, it could be argued that discrepancies between self and other ratings may not reflect people being misinformed about the values of their peers (PI), but rather are the result of participants altering either reports about their own attitudes or reports about what they believe their peers' attitudes are in an effort to make themselves look better (i.e., social desirability). The findings of the present study are inconsistent with what one would expect to see if social desirability accounted for the pluralistic ignorance effect. That is, greater discrepancies should be seen among participants who are highest in social desirability. The present study found the opposite pattern and suggests that PI is obscured by social desirability and not explained by social desirability.

Additionally, the present study tested whether religiosity moderated PI within attitudes toward atheists. In the original Strosser et al. (2016) study, religiosity was measured, but religiosity was not tested as a moderator of PI within attitudes toward atheists. In the present study, religiosity significantly moderated PI. Participants with lower religiosity demonstrated the greatest pluralistic ignorance; they held more positive attitudes toward atheists than they expected their peers to hold. More religious participants in contrast held less positive attitudes toward atheists than their peers, and the magnitude of the discrepancy between self and peer ratings was smaller than the discrepancy observed among less religious participants. The peer

ratings made by highly religious and less religious participants significantly differed as well. Less religious participants tended to assume their peers' attitudes toward atheists were significantly more positive than did more religious participants. The results demonstrate that PI within attitudes about religious groups can be impacted by religiosity.

Returning to the main research question, the current study contrasts with previous research examining PI within attitudes toward atheists. Previously, Strosser et al. (2016) studied attitudes about atheism among college students, and study two provided no evidence of PI within attitudes toward atheists when comparing participants' self and other ratings. In contrast, the present study found a discrepancy between self and other ratings. One potential explanation for this discrepancy in findings is the population choices of both studies. Strosser et al. (2016) collected a sample that was predominantly Mormon. Given that the present study has demonstrated that religiosity and social desirability both affect PI within attitudes toward atheists and both are highly associated, the participants in study two of Strosser et al. (2016) may have had a heightened tendency toward socially desirable responses that obscured PI in that study. The present study drew participants from a more diverse range of religious backgrounds. This may be why the present study observed PI when comparing self and other ratings and Strosser et al (2016) did not. Participants in the present study who had higher social desirability did not demonstrate PI within attitudes toward atheists. Participants with low social desirability demonstrated the highest degree of PI within attitudes toward atheists.

Considering the types of PI (i.e., situational ambiguity, minority-enforced norms, prototypical group identity, and cultural lag), pluralistic ignorance within attitudes toward atheists may represent a form of cultural lag, where changes in individuals' personal beliefs occur at a faster rate than changes in their beliefs about the larger group. Since the 1950s and the

height of the Cold War, American culture has equated atheism and anti-Christian beliefs with communism and anti-Americanism. For example, the line “one nation under God” was added to the Pledge of Allegiance in 1954 (Lipka, 2013). Over time, prejudice toward atheism has decreased (Edgell et al., 2006), but misperceptions of public opinions appear to continue to exist.

Additionally, pluralistic ignorance with attitudes toward atheists may arise from minority-enforced norms, which occur when a vocal and influential minority disproportionately influences the way a group views itself. Messages about the dominance of religion—primarily Christianity—are commonly found within American culture. For example, public complaints about the “cultural war” on Christianity are common. Each holiday season, there are renewed debates as to whether it is appropriate to emphasize Christmas, a Christian-based holiday, in public and private workplaces and offices. Similarly, in the region of Virginia where this study was conducted, one can find numerous signs along highways that emphasize the importance of prayer and religion throughout life. These frequent demonstrations of religious dominance may cause individuals to overestimate the prominence of prejudice toward atheists.

Previous studies have found cases of PI within other forms of prejudicial attitudes. Across all studies of PI and prejudice, whether it be classist attitudes (Katz & Allport, 1931), racist attitudes (O’Gorman, 1975), sexist attitudes (De Souza & Schmader, 2021), heterosexist/anti-gay attitudes (Bourgeois & Bowen, 2001), ageist attitudes (O’Gorman, 1980), or mental health stigma (Sargent, 2021), respondents tend to assume that others hold more prejudicial (less positive) attitudes than participants do themselves (Miller & Prentice, 1994). These previous studies of PI within prejudicial attitudes can be compared to the present study, where participants reported less prejudice (more positive attitudes) toward atheists than they expected their peers to hold.

There are some clear limitations within the current study. The volunteer/non-random sample consisted mainly of Caucasian, Christian, and female college students enrolled in psychology courses, which calls into question the generalizability of findings to the overall population. Different findings may be obtained by sampling people outside of a university setting, who range in ages and socioeconomic standing. Similarly, conducting this study in a more urban area where religious and political beliefs are more varied may have produced different outcomes. Different ages could have also held different viewpoints, with older adults holding more negative attitudes about atheists compared to younger adults.

Another limitation focuses on online research. This study was conducted through Qualtrics and dispersed through the SONA participant pool. With online studies, it is difficult to monitor how much attention and focus participants give to the task at hand. Some students may have been doing other things or may have been distracted by the presence of others while completing the survey. Participants may not have read questions thoroughly or may not have responded as thoughtfully as they could have. Attempts were made to exclude unmotivated participants by evaluating variability within each participant's responses and dropping participants who had too little variability in their response or did not appear to be paying attention to differences in positively and negatively worded items. These limitations could potentially be addressed in an in-person experimental setting, where most outside factors and potential distractors can be controlled. Additionally, the online factor may have taken away from the potential effectiveness of the experimentally manipulated public-reporting condition. If this study took place in person, the public condition may have been more impactful, as participants would be aware that the researcher can see each participant and their responses.

There are a few strengths of the present study. The first is the randomized order of the self and other reports. This assisted in maximizing the internal validity of this within-subject experimental design. Another is that the present study provided more direct evidence of PI within attitudes toward atheists than did Strosser et al. (2016); in the present study, self and other ratings were compared directly and found to differ. The present study also provided a more thorough assessment of attitudes toward atheists within PI research than previous studies. This was done by using multiple measures of attitudes, which included both negative and positive attitudes toward atheists. These measures were also all highly reliable, multi-item scales with existing evidence for their validity within college samples.

The present study provides some indication of the prevalence of pro- and anti-atheist attitudes. The means for positive attitudes toward atheists are slightly above the scale midpoints, whereas the means for negative attitudes are below the midpoint. Further, the complete range of attitudes is represented, and, though some individuals have strongly negative attitudes, there is a slightly stronger tendency toward positive views. Overall, this indicates that there is not an overwhelming level of prejudice toward atheists within the sample.

Although participants significantly misestimate their peers' attitudes, participants' estimates of the social norm are not entirely inaccurate. Though participants perceive their peers as being more negative toward atheists than participants are themselves, participants' estimates are only off by a relatively small amount. This is interesting since participants feel they score close to their peers, but still view themselves as being more positive toward atheists than they give others credit for. One way this could be counteracted within university environments is to potentially give students more open forums to speak anonymously. Misperceptions about group norms may be reinforced when students are afraid to speak up about their views and opinions

since people generally do not want to appear different from others or cause arguments over disagreement in values. If students are given a platform to speak about controversial topics and get an idea as to how others in their group feel, this could help close the PI gap in the future and help to reduce misinformation.

With respect to potential future directions, one possible way to move forward could be diversifying the group of participants to potentially increase the diversity of the demographics and opinions toward atheists. Given that Strosser et al. (2016) sampled a Mormon-based population and did not find direct evidence for PI within attitudes toward atheists and given that the present study sampled a student population, though more diverse, which consisted of mainly Caucasian, Christian females and found direct evidence of PI within attitudes about atheists, it could be worthwhile to expand to a more diverse group to not only expand the participant population but also to add different viewpoints and responses that may not be found in the population of the present study. There is also potential for this expansion to produce greater discrepancies between self versus other attitudes depending on the area and background participants come from. This could be achieved by recruiting participants from across the United States through more public forums for psychological studies such as Psychological Research on the Net. Additionally, it would be interesting to study opinions about other religious traditions such as Paganism, Satanism, Humanism, Wicca, and more. More importantly, it would be interesting to see how much participants know about these religions before responding to see how misinformed they are prior to the study.

In conclusion, the results of the present study are important in considering how college students in a rural community view atheists and how these students believe their peers view atheists. This study shows that individuals view atheists more positively than those same

individuals believe their peers do. Religiosity and social desirability moderated these effects. Misestimation of the norm was the strongest among less religious individuals and those with lower social desirability. Moving forward, universities need to create a safe and inclusive environment for people of all beliefs and help guide education to those who may have not been exposed to different religions growing up to reduce prejudice in college settings.

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Appendix A

Atheist Behavioral Intentions Scale (Strosser et al., 2016)

Atheist Behavioral Intentions Scale Self items

For the following questions we want to know **about your own** attitudes.

For the following items from 1 (extremely unlikely) to 7 (extremely likely), please indicate how likely or unlikely **you** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Extremely unlikely, 2 = Moderately unlikely, 3 = Slightly unlikely, 4 = Neither likely nor unlikely, 5 = Slightly likely, 6 = Moderately likely, 7 = Extremely likely

1. How likely would it be for you to vote for an Atheist?
2. How likely would it be for you to be friends with an Atheist?
3. How likely would it be for you to allow an Atheist to babysit your child?
4. How likely would it be for you to marry an Atheist?
5. How likely would it be for you to study with an Atheist?
6. How likely would it be for you to allow an Atheist to teach your child?
7. How likely would it be for you to help an Atheist?
8. How likely would it be for you to talk with an Atheist?
9. How likely would it be for you to negotiate business deals with an Atheist?
10. How likely would it be for you to hang out with an Atheist?
11. How likely would it be for you to share a dinner with an Atheist?
12. How likely would it be for you to hire as an employee an Atheist?

Appendix B

Atheist Behavioral Intentions Scale (Strosser et al., 2016)

Atheist Behavioral Intentions Scale Other items

For the following questions we want to know about **average Radford student** attitudes.

For the following items from 1 (extremely unlikely) to 7 (extremely likely), please indicate how likely or unlikely you believe the **average Radford student** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Extremely unlikely, 2 = Moderately unlikely, 3 = Slightly unlikely, 4 = Neither likely nor unlikely, 5 = Slightly likely, 6 = Moderately likely, 7 = Extremely likely

1. How likely do you believe it would be for the average Radford student to vote for an Atheist?
2. How likely would it be for the average Radford student to be friends with an Atheist?
3. How likely would it be for the average Radford student to allow an Atheist to babysit your child?
4. How likely would it be for the average Radford student to marry an Atheist?
5. How likely would it be for the average Radford student to study with an Atheist?
6. How likely would it be for the average Radford student to allow an Atheist to teach their child?
7. How likely would it be for the average Radford student to help an Atheist?
8. How likely would it be for the average Radford student to talk with an Atheist?
9. How likely would it be for the average Radford student to negotiate business deals with an Atheist?
10. How likely would it be for the average Radford student to hang out with an Atheist?
11. How likely would it be for the average Radford student to share dinner with an Atheist? How likely would it be for the average Radford student to hire as an employee an Atheist?

Appendix C

Bloesch Scale (Bloesch et al., 2004)

Bloesch Scale Self items

For the following questions we want to know **about your own** attitudes.

For the following items from 1 (strongly disagree) to 7 (strongly agree), please indicate how likely or unlikely **you** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree

1. Atheists should not be allowed to work with children.
2. Atheists should have the same rights as people who believe in God. *
3. Atheists are immoral.
4. People who support the rights of atheists are probably atheists themselves.
5. Atheists should be avoided whenever possible.
6. I could never be friends with an atheist.

(* indicates reverse scored items)

Appendix D

Bloesch Scale (Bloesch et al., 2004)

Bloesch Scale Other items

For the following questions we want to know about **the average Radford student's** attitudes.

For the following items from 1 (strongly disagree) to 7 (strongly agree), please indicate how likely or unlikely you believe the **average Radford student** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree

1. Atheists should not be allowed to work with children.
2. Atheists should have the same rights as people who believe in God. *
3. Atheists are immoral.
4. People who support the rights of atheists are probably atheists themselves.
5. Atheists should be avoided whenever possible.
6. I could never be friends with an atheist.

(* indicates reverse scored items)

Appendix E

The Negative Attitudes toward Atheists Scale (Gervais, 2011)

The Negative Attitudes toward Atheists Scale Self items

For the following questions we want to know **about your own** attitudes.

For the following items from 1 (strongly agree) to 5 (strongly disagree), please indicate how likely or unlikely **you** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Strongly agree, 2 = Somewhat agree, 3 = Neither agree nor disagree, 4 = Somewhat disagree, 5 = Strongly disagree

1. I would be uncomfortable with an atheist teaching my child.
2. I strongly believe that church and state should be kept separate.*
3. Societies function better if everyone believes in God.
4. Religion facilitates moral behavior in a way that nothing else can.
5. I would prefer to spend time with people who are religious believers.
6. I would not at all be bothered by a President who did not have religious beliefs. *
7. In times of crisis, I am more inclined to trust people who are religious.

(* indicates reverse scored items)

Appendix F

The Negative Attitudes toward Atheists Scale (Gervais, 2011)

The Negative Attitudes toward Atheists Scale Other items

For the following questions we want to know **about other Radford student's** attitudes.

For the following items from 1 (strongly agree) to 5 (strongly disagree), please indicate how likely or unlikely you believe the **average Radford student** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Strongly agree, 2 = Somewhat agree, 3 = Neither agree nor disagree, 4 = Somewhat disagree, 5 = Strongly disagree

1. The average Radford student would be uncomfortable with an atheist teaching their child.
2. The average Radford student strongly believes that church and state should be kept separate.*
3. The average Radford student believes societies function better if everyone believes in God.
4. The average Radford student believes religion facilitates moral behavior in a way that nothing else can.
5. The average Radford student would prefer to spend time with people who are religious believers.
6. The average Radford student would not at all be bothered by a President who did not have religious beliefs. *
7. In times of crisis, the average Radford student is more inclined to trust people who are religious.

(* indicates reverse scored items)

Appendix G

Pittinsky Scale (Pittinsky et al., 2011)

Pittinsky Scale Self Items

For the following questions we want to know **about your own** attitudes.

For the following items from 1 (very strongly disagree) to 7 (very strongly agree), please indicate how likely or unlikely **you** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Very strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Very strongly agree

1. In general, I have positive attitudes about atheists.
2. I respect atheists.
3. I like atheists.
4. I feel positively toward atheists.
5. I am at ease around atheists.
6. I am comfortable when I hang out with atheists.
7. I feel like I can be myself around atheists.
8. I feel a sense of belonging with atheists.
9. I feel a kinship with atheists.
10. I would like to be more like atheists.
11. I am truly interested in understanding the points of view of atheists.
12. I am motivated to get to know atheists better.
13. To enrich my life, I would try and make more friends who are atheists.
14. I am interested in hearing about the experiences of atheists.
15. I am impressed by atheists.
16. I feel inspired by atheists.
17. I am enthusiastic about atheists.

Appendix H

Pittinsky Scale (Pittinsky et al., 2011)

Pittinsky Scale Other Items

For the following questions we want to know about **average Radford student's** attitudes.

For the following items from 1 (very strongly disagree) to 7 (very strongly agree), please indicate how likely or unlikely you believe the **average Radford students** would be to participate in specific behaviors.

Please remember that your responses are completely anonymous.

1 = Very strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Very strongly agree

1. In general, the average Radford student has positive attitudes about atheists.
2. The average Radford student respects atheists.
3. The average Radford student likes atheists.
4. The average Radford student feels positively toward atheists.
5. The average Radford student is at ease around atheists.
6. The average Radford student is comfortable when they hang out with atheists.
7. The average Radford student feels like they can be themselves around atheists.
8. The average Radford student feels a sense of belonging with atheists.
9. The average Radford student feels a kinship with atheists.
10. The average Radford student would like to be more like atheists.
11. The average Radford student is truly interested in understanding the points of view of atheists.
12. The average Radford student is motivated to get to know atheists better.
13. To enrich their life, the average Radford student would try and make more friends who are atheists.
14. The average Radford student is interested in hearing about the experiences of atheists.
15. The average Radford student is impressed by atheists.
16. The average Radford student feels inspired by atheists.
17. The average Radford student is enthusiastic about atheists.

Appendix I

The Duke University Religion Index (DUREL) scale (Koenig, 2010)

DUREL Scale

For the following questions we want to know **about your own** attitudes.

1 = Never, 2 = Once a year or less, 3 = A few times a year, 4 = A few times a month, 5 = Once a week, 6 = More than once/week

1. How often do you attend church or other religious meetings?
2. How often do you spend time in private religious activities, such as prayer, meditation or Bible study?

The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.

1 = Definitely not true, 2 = Tends not to be true, 3 = Unsure, 4 = Tends to be true, 5 = Definitely true of me

3. In my life, I experience the presence of the Divine (i.e., God).
4. My religious beliefs are what really lie behind my whole approach to life.
5. I try hard to carry my religion over into all other dealings in life.

Appendix J

The Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960)

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you.

1 = True, 2 = False

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasion I have had doubts about my ability to succeed in life. *
6. I sometimes feel resentful when I don't get my way. *
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying and be sure I was not seen, I would probably do it. *
10. On a few occasions, I have given up doing something because I thought too little of my ability. *
11. I like to gossip at times. *
12. There have been times when I felt like rebelling against people in authority even though I knew they were right. *
13. No matter who I'm talking to, I'm always a good listener.
14. I can remember "playing sick" to get out of something. *
15. There have been occasions when I took advantage of someone. *
16. I'm always willing to admit it when I make a mistake.
17. I always try to practice what I preach.
18. I don't find it particularly difficult to get along with loud-mouthed, obnoxious people.
19. I sometimes try to get even, rather than forgive and forget. *
20. When I don't know something I don't at all mind admitting it.
21. I am always courteous, even to people who are disagreeable.
22. At times I have really insisted on having things my own way. *
23. There have been occasions when I felt like smashing things. *
24. I would never think of letting someone else be punished for my wrongdoings.
25. I never resent being asked to return a favor.
26. I have never been irked when people expressed ideas very different from my own.
27. I never make a long trip without checking the safety of my car.
28. There have been times when I was quite jealous of the good fortune of others. *
29. I have almost never felt the urge to tell someone off.
30. I am sometimes irritated by people who ask favors of me. *
31. I have never felt that I was punished without cause.

32. I sometimes think when people have a misfortune they only got what they deserved. *
33. I have never deliberately said something that hurt someone's feelings.

(* indicates reverse scored items)

Appendix K

Public Condition Consent Form

College of Humanities and Behavioral Sciences

Department of Psychology

Radford University Cover Letter for Internet Research

Title of Research: Attitudes Toward Atheists

Researcher(s): Phoebe Dubois and Jeff Aspelmeier

We ask you to be part of a research study designed to assess attitudes about atheists. We will be asking you about your own attitudes and your perceptions of other peoples' attitudes. The goal of this study is to determine whether there are relationships between your own atheist attitudes, and atheist attitudes of others. If you agree to participate, you will be asked to complete a series of attitude measures as well as some questions about your personal background. **After you complete the survey questions, your responses will be reviewed and you may be selected to participate in a follow up interview.** Your participation will take about 15 minutes**.** You are being recruited because you are 17 years of age or older and enrolled in undergraduate courses at Radford University. We are recruiting approximately 200 - 250 participants for this project.

This project has no more risk than you may find in daily life.

There are no direct benefits to you for being in the project.

There are no costs to you for being in this project. You will receive 1 research credit in the Psychology Department's SONA system for participating in this project, which may be used as course credit or extra credit in a psychology course. The type and amount of credit will be determined by your psychology instructor.

The data that you provide are confidential. You will be asked to provide your name and email address to be contacted for a follow up interview. No computer/device IP addresses will be recorded. The research team will work to protect your data to the extent permitted by technology. It is possible, although unlikely, that an unauthorized individual could gain access to your responses because you are responding online. This risk is similar to your everyday use of the internet.

Your participation in this survey is voluntary. You can choose not to be in this project. If you decide to be in this project, you may choose not to answer certain questions or quit answering questions at any time without penalty or loss of SONA credits. If you wish to withdraw from the study or have any questions, contact Phoebe Dubois, pdubois@radford.edu, or Dr. Jeff

Aspelmeier, Box 6946, Department of Psychology, Radford University, Radford, VA 24142. jaspelme@radford.edu, (540) 831-5520.

If you choose not to participate or decide to withdraw, there will be no impact on your current or future relationship with Radford University.

If you have any questions about the study at this time or later, you may contact Phoebe Dubois, pdubois@radford.edu, or Dr. Jeff Aspelmeier, Box 6946, Department of Psychology, Radford University, Radford, VA 24142. jaspelme@radford.edu, (540) 831-5520.

This study was approved by the Radford University Committee for the Review of Human Subjects Research. If you have questions or concerns about your rights as a research subject or have complaints about this study, you should contact Ben Caldwell, Institutional Official and Dean of the College of Graduate Studies and Research, bcaldwell13@radford.edu, (540)831-5724.

Please print off a copy of this page for your records before proceeding.

You may also contact the researcher (jaspelme@radford.edu) for a copy of this form. This will serve as your proof of participating in the class project in the event you have questions about obtaining your SONA credits.

If you would like to take part in this study, please click the "Yes" button at the bottom of this screen indicating your agreement for participation. This will direct you to our survey. If you decide not to be in this study, please click the "No" button. This will direct you to back to the SONA homepage.

Appendix L

Private Condition Consent Form

College of Humanities and Behavioral Sciences

Department of Psychology

Radford University Cover Letter for Internet Research

Title of Research: Attitudes Toward Atheists

Researcher(s): Phoebe Dubois and Jeff Aspelmeier

We ask you to be part of a research study designed to assess attitudes about atheists. We will be asking you about your own attitudes and your perceptions of other peoples' attitudes. The goal of this study is to determine whether there are relationships between your own atheist attitudes, and atheist attitudes of others. If you agree to participate, you will be asked to complete a series of attitude measures as well as some questions about your personal background. Your participation will take about 15 minutes**.** You are being recruited because you are 17 years of age or older and enrolled in undergraduate courses at Radford University. We are recruiting approximately 200 - 250 participants for this project.

This project has no more risk than you may find in daily life.

There are no direct benefits to you for being in the project.

There are no costs to you for being in this project. You will receive 1 research credit in the Psychology Department's SONA system for participating in this project, which may be used as course credit or extra credit in a psychology course. The type and amount of credit will be determined by your psychology instructor.

The data that you provide are anonymous. We will not ask for your name or any other identifying information. No computer/device IP addresses will be recorded. The research team will work to protect your data to the extent permitted by technology. It is possible, although unlikely, that an unauthorized individual could gain access to your responses because you are responding online. This risk is similar to your everyday use of the internet.

Your participation in this survey is voluntary. You can choose not to be in this project. If you decide to be in this project, you may choose not to answer certain questions or quit answering questions at any time without penalty or loss of SONA credits. If you wish to withdraw from the study or have any questions, contact Phoebe Dubois, pdubois@radford.edu, or Dr. Jeff Aspelmeier, Box 6946, Department of Psychology, Radford University, Radford, VA 24142. jaspelme@radford.edu, (540) 831-5520.

If you choose not to participate or decide to withdraw, there will be no impact on your current or future relationship with Radford University.

If you have any questions about the study at this time or later, you may contact Phoebe Dubois, pdubois@radford.edu, or Dr. Jeff Aspelmeier, Box 6946, Department of Psychology, Radford University, Radford, VA 24142. jaspelme@radford.edu, (540) 831-5520.

This study was approved by the Radford University Committee for the Review of Human Subjects Research. If you have questions or concerns about your rights as a research subject or have complaints about this study, you should contact Ben Caldwell, Institutional Official and Dean of the College of Graduate Studies and Research, bcaldwell13@radford.edu, (540)831-5724.

Please print off a copy of this page for your records before proceeding.

You may also contact the researcher (jaspelme@radford.edu) for a copy of this form. This will serve as your proof of participating in the class project in the event you have questions about obtaining your SONA credits.

If you would like to take part in this study, please click the “Yes” button at the bottom of this screen indicating your agreement for participation. This will direct you to our survey. If you decide not to be in this study, please click the “No” button. This will direct you to back to the SONA homepage.

Appendix M

Manipulation Check

We would like you to think about how you answered the questions in this study and tell us to what degree you felt you were able to be completely honest and express your actual opinions.

1 = Not at All, 2, 3, 4, 5 = Somewhat, 6, 7, 8, 9 = A Great Deal

1. To what degree were all your answers honest.
2. To what degree did all your answers represent your actual private opinions.
3. To what degree did you feel the need to adjust your answers to avoid looking bad to others.

Appendix N

Demographics Form

The following questions ask for some background information, which can help us understand individual differences. If there are any questions you are not comfortable answering, then you may leave them blank.

1. Which gender do you most closely identify with?
2. You selected Additional gender identity for the gender you most closely identify with. How do you describe your gender?
3. What is your current age?
4. What is your ethnicity?
5. Which religion do you most closely associate yourself with?
6. You selected Multi-Ethnic as your ethnicity. Please list your ethnic identities.
7. Please indicate your current relationship status:
8. Please indicate the educational status of your mother:
9. Please indicate the educational status of your father:
10. Which best describes the type of place you lived while growing up?
11. While growing up, what was your highest household income?
12. Which political party do you most identify with?
13. Use the following numerical scale to indicate whether you view yourself as more politically liberal or politically conservative.

Appendix O

Radford University Institutional Review Board

Data Release Form- Deception Studies

Title of Study: Attitudes Toward Atheists

During the experiment, you were you were told that you would possibly be interviewed by researcher after completing the survey and that your name and email would be associated with the data you provided. However, there will be NO interview and your name and email information were not actually connected to any of the information you provided. The researchers wanted to record your responses when you believed that your responses could be connected back to you, as opposed to being truly anonymous.

One purpose of the study was compare the responses of people whose responses were anonymous with those of people who thought their responses were not anonymous to determine whether it changes what people say about their own attitudes and what they about the attitudes they believe others have.

Because you were misled as to the true purpose of the study, you now have the right to refuse to allow your data and responses to be used and to request that they be destroyed immediately. Regardless of how you answer, you will still receive full credit (1 SONA Credit) for the experiment.

If you agree to include your responses in the experiment, the data that you provide are actually anonymous. Your name or any other identifying information were not actually recorded. No computer/device IP addresses were recorded. The research team will work to protect your data to the extent permitted by technology. It is possible, although unlikely, that an unauthorized individual could gain access to your responses because you are responding online. This risk is similar to your everyday use of the internet.

You are encouraged to Print a Copy of this page for your records or contact the research for a copy.

Appendix P

End of Study Message and Thanks

Attitudes toward Atheists

Thank you for participating in our study. As a reminder, this project investigated attitudes about atheists. Specifically, we were interested in the degree to which the attitudes you hold about atheists and the attitudes you believe your peers (other students at Radford University) have about atheists were related. Previous research has shown that people are often quite inaccurate about their peers' attitudes. The present study tested the degree to which differences between your own and your perceptions of your peers' attitudes about mask wearing are associated with attitudes about other potentially high contact social behaviors.

If you have any questions, concerns, complaints about your participation or if you would like to hear more about the results when the study is complete, you may contact Phoebe Dubois, pdubois@radford.edu, or Dr. Jeff Aspelmeier, Box 6946, Department of Psychology, Radford University, Radford, VA 24142. jaspelme@radford.edu, (540) 831-5520.

If you have questions or concerns about your rights as a research subject or have complaints about this study, you should contact Ben Caldwell, Institutional Official and Dean of the College of Graduate Studies and Research, bcaldwell13@radford.edu, (540)831-5724.

Again, thank you for your participation.

Please print this page for your records.

Appendix Q

Table 1

Independent Samples t-Tests Evaluating Effectiveness of the Public vs. Private Reporting Manipulation

	Condition				
	Public	Private			
Manipulation Check	(*n* = 124)	(*n* = 128)	*t*	*df*	*d*
To what degree were all your answers honest?	8.45	8.51	-0.51	250	-.06
	(.97)	(.77)			
To what degree did all your answers represent your actual private opinions?	8.24	8.30	-0.41	250	-.05
	(1.16)	(1.27)			
To what degree did you feel the need to adjust your answers to avoid looking bad to others?	2.54	2.70	-0.57	250	-.07
	(2.12)	(2.44)			
Social Desirability	1.38	1.45	-1.07	249.99	-.13
	(.49)	(.50)			

Note. $^{\dagger}= p \leq .10$, $^{*} = p \leq .05$, $^{**} = p \leq .01$, $^{***} = p \leq .001$.
Standard deviations appear in parentheses below mean.

Table 2

Atheism Attitudes Self Rating Composite Scale Factor Loadings for Principal Components Analysis for a Single Factor Solution

Scale	Factor 1	Communalities	*M* (*SD*)	α
1. ABI – Self Report	.90	.814	5.30 (1.40)	.960
2. PATA – Self Report	.90	.719	4.34 (1.37)	.970
3. PNBI – Self Report	-.85	.696	2.23 (1.08)	.782
4. NATA – Self Report	-.83	.803	2.60 (0.89)	.847
Eigen Value	3.03			
% Variance Accounted For	75.78%			

Note. ABI = Atheist Behavioral Intentions Scale, PNBI = Perceptions, Negative Beliefs and Intentions of Atheists scale, NATA = Negative Attitudes toward Atheists Scale, PATA = Positive Attitudes toward Atheists Scale.

Table 3

Atheism Attitudes Other Rating Composite Scale Factor Loadings for Principal Components Analysis for a Single Factor Solution

Scale	Factor 1	Communalities	*M* (*SD*)	α
1. ABI – Other Report	.85	.729	5.10 (1.17)	.959
2. PATA – Other Report	.82	.675	4.15 (0.95)	.952
3. PNBI – Other Report	-.70	.485	2.63 (1.11)	.814
4. NATA – Other Report	-.80	.641	2.87 (0.65)	.785
Eigen Value	2.25			
% Variance Accounted For	63.24%			

Note. ABI = Atheist Behavioral Intentions Scale, PNBI = Perceptions, Negative Beliefs and Intentions of Atheists scale, NATA = Negative Attitudes toward Atheists Scale, PATA = Positive Attitudes toward Atheists Scale.

Table 4

Zero Order Correlations and Descriptive Data for Views of Atheists

	1	2	3	4
1. Atheism - Self	**.88**			
2. Atheism - Other	.57***	**.79**		
3. Social Des.	-.22***	-.14*	**.77**	
4. Religiosity	-.62***	-.17**	.23***	**.90**
5. Condition	.02	.04	.01	.00
Mean	4.74	4.48	1.49	2.83
SD	1.02	0.76	0.15	1.27
Range	4.88	4.79	0.85	4.40
n	252	252	252	252

Note. †= $p \leq .10$, * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$. Degrees of freedom range between 250 and 254. Cronbach's Alpha appears on the diagonal.
Atheism Factor Scores (Self and Other) are scored so that higher score indicates more positive views toward atheists.
Social Des. = Social Desirability
Condition Coding: 1 = Public, 2 = Private. Public condition *n* = 126 (49.6%), and private condition *n* = 128 (50.4%).

Table 5

ANOVAs Comparing Atheist Attitudes Across Religious Affiliation Groups

	Religious Group						
	Christianity (n = 119)	Nothing in particular (n = 24)	Agnosticism (n = 34)	Atheism (n = 14)	Other (n = 25)	F (df)	η^2
Atheist. Att.	4.26_{a}	5.20_{b}	5.54_{bc}	5.83_{c}	5.28_{b}	29.81^{***}	.36
Self-Rating	(.88)	(.78)	(.63)	(.30)	(.89)	(4, 211)	
Atheist Att.	4.43	5.20	4.63	4.85	4.49	1.51	.03
Other Rating	(.71)	(.63)	(.79)	(.41)	(.72)	(4, 211)	
Social	1.52_{b}	1.46_{ab}	1.45_{a}	1.43_{a}	1.46_{ab}	2.57^{*}	.05
Desirability	(.16)	(.13)	(.14)	(.16)	(.15)	(4, 211)	
Religiosity	3.60_{c}	1.63_{a}	1.62_{a}	1.30_{a}	2.51_{b}	62.34^{***}	.54
	(.94)	(.70)	(.68)	(.70)	(.97)	(4, 211)	

Note. $^{\dagger}= p \leq .10$, $^{*} = p \leq .05$, $^{**} = p \leq .01$, $^{***} = p \leq .001$.
Standard deviations appear in parentheses below mean. Means within rows with differing subscript are significantly different at the $p \leq .05$ level using Fisher's LSD post hoc tests.
Atheist Att. = Attitudes toward Atheists (Higher score reflects more positive attitudes)
Religiosity = Duke Religiosity scale.

Table 6

ANOVAs Comparing Atheist Attitudes Across Urbanity

	Urbanity Group					
	A large city (population over 300,000) (n = 33)	A small city (about 100,000 to 300,000) (n = 64)	A suburb, small town, or rural area (n = 145)	Military (n = 4)	F (df)	η^2
Atheist. Att. Self-Rating	5.05 $_{b}$ (.80)	5.00 $_{b}$ (.89)	4.54 $_{a}$ (1.07)	5.91$_{b}$ (.32)	6.42*** (3, 242)	.07
Atheist Att. Other Rating	4.74 (.64)	4.44 (.62)	4.46 (.84)	4.90 (.50)	1.76 (3, 242)	.02
Social Desirability	1.50 (.18)	1.50 (.15)	1.49 (.15)	1.44 (.17)	.20 (3, 242)	.00
Religiosity	2.61 $_{ab}$ (1.19)	2.42 $_{a}$ (1.25)	3.06 $_{b}$ (1.24)	1.65 $_{a}$ (1.17)	5.63*** (3, 242)	.07

Note. †= $p \leq .10$, * = $p \leq .05$, ** = $p \leq .01$, *** = $p \leq .001$.
Standard deviations appear in parentheses below mean.
Means within rows with differing subscript are significantly different at the $p \leq .05$ level using Fisher's LSD post hoc tests.
Atheist Att. = Attitudes toward Atheists (Higher score reflects more positive attitudes)
Religiosity = Duke Religiosity scale.

Table 7

ANOVAs Comparing Atheist Attitudes Across Political Affiliation Groups

	Political Affiliation					
	Democratic Party (n = 86)	Republican Party (n = 76)	Independent (n = 51)	Other (n = 36)	F (df)	η^2
Atheist. Att.	5.14_{c}	4.09_{a}	5.10_{c}	4.68_{b}	20.84^{***}	.20
Self-Rating	(.87)	(.94)	(.92)	(.97)	(3, 245)	
Atheist Att.	4.58_{b}	4.18_{a}	4.71_{b}	4.60_{b}	6.70^{***}	.08
Other Rating	(.68)	(.77)	(.76)	(.77)	(3, 245)	
Social	1.46_{a}	1.53_{b}	1.48_{a}	1.50_{ab}	3.31^{*}	.04
Desirability	(.12)	(.16)	(.16)	(.18)	(3, 245)	
Religiosity	2.57_{a}	3.35_{b}	2.48_{a}	2.82_{a}	7.31^{***}	.08
	(1.26)	(1.08)	(1.30)	(1.30)	(3, 245)	

Note. $^{\dagger}= p \leq .10$, $^{*} = p \leq .05$, $^{**} = p \leq .01$, $^{***} = p \leq .001$.
Standard deviations appear in parentheses below mean.
Means within rows with differing subscript are significantly different at the $p \leq .05$ level using Fisher's LSD post hoc tests.
Atheist Att. = Attitudes toward Atheists (Higher score reflects more positive attitudes)
Religiosity = Duke Religiosity scale.

Table 8

Mixed Model Factorial Anova Testing Whether Public vs. Private Condition Moderates PI Within Attitudes Toward Atheists

Effect	*SS*	*df*	*F*	*p*	η^2_{partial}
Target (Self vs. Other)	8.86	1	23.61	<.001	.09
Condition	0.41	1	0.32	.572	.00
Interaction	0.02	1	0.04	.837	.00
Error Within Subjects	4.60	252			
Error Between Subjects	318.43	252			

Table 9

Mixed Model Factorial Anova Testing Whether Social Desirability (High vs. Low) Moderates PI Within Attitudes Toward Atheists

Effect	*SS*	*df*	*F*	*p*	η^2_{partial}
Target (Self vs. Other)	8.51	1	23.80	<.001	.09
Social Desirability	12.40	1	10.35	.001	.04
Interaction	4.08	1	11.40	<.001	.04
Error Within Subjects	89.45	250			
Error Between Subjects	299.56	250			

Table 10

Mixed Model Factorial Anova Testing Whether Religiosity (High vs. Low) Condition Moderates PI Within Attitudes Toward Atheists

Effect	*SS*	*df*	*F*	*p*	$\eta^2_{partial}$
Target (Self vs. Other)	8.82	1	33.67	<.001	.12
Religiosity	65.74	1	69.11	<.001	.22
Interaction	27.86	1	106.38	<.001	.30
Error Within Subjects	65.74	251			
Error Between Subjects	249.99	251			

Appendix R

Figure 1

Scree Plot for Principal Components Factor Analysis of Self-Report Scales

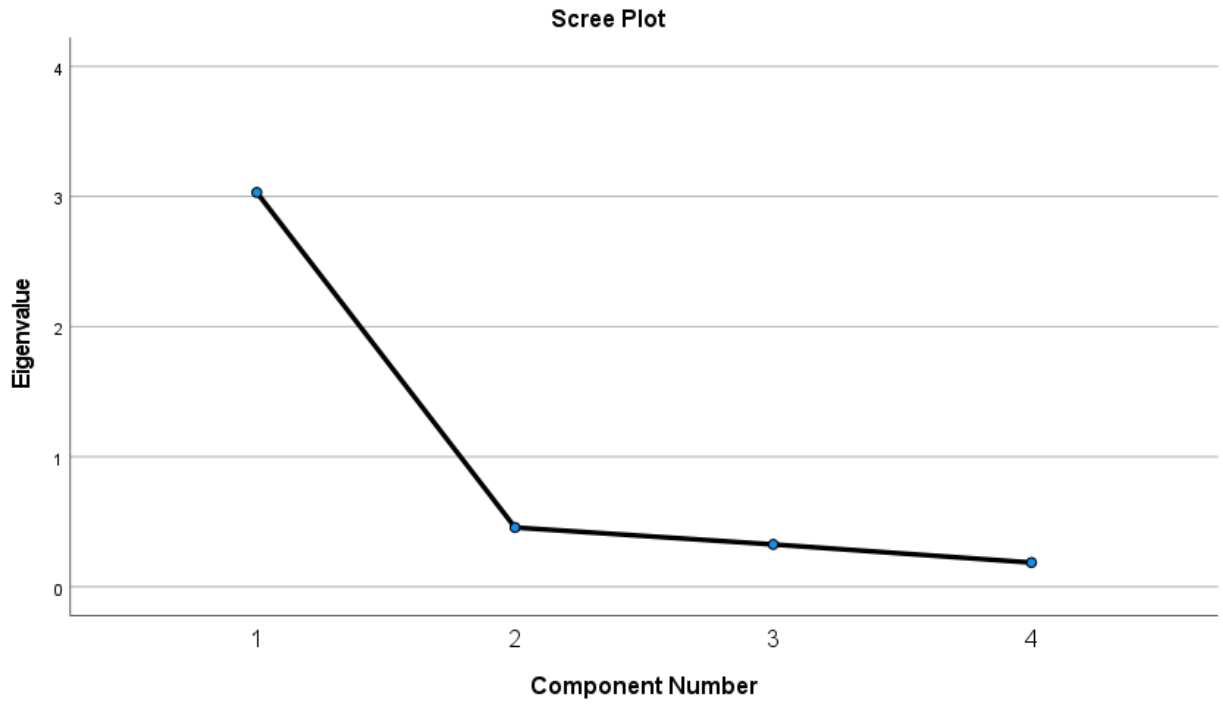

Figure 2

Scree Plot for Principal Components Factor Analysis of Other-Report Scales

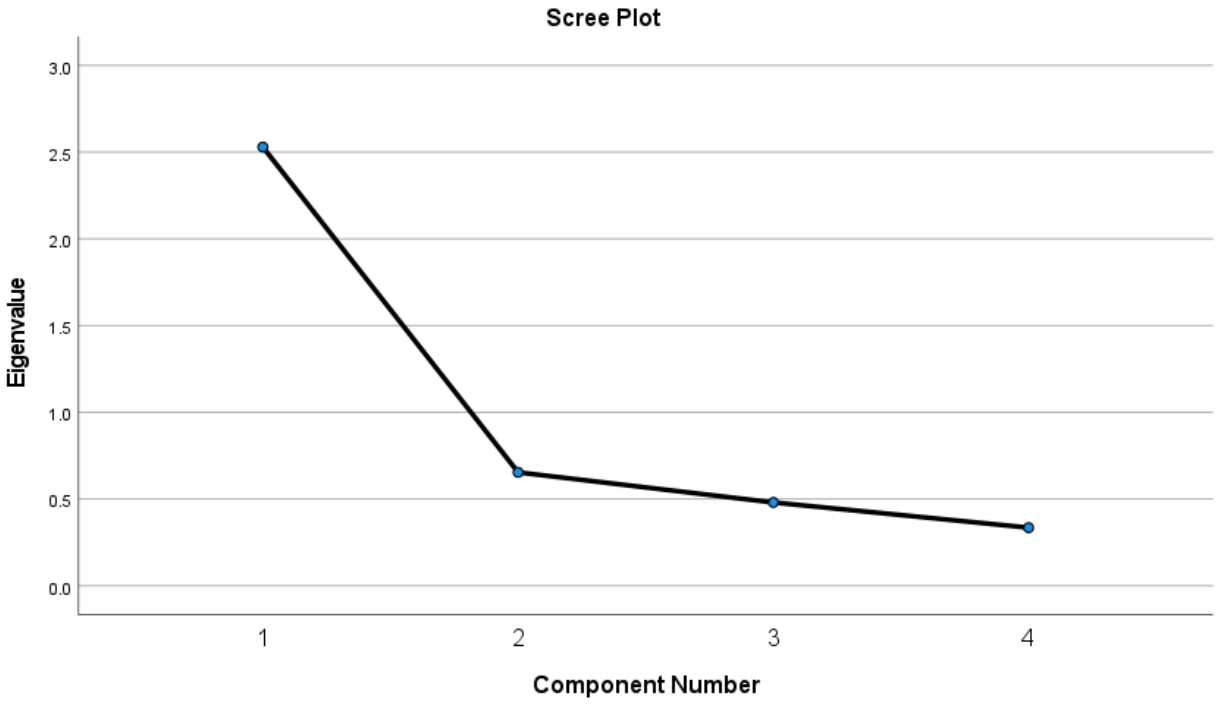

Figure 3

Graph of Views of Atheists by Public vs. Private Condition

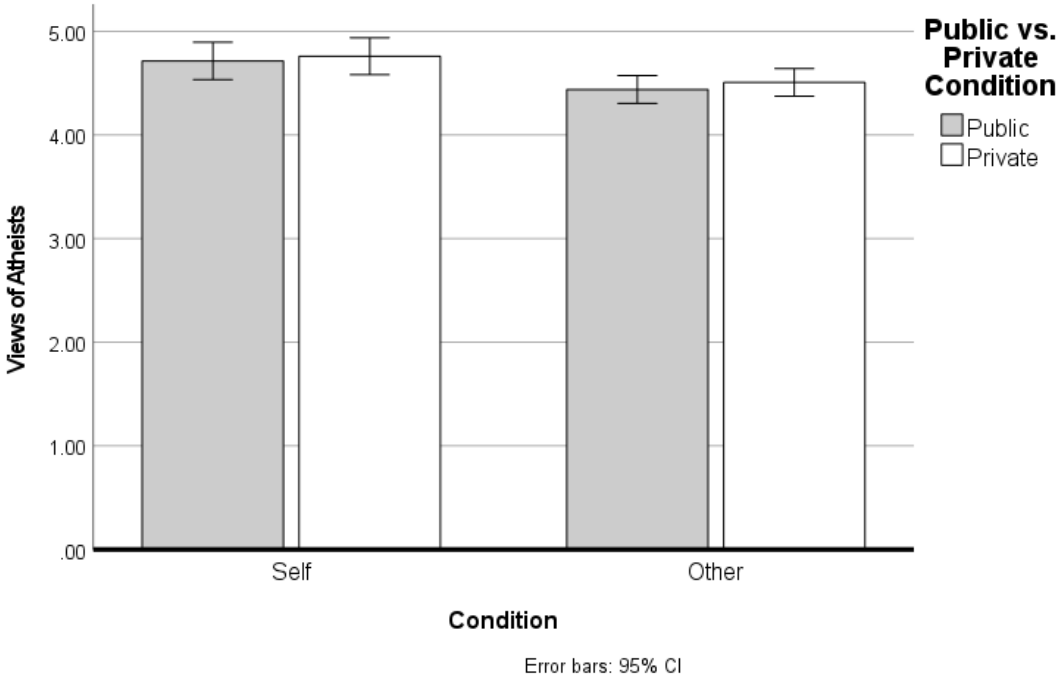

Figure 4

Graph of Views of Atheists by Social Desirability

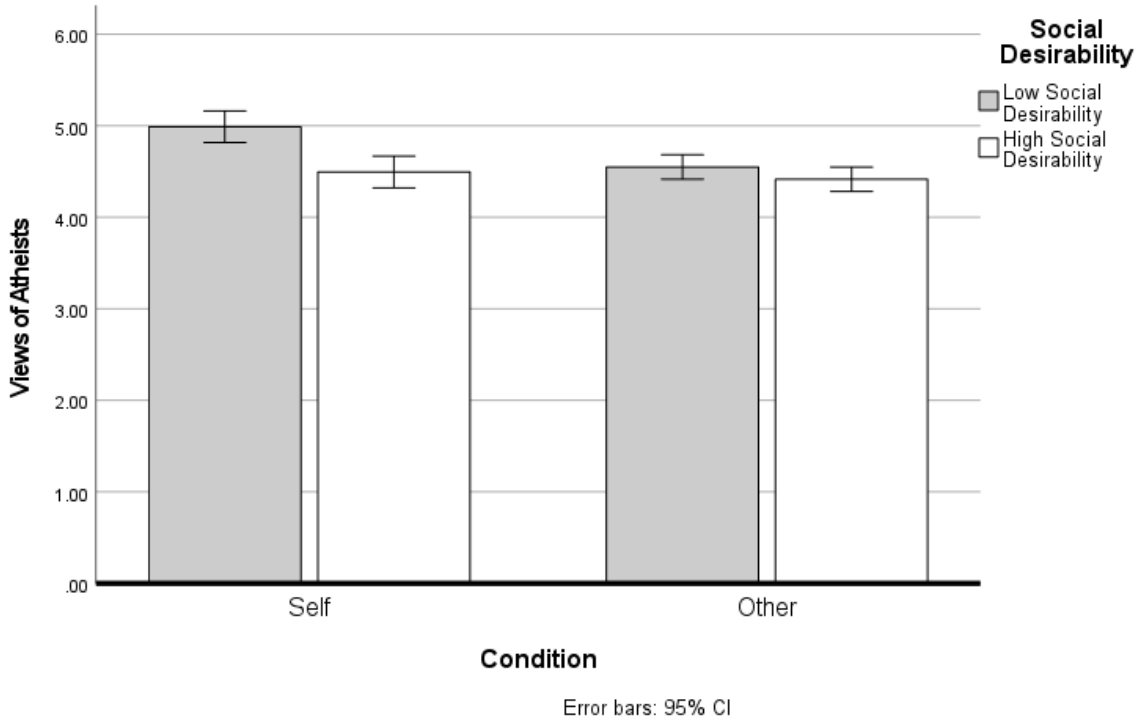

Figure 5

Graph of Views of Atheists by Religiosity