Atheists are Visualized as Untrustworthy

Maria C. Bertrand

Oberlin College

Author Note

Maria C. Bertrand, Department of Psychology, Oberlin College.

Correspondence concerning this thesis should be addressed to Maria Bertrand at Maria.Bertrand@oberlin.edu.

Acknowledgments

When I took her Research Methods II course, I had no idea that Professor Sara Verosky would become my Honors adviser and my mentor. Professor Verosky has been there during stressful and joyful moments, always with a kind smile and a thoughtful word. She has never doubted me and has pushed me to new levels, while always being an email away. I will greatly miss her when I leave Oberlin.

I also must thank my Honors Committee members, Professor Patty DeWinstanley and Professor Cindy Frantz, who have provided very kind and helpful comments throughout this research process. Without Professor DeWinstanley's sound advice, I would have never found Professor Verosky as an Honors adviser, and without Professor Frantz, I would have never known just how exciting the field of social psychology can be.

Finally, I must thank Professor Travis Wilson and Professor Nancy Darling for teaching me about the intricacies of research. I must also thank Ben Neubecker, my parents, and my friends for constantly showing me what true loyalty and love look like. To my dearest four women—Tory Sparks, Jenna Bellassai, Milena Williamson, and Becca Debus—you have shaped who I am, and you give me hope in a better future for all. If everyone had at least one friend like you, there would be much more happiness in this world.

Table of Contents

Abstract

Previous research has found that atheists experience anti-atheist prejudice, which appears to be marked by a lack of trust. However, it is not known whether this prejudice manifests itself in terms of mental images of atheists, especially since atheists lack visual characteristics, they form a non-cohesive group, and their practices are not easily defined. Using a reverse correlation task (RC task), participants viewed pairs of faces that differed in noise superimposed on a base face. Participants chose which face looked more like an atheist. Each participant's chosen and non-chosen faces were averaged to create a composite "atheist" and "non-atheist" image, respectively. Independent raters rated the images on trustworthiness. In two separate studies, participants' mental images of atheists were rated as less trustworthy-looking than their mental images of non-atheists. When the task was reversed and participants were asked to choose the face that looked more like someone who believes in God and/or other deities, we found similar results; participants' mental images of non-religious individuals were rated as less trustworthy-looking than their mental images of religious individuals. Together, these results suggest that atheists may be visualized as untrustworthy. Furthermore, mental images of a group may be formed even when the group lacks salient visual characteristics.

Atheists Are Visualized as Untrustworthy

In June, 2015, as the presidential race was underway, a Gallup poll asked respondents whether they would vote for a president if he/she were of various identities. Far fewer said they would vote for an atheist (58%) than a Jewish, Hispanic, Black, female, or Catholic president (≥91% for each) (McCarthy, 2015). Other studies have supported these results by finding that atheists experience anti-atheist prejudice (Cook, Webster, & Cottrell, 2014; Gervais, 2014; Hammer, Cragun, Hwang, & Smith, 2012; Swan & Heesacker, 2012).

In three studies, we sought to add to this literature by examining participants' mental images of atheists, defined here as those who do not believe in God and/or other deities. Given that atheists form a relatively inconspicuous group that may lack group cohesiveness (Hayward, Krause, Ironson, Hill, & Emmons, 2016), and given that researchers have had difficulties condensing atheists' practices and values into one definition (Brewster, Robinson, Sandil, Esposito, & Geiger, 2014), it is uncertain whether people have similar mental images of atheists, or whether these mental images are idiosyncratic. If they do have a systematic stereotypical image of atheists, this would suggest that mental images can be formed for a group even if the group's characteristics are not salient.

Each of our studies used the reverse correlation task (RC task) to assess mental images of atheists. In the RC task, participants are presented with two faces over many trials. They are asked to choose which face fits a certain criterion, such as which face appears more like an atheist. The faces chosen by each participant are averaged together to create an overall classification image (CI) of the group, and the non-chosen images are averaged to create a CI for the non-chosen group. Independent raters then rate each participant's images on a certain criterion, such as trustworthiness (Dotsch, Wigboldus, Langner, & van Knippenberg, 2008;

Dotsch, Wigboldus, & van Knippenberg, 2012; Dunham, Srinivasan, Dotsch, & Barner, 2013; Imhoff, Dotsch, Bianchi, Banse, & Wigboldus, 2011).

This procedure has been used to assess prejudice toward various groups, such as Moroccans by Dutch participants (Dotsch et al., 2008) and Europeans and Australians by Portuguese and German participants (Imhoff et al., 2011). It has also been used to examine mental images of individuals. In Young, Ratner, and Fazio (2013), mental images of Mitt Romney differed by participants' political beliefs, with the mental images appearing more positive looking for supporters than non-supporters. However, unlike mental images of atheists, mental images of Moroccans, Europeans, Australians, and Mitt Romney may be marked by certain appearance-based stereotypes, such as the assumption that Mitt Romney tends to have more negative or positive emotional expressions.

Other studies have gone on to use the RC task to assess mental images of groups not marked by appearance-based differences. For example, Dotsch et al. (2012) found that the same task resulted in different mental images of a group based on written, not visual, descriptions of the group. That is, participants given trustworthy or criminal descriptions of certain faces exhibited mental images of the faces that were in line with the descriptions. Similarly, in Dunham et al. (2013), Indian Muslim and Indian Hindu children exhibited ingroup preferences for their respective groups when completing the same RC task. That is, for the Muslim children, their mental images of Muslims were rated more positively than their mental images of Hindus. The reverse occurred for the Hindu children; their mental images of Hindus were rated more positively than their mental images of Muslims. Given that Indian Muslims and Hindus are not marked by visual differences (Dunham et al., 2013), this suggests that people may exhibit certain

mental images of a religious group even when that group's characteristics are not visually

defined. We wondered whether these findings would carry over to mental images of atheists.

In addition to participants' mental images of atheists, we were interested in whether

atheists would demonstrate ingroup preferences such that their mental images of atheists would

appear more trustworthy-looking on the RC task than their mental images of non-atheists. Based

on the literature about ingroup and outgroup religious preferences, atheists may not show an

ingroup preference. Similar to the findings in Dunham et al. (2013) about Hindu and Muslim

children, Christian children and adults within the United States appear to exhibit implicit ingroup

preferences (Heiphetz, Spelke, & Banaji, 2013; Rowatt, Franklin, & Cotton, 2005). However,

Brenick and Killen (2014) found that although Jewish adolescents within the United States

demonstrated an overall ingroup preference, this differed by several identity-based factors, and

ingroup bias was defined based on explicit exclusion of Arab peers from various contexts. These

mixed findings about ingroup preferences suggest that atheists may or may not experience

ingroup preferences.

In three studies, we sought to examine mental images of atheists and ingroup preferences

among atheists. Using an RC task and a questionnaire in our first study, we hypothesized that

participants with more positive explicit attitudes about atheists, a lack of religious beliefs, and

less frequent engagement in religious or spiritual practices would exhibit more trustworthy-

looking mental images of atheists compared to non-atheists. In our second study, we expected to

find the same results when reversing the RC task and assessing participants' mental images of

religious and non-religious individuals, as opposed to atheists and non-atheists. That is, we

predicted that participants with more positive explicit attitudes about atheists, a lack of religious

beliefs, and less frequent engagement in religious and spiritual practices would exhibit more

trustworthy-looking mental images of non-religious individuals compared to religious individuals. In our third study, which replicated the design of the first but added an Implicit Association Test (IAT), we hypothesized that we would find the same results as in the first study, and that implicit in addition to explicit attitudes would be associated with participants' mental images of atheists versus non-atheists. For all three studies, we predicted that atheists would demonstrate an ingroup preference such that their mental images of atheists (non-religious individuals) would be rated as more trustworthy-looking than their mental images of non-atheists (religious individuals).

Study 1

Anti-atheist prejudice appears to be expressed by distrust. Gervais, Shariff, & Norenzayan (2011) theorized that it is difficult to determine the morality of atheists because their behaviors are not defined by set religious practices or values. Therefore, hypothetically, it would be more difficult to trust an atheist because one would not necessarily know whether or by what values the atheist chooses to live. Similarly, if people are religious, they may behave in a more moral or trustworthy manner due to fear of retribution from a god or gods, whereas an atheist would not have this fear.

Additional evidence supports such findings about distrust of atheists and their presumed lack of morality. Tan and Vogel (2008) found that German subjects playing an economic game tended to entrust their money with more religious strangers, especially if the participants themselves were religious. In Mudd, Najle, Ng, and Gervais (2015), even after reading scientific results depicting morality as innate and not learned, participants still viewed Christians as more moral than atheists.

Due to these findings about distrust-related prejudice toward atheists, we chose to examine the trustworthiness of participants' mental images of atheists versus non-atheists by employing an RC task. Participants first completed this RC task, and then they were given a questionnaire assessing their explicit attitudes about atheists, their religious beliefs, and their engagement in religious or spiritual practices. In the second stage of the study, an independent group of participants rated the apparent trustworthiness of participants' mental images of atheists and non-atheists. With these ratings, we were able to examine whether explicit attitudes about atheists, religious beliefs, and religious practices would predict participants' mental images of atheists versus non-atheists.

Method

Participants. Using Amazon.com's TurkPrime website, we recruited 100 participants for payment (49 females, 50 males, 1 did not report; age range=20-62 years, *M*=34.50). All participants met the following criteria: they were from the United States, as verified by their IP address, and they had at least a 95% approval rating on TurkPrime. Eleven participants who had more than 100 trials with latencies less than 300 ms were dropped from the final analyses. This resulted in 89 participants (44 females, 45 males; age range=20-62 years, *M*=34.98).

The group of independent raters, recruited via the same methods as the first, consisted of 31 participants (12 females, 19 males; age range=19-69 years, *M*=35.68). This second stage occurred several days after the first, and no participants completed both stages.

Procedure: Stage one

RC task. We created a morph of eight neutral, female faces obtained through the Park Aging Mind Laboratory Face Database (Minear & Park, 2004). Using the R package rcicr 0.3.0 (Dotsch, 2016), we superimposed random noise on a base face. The addition of noise caused

random pixels of the base face to darken and lighten, resulting in faces whose features and

complexion seemed to shift from trial to trial (see Figure 1). We generated 300 such faces, each

with 256 x 256 grayscale pixels.

Participants were told that the objective of the study was to examine factors that influence

the formation of impressions. During the task, they were presented with one of the 300 images

and its inverse and were asked to choose which face looked more like an atheist, defined as

"someone who does not believe in God." The side of the screen in which the inverse was shown

was counterbalanced, and the order of the trials was randomized for each participant. This task

lasted for 300 trials so that participants were able to choose the more atheist-appearing of the 300

images and their inverse.

Questionnaire. After the RC task, participants were given a questionnaire examining

explicit attitudes about atheists, how common and prevalent atheists are thought to be, the

participants' religious beliefs, their frequency of engagement in religious or spiritual practices,

and demographic variables.

Participants were first asked about their explicit attitudes toward atheists. Using a 1-5

scale ranging from 1=strongly agree to 5=strongly disagree, they answered questions about the

trustworthiness, competence, and pleasantness of atheists. These measures were highly

correlated ($r \geq .76$, $p < .001$). Pleasantness ratings were more strongly correlated with the

trustworthiness ratings ($r = .85$, $p < .001$) than were competence ratings ($r = .77$, $p < .001$). Because

trustworthiness and pleasantness ratings were so highly correlated, we dropped the pleasantness

ratings in a subsequent study. For consistency across the studies, we also dropped the

pleasantness responses here and created a composite variable by averaging responses to the

trustworthiness and competence questions. Due to the exclusion of pleasantness responses here

and in future studies, we will not address the pleasantness variable further. Next, participants were asked how common atheists are perceived to be, using the same scale as above. They were also asked to state the percentage of atheists (from 0 to 100) living in the United States.

Participants were then asked about their religious beliefs. Using a scale ranging from 1=strongly agree to 5=strongly disagree, they rated their agreement with the statements "I believe in God and/or other deities" and "I am an atheist." Because these measures were highly correlated ($r=-.90$, $p<.001$), the belief variable was reverse-scored, and both measures were averaged to create a composite belief measure.

Participants were then asked how often they engage in religious or spiritual practices, with the following options: Never; 1-2 times in the past year; 3-11 times in the past year; Once a month; 2-3 times a month; Once a week; Twice a week; 3-4 times a week; 5-6 times a week; and Every day. Finally, participants were asked to report their age, gender, ethnicity, race, and education.

Procedure: Stage two

Independent rating task. This stage was used to evaluate the apparent trustworthiness of participants' mental images of atheists and non-atheists. Using the R package rcicr 0.3.0 (Dotsch, 2016), we generated an average atheist and an average non-atheist classification image (CI) for each participant. To create the atheist CI, all noise patterns from each participant's images chosen as atheist in the RC task were averaged together, and this average noise pattern was superimposed on the base face. The same was done with the non-chosen images to create a non-atheist classification image (CI) for each participant (see Figure 1). Using individual CIs allowed us to run correlations between individual CI ratings and survey questions.

Independent participants rated the individual atheist and non-atheist CIs on trustworthiness. These CIs were shown in a randomized order to each participant. The trustworthiness scale ranged from 1-9, with a response of 9 being "extremely trustworthy." This resulted in 31 trustworthiness ratings for each atheist and non-atheist CI. To condense these ratings into a more understandable format, we averaged together the trustworthiness ratings for each CI. After this rating task, participants reported their age, gender, race, ethnicity, and education.

Results

Mental images of atheists appear less trustworthy than non-atheists. In Study 1, we examined whether participants' mental images of atheists would be rated by outside raters without knowledge of the task as less trustworthy-looking than their mental images of non-atheists. This systematic difference would suggest that participants have certain stereotypical mental images of atheists versus non-atheists, even though atheists are an inconspicuous group.

A paired samples t-test demonstrated that trustworthiness ratings did in fact differ significantly by whether a participant's CI was atheist (M=4.99, SD=0.58) or non-atheist (M=5.22, SD=0.59; t(88)=2.10, p=.04, Cohen's d=0.40) such that the atheist CIs were rated as significantly less trustworthy-looking than the non-atheist CIs. Since the atheist and non-atheist CI average trustworthiness ratings were significantly correlated with one another (r=-.52, p<.001), we subtracted the atheist CI ratings from the non-atheist CI ratings. A positive difference indicated that a participant's non-atheist CI was rated as more trustworthy-looking than their atheist CI. A negative difference indicated the reverse, such that a participant's atheist CI was rated as more trustworthy-looking than their non-atheist CI.

Explicit attitudes and religious beliefs predict differences in trustworthiness ratings.
As predicted, bivariate correlations revealed that explicit attitudes about atheists were
significantly correlated with the difference ratings (r=.45, p<.001). As participants found atheists
to be more trustworthy and competent, their atheist CIs tended to be rated as more trustworthy-
looking than their non-atheist CIs. Religious beliefs were also significantly correlated with the
difference ratings (r=.47, p<.001). Participants who believed less in God and/or other deities and
identified more as an atheist tended to have atheist CIs that were rated as more trustworthy-
looking than their non-atheist CIs.

Because explicit attitudes about atheists and religious beliefs were correlated (r=.53,
p<.001), we ran a linear regression to examine whether the two composite variables would
explain separate aspects of the variance in the difference ratings. In a two-predictor regression
model, explicit attitudes and religious beliefs explained 27.88% of the variance in the difference
ratings (F(2,86)=16.61, p<.001) (see Table 1). Controlling for religious beliefs, participants with
positive explicit attitudes about atheists tended to have atheist CIs rated as more trustworthy-
looking than their non-atheist CIs (β=0.28, p=.01). Controlling for explicit attitudes, less
religious participants, that is, those who believed less in a God and/or other deities and identified
more as an atheist, tended to have atheist CIs rated as more trustworthy-looking than their non-
atheist CIs (β=0.33, p=.004).

Mental images of atheists differ by frequency of practice. The fact that religious
beliefs and explicit attitudes independently predicted mental images of atheists versus non-
atheists suggests that decreased engagement in religious or spiritual practices may also be
associated with positive mental images of atheists. To test this hypothesis, the practice measure
was reduced to two categories with fairly equal cell sizes: never engage in religious or spiritual

practices (*N*=45) and engage sometimes (1-2 times in the past year to every day) in religious or spiritual practices (*N*=44). Results of an independent samples t-test indicated that those who never engaged in religious or spiritual practices (*M*=-0.14, *SD*=0.94) had significantly more positive mental images of atheists versus non-atheists than those who sometimes engaged in religious or spiritual practices (*M*=0.61, *SD*=0.96; $t(87)=3.73$, $p<.001$, Cohen's $d=0.50$) (see Figure 3). That is, those who never engaged in religious or spiritual practices had atheist CIs that were rated as more trustworthy-looking than their non-atheist CIs, whereas those who sometimes practiced exhibited mental images of non-atheists rated as more trustworthy-looking than their mental images of atheists.

Atheists show an ingroup preference. Thus far, the focus has been on whether responses on the questionnaire would predict mental images of atheists versus non-atheists. However, we were also interested in whether atheists would demonstrate an ingroup preference. To examine this, we used the identification measure to focus on those participants who identified as atheists. We reduced the identification measure to three fairly equal categories: people who strongly agree that they are atheists (*N*=19); people who somewhat agree, neither agree nor disagree, and somewhat disagree that they are atheists (*N*=34); and people who strongly disagree that they are atheists (*N*=36).

If atheists do not demonstrate an ingroup or an outgroup preference, their atheist and non-atheist CIs should be rated similarly, creating a difference score of zero. A one-sample t-test against zero showed that those who identified as atheist tended to have positive mental images of atheists versus non-atheists (*M*=-0.51, *SD*=0.94; $t(18)=2.39$, $p=.03$, Cohen's $d=0.54$), demonstrating an ingroup preference (see Figure 2). That is, atheists tended to have atheist CIs that were rated as more trustworthy-looking than their non-atheist CIs.

In addition, we ran a one-sample t-test with the group that strongly disagreed that they are atheists and the group that fell between not identifying and strongly identifying as an atheist. Those who did not have a strong preference about their identification as atheists had difference scores that did not differ significantly from zero (M=0.07, SD=0.87; t(33)=0.45, p=.66, Cohen's d=0.08), suggesting that their mental images of atheists and non-atheists were similar. However, those who strongly disagreed that they are atheists had difference scores that differed significantly from zero (M=0.77, SD=0.90; t(35)=5.12, p<.001, Cohen's d=0.87), suggesting that their mental images of atheists were rated as less trustworthy-looking than their mental images of non-atheists. Thus, those who strongly agreed and disagreed that they are atheists exhibited ingroup preferences for their respective groups.

Discussion

In Study 1, we predicted that participants' mental images of atheists would be rated as less trustworthy-looking than their mental images of non-atheists, even though atheists are not marked by any visual characteristics. Moreover, we hypothesized that participants' explicit attitudes about atheists, their religious beliefs, and their engagement in religious or spiritual practices would predict differences between the trustworthiness ratings of their non-atheist and atheist CIs. We also predicted that those identifying as atheist would demonstrate an ingroup preference.

Results showed a main effect in the RC task such that participants' mental images of atheists tended to be rated as less trustworthy-looking than their mental images of non-atheists. Moreover, participants' explicit attitudes about atheists and their religious beliefs predicted ratings of their mental images of atheists versus non-atheists. Those who had more positive explicit attitudes about atheists, who believed less in a God and/or other deities and identified

more as an atheist tended to have mental images of atheists that were rated as more trustworthy-looking than their mental images of non-atheists. This finding also applied to the frequency of participants' engagement in religious or spiritual practices such that those who never practiced had more positive mental images of atheists versus non-atheists than those who sometimes practiced.

Finally, those who strongly agreed that they are atheists demonstrated an ingroup preference such that their mental images of atheists were rated as more trustworthy-looking than their mental images of non-atheists. The opposite result was found for those who strongly disagreed that they are atheists such that their mental images of non-atheists were rated as more trustworthy-looking than their mental images of atheists. Study 1 provides initial evidence that explicit attitudes about atheists, religious beliefs, and engagement in religious or spiritual practices may relate to mental images of atheists versus non-atheists and that people may have certain stereotypical mental images of atheists.

Study 2

It is possible that no matter the group, participants completing an RC task tend to systematically choose a more negative-looking face to represent the group. Study 2 addressed this concern by reversing the RC task in Study 1, such that participants were asked to choose the more religious-looking face (i.e., someone who believes in God and/or other deities). We hypothesized that asking participants to choose the more religious-looking face would call upon their stereotypes about someone who believes in God and/or other deities, which is the opposite of an atheist as defined here. If participants' religious CIs were still rated as more trustworthy-looking than their non-religious CIs, this would suggest that the RC task examines participants' true mental images of a group, no matter the valence of these mental images. This would allow

us to conclude that our RC task in Study 1 was truly assessing participants' mental images of atheists.

Method

   Participants. We used the same method for recruiting participants as in Study 1. This resulted in 104 participants with a similar gender and age distribution as in Study 1 (43 females, 59 males, 2 did not report; age range=19-65 years, *M*=36.05). Twelve subjects who had more than 100 trials with latencies less than 300 ms were dropped from the final analyses, resulting in 92 participants (39 females, 52 males, 1 did not report; age range=19-65 years, *M*=36.66).

   The group of independent raters, recruited via the same methods as in Study 1, consisted of 29 participants (13 females, 16 males; age range=20-59 years, *M*=35.62). These raters completed their task a day after the first group, and no participants completed both stages.

   Procedure

   Stage one. Participants completed the same RC task and questionnaire as in Study 1 except for the following difference: In the RC task, they were asked to choose the face that appeared "more like someone who believes in God." This resulted in a religious CI and a non-religious CI for each participant (see Figure 4).

   Stage two. Independent raters completed the same task as in Study 1, rating each participant's religious and non-religious CIs on the same trustworthiness scale and filling out the same demographic questionnaire.

Results

   Participants have more positive mental images of religious individuals. In this study, we examined whether the RC task always results in negative mental images of a group, or whether the task does in fact pick up on differences in participants' mental images of said group.

We predicted that our religious RC task would result in the same findings as our atheist RC task such that participants' religious CIs would be rated as more trustworthy-looking than their non-religious CIs.

A paired-samples t test demonstrated that this was the case. There was a significant difference between participants' religious CI trustworthiness ratings (M=5.00, SD=0.56) and their non-religious CI trustworthiness ratings (M=4.40, SD=0.49), such that their religious CIs were rated as more trustworthy-looking than their non-religious CIs ($t(91)$=6.32, p<.001, Cohen's d=1.17). Because the CIs were significantly correlated (r=-.52, p<.001), we created a difference rating similar to that in Study 1 by subtracting participants' non-religious CI trustworthiness ratings from their religious CI trustworthiness ratings. A positive rating indicated that a participant had a religious CI that was more trustworthy-looking than their non-religious CI. A negative rating indicated that a participant had a non-religious CI that was more trustworthy-looking than their religious CI.

Correlations between difference ratings and responses on questionnaire. Unlike in Study 1, and contrary to our hypotheses, there were no significant correlations between the difference ratings of participants' non-religious and religious CIs and how trustworthy, competent, or pleasant participants found atheists to be. Nor were there significant correlations between participants' trustworthiness difference ratings and their identification as an atheist or their religious beliefs.

Positive mental images of religious individuals regardless of practice. In Study 1, participants who sometimes engaged in religious or spiritual practices tended to have non-atheist CIs rated as more trustworthy-looking than their atheist CIs, whereas those who never practiced tended to have atheist CIs rated as more trustworthy-looking than their non-atheist CIs. Similar

to Study 1, participants who sometimes practiced had religious CIs that were rated as more trustworthy-looking than their non-religious CIs, and the difference between these ratings differed significantly from zero (N=53, M=0.66, SD=0.85; t(52)=5.63, p<.001, Cohen's d=0.78). However, contrary to Study 1, those who never practiced also had religious CIs rated as more trustworthy-looking than their non-religious CIs, and this difference differed significantly from zero (N=39, M=0.53, SD=1.00; t(38)=3.28, p<.001, Cohen's d=0.53). The difference ratings for those who never and those who sometimes practiced did not differ significantly from one another (t(90)=0.69, p=.49, Cohen's d=0.14). No matter their engagement in religious or spiritual practices, participants in this study tended to have religious CIs rated as more trustworthy-looking than their non-religious CIs.

Preference for religious individuals regardless of atheist identification. In Study 1, atheist-identifying participants demonstrated an ingroup preference such that their atheist CIs were rated as more trustworthy-looking than their non-atheist CIs, and this difference in ratings differed significantly from zero. Contrary to our hypotheses, we found different results in Study 2.

To examine ingroup preferences, we condensed responses from the atheist identification question into the same three groups as in Study 1 (i.e., strongly agree; somewhat agree, neither agree nor disagree, somewhat disagree; strongly disagree). The means for each group did not differ significantly from one another (strongly agree: N=15, M=0.72, SD=0.97; somewhat agree, neither agree nor disagree, somewhat disagree: N=37, M=0.55, SD=0.90; strongly disagree: N=40, M=0.61, SD=0.93; F(2,89)=0.19, p=.83, η^2=0.00), and the first group's mean did not differ significantly from the third (t(53)=0.39, p=.70, Cohen's d=0.12).

However, the mean difference rating for each group was positive, demonstrating a preference for religious faces. Each of these difference ratings differed significantly from zero ($t \geq 2.88$, $p \leq .01$, Cohen's $d = 0.74$). Unlike in Study 1, no matter their atheist identification, participants in this study tended to have more trustworthy-looking mental images of religious versus non-religious individuals. This suggests that non-religious participants were exhibiting an outgroup preference for religious individuals.

Discussion

In line with our hypotheses, Study 2 demonstrated that participants' mental images of religious individuals were rated as significantly more trustworthy-looking than their mental images of non-religious individuals. This suggests that the RC effect seen in Study 1 was not due to the fact that participants always show a negative mental image of the category being assessed in the RC task. Our finding is supported by Dotsch et al. (2012), who found that even when using the same RC task images, participants' mental images of a group changed according to the descriptions they were given about the group.

However, contrary to our hypotheses, there was no relationship between participants' mental images of religious versus non-religious individuals and their explicit attitudes about atheists, religious beliefs, and frequency of engagement in religious or spiritual practices. One reason for this lack of a relationship may be because identifying as non-religious is not the same as identifying as an atheist. Baker and Smith (2009) examined the spirituality, political beliefs, and religious attitudes of three types of religious nonbelievers: atheists, agnostics (i.e., those who do not know whether or not God exists), and unchurched believers (i.e., those who believe in a higher being but do not identify with a religion). They found various differences between these groups. For example, roughly 60% of the agnostics in their sample identified with a certain

religion, versus only 20% of atheists, whereas the unchurched believers did not identify with a certain religion but were more likely than either agnostics or atheists to believe without a doubt in a higher power. Since our RC task assessed mental images of religious people, then the opposite of this group, non-religious individuals, may not be the same as atheist individuals. Moreover, the inverse of participants' mental images of atheists was non-atheist individuals, which may not be the same as religious individuals. Therefore, if our RC task in this study was not in fact assessing mental images of atheists, then this may explain the fact that participants' explicit attitudes about atheists and identification as an atheist were not associated with their mental images of religious versus non-religious individuals.

The consistent preference for religious individuals regardless of identification suggests that perhaps non-religious participants were exhibiting an outgroup preference toward religious individuals. This is supported by McCullough, Swartwout, Shaver, Carter, and Sosis (2016), who found that trustworthiness ratings were higher for people wearing a Christian religious symbol than those not wearing the religious symbol. In three out of four of their studies, this main effect did not differ based on the participants' religious affiliation.

Study 3

In Study 3, we sought to replicate the results of Study 1 using a lab sample while also assessing whether the RC task measures explicit and implicit attitudes. In order to examine mental images of atheists versus non-atheists and explicit attitudes, we used a similar design in Study 3 as in Study 1 when conducting the RC task and questionnaire, and we included a form of the Implicit Association Test (IAT) to measure implicit attitudes. The IAT has previously been used to study religious preferences and prejudice (Dunham et al., 2013; Rowatt et al., 2005) and

even attitudes toward atheists (Gervais, 2011; Gervais et al., 2011). The RC task was run before

the IAT so as not to bias results of the RC task.

Method

        Participants. Ninety-one Oberlin College undergraduates (65 female, 22 male, 3

androgynous/fluid, 1 didn't report) participated in the first stage of this study either for course

credit or payment. Five participants were dropped for differing reasons. One participant in the

RC task had more than 100 trials with reaction times less than 300 ms. For the pre-IAT written

debate, one participant was dropped due to confusing the identities of the two women used in the

task. Finally, upon examining the IAT data, the number of incorrect trials for three participants

exceeded two standard deviations plus the mean number of incorrect trials for all participants.

        Seventy-five Oberlin College undergraduates (42 female, 32 male, 1 androgynous/fluid)

rated the CIs from the first stage of this study as part of an online prescreen for an introductory

psychology class. None had participated the previous semester in the RC task.

        Procedure: Stage one

        Questionnaire. Before coming into the lab, participants completed a similar

questionnaire as that used in the first study. It assessed explicit attitudes about atheists, religious

beliefs, engagement in religious or spiritual practices and demographics. Most of those

completing the study for credit answered this questionnaire as part of a larger on-line prescreen.

Those who did not take the prescreen were given a similar on-line survey with fewer extraneous

questions. They were asked to complete this survey preferably at least a day before coming into

the lab.

        To assess explicit attitudes about atheists, the same competence and trustworthiness

questions were used as in Studies 1 and 2. Due to an error in the on-line survey given to

participants taking the study for credit, the question assessing engagement in religious or

spiritual practices condensed the final options of "Once a week" through "Every day" into "Once

a week." We were still able to compare responses to this question with those in prior studies

because people who practiced more than once a week likely still chose the condensed "Once a

week" option in this study.

   RC task. Upon entering the lab, participants were told that the purpose of the study was

to examine factors that influence impression formation. They then completed the same RC task

as that used in Study 1.

   Familiarization task. Participants were then given a familiarization task and an IAT

modeled after that employed by Gervais (2011), which is based on procedures used in Park and

Schaller (2005). The familiarization task was designed to help participants become familiar with

two women, each of whose images appeared on the IAT. Specifically, participants were asked to

study three headshots of "Julie," who was always religious, and three of "Vanessa," who was

always an atheist. The women appeared similar in age, were discernable from one another, were

matched in race (i.e., White), and the faces were counterbalanced between participants in terms

of who was Julie or Vanessa. Participants were then asked to take the perspective of each woman

to answer three questions about the women's belief in God and/or other deities and religious

practices (i.e., prayer and church attendance). They then wrote a religious debate between Julie

and Vanessa.

   Implicit association test (IAT). Finally, participants completed an IAT in which pictures

of Julie and Vanessa were paired with either trust- (i.e., truthful, credible, dependable, honest,

upright, and trustworthy) or distrust-related words (i.e., sneaky, lying, devious, dishonest,

deceitful, and shady). On some trials, participants were told to press the same key when pictures

of Julie and trust-related words appeared and to use another key when pictures of Vanessa and distrust-related words appeared. On other trials, the reverse occurred, and Julie was categorized with distrust-related words and Vanessa with trust-related words. We counterbalanced which pictures received which names and which category of descriptors first (i.e., Julie or Vanessa; trust or distrust). If a participant pressed the wrong key, they were required to correct their mistake.

The IAT is based on the finding that those who have stronger associations between two categories, such as religion and trust, will more quickly assign a picture or label to a group when the two categories are paired with one another (Greenwald, Nosek, & Banaji, 2003). Thus, based on Gervais (2011), those who more quickly linked Julie-trust and Vanessa-distrust were coded with positive scores suggesting a stronger association between religious people and trust. Participants who had a stronger association between atheists and trust were coded as having negative scores. Such scores were calculated according to the procedures described by Greenwald et al. (2003) where an error penalty is defined as the correction of mistakes by participants on incorrect trials.

Procedure: Stage two. The same independent rating task was conducted as in Study 1.

Results

Study 3 lab versus Study 1 online sample. Participants' attitudes about the trustworthiness and competence of atheists, their belief in God and/or other deities, their atheist identification, and their engagement in religious or spiritual practices did not differ between the lab and the first online study's sample (see Table 2). However, inspection of the distributions of participants' responses to the trustworthiness and competence questions demonstrated that on these questions, most participants in the lab sample only gave responses that ranged from very

trustworthy/competent to neither trustworthy/competent nor untrustworthy/incompetent. This differed from the first online sample. For example, 1.16% of participants in the lab sample found atheists to be somewhat untrustworthy versus 14.61% of participants in the online sample, and no participants found atheists to be very untrustworthy in the lab sample versus 2.25% in the online sample. Moreover, on the trustworthiness question, the modal response for the lab sample was "neither trustworthy nor untrustworthy" (48.84% of participants), whereas the bimodal response for the online sample was "very trustworthy" (29.21%) and "neither trustworthy nor untrustworthy" (29.21%). Similarly, the modal response for the competence question was "neither competent nor incompetent" (41.18%) for the lab sample versus "very competent" (41.57%) for the online sample. Unlike the distributions of explicit attitudes about atheists, the distributions of the belief, atheist identification, and practice questions for the lab sample were more evenly distributed than for the online sample (see Tables 3, 4, and 5).

Non-atheist CIs rated more trustworthy-looking than atheist CIs. Similar to Study 1, we averaged the trustworthiness ratings for each atheist and non-atheist CI. In line with our hypotheses, there was a significant difference between the non-atheist (M=5.10, SD=0.42) and atheist CIs (M=4.80, SD=0.41) such that the non-atheist CI was rated as significantly more trustworthy-looking than the atheist CI (t(85)=3.73, p<.001, Cohen's d=0.72). Due to the significant correlation between the non-atheist and atheist CIs (r=-.65, p<.001), we subtracted the atheist CI trustworthiness ratings from the non-atheist CI trustworthiness ratings. As before, a positive score for participants indicated that their non-atheist faces were rated as more trustworthy-looking than their atheist faces. A negative score indicated that their atheist faces were rated as more trustworthy-looking than their non-atheist faces.

Explicit attitudes, beliefs, and practice did not predict mental images. Unlike in Study 1 and contrary to our hypotheses, explicit attitudes about atheists, religious beliefs, and atheist identification did not correlate significantly with the differences in trustworthiness ratings ($r \leq .19$, $p \geq .07$). However, the correlation between the trustworthiness measure and the difference between trustworthiness ratings of participants' atheist versus non-atheist CIs was marginally significant ($r = .19$, $p = .07$). Moreover, because the engagement in religious or spiritual practices data was skewed, we combined the data into the same two categories as in Studies 1 and 2: never ($N = 21$, $M = 0.17$, $SD = 0.77$) and sometimes ($N = 65$, $M = 0.35$, $SD = 0.76$). There was no significant difference in trustworthiness ratings between these two groups ($t(84) = 0.92$, $p = .36$, Cohen's $d = 0.24$).

Atheists do not exhibit ingroup preferences. We condensed the atheist identification responses into the following three categories: strongly agree ($N = 10$); somewhat agree, neither agree nor disagree, somewhat disagree ($N = 58$); and strongly disagree ($N = 18$). Unlike in Study 1, where atheists showed an ingroup preference, here, those who strongly agreed that they are atheists had non-atheist CIs that were rated as more trustworthy-looking than their atheist CIs ($M = 0.43$, $SD = 0.94$). This suggests that atheists in this study were showing an outgroup preference for non-atheists. However, perhaps due to the small sample size, this difference between the CI trustworthiness ratings for those who strongly agreed that they are atheists did not differ significantly from zero ($t(9) = 1.45$, $p = .18$, Cohen's $d = 0.46$).

In Study 1, those who did not have a strong opinion about their identification as atheists had difference ratings that did not differ significantly from zero. However, here, those who did not have a strong opinion about their identification as atheists had non-atheist CIs that were rated as more trustworthy-looking than their atheist CIs, and this difference differed significantly from

zero (*M*=0.22, *SD*=0.76; *t*(57)=2.22, *p*=.03, Cohen's *d*=0.29). Similar to Study 1, this same result was found for the group that strongly disagreed that they are atheists (*M*=0.52, *SD*=0.64; *t*(17)=3.45, *p*=.003, Cohen's *d*=0.81), and this group exhibited the most positive difference among all the groups. Thus, it appears that in this study, atheists exhibited a lack of a preference for atheists and non-atheists, whereas those without a strong opinion as to their atheist identification and those who strongly disagreed that they are atheists both demonstrated a preference for non-atheists.

Implicit attitudes did not predict mental images. Although our IAT was modeled off of that employed by Gervais (2011), we did not find the same results. This was contrary to our hypotheses. Unlike the significant association between atheism and distrust in their study, a one-sample t-test indicated that our participants did not exhibit the same significant association between religious/atheist and trust/distrust (*D* = 0.04, *SD* = 0.52; *t*(85)=.69, *p*=.49, Cohen's *d*=0.08). Atheists also did not demonstrate this significant association (*D*=0.00, *SD*=0.60; *t*(9)=0.01, *p*=.99, Cohen's *d*=0.00). Moreover, there was no significant correlation between participants' D-scores and their difference ratings (*r*=-.10, *p*=.37), a result that was also found for those identifying as atheist (*r*=-.14, *p*=.70). Participants' implicit attitudes about atheists did not predict their mental images of atheists versus non-atheists, even when looking specifically at those who strongly agreed that they are atheists.

Discussion

Similar to findings in Studies 1 and 2 and in line with our hypotheses, participants' mental images of non-atheists were rated as more trustworthy-looking than their mental images of atheists. Unlike in Study 1 and contrary to our hypotheses, there was no correlation between mental images of non-atheists versus atheists and explicit attitudes about atheists, religious

beliefs, and engagement in religious or spiritual practices, nor was there a correlation with implicit attitudes about atheists. However, there was a marginally significant correlation between participants' explicit attitudes about the trustworthiness of atheists and their mental images of non-atheists versus atheists. Since participants' explicit attitudes about atheists most closely mirrored how we assessed mental images of atheists and non-atheists—by asking independent raters to rate the trustworthiness of participants' CIs—this marginally significant correlation suggests that aspects of the sample may have led to the non-significant results we found in this study.

One reason we might have found non-significant correlations between explicit attitudes and mental images of atheists is due to the lack of variability in the behavioral data in our lab sample. Participants rarely gave negative responses to the trustworthiness and competence questions, and responses were clustered at "neither trustworthy/competent nor untrustworthy/incompetent." It is possible that this lack of variability was due at least partially to the prevalence of atheists at the college participants in this study were attending. In Gervais (2011), students reading an article in which the percentage of atheists at their university was high (≈50%) explicitly rated atheists as more trustworthy on a composite measure than did those reading an article in which the percentage of atheists was believably low (≈5%). Like the findings in the more prevalent condition, responses to the trustworthiness question in our study were almost all positive or neutral.

Importantly, in Gervais (2011), implicit attitudes about atheists did not differ significantly from zero for those in the prevalence condition. Oberlin College, the college attended by the students in the lab sample, has a culture of secularity and respect for those in marginalized communities, such as atheists. Perhaps a prevalence condition was induced in the

lab sample, resulting in our non-significant findings. This is especially plausible for the IAT results given that participants completed the RC task, in which they were reminded of atheists over 300 trials, before the IAT. Whether such a prevalence condition could influence results of an RC task should be explored in future studies.

It is also possible that the results of this study differed from those in Study 1 because of the demographics of the sample. In this study, all participants were attending college, whereas in Study 1, the average age of participants was around 35 years old. The current generation's young adults tend to be less religious than older adults (Pew Forum on Religion and Public Life, 2012), which may account for some of the differences between the two studies. On the other hand, the percentage of females in Study 1 was 49.49%, versus 72.22% in Study 3. Female college students tend to be less secular than men and more spiritual (Kosmin & Keysar, 2013). It is unknown whether the tendency of secularity among younger adults counteracted this propensity for spirituality by women'. However, it is possible that the demographics of the lab sample and their associated beliefs, in addition to an induced prevalence condition, may have resulted in findings that diverged from Study 1.

General Discussion

We hypothesized that mental images of atheists would appear less trustworthy even though this group lacks visual identifiers. In Studies 1 and 3, we found that participants' mental images of atheists and non-atheists differed significantly such that participants' mental images of non-atheists tended to appear more trustworthy-looking than their mental images of atheists. This effect held in Study 2. In this study, we assessed whether participants systematically choose a more negative-looking face when completing an RC task, no matter the group. We reversed the task from Study 1 and asked participants to choose the face that looked more like someone who

believes in God and/or other deities. Participants still had mental images of religious individuals
that were rated as more trustworthy-looking than their mental images of non-religious
individuals.

Contrary to our hypotheses, findings were mixed about whether explicit attitudes about
atheists, religious beliefs, and frequency of engagement in religious or spiritual practices
predicted the trustworthiness of mental images of atheists. Only in Study 1 did these measures
predict participants' mental images of atheists versus non-atheists. Moreover, in Study 3, implicit
attitudes about atheists did not relate to differences in mental images of atheists versus non-
atheists. Perhaps the RC task is more sensitive at picking up on prejudice than either the explicit
or implicit measures that we used. Supporting this conjecture are mixed results within the RC
task literature about whether this task measures explicit attitudes, implicit attitudes, or both.

Previous studies have demonstrated that results of the RC task are related to explicit
attitudes about the group being assessed. For example, Dotsch et al. (2012) found that explicit
attitudes correlated with the ratings of participants' mental images of criminal and trustworthy
individuals. Young et al. (2013) found that those more supportive of Mitt Romney and more
strongly Republican or Conservative had more trustworthy-looking mental images of Romney.
Similarly, those who stated that they either would vote or had voted for Romney had more
trustworthy-looking mental images of Romney than did those who would vote or had voted for
Barack Obama. Although explicit attitudes did predict mental images of Romney, it may be less
controversial to state one's opinions about a political candidate than it is to state attitudes about a
religious group. Perhaps the lack of correlations between mental images of atheists versus non-
atheists and explicit attitudes (i.e., trustworthiness and competence of atheists) in Study 3 were
related to social desirability bias, such that participants did not want to state their true explicit

beliefs about atheists. This is supported by the large percentage of responses to the "neither trustworthy/competent nor untrustworthy/incompetent" option in Study 3.

Other studies using the RC task to examine mental images of various groups have found that implicit but not explicit attitudes relate to these mental images, whereas others have found that implicit attitudes are not associated with these mental images. For example, although Dotsch et al. (2008) did not give findings about the correlations between participants' mental images of Moroccans and their explicit attitudes about said group, perhaps due to word constraints, Dotsch et al. (2012) re-examined the data from Dotsch et al. (2008). They only found correlations between implicit attitudes and participants' mental images of Moroccans, but not between explicit attitudes and these mental images. Conversely, in Dunham et al. (2013), children's mental images of Brahmins versus Dalits, two castes in India, did not differ based on their implicit attitudes about the castes. Both of these studies used a form of the IAT, which suggests that implicit attitudes may not always be associated with participants' mental images of a group. Moreover, the findings from Dotsch et al. (2008) suggest that explicit attitudes may also not always be associated with participants' mental images.

As for ingroup preferences among atheists, findings in our study were mixed. In Study 1, atheists demonstrated ingroup preferences, but this finding did not hold for Study 3. In Study 3, atheists did not demonstrate either an ingroup preference for atheists or non-atheists, both when analyzing their trustworthiness difference ratings compared to zero and when examining their implicit attitudes about atheists.

Various studies using explicit measures of ingroup/outgroup preferences have found that atheists may actually exhibit outgroup preferences, which may explain the mixed findings between Studies 1 and 3. For example, in Gervais (2014), those identifying as atheist and those

who said they did not believe in God found atheists to be more immoral than such marginalized groups as Muslims, Jews, Blacks, and men identifying as homosexual. Similarly, in Mudd et al. (2015), atheists rated an atheist as more likely than a Christian to act immorally, even when the atheists were primed with a description of morality as an innate, not a learned, characteristic.

Moreover, in Study 2, atheists exhibited mental images of religious individuals that were rated as more trustworthy-looking than their mental images of non-religious individuals. This suggests that perhaps the atheists in Study 2 had an outgroup preference for religious individuals. However, due to the fact that atheists and religious individuals are not exact opposites of one another (Baker & Smith, 2009), it is possible that a preference for religious individuals is not the same as a lack of preference for atheists. Due to the mixed findings in Studies 1 and 3 about ingroup preferences, the findings in Gervais (2014) and Mudd et al. (2015) about atheists' explicit attitudes toward their own group, and atheists' preference for religious individuals in Study 3, it would be useful for future studies employing the RC task to assess ingroup preferences among atheists using a sample of atheist-identifying participants.

In conclusion, across three samples, two online samples from the United States and one constrained to a small liberal arts college in the Midwest, and with participants of varying ages and gender makeups, we still found the same effect: mental images of atheists were rated as untrustworthy. This held even when the RC task was reversed and participants were asked to choose the more religious face. This initial finding suggests that it is possible to form mental images of a group even if that group may not demonstrate group cohesiveness (Hayward et al., 2016), has no salient, visual characteristics, and has no well-defined practices or values (Brewster et al., 2014).

References

Baker, J. O. B., & Smith, B. (2009). None too simple: Examining issues of religious nonbelief and nonbelonging in the United States. *Journal for the Scientific Study of Religion, 48*, 719-733.

Brenick, A., & Killen, M. (2014). Moral judgments about Jewish-Arab intergroup exclusion: The role of cultural identity and contact. *Developmental Psychology, 50*, 86-99.

Brewster, M. E., Robinson, M. A., Sandil, R., Esposito, J., & Geiger, E. (2014). Arrantly absent: Atheism in psychological science from 2001 to 2012. *The Counseling Psychologist, 42,* 628-663.

Cook, C. L., Webster, G. D., & Cottrell, C. A. (2014). No good without God: Antiatheist prejudice as a function of threats to morals and values. *Psychology of Religion and Spirituality, 7,* 217-226.

Dotsch, R. (2016). rcicr: Reverse correlation image classification toolbox. R package version 0.3.4.1.

Dotsch, R., Wigboldus, D. H. J., Langner, O., & van Knippenberg, A. (2008). Ethnic out-group faces are biased in the prejudiced mind. *Psychological Science, 19,* 978-980.

Dotsch, R., Wigboldus, D. H. J., & van Knippenberg, A. (2011). Biased allocation of faces to social categories. *Journal of Personality and Social Psychology, 100*, 999-1014.

Dotsch, R., Wigboldus, D. H. J., & van Knippenberg, A. (2012). Behavioral information biases the expected facial appearance of members of novel groups. *European Journal of Social Psychology, 43,* 116-125.

Dunham, Y., Srinivasan, M., Dotsch, R., & Barner, D. (2013). Religion insulates ingroup

evaluations: The development of intergroup attitudes in India. *Developmental Science, 17,* 1-9.

Gervais, W. M. (2011). Finding the faithless: Perceived atheist prevalence reduces anti-atheist prejudice. *Personality and Social Psychology Bulletin, 37,* 543-556.

Gervais, W. M. (2014). Everything is permitted? People intuitively judge immorality as representative of atheists. *PLOS ONE, 9,* 1-9.

Gervais, W. M., Shariff, A. F., & Norenzayan, A. (2011). Do you believe in atheists? Distrust is central to anti-atheist prejudice. *Journal of Personality and Social Psychology, 101*, 1189-1206.

Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the Implicit Association Test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology, 85*, 197-216.

Greenwald, A. G., Poehlman, T. A., Uhlmann, E. L., & Banaji, M. R. (2009). Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology, 97,* 17-41.

Hailey, S. E., & Olson, K. R. (2013). A social psychologist's guide to the development of racial attitudes. *Social and Personality Compass, 7*, 457-469.

Hammer, J. H., Cragun, R. T., Hwang, K., & Smith, J. M. (2012). Forms, frequency, and correlates of perceived anti-atheist discrimination. *Secularism and Nonreligion, 1,* 43–67.

Hayward, R. D., Krause, N., Ironson, G., Hill, P. C., & Emmons, R. (2016). Health and well-being among the non-religious: Atheists, agnostics, and no preference compared with religious group members. *Journal of Religion and Health, 3*, 1024-1037.

Heiphetz, L., Spelke, E. S., & Banaji, M. R. (2013). Patterns of implicit and explicit attitudes in children and adults: Tests in the domain of religion. *Journal of Experimental Psychology: General, 142*, 864-879.

Imhoff, R., Dotsch, R., Bianchi, M., Banse, R., & Wigboldus, D. H. J. (2011). Facing Europe: Visualizing spontaneous in-group projection. *Psychological Science, 22,* 1-8.

Kosmin, B. A., & Keysar, A. (2013). *American Religious Identification Survey*. Hartford, CT: Trinity College.

McCarthy, J. (2015, June 22). In U.S., socialist presidential candidates least appealing. *Gallup*. Retrieved from: http://www.gallup.com/poll/183713/socialist-presidential-candidates-least-appealing.aspx.

McCullough, M. E., Swartwout, P., Shaver, J. H., Carter, E. C., & Sosis, R. (2016). Christian religious badges instill trust in Christian and non-Christian perceivers. *Psychology of Religion and Spirituality, 8*, 149-163.

Minear, M. & Park, D.C. (2004). A lifespan database of adult facial stimuli. *Behavior Research Methods, Instruments, & Computers, 36,* 630-633.

Mudd, T. L., Najle, M. B., Ng, B. K. L., & Gervais, W. (2015). The roots of right and wrong: Do concepts of innate morality reduce intuitive associations of immorality with atheism? *Secularism & Nonreligion, 4*, 1-6.

Park, J. H., & Schaller, M. (2005). Does attitude similarity serve as a heuristic cue for kinship? Evidence of an implicit cognitive association. *Evolution and Human Behavior, 26*, 158-170.

Pew Forum on Religion and Public Life. (2012). "*Nones" on the rise: One-in-five adults have no religious affiliation*. Washington, DC: Pew Research Center.

Rowatt, W. C., Franklin, L. M., & Cotton, M. (2005). Patterns and personality correlates of implicit and explicit attitudes toward Christians and Muslims. *Journal for the Scientific Study of Religion, 44,* 29-43.

Swan, L. K., & Heesacker, M. (2012). Anti-atheist bias in the United States: Testing two critical assumptions. *Secularism and Nonreligion, 1,* 32–42.

Tan, J. H. W., & Vogel, C. (2008). Religion and trust: An experimental study. *Journal of Economic Psychology*, *29*, 832-848.

Young, A. I., Ratner, K. G., & Fazio, R. H. (2013). Political attitudes bias the mental representation of a presidential candidate's face. *Psychological Science, 24*, 503-510.

Appendix

Figures
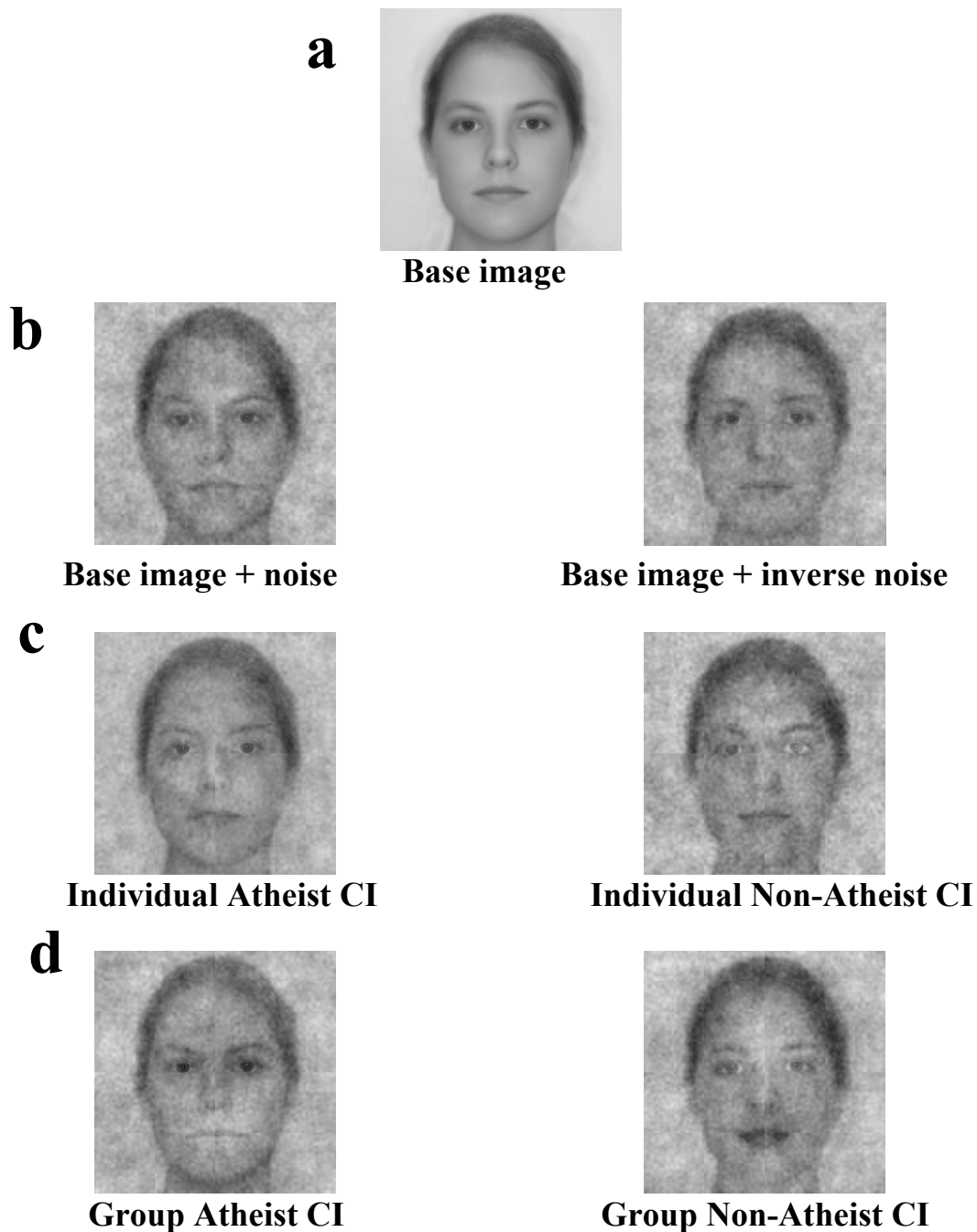
Fig. 1 (a) The base image. (b) Example stimuli for one trial. During each trial, participants were asked to choose which face looks more like an atheist. (c) Individual classification images (CIs) created by averaging each participant's chosen and non-chosen faces from the 300 trials. These CIs come from separate participants whose atheist or non-atheist face ratings fell at the median of all participants' ratings. (d) Group atheist and non-atheist faces created by averaging all of the participants' atheist or non-atheist CIs.
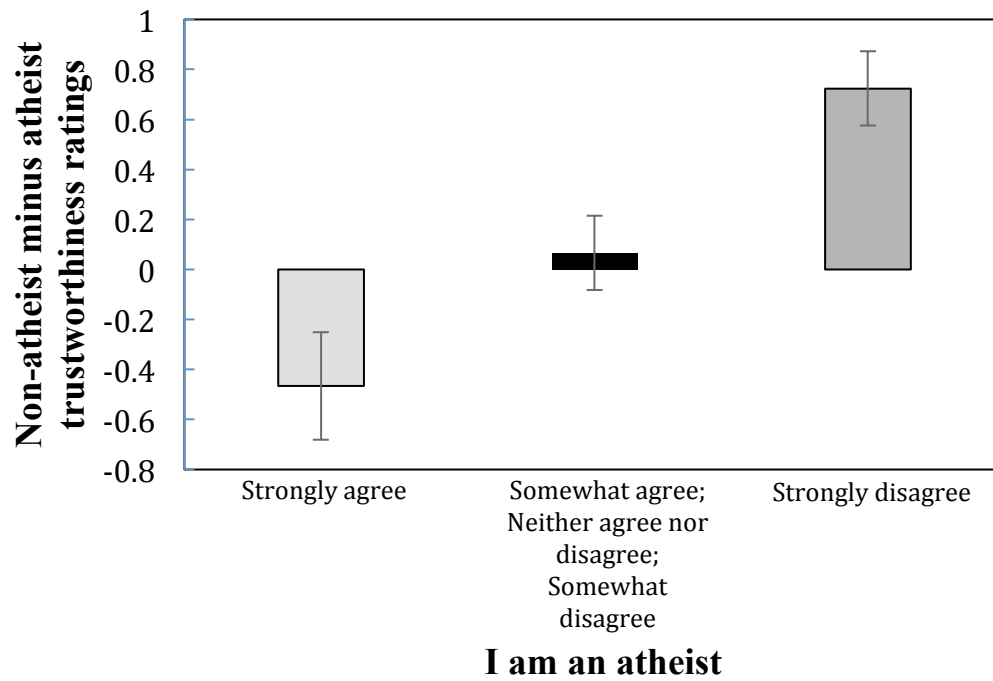
Fig. 2. Study 1: Difference in trustworthiness ratings between non-atheist and atheist CIs for those who strongly identify as an atheist, who do not have a strong preference either way, and those who strongly disagree that they are atheists.
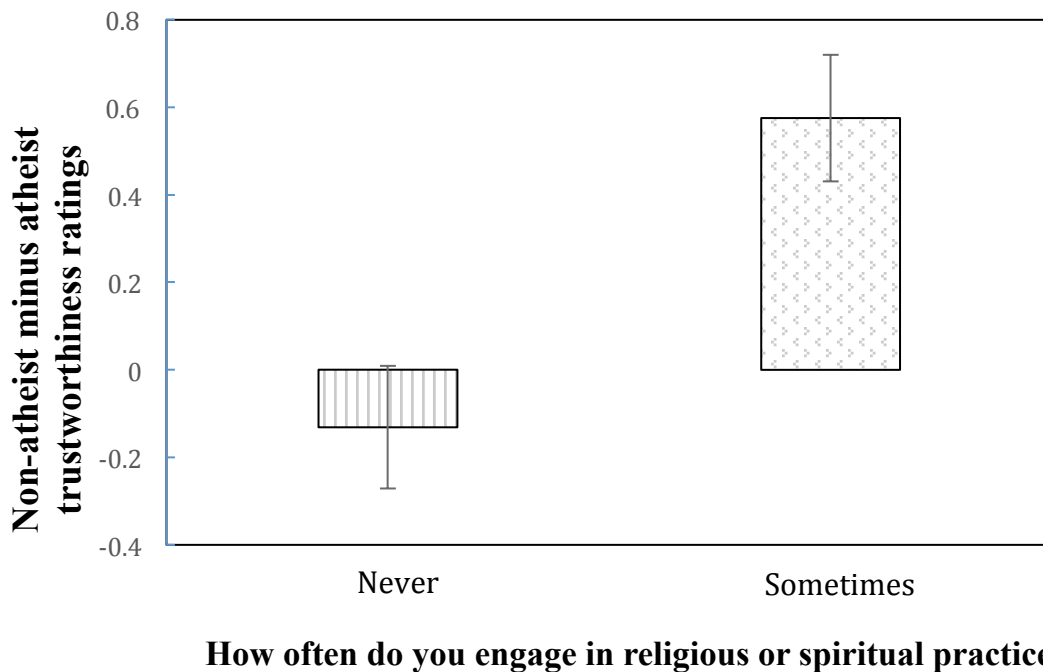
Fig. 3. Study 1: Difference in trustworthiness ratings between non-atheist and atheist CIs for those who never engage in religious or spiritual practices and those who sometimes engage in religious or spiritual practices (between 1-2 times in the past year and every day).

Group Non-Religious CI   **Group Religious CI**

Fig. 4. Group religious and non-religious faces created by averaging all of the participants' composite religious or non-religious images.

Tables

Variables	B	Std. Error	Beta	Sig.
Explicit Attitudes (composite)	0.29	0.11	0.28	0.012
Religious Beliefs (composite)	0.20	0.07	0.33	0.004

Note. $R^2=0.28$, $F(2,86)=16.16$, $(p<.001)$

Table 1. Study 1: Table depicting the results of the two-predictor regression model with explicit attitudes about atheists (trustworthiness & competence) and religious beliefs (belief in God and/or other deities & atheist identification) predicting the difference in trustworthiness ratings between non-atheist and atheist CIs.

Questions (Sample)	*M*	*SD*	*t*(df)
Trustworthiness of atheists (online)	2.36	1.12	1.05(173)
Trustworthiness of atheists (lab)	2.20	0.91	
Competence of atheists (online)	1.92	0.98	1.04(172)
Competence of atheists (lab)	2.07	0.91	
Belief in a God and/or other deities (online)	2.90	1.72	0.75(173)
Belief in a God and/or other deities (lab)	3.07	1.27	
Atheist identification (online)	3.39	1.64	1.17(173)
Atheist identification (lab)	3.13	1.34	
Engagement in religious or spiritual practices (online)	2.55	2.02	0.57(173)
Engagement in religious or spiritual practices (lab)	2.71	1.61	

Note. N=89 for Study 1 (online sample), N=86 for Study 3 (lab sample), p>.05 when comparing the means between the samples for each question. For Study 3, one participant did not answer the competence question. The engagement in religious or spiritual practices responses were combined in Study 1 to mirror those in Study 3, with responses of more than once a week being condensed into the variable "once a week."

Table 2. Mean questionnaire responses for the listed survey questions for Studies 1 and 3, the online and lab samples respectively.

Response (Sample)	Percentage
Strongly agree (online)	33.71%
Strongly agree (lab)	10.47%
Somewhat agree (online)	17.98%
Somewhat agree (lab)	30.23%
Neither agree nor disagree (online)	5.62%
Neither agree nor disagree (lab)	16.28%
Somewhat disagree (online)	10.11%
Somewhat disagree (lab)	27.91%
Strongly disagree (online)	32.58%
Strongly disagree (lab)	15.12%

Note. N=89 for Study 1 (online sample), N=86 for Study 3 (lab sample).

Table 3. Studies 1 (online sample) and 3 (lab sample): Percentage of participants responding to each option on the question, "On a scale of 1-5, please rate your agreement with the following statement: I believe in God and/or other deities."

Response (Sample)	Percentage
Strongly agree (online)	21.35%
Strongly agree (lab)	11.63%
Somewhat agree (online)	15.73%
Somewhat agree (lab)	26.74%
Neither agree nor disagree (online)	5.62%
Neither agree nor disagree (lab)	19.77%
Somewhat disagree (online)	16.85%
Somewhat disagree (lab)	20.93%
Strongly disagree (online)	40.45%
Strongly disagree (lab)	20.93%

Note. N=89 for Study 1 (online sample), N=86 for Study 3 (lab sample).

Table 4. Studies 1 (online sample) and 3 (lab sample): Percentage of participants responding to each option on the question, "On a scale of 1-5, please rate your agreement with the following statement: I am an atheist."

Response (Sample)	Percentage
Never (online)	50.56%
Never (lab)	24.42%
1-2 times in the past year (online)	15.73%
1-2 times in the past year (lab)	31.40%
3-11 times in the past year (online)	6.74%
3-11 times in the past year (lab)	23.26%
Once a month (online)	4.49%
Once a month (lab)	2.33%
2-3 times a month (online)	0.00%
2-3 times a month (lab)	6.98%
Once a week (online)	22.47%
Once a week (lab)	11.63%

Note. N=89 for Study 1 (online sample), N=86 for Study 3 (lab sample). Responses were combined in Study 1 to mirror those in Study 3, with responses of more than once a week being condensed into the variable "once a week."

Table 5. Studies 1 (online sample) and 3 (lab sample): Percentage of participants responding to each option on the question, "How often do you engage in religious or spiritual practices?".