Positive Perceptions of Atheists

by

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ABSTRACT

Anti-atheist prejudice is cross-culturally prevalent and marked by intuitive distrust. However, recent research suggests that, when social perceivers know additional relevant information about others (i.e., their reproductive strategies), this information overrides religious information and nonreligious targets are trusted as much as religious targets. That is, perceivers seem to use religious information as a cue to a specific set of behavioral traits, but prioritize direct information about these traits when available. Here, I use this framework to explore the possibility that atheists are viewed positively in certain circumstances. First, atheists might be viewed positively for certain purposes *because* of their perceived reproductive strategies, even while being trusted less. Second, atheists who are family-oriented do not sacrifice trust, but may still be viewed positively for other traits (i.e., open-mindedness, scientific thinking). Third, given the constraints religion often imposes on behavior, atheists might be trusted more in situations where these constraints interfere with religious people's inclination to cooperate. I tested these hypotheses using fictitious social media profiles to examine social perception. The study had a 3 (Target Religion: Religious, Nonreligious, or Atheist) × 3 (Target Reproductive Strategy: No Information, Committed, Uncommitted) experimental design ($N = 550$). Contrary to my predictions, participants did not rate atheists and nonreligious targets as "fast" compared to religious targets. Consistent with predictions, however, atheists and nonreligious individuals were rated significantly higher on perceived open-mindedness and scientific thinking. Finally, atheist and nonreligious targets were trusted more in two of the three trust domains: trust with scientific findings that contradict their worldview

and trust with a secret about a friend's abortion. Further analyses compared patterns of responding for religious and nonreligious individuals, finding evidence for ingroup bias in most perceptions, but not all. Results suggest that perceptions of atheists are complex, but that atheists may, at least sometimes, be viewed favorably. Finally, these results point to the importance of reproductive strategy as a dimension of social perception, as this variable had a clear effect, independent of target religion, on the hypothesized perceptions.

Keywords: atheism, prejudice, life history theory, religion, positive stereotypes

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INTRODUCTION

A growing body of research on anti-atheist prejudice has explored a myriad of ways in which people view atheists unfavorably—atheists are viewed as narcissistic, immoral, uncaring, and exposure to atheist ideas can even facilitate an exaggerated disgust response (Dubendorff & Luchner, 2016; Gervais, Shariff, & Norenzayan, 2011; Ritter & Preston, 2011; A. Simpson & Rios, 2016). Early work even suggested a "halo effect," such that religious people were viewed positively in nearly every way (Bailey & Doriot, 1985; Bailey & Garrou, 1983). Although attitudes toward most stigmatized groups have improved in recent decades, atheists are one of the few groups toward which stigma remains socially acceptable, even among otherwise tolerant individuals (Edgell, Gerteis, & Hartmann, 2006). In fact, atheists may be one of the least electable groups in the United States and many other countries (Franks & Scherr, 2014).

At first blush, the recent trend toward secularism in much of the world seems to offer an easy solution to anti-atheist prejudice—who better to tolerate the unbeliever than other unbelievers? Paradoxically, however, secularism may do very little to remedy prejudice, as even atheists in secular countries intuitively associate a wide variety of immoral behavior—from failing to pay a restaurant bill to serial murder—with religious disbelief (Gervais et al., 2017; Giddings & Dunn, 2016).

Given that atheists are viewed so negatively in so many ways, one may wonder why anyone would ever identify openly as an atheist. That is, if even atheists intuitively distrust other atheists, is there ever anything to gain by revealing one's disbelief? In light of these findings, it is unsurprising that many atheists are reluctant to report their

disbelief, even on anonymous surveys (Gervais & Najle, 2018; Hadaway, Marler, & Chaves, 1993). What is puzzling, however, is that a sizable amount of atheists *are* open about their disbelief—even to strangers, ostensibly without fear of extreme discrimination. Further, the existence of organizations such as the American Humanist Association and American Atheists suggests that, at least in some circumstances, there are people who not only tolerate atheists, but who actively embrace them.

Here, I propose that perceptions of atheists are not indiscriminately negative, but that social perceivers use religious information to infer specific suites of traits. These traits may facilitate distrust in perceivers; trustworthiness is extremely important, but people seek a variety of traits in others (Cottrell, Neuberg, & Li, 2007). Thus, even when viewed as untrustworthy, atheists may be viewed positively for roles that do not require high levels of trust.

Further, I propose that perceptions based on religious information are not inflexible, but that perceivers take additional information (e.g., education, marriage status) into account when forming impressions of others. When combined with additional information, atheism might not always lead to distrust, but might even be viewed positively. If this is the case, there might be circumstances where atheists are not trusted less than religious people, but are still viewed positively in some ways.

Existing Research on Perceptions of Atheists

Many accounts of anti-atheist prejudice adopt a *sociofunctional* view of prejudice (Cook, Cottrell, & Webster, 2015; Cottrell & Neuberg, 2005; McArthur & Baron, 1983; Neuberg & Schaller, 2016), which holds that prejudice stems from the specific threat a

group is thought to pose. For instance, whereas some prejudices (e.g., toward Black men) seem to stem from the stereotype that they are physically threatening, other prejudices (e.g., toward homosexuals) seem to be rooted in disgust. These distinct prejudices enable people to act in ways that mitigate the threats others groups are (sometimes implicitly) assumed to pose—physical threats can influence how people view Black individuals (Miller, Maner, & Becker, 2010; Rodeheffer, Hill, & Lord, 2012; Schaller, Park, & Mueller, 2003), but macroeconomic threat can increase prejudice toward Asians, who are thought to pose a threat to economic resources (Butz & Yogeeswaran, 2011). Thus, although an individual may score high on general measures of prejudice toward different groups, these prejudices may have qualitatively distinct causes and consequences.

What threats might atheists be perceived to pose? One influential view suggests that belief in God or gods signals one's prosocial intent to others; conversely, then, disbelief may signal uncooperative intentions (Bulbulia, 2004; Norenzayan et al., 2016). In this framework, religious belief—specifically, belief in moralizing, punitive gods—facilitates prosocial behavior (Shariff & Norenzayan, 2007, 2011). Because atheists do not believe in moralizing gods that will punish their immoral behavior, it makes sense, then, that people might view them as "moral wildcards" (Gervais, 2013). Consistent with this notion, anti-atheist prejudice is characterized fundamentally by distrust rather than disgust or other moral emotions (Gervais et al., 2011). Similarly, although many researchers theorized that religious signals should facilitate ingroup trust, but outgroup *mistrust* (Atran & Ginges, 2012), there is increasing evidence that religious behavior increases trust, even across religious boundaries (Hall, Cohen, Meyer, Varley, & Brewer,

2015; McCullough, Swartwout, Carter, Shaver, & Sosis, 2016; Purzycki & Arakchaa, 2013; Ruffle & Sosis, 2010; Tan & Vogel, 2008).

A number of studies by Gervais and colleagues (Gervais, 2014; Gervais et al., 2017, 2011; see also Giddings & Dunn, 2016) have made use of the conjunction fallacy (Tversky & Kahneman, 1983) to further study intuitions about atheists. The classic conjunction fallacy describes the scenario of Linda—a former philosophy major who participates in anti-nuclear demonstrations and is concerned with social justice. Participants are asked which of the following is more likely: (a) "Linda is a bank teller," or (b) "Linda is a bank teller and a feminist" (Tversky & Kahneman, 1983, p. 297). Because the second option is a conjunction of two probabilities (i.e., the probability that Linda is both a bank teller and a feminist), it cannot be more likely than the first option. However, because the description of Linda is representative of stereotypes about feminists, many participants select the second option. Critically, people only commit this error when the conjunction is representative of the description—for instance, people would not likely say Linda is a bank teller and socially conservative.

This method has shown that people intuitively associated immoral behavior with atheism, but not with religiousness (Gervais, 2014). This is true of a variety of behaviors, ranging from mild moral transgressions to serial murder, and has been demonstrated in several countries (Gervais et al., 2017). Further, it does not seem that the atheist label drives this effect, as the pattern of results is similar when descriptions of unbelief are used instead (Gervais et al., 2017; Swan & Heesacker, 2012).

Social Perception in Context

Although people are quick to label immoral actors as atheists, it is not clear that atheists in everyday interactions are considered appreciably more likely to be serial murderers (Cohen & Moon, 2017). For instance, if serial murder is extremely rare, it may be possible that all serial murderers are assumed to be atheists, but that perceivers do not rate any given atheist as appreciably more likely to murder.

Further, social perception generally occurs within a context; when people meet atheists, they are likely to base information on more than unbelief. At the very least, people are likely to encode the sex, age, and economic background of people they meet (Neuberg & Sng, 2013), as well as other information they are given (e.g., their career, whether they have children, etc.). The presence of additional diagnostic information can "dilute" the effect of stereotype-based judgments (Hilton & Fein, 1989) and additional information may even "override" the original stereotype. For instance, Williams, Sng, and Neuberg (2016) found that, although people in the United States rate Black men as physically threatening, information about a target's ecology overrode race information, and Black and White men were rated similarly when they came from a similar ecology. This suggests that perceivers may associate race heuristically with ecology, leading to race stereotypes. In sum, even when people hold specific stereotypes, social perception depends on a mix of social information. Rather than inflexibly holding to a stereotype, people are capable of prioritizing information in terms of its diagnosticity of behavior.

Life History Strategies

Life history theory stems from evolutionary biology, and originally examined how organisms maximize their reproductive fitness across the lifespan (Stearns, 1992). Some animals adopt a "slow" life history strategy, including an extended period of development and high investment in a relatively small number of offspring. In contrast, some organisms tend to follow a "fast" life history strategy, entailing rapid development and low investment in relatively large numbers of offspring. These strategies help organisms maximize their reproductive fitness in a given environment. Humans have a unique life history, including an exceptionally long lifespan, an extended period of development, and a notable propensity for males to support their offspring (Hill & Kaplan, 1999).

Life history theory deals primarily with the timing of important events in an organism's life—growth, reproduction, and senescence. In timing these events, there are inherent tradeoffs—because energy cannot be spent more than once, energy spent on growth necessarily means that less energy is available for reproductive effort. Del Giudice, Gangestad, and Kaplan (2015) list three primary life history tradeoffs. The first is between growth/maintenance and reproduction: By growing, organisms can increase their ability to survive, reproduce, and care for their offspring. However, delaying reproduction is only adaptive if an organism is likely to survive long enough to reproduce in the future. The second tradeoff is between quality and quantity of offspring. Broadly, parents can increase the "quality" of their offspring through greater parental investment. However, additional investment yields diminishing returns, as it limits the quantity of

offspring an individual has. Finally, there is a tradeoff between mating and parenting effort. By spending energy on mating, organisms can enhance their reproductive success, but will be left with fewer resources to invest in parenting.

Life history theory has been popularly applied to a variety of psychological phenomena, although its popular usage is not always consistent with traditional models of life history (Baldini, 2015; Pepper & Nettle, 2017a). Still, empirical evidence supports several of these popular applications of life history theory—"harsh" ecologies tend to elicit more present-oriented psychology, including behavior that is relatively impulsive, opportunistic, sexually-driven, and less family-oriented (Frankenhuis, Panchanathan, & Nettle, 2016; Pepper & Nettle, 2017b). Affluent environments, on the other hand, are associated with increased ability to delay rewards, a more future-oriented psychology, sexual restrictedness, and high investment in offspring. Thus, people seem to calibrate their behavior both to the environment in which they were born and raised (Belsky, Steinberg, & Draper, 1991; Petersen & Aarøe, 2015), as well as to cues in the present ecology (Griskevicius, Tybur, Delton, & Robertson, 2011; Nettle, Pepper, Jobling, & Schroeder, 2014).

Similar lines of research have explored the personality correlates of sexual strategies. Schmitt and Shackelford (2008) found that, across 46 nations, sexual unrestrictedness was associated with higher levels of extraversion, but lower levels of agreeableness and conscientiousness. Other research has connected unrestricted sexual strategies and their consequences to the Dark Triad of personality, especially narcissism (Buss & Shackelford, 1997; Jonason, Li, Webster, & Schmitt, 2009; Schmitt et al., 2017).

In sum, there seems to be a behavioral constellation of traits associated with reproductive strategies. People who favor uncommitted reproductive strategies, compared to committed strategists, tend to be more present-oriented, more impulsive, less agreeable, less conscientious, more narcissistic, and less cooperative. These traits have wide-ranging implications for social behavior. In order to cooperate, individuals must delay immediate gratification for a larger reward in the future (Curry, Price, & Price, 2008). For people in environments with high mortality or who have reason to be suspicious of others, this tradeoff is especially risky—the future reward might never come, or the cooperative partner might defect, leaving the focal individual with a lower payoff (Zhu, Hawk, & Chang, 2019).

Given the rich implications of reproductive strategies for social behavior, a social perceiver can infer much about others by understanding how life history traits cluster together. For instance, because sexually unrestrictedness is positively correlated with several anti-social behaviors (Jonason et al., 2009), individuals who intuitively associate these traits may be better able to discern the cooperative value of others. Accordingly, intuitions about these suites of traits seem to play a large role in stereotyping, as people seem to infer corresponding "fast" or "slow" traits when given information about a person's ecology or other relevant life history information (Neuberg & Sng, 2013; Williams et al., 2016).

Religion and Reproductive Strategies

A growing body of research has explored the implications of sexual strategies in the scientific study of religion, finding that religiosity across the world tends to be highly

associated with a preference for restricted sexuality and an opposition to sexuality promiscuity and associated behaviors (McCullough, Carter, DeWall, & Corrales, 2012; McCullough, Enders, Brion, & Jain, 2005; Rowatt & Schmitt, 2003; Schmitt & Fuller, 2015; Weeden, Cohen, & Kenrick, 2008; Weeden & Kurzban, 2013). In turn, religious people tend to exhibit the traits that generally correlate with these strategies—they discount the future less (Carter, McCullough, Kim-Spoon, Corrales, & Blake, 2012), have higher levels of self-control (McCullough & Willoughby, 2009), and are more agreeable (McCullough et al., 2005; McCullough, Tsang, & Brion, 2003; Saroglou, 2002). Finally, at least in some contexts, religious people tend to be somewhat more cooperative and prosocial (Everett, Haque, & Rand, 2016; K. A. Johnson, Cohen, & Okun, 2013; Purzycki et al., 2016; Shariff, Willard, Andersen, & Norenzayan, 2016). These findings have led some to characterize religions as fostering a type of slow life history strategy (Baumard & Chevallier, 2015; Baumard, Hyafil, Morris, & Boyer, 2015; but see Purzycki et al., 2018). In the present study, I will refer to committed reproductive strategies and the associated traits as "slow," and uncommitted strategies and associated traits as "fast." Many of these traits (especially personality traits) are not derived from life history *per se*. However, attempts to connect life history strategies to personality (Figueredo, Vásquez, Brumbach, & Schneider, 2007; Manson, 2017; Sherman, Figueredo, & Funder, 2013) have generally corroborated the findings reviewed above about the personality correlates of reproductive strategies (e.g., Schmitt & Shackelford, 2008).

Perceptions of Religious People Based on Reproductive Strategies

Recently, Moon, Krems, and Cohen (2018a) found that people view religious individuals as committed reproductive strategists and as "slow" in corresponding ways—as unimpulsive, invested in their education, and coming from a less "rough" environment. In turn, these perceptions influenced trust. That is, religious targets were trusted because of perceptions about their slow life history strategy. However, when information was provided about the target's reproductive strategy, participants instead trusted the committed (vs. uncommitted) strategists and did not significantly base their perceptions on religion.

These findings suggest two possible avenues for positive perceptions of atheists. First, atheists might be viewed positively in some respects *because* of their perceived uncommitted mating strategies. That is, even if uncommitted strategists are less trusted, they may be viewed positively for traits associated with these strategies, such as extraversion and social prowess (Schmitt & Shackelford, 2008; Sherman et al., 2013). At least in some circumstances, people are likely to desire these traits in others.

Second, when additional information (e.g., reproductive strategy) is provided, atheists might be trusted to as similar extent as religious individuals, but might also be seen as posing some additional affordances. That is, if nonreligious individuals are trusted as much as religious individuals when their reproductive strategy is specified (Moon et al., 2018a), people might still make some inferences based on religious beliefs (e.g., that atheists are more open-minded). This might create circumstances in which atheists are not only trusted, but are viewed favorably.

Potentially Desirable Traits of Atheists

Positive Perceptions Based on Reproductive Strategies. As reviewed above, early research on sexual or life history strategies and personality generally found fast strategists as possessing mostly undesirable traits—they tend to be more Machiavellian, less agreeable, and more opportunistic (Figueredo et al., 2007). However, as pointed out by Sherman et al. (2013), as fast and slow life history strategies are both adaptive in certain circumstances, neither is likely to possess solely undesirable traits. Thus, they analyzed *distinctive* life history, which controlled for the "normalness" of slow strategies. Using this method, they found that fast life history strategists possess some negative (e.g., unpredictable, manipulative) and some positive (e.g., socially skilled, charming) traits (Sherman et al., 2013).

If nonreligious individuals are viewed as fast life history strategists, and fast life history strategists have a specific suite of positive traits, they might be viewed positively in certain circumstances. That is, they might be viewed favorably *because* of their fast life history traits—although less trustworthy, they may be viewed simultaneously as more outgoing, more fun, and more socially dominant. These traits will likely lead perceivers to rate them as poor caregivers, but as excellent friends for risky adventures and short-term sexual partners.

Positive Perceptions Unrelated to Reproductive Strategies. Atheists differ from religious individuals in some important ways that are not directly related to reproductive strategies. Specifically, nonreligious individuals tend to use analytic thinking more frequently (Pennycook, Cheyne, Seli, Koehler, & Fugelsang, 2012;

Pennycook, Ross, Koehler, & Fugelsang, 2016; Shenhav, Rand, & Greene, 2012), be more open-minded (Pennycook, Cheyne, Barr, Koehler, & Fugelsang, 2014), be more dedicated to scientific knowledge (Harris, 2006), be more intelligent (Kanazawa, 2010; Lynn, Harvey, & Nyborg, 2009; Zuckerman, Silberman, & Hall, 2013), display less ingroup bias (Hobson & Inzlicht, 2016; M. K. Johnson, Rowatt, & Labouff, 2012), and are perhaps less susceptible to intergroup conflict (Neuberg et al., 2014). These traits also may have significant implications for social perceivers; that is, knowing the extent to which another person has these traits can is useful for perceivers in navigating social interactions. Indeed, there is some evidence that people view atheists as relatively open to experience (Jackson, Halberstadt, Jong, & Felman, 2015) and scientifically competent (Harper, 2007; Rios, Cheng, Totton, & Shariff, 2015).

Perceivers tend to prioritize direct information about life history strategies when available, as opposed to cues, like religion or race, that merely hint at life history information (Moon et al., 2018a; Williams et al., 2016); thus, positive perceptions of atheists based on perceived "fast" traits will likely diminish when perceivers have direct information about a target's reproductive strategy. However, positive perceptions that are unrelated to life history may remain even in the face of direct life history information. In other words, direct information about a target's reproductive strategy should override perceptions about an atheist target's life history traits, but additional perceptions based on religious information may remain. This raises the possibility of a scenario in which atheists might *not* be viewed as untrustworthy, but instead may be perceived positively on these specific dimensions.

Domains of Trust. Trust has been broadly defined as "the willingness to rely on an exchange partner in whom one has confidence" (Lewin & Johnston, 1997, p. 28). In essence, trust represents a willingness to make one's welfare vulnerable to another (Deutsch, 1960; Mayer, Davis, & Schoorman, 1995; for a review, see J. A. Simpson, 2007). In turn, people use a variety of cues to gauge the trustworthiness of others: religious belief and behavior (Hall et al., 2015; McCullough et al., 2016), facial cues (Todorov, Pakrashi, & Oosterhof, 2009), prior altruistic behavior (Barclay, 2004), and intuitive moral judgments (i.e., people who make deontological moral judgments are more trusted; Everett, Pizarro, & Crockett, 2016).

However, although some individuals may be generally trustworthy (i.e., inclined to cooperate when trusted by others), trust not only requires a trustor and a trusted person, but also some cooperative arrangement at stake (Hardin, 2003). In other words, trust takes the form of "*I* trust *you* to do *X*" (J. A. Simpson, 2007, p. 588), where "*X*" can be anything from pumping gas to watching over another person's child for long periods of time. Some people may be trusted for some purposes, but not others.

Why might the "*X*" be important for trust toward religious individuals? Religious belief and acculturation has profound psychological implications, shaping people's moral judgment, self-construal, and intergroup relations (Cohen, 2015; Cohen & Rozin, 2001). Because religious people tend to view religious tenets as divinely inspired or sacred, they are generally unlikely to compromise on them (Rappaport, 1999), even when is in their interests (or the interests of those they care about) to do so. Understanding these influences of religion is critical to understanding why religion is sometimes associated

with prosocial behavior (Everett, Haque, et al., 2016; Shariff et al., 2016), but can also spur aggressive or antisocial behavior (Bushman, Ridge, Das, Key, & Busath, 2007; DeBono, Shariff, Poole, & Muraven, 2017; Jackson & Gray, 2018). In sum, one might expect that, when an individual's religious belief constrains his or her behavior or beliefs about "*X*," people might be less trusting toward religious individuals in those contexts. Below, I outline three domains in which this might be the case.

Honesty in science. Religious adherents have a vested interest in maintaining their religious faith. Religious beliefs and the associated behaviors provide access to a number of social benefits. Religious groups can be especially cohesive (Graham & Haidt, 2010) and provide larger social networks and safety nets; indeed, there is a positive association between religiosity and subjective well-being, largely because of higher levels of perceived meaning in life, respect, and social support (Diener, Tay, & Myers, 2011). Even without a conscious analysis of the costs and benefits of religious membership, religious individuals are likely to feel protective of their faith.

Religious individuals (at least in heterogeneous societies) also have a vested interest in maintaining their reputation among people who do not share their religious belief. In this pursuit, their interest is in making their religious beliefs as credible as possible—indeed, there is extreme stigma associated with being a member of a cult or practicing folk magic (Ayella, 1990). Thus, religious people are likely to be averse to anything that makes their religious belief seem less credible to others. Indeed, many people go to great lengths to make their religion appear credible or legitimate to others (for instance, through marketing campaigns, community outreach, etc.).

What do these incentives mean for trust? To the extent that the "*X*" might interfere with a religious person's motives to maintain the credibility of his or her religion, one might expect religious people to be *less* trustworthy. One "*X*" that might influence the trustworthiness of religious people is science.

Science sometimes conflicts with the tenets of certain religions. More importantly, may people at least view science and religion as in conflict (Barbour, 2000; Evans, 2011; Rios et al., 2015). Thus, religious people—whether consciously or not—might be especially skeptical of scientific findings that contradict their religious beliefs (Ditto & Lopez, 1992; Klaczynski, 2000). If it comes to it, they may even have an incentive to cover up the threatening findings (especially if they view this dishonesty as mandated by God; see Jackson & Gray, 2018). In other words, when it comes to evaluating and reporting scientific findings that contradict one's worldview, religious people may actually be *less* trustworthy than atheists or nonreligious people. In turn, people may view religious individuals (compared to nonreligious individuals) as less likely to disseminate scientific findings that challenge their worldview.

Ingroup favoritism. Although religious people tend to be trusted, even by outgroups, there is a wealth of research showing that religious people are not indiscriminately prosocial, but that their prosociality is generally parochial—directed toward other ingroup members (Galen, 2012; Hobson & Inzlicht, 2016). Religious people tend to view their groups as divinely appointed, and are often willing to go to extreme lengths to protect their group—one extreme example of this concept is suicide terrorism (Atran, 2003; Ginges, Hansen, & Norenzayan, 2009).

Because religious people may view their group's interest as superordinate, conflicts may arise when the interests of the group are inconsistent with the interests of individuals. In this light, is perhaps not surprising that, when scandals erupt, people are often willing to sacrifice the wellbeing of individuals (e.g., victims of abuse) to protect the reputation of their group. This process likely extends beyond religious groups, and likely applies to other coalitions as well (e.g., such scandals and cover-ups have been well documented in political coalitions, and have deleterious effects on public opinion of politicians; Schwarz & Bles, 1992). However, given the cohesive natural of religious groups, religious people may be especially likely to cover up scandals that threaten their group's reputation. In turn, observers may view religious people as less trustworthy when it comes to reporting such scandals.

***Sexual transgressions*.** One of the most consistent predictors of religious belief across the world is a preference for committed reproductive strategies: sexual restrictedness, monogamy, and high-investment in children (Schmitt & Fuller, 2015; Weeden et al., 2008; Weeden & Kurzban, 2013); this observation sheds light on many phenomena associated with religion. Accordingly, religious people tend to be especially intolerant of sexual transgressions. This "sex premium" (Hone, McCauley, Pedersen, & McCullough, 2018) in religious moral judgment reflects the propensity of religious people to view sexual transgressions as even more immoral than uncooperative transgressions (Hone et al., 2018; Weeden & Kurzban, 2013).

Does the Atheist Label Matter?

Some authors have attributed anti-atheist prejudice to the stigma of the label "atheist." To test whether social perceivers respond differently to religious disbelievers when explicitly labeled as atheists, Swan and Heesacker (2012) compared the perceptions of profiles of nonreligious (described as "without belief in God") and atheist targets to the profile of a religious target. They found that, although the atheist target received slightly more negative evaluations than the nonreligious target (and both were rated more negatively than the religious target), this difference was not statistically significant. Similarly, Gervais and colleagues (2017) showed that participants tend to view immoral behavior as representative of religious disbelief, whether or not the term "atheist" is used.

Thus, it seems that the atheist label itself has minimal influence on perceptions of atheists. However, a secondary purpose of the present study is to test whether the present framework extends to atheist targets (rather than just nonreligious targets), and whether perceptions of atheists and nonreligious individuals are meaningfully different across domains.

The Present Research

The literature reviewed above suggest that irreligion may be used a cue, not only for "fast" traits, but also open-mindedness and scientific thinking. Further, inferences about "fast" traits (but not open-mindedness and scientific thinking) might be overridden by more direct information about targets' reproductive strategies.

The present study will test these hypotheses by comparing perceptions of religious, nonreligious, and atheist targets, and with committed, uncommitted, and

unspecified reproductive strategies. Dependent measures will include measures of perceived "slows" traits, "fast" traits (both desirable and undesirable), open-mindedness, and scientific-orientation.

Hypothesis 1: People will rate atheist and nonreligious targets (compared to religious targets) higher on both positive and negative traits of fast life history strategists (for instance, fun but also impulsive). Conversely, I expect the religious target to be rated higher on positive traits of slow life history strategists (for instance, more agreeable and nurturing).

Hypothesis 2: When additional information about target life history is provided (i.e., the target's reproductive strategy), people will rate uncommitted targets (i.e., those who prefer sexual variety over commitment) as fast life history strategists, and will rely less on information about the target's religious beliefs in making inferences about life history traits.

Hypothesis 3: Atheist and nonreligious targets will be rated as more open-minded and scientifically minded than the religious target, and this effect should hold across conditions of life history information (i.e., whether they are presented as following a committed, uncommitted, or unspecified reproductive strategy).

Hypothesis 4: Atheist and nonreligious targets will be rated as more trustworthy than the religious target in certain domains—specifically, they will be rated more likely to report scientific results that conflict with their worldview, more likely to report crimes that might threaten the reputation of their group, and more likely to keep a secret about a friend's abortion.

METHOD

Participants

Based on the effect sizes found in Moon et al. (2018a) and two pilot studies (Cohen's $f = 0.14$), a priori power analysis indicated that a sample of 387 participants would provide adequate (.80) power. To account for potential exclusions and effect sizes smaller than anticipated, I recruited 601 participants via Prolific Academic (an alternative to Amazon's Mechanical Turk; Peer, Samat, Brandimarte, & Acquisti, 2016) to complete a survey on "impressions of others" in exchange for $0.78, filtering for participants located in the United States who are at least 18 years old. Fifty-one participants were excluded from all analyses because they failed at least one of two attention check questions; the first consisted of two items in the same measure, one instructing the respondent to select 7, the other to select 1. The second attention check included a page instructing participants not to answer the question on the following page (Oppenheimer, Meyvis, & Davidenko, 2009), which asked which of four food items contained gluten. The final sample included 550 participants (240 female), whose ages ranged from 18 to 75 ($M = 31.92$, $SD = 11.49$). The most common religious identifications among participants were agnostic ($n = 143$), atheist ($n = 138$), Protestant ($n = 69$), Catholic ($n = 57$), and spiritual but not religious ($n = 54$).

Procedure

The study used a 3 (Target Religion: Believes in God, Nonreligious, Atheist) × 3 (Target Reproductive Strategy: Committed, Uncommitted, No Information) between-subjects design. After providing informed consent (Appendix A), participants were

randomly assigned to view one of the nine possible social media profiles (see Appendix B). All profiles included the same distractor information, such as favorite food and hobbies, and will differ only in religion (Christian, Nonreligious, or Atheist) and "dating preferences" ("My goal is to get married and start a family," "I'd prefer to stay single and continue playing the field," or no information).

After viewing the profiles for at least 15 seconds, participants rated the target on several dimensions using a 1 (*extremely unlikely*) to 7 (*extremely likely*) scale (see Appendix C for all measures): positive slow traits (5-item scale; α = .90), positive fast traits (8-item scale; α = .87), negative fast traits (5-item scale; α = .85), trust (6-item measure adapted from Hall et al., 2015; α = .91), open-mindedness (α = .95), and scientific thinking (α = .92). These scales were presented in random order, and the order of items was randomized within each scale. Next, participants assessed the target in three distinct domains of trust (1 = *extremely unlikely*, 7 = *extremely likely*): (1) how likely they would be to report scientific results honestly, even if the results were inconsistent with their worldview; (2) how likely they would be to report sexual misconduct, even if it could ruin the reputation of their group; (3) how likely they would be to keep a friend's abortion secret. Finally, participants completed a 7-item measure of religiosity (α = .96) based on Cohen, Malka, Rozin, and Cherfas (2006). On a 1 (*not at all*) to 7 (*deeply or extremely*) scale, median participant religiosity was 2.00 (*M* = 2.66, *SD* = 1.76).

RESULTS

Hypothesis 1: Nonreligious/atheist targets are viewed as fast life history strategists

To test Hypothesis 1, I used simple comparisons (nonreligious/atheist vs. religious targets) to test the effect of target religion on slow/fast perceptions and trust when the target's reproductive strategy is not specified (i.e., the no information condition).

Desirable Slow Traits. As shown in Figure 1, when reproductive strategy was not specified, the religious target ($M = 4.83$, $SD = 1.11$) was rated somewhat more likely to possess positive slow traits than the nonreligious ($M = 4.66$, $SD = 1.15$) and atheist ($M = 4.61$, $SD = 0.89$) targets. Contrary to my hypothesis, however, a planned contrast comparing religious vs. nonreligious/atheist targets suggested that this difference was not statistically significant, $F(1, 541) = 1.55$, $p = .214$. An additional contrast suggested that the atheist and nonreligious targets did not receive significantly different ratings on positive slow traits, $F(1, 541) = 0.06$, $p = .801$.

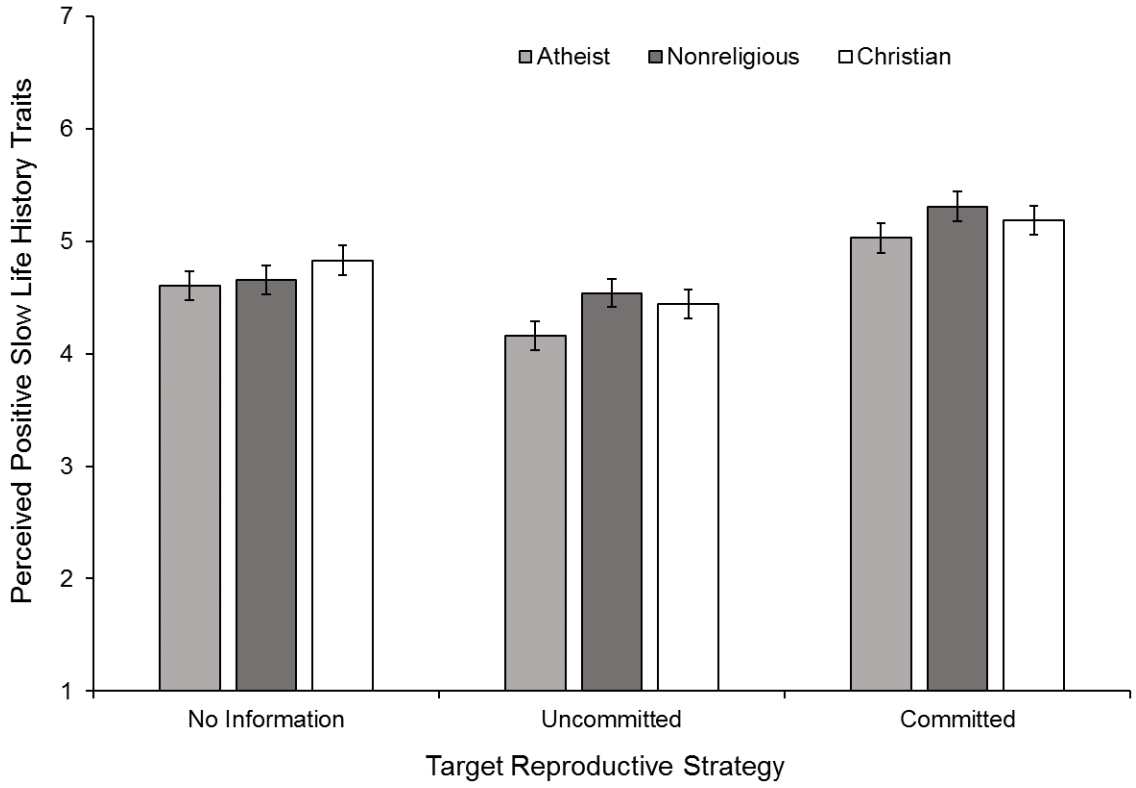

Figure 1. Perceived positive slow traits as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Undesirable Fast Traits. As shown in Figure 2, when reproductive strategy was not specified, the religious target was rated as somewhat less likely to possess negative fast traits ($M = 3.52$, $SD = 1.18$) than the nonreligious ($M = 3.67$, $SD = 1.18$) and atheist ($M = 3.89$, $SD = 0.83$) targets, although this contrast was not statistically significant, $F(1, 541) = 2.65$, $p = .104$. An additional contrast suggested that there was no significant difference between the nonreligious and atheist targets, $F(1, 541) = 1.44$, $p = .231$.

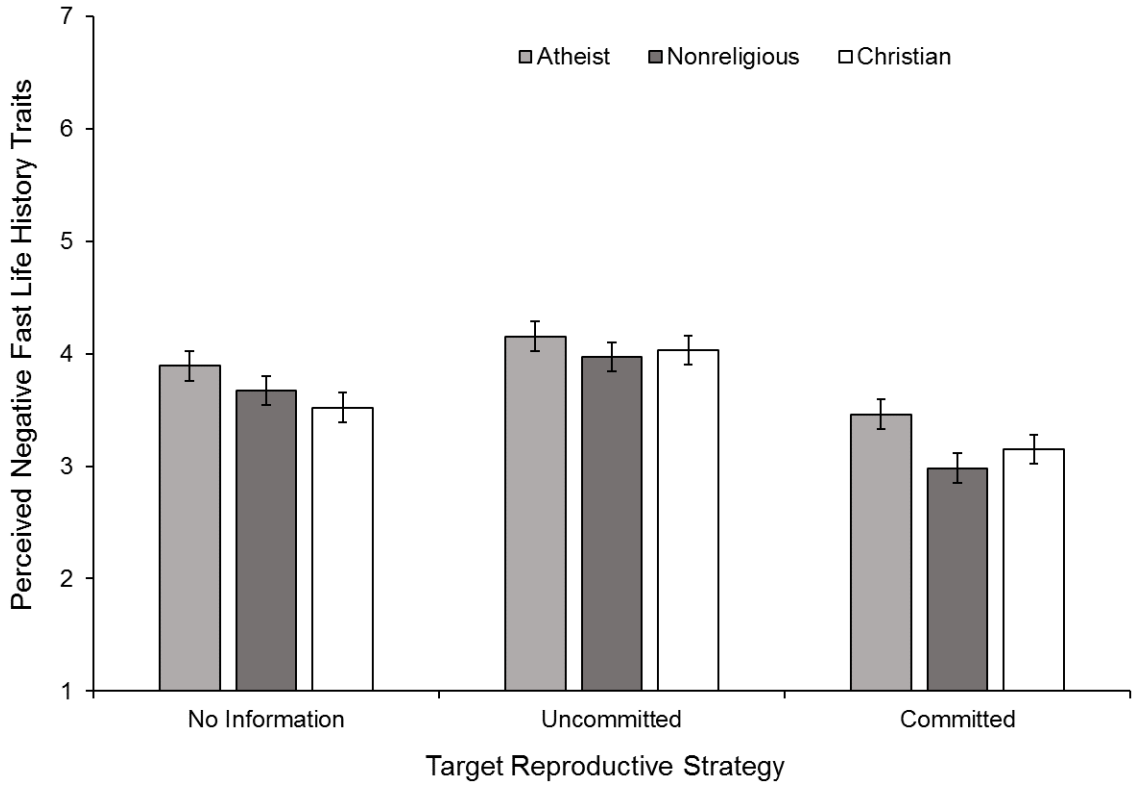

Figure 2. Perceived negative fast traits as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Desirable Fast Traits. As shown in Figure 3, when reproductive strategy was not specified, the religious target was rated less likely to possess positive fast traits (M = 4.32, SD = 0.93) than the nonreligious (M = 4.66, SD = 0.98) and atheist (M = 4.86, SD = 0.73) targets. A planned contrast comparing the religious target with the nonreligious and atheist targets was significant, $F(1, 541) = 9.62$, $p = .002$, $\eta_p^2 = .017$, suggesting that nonreligious and atheist targets are rated more likely to possess positive behavioral traits associated with uncommitted strategies. An additional contrast suggested that there was no significant difference in ratings for the nonreligious and atheist targets, $F(1, 541) = 1.73$, $p = .188$.

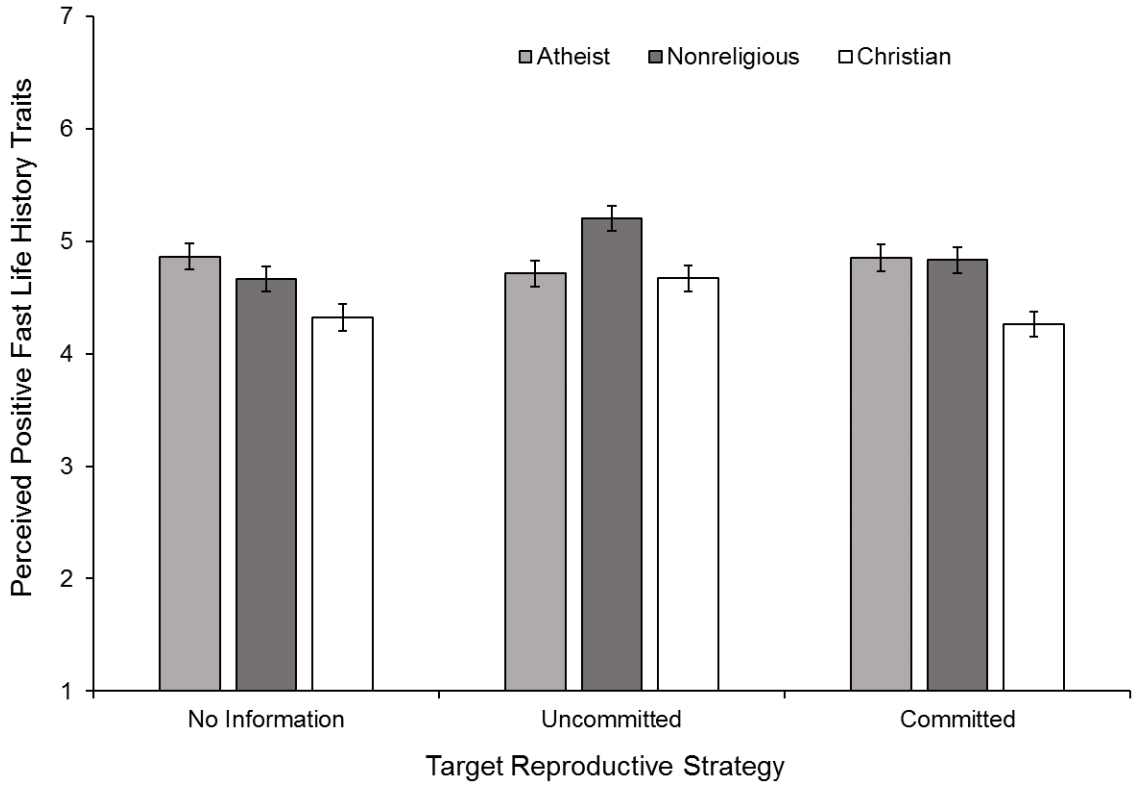

Figure 3. Perceived positive fast traits as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Trust. As shown in Figure 4, when reproductive strategy was not specified, the religious, nonreligious, and atheist targets were rated similarly on trust. A contrast comparing the nonreligious and atheist targets to the religious target was not significant, $F(1, 541) = 0.92$, $p = .338$. There was also no significant difference between the atheist and nonreligious targets, $F(1, 541) = 0.44$, $p = .505$. This finding represents a failure to replicate the common finding that religious people are more trusted than nonreligious people, and that people distrust atheists (Gervais et al., 2011; Hall et al., 2015; McCullough et al., 2016; Tan & Vogel, 2008). I address this issue further in the discussion.

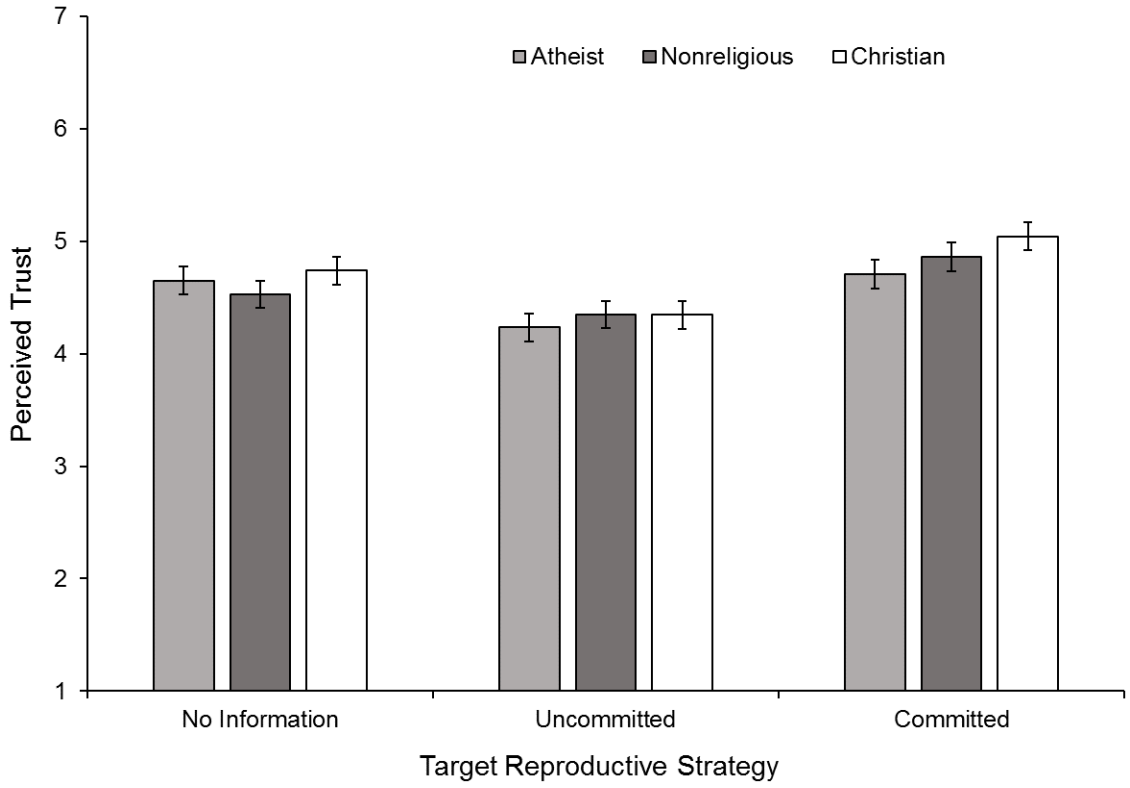

Figure 4. Perceived trustworthiness as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Hypothesis 2: Information about reproductive strategy will reduce perceivers' reliance on religious information

For each dependent variable, I used planned contrasts to test (a) whether the effect of target religion (religious vs. atheist/nonreligious) on fast/slow inferences (and trust) is stronger when reproductive strategy is specified than when it is not specified and (b) whether people make inferences about life history traits based on the target's reported reproductive strategy (i.e., comparing the uncommitted and committed conditions). These contrasts were specified *a priori*; however, Hypothesis 2 largely relies on the support of Hypothesis 1. That is, Hypothesis 2 suggests that information about reproductive

strategies might "override" fast/slow inferences, but Hypothesis 1 was largely unsupported, meaning that there was no significant effect to override.

I also ran a second contrast for each dependent variable, comparing the effects of target reproductive strategy on fast/slow inferences. A significant effect would signify that people make inferences about fast/slow traits (and trust) based on targets' reproductive strategies, viewing committed strategists as "slower" and more trustworthy.

Slow Traits. The effect of target religion (religious vs. atheist/nonreligious) was not significantly stronger in the no information condition than in the uncommitted/committed conditions, $F(1, 541) = 0.92$, $p = .338$. However, a comparison between the uncommitted and committed targets revealed a significant effect, $F(1, 541) = 55.81$, $p < .001$, $\eta_p^2 = .094$, such that committed strategists are rated as possessing more positive slow traits than uncommitted strategists (see Figure 1).

Undesirable Fast Traits. Again, the effect of target religion (religious vs. atheist/nonreligious) was not significantly stronger in the no information condition than in the uncommitted/committed conditions, $F(1, 541) = 1.08$, $p = .299$. However, a comparison between the uncommitted and committed targets revealed a significant effect, $F(1, 541) = 66.54$, $p < .001$, $\eta_p^2 = .105$, such that uncommitted strategists are rated as possessing more negative fast traits than committed strategists (see Figure 2).

Desirable Fast Traits. Again, the effect of target religion (religious vs. atheist/nonreligious) was not significantly stronger in the no information condition than in the uncommitted/committed conditions, $F(1, 541) = 0.00$, $p = .979$. As in the previous two analyses, however, a comparison between the uncommitted and committed targets

again revealed a significant effect, $F(1, 541) = 5.23$, $p = .023$, $\eta_p^2 = .010$, such that uncommitted strategists are rated as possessing more positive fast traits than committed strategists, although the effect is less consistent (see Figure 3).

Trust. The effect of target religion was not significantly different in the no information condition than in the uncommitted/committed conditions, $F(1, 541) = 0.00$, $p = .956$. As outlined above, this is inconsistent with past literature finding religious belief and behaviors to facilitate trust in perceivers. Although this analysis failed to replicate this effect, a comparison between committed and uncommitted targets replicated Moon et al.'s (2018a) effect, such that committed targets are trusted more than uncommitted targets, $F(1, 541) = 30.81$, $p < .001$, $\eta_p^2 = .054$ (see Figure 4).

Hypothesis 3: Atheists and nonreligious people will be viewed as more open-minded and scientific

For each dependent variable (i.e., open-mindedness and scientific thinking), I used planned contrasts to assess (a) whether nonreligious/atheist targets were rated more likely to harbor these traits than the religious target, (b) whether this holds across all conditions of target reproductive strategy, and (c) whether nonreligious and atheist targets were rated differently on these traits.

Open-Mindedness. An omnibus ANOVA revealed a significant main effect of target religion on perceived open-mindedness, $F(2, 541) = 27.66$, $p < .001$, $\eta_p^2 = .093$, but the effect of target reproductive strategy was not significant, $F(2, 541) = 2.31$, $p = .100$. A planned contrast compared the nonreligious/atheist conditions to the religious condition, within each level of target reproductive strategy. This contrast was significant

at each level of target reproductive strategy: no information, $F(1, 541) = 10.23$, $p = .001$, $\eta_p^2 = .019$; uncommitted, $F(1, 541) = 26.99$, $p < .001$, $\eta_p^2 = .048$; committed, $F(1, 541) = 16.48$, $p < .001$, $\eta_p^2 = .030$, suggesting that nonreligious and atheist targets were assumed to be significantly more open-minded than religious targets, regardless of their reported reproductive strategy (see Figure 5).

Additional contrasts compared the atheist and nonreligious conditions across levels of target reproductive strategy; this comparison was significant when the target was committed, $F(1, 541) = 4.19$, $p = .041$, $\eta_p^2 = .008$, but not when the target was uncommitted, $F(1, 541) = 1.34$, $p = .248$, or when reproductive strategy was not specified, $F(1, 541) = 0.09$, $p = .764$.

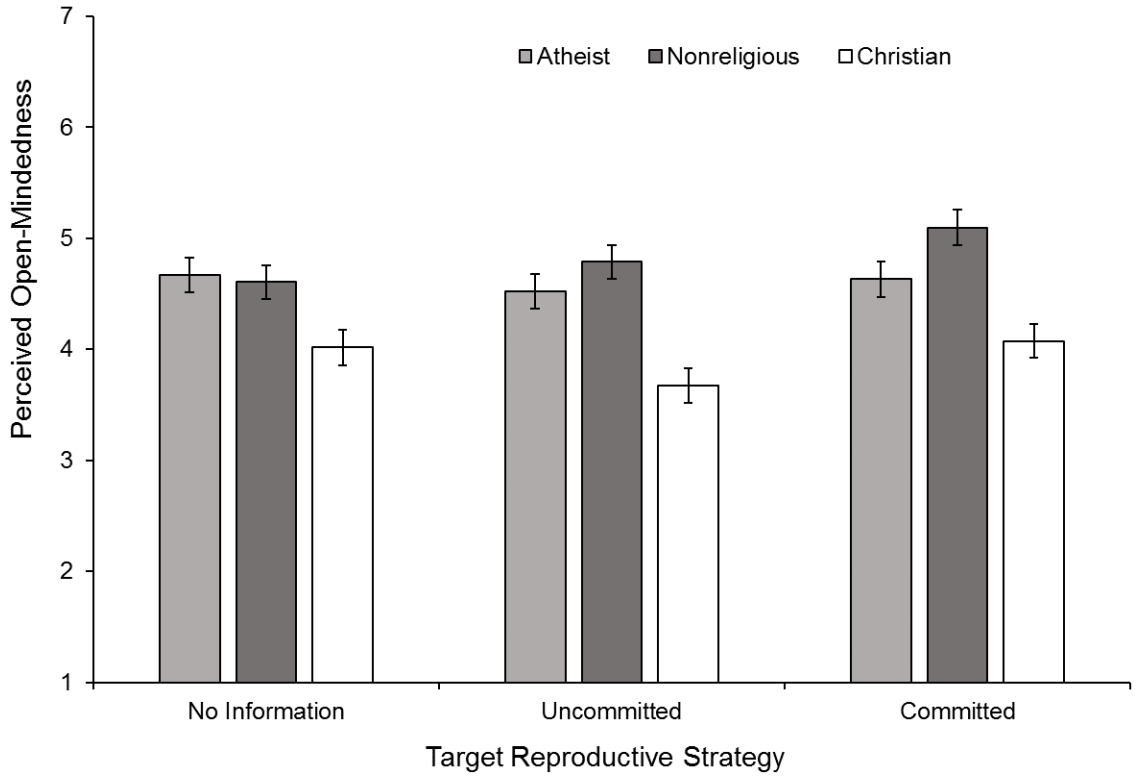

Figure 5. Perceived open-mindedness as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Scientific Thinking. An omnibus ANOVA revealed a significant main effect of target religion on perceived scientific thinking, $F(2, 541) = 85.11$, $p < .001$, $\eta_p^2 = .239$, as well as a significant effect of target reproductive strategy, $F(2, 541) = 5.64$, $p = .004$, $\eta_p^2 = .020$. Planned contrasts suggested that nonreligious/atheist targets were viewed as more likely to exhibit scientific thinking across all levels of target reproductive strategy: no information, $F(1, 541) = 48.96$, $p < .001$, $\eta_p^2 = .083$; uncommitted, $F(1, 541) = 39.04$, $p < .001$, $\eta_p^2 = .067$; committed, $F(1, 541) = 113.89$, $p < .001$, $\eta_p^2 = .111$. This analysis suggests that people view atheists and nonreligious individuals as more likely than

religious people to engage in scientific thought, regardless of the target's reproductive strategy (see Figure 6).

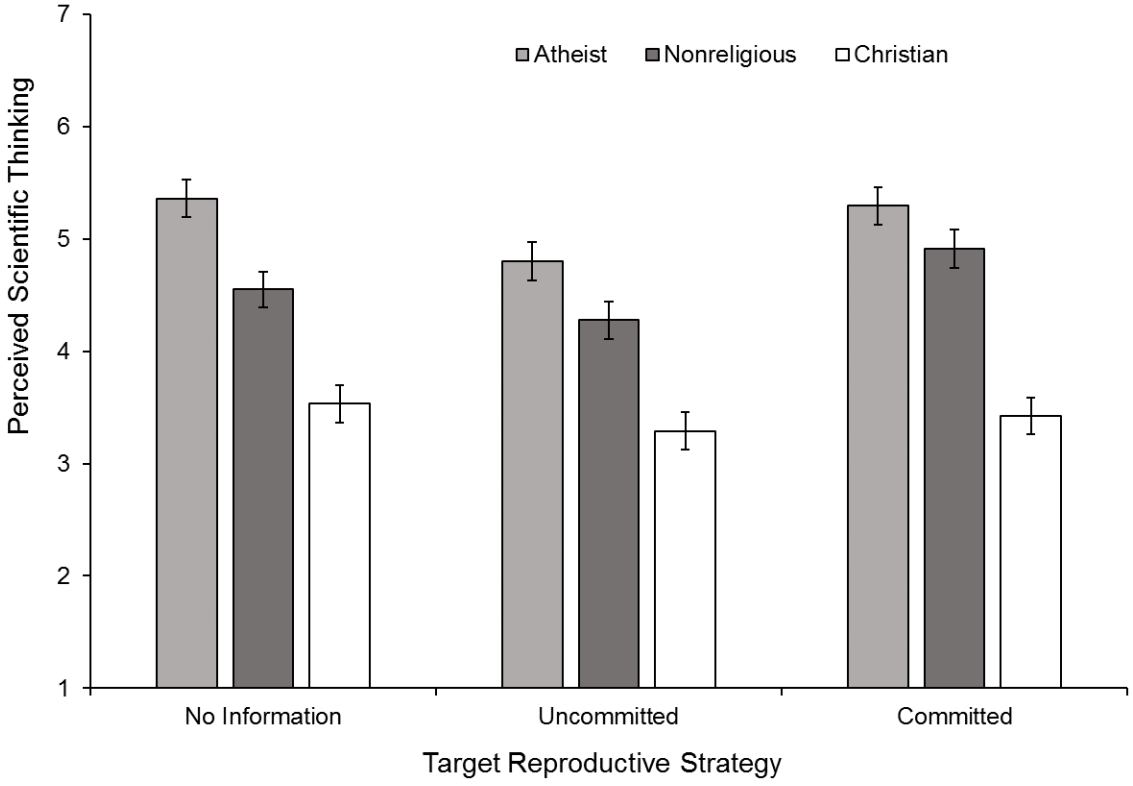

Figure 6. Perceived scientific thinking as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Comparing the atheist and nonreligious targets suggested that the atheist target was rated higher on scientific thinking than the nonreligious target in the no information, $F(1, 541) = 12.17$, $p = .001$, $\eta_p^2 = .022$, and in the uncommitted condition, $F(1, 541) = 5.38$, $p < .021$, $\eta_p^2 = .010$, but not in the committed condition, $F(1, 541) = 2.48$, $p < .116$.

Hypothesis 4: Atheists and nonreligious people will be trusted more than religious people in certain contexts

For each trust scenario, I tested (a) whether nonreligious/atheist targets were rated more trustworthy across levels of target reproductive strategy and (b) whether ratings of nonreligious and atheist targets differed.

Scientific Trust. An omnibus ANOVA revealed a significant main effect of target religion on perceived scientific trust, $F(2, 541) = 13.23$, $p < .001$, $\eta_p^2 = .047$. The effect of target reproductive strategy was not statistically significant, $F(2, 541) = 2.53$, $p = .080$. As shown in Figure 7, the nonreligious and atheist targets were rated higher on scientific trust than the religious target across all levels of target reproductive strategy. Planned contrasts suggested that this effect was significant at all levels: no information, $F(1, 541) = 3.85$, $p = .050$, $\eta_p^2 = .007$; uncommitted, $F(1, 541) = 8.45$, $p = .004$, $\eta_p^2 = .015$; committed, $F(1, 541) = 15.20$, $p < .001$, $\eta_p^2 = .027$. Contrasts comparing the atheist and nonreligious targets across levels of target reproductive strategy suggested they were not rated significantly different on scientific trust (ps > .271).

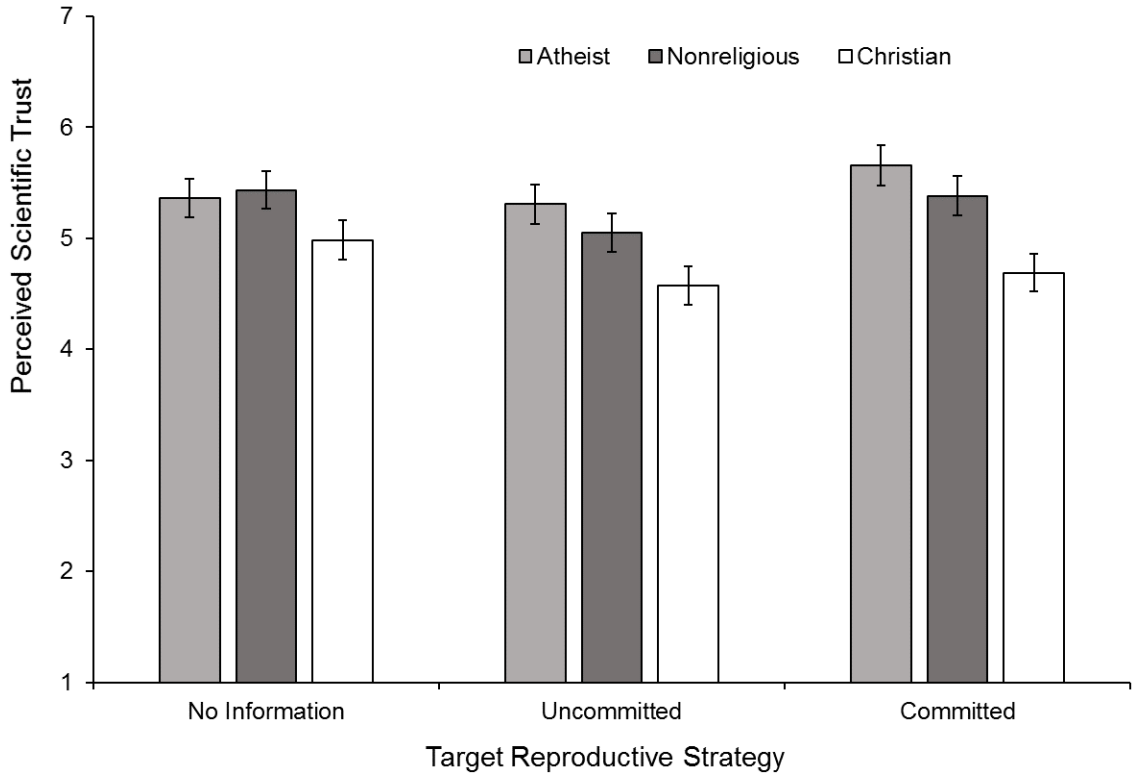

Figure 7. Perceived scientific trust as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Trust at the Expense of One's Group. An omnibus ANOVA did not reveal a significant effect of target religion on likelihood of reporting sexual abuse at the expense of one's group, $F(2, 541) = 0.05$, $p = .952$. However, there was a significant effect of target reproductive strategy, $F(2, 541) = 5.39$, $p = .005$, $\eta_p^2 = .020$. Because there was no main effect of target religion, I did not probe these effects further.

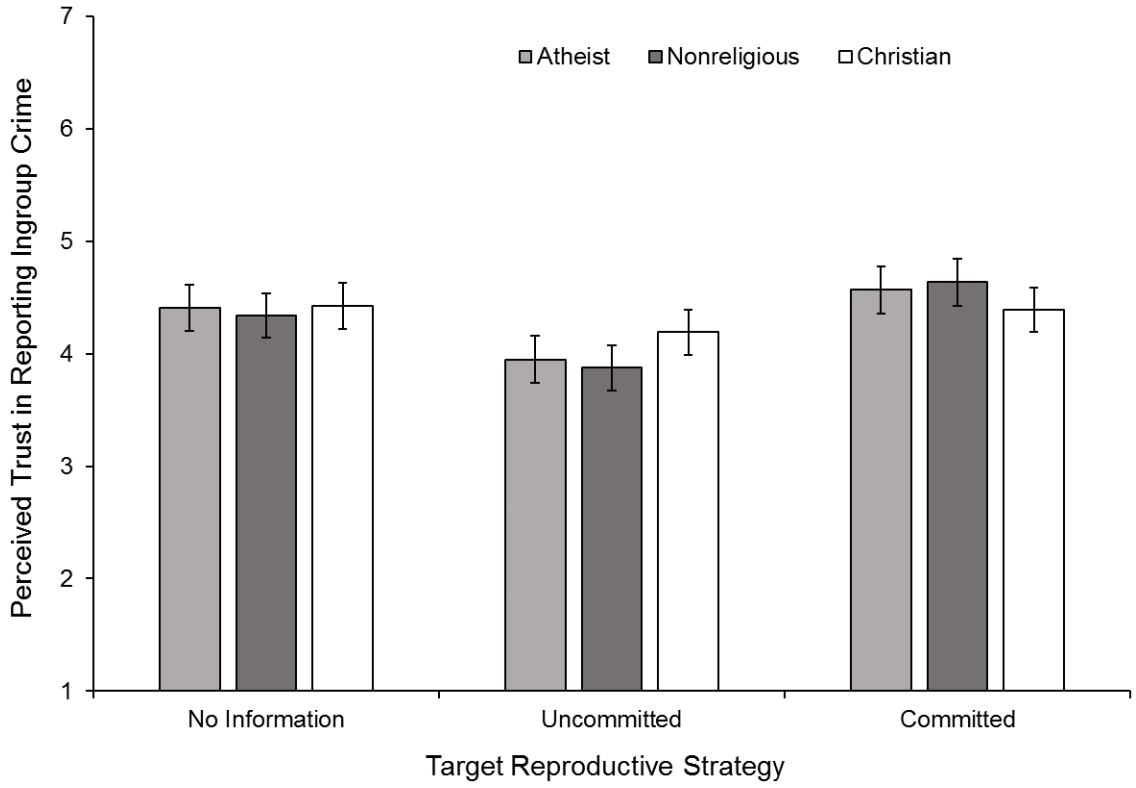

Figure 8. Perceived likelihood of reporting a crime that would compromise the target's group's reputation as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Trust with an Abortion Secret. An omnibus ANOVA revealed a significant main effect of target religion on perceived trust with an abortion secret, $F(2, 541) = 36.62$, $p < .001$, $\eta_p^2 = .119$, as well as a main effect of target reproductive strategy, $F(2, 541) = 5.91$, $p = .003$, $\eta_p^2 = .021$. Planned contrasts indicated that nonreligious/atheist targets were trusted more with an abortion secret than the religious target, and that this effect held across all levels of target reproductive strategy: no information, $F(1, 541) = 26.01$, $p < .001$, $\eta_p^2 = .046$; uncommitted, $F(1, 541) = 14.65$, $p < .001$, $\eta_p^2 = .026$; committed, $F(1, 541) = 34.85$, $p < .001$, $\eta_p^2 = .061$. There were no significant differences

between the atheist and nonreligious targets across any level of target reproductive strategy (*p*s > .567). This analysis suggests that nonreligious people (whether or not they self-identify as atheists) are rated more trustworthy than religious people with a secret about abortion (see Figure 9).

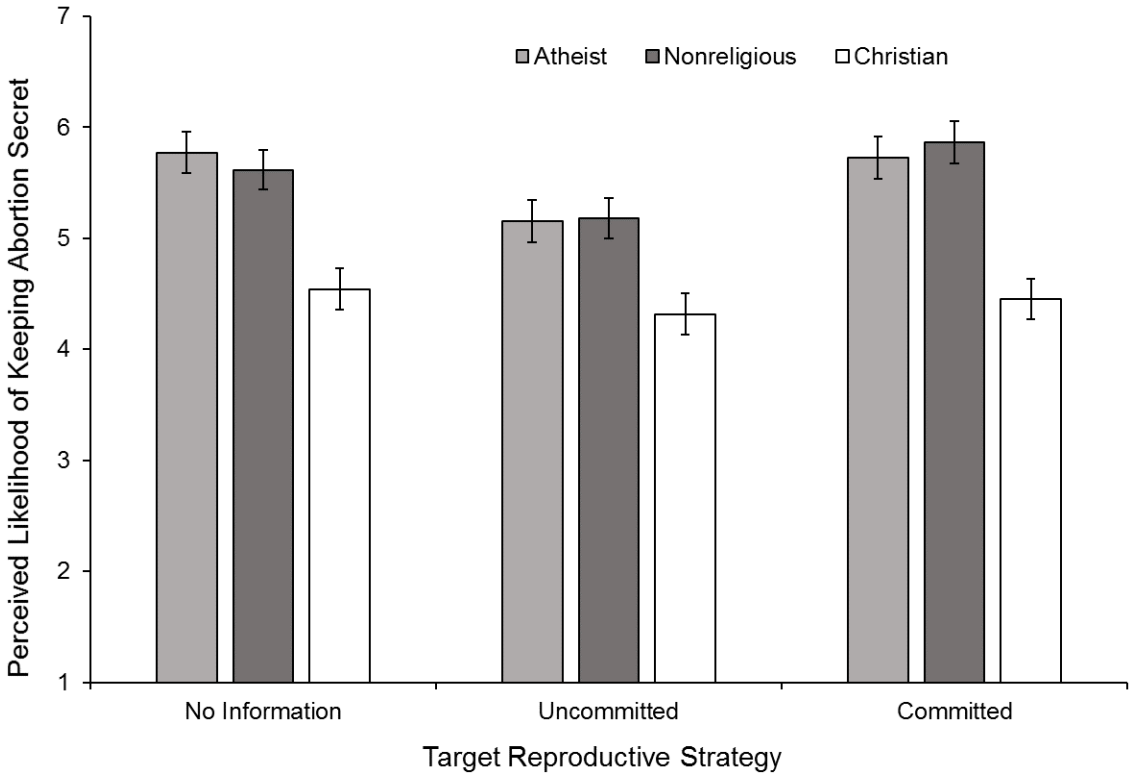

Figure 9. Perceived likelihood of keeping an abortion secret as a function of target religion and target reproductive strategy. Error bars represent ± 1 *SE*.

Exploratory Analyses

In light of the above findings, I conducted several additional analyses to (a) examine the factor structures of the utilized measures and (b) test whether the patterns of results differ significantly between participants who are religious vs. nonreligious.

Examining the Factor Structure of the Utilized Measures. First, I examined the factor structure of the measures of fast/slow perceptions and trust.

Trust. Principle axis factoring using the six trust items suggested that a single factor accounted for 69.6% of the variance, with an eigenvalue of 4.17. The next highest eigenvalue was 0.52, suggesting a one-factor solution. However, one additional possibility is that religious and nonreligious individuals utilize the scale differently (i.e., that the measure is not invariant for religious and nonreligious individuals). To examine the factor structure for religious and nonreligious individuals separately, I first examined inter-item correlations separately for religious and nonreligious individuals (see Table 1). Inter-item correlations ranged from .57 to .80 for religious participants, and from .48 to .74.

Table 1: Inter-item correlations for the 6-item trust measure. The lower triangle represents results for nonreligious participants (n = 335), while the upper triangle represents results for religious participants (n = 191).

	1	2	3	4	5	6
1. Benevolent	–	.66	.62	.68	.57	.62
2. Has integrity	.57	–	.74	.80	.63	.67
3. Has the ability to be trustworthy	.53	.71	–	.73	.68	.70
4. Is trustworthy	.55	.74	.70	–	.73	.70
5. If you loaned this person money, you would expect to get it back	.54	.61	.56	.65	–	.73
6. Can be trusted with a sensitive secret	.48	.66	.58	.73	.58	–

Next, to test whether a one-factor solution described the data well for both religious and nonreligious individuals, I conducted a principle axis factoring on the trust

items separately for religious and nonreligious participants (i.e., all participants who reported a religious affiliation vs. all those who reported no religious affiliation). Results were largely similar. For the nonreligious participants, one factor explained 67.2% of the variance (first three eigenvalues: 4.10, 0.81, 0.45); for religious participants, one factor explained 73.6% of the variance (first three eigenvalues: 4.42, 0.47, 0.38). Cronbach's alpha suggested similar reliability estimates for both sets of participants ($\alpha_{religious}$ = .93, $\alpha_{nonreligious}$ = .90). Thus, I concluded that a single factor solution describes the data well for both religious and nonreligious participants.

Slow and Fast Traits. Next, I used principal axis factoring with oblique (oblimin) rotation to explore the factor structure of the utilized measures of perceptions of slow and fast (both desirable and undesirable) traits. An analysis of the scree plot suggested that two or three factors explain the data well. The first five eigenvalues were 6.81, 3.25, 1.32, 0.94, and 0.78. Factor loadings are shown in Table 2, and suggest that perceived slow traits loaded on one factor (factor 1), undesirable fast traits loaded on another (factor 2), and desirable fast traits (except item 7) on yet another (factor 3). These results offer tentative support for the use of these measures; however, confirmatory factor analysis using an additional sample would provide stronger support for these measures.

Open-Mindedness and Scientific Thinking. I used the same method (i.e., principal axis factoring with oblique rotation) to examine the factor structure of the open-mindedness and scientific thinking measures. The scree plot suggested that two factors explain the data well. The first five eigenvalues were 4.72, 1.31, 0.27, 0.22, and 0.19. Factor loadings are shown in Table 3, and suggest that the open-mindedness items

loading on one factor (factor 1) whereas the scientific thinking items load on another factor (factor 2).

Table 2: Factor Loadings from a Principal Axis Factoring of Slow and Fast Perceptions

Item	Factor 1	Factor 2	Factor 3
Slow Traits			
1. Would be a sympathetic listener	.703	–.140	–.055
2. Has an agreeable personality	.714	.034	–.172
3. Tries to be helpful	.820	.034	–.080
4. Warm	.890	.036	–.062
5. Would be nurturing with children	.743	–.068	.121
Desirable Fast Traits			
6. Would be fun to party with	–.080	–.005	–.864
7. Says what he means regardless of the consequences	–.028	.148	–.372
8. Can tell a good joke	.081	–.030	–.724
9. Fun to be around	.113	–.119	–.758
10. Is socially skilled	.188	–.032	–.565
11. Would be a good "wing man"	–.051	–.058	–.744
12. Is good in bed	.073	–.031	–.556
13. Is cool	.129	–.111	–.711
Undesirable Fast Traits			
14. Gets angry quickly	.035	.806	.152
15. Often acts impulsively	–.168	.599	–.179
16. Tries to be socially dominant	–.093	.646	–.144
17. Can become hostile to people who disagree with him	.077	.813	.219
18. His behavior is unpredictable	–.051	.658	–.026

Table 3: Factor Loadings from a Principal Axis Factoring of Open-Mindedness and Scientific Thinking

Item	Factor 1	Factor 2
Open-Mindedness		
1. Open to alternative viewpoints	.921	–.039
2. Tries to keep an open mind	.894	.018
3. Listens to both sides of important issues	.920	–.026
4. Considers differing opinions when forming an opinion	.861	.067
Scientific Thinking		
5. Interested in scientific knowledge	–.031	.858
6. Cares a lot about logical reasoning	.012	.947
7. Tries to base all his beliefs upon facts, evidence, and logic	.031	.855

Do Ratings Differ Systematically Across Participant Religious Affiliation? A large body of social psychological research has demonstrated the ways in which people are predisposed to favor members of their own group and people are similar to them (e.g., Bernhard, Fehr, & Fischbacher, 2006; Choi & Bowles, 2007; Tajfel, 1982; Tajfel & Turner, 1979). Thus, it is likely that participants of differing religious backgrounds may show some degree of ingroup bias, giving more favorable ratings to targets that seem to share their group membership, or who are more similar to them. Consistent with this notion, prejudice toward atheists is most severe among the highly religious (Edgell et al., 2006; Gervais et al., 2017) as well as people who oppose short-term mating strategies (Moon, Krems, & Cohen, 2018b).

Group membership may influence perceptions of others beyond simply liking ingroup members more. For instance, a perceiver might rate the same face as more attractive when it is presented as a member of his or her ingroup. Thus, even if atheists

are objectively more likely to exhibit a certain trait (e.g., open-mindedness), religious people may not perceive them as such. This type of bias may carry some benefits—it facilitates allegiance to one's group, and may avoid the costs of attempting to cooperate with outgroup members, who may have diverging interests. On the other hand, to the extent that people engage with others based on the affordances they pose (McArthur & Baron, 1983), accurate or objective social perception may be beneficial—if an individual is unstable or uncooperative, it is beneficial for perceivers to avoid cooperating with him or her, whether or not they share group membership.

To test whether religious and nonreligious participants showed different patterns of responding to the different targets, I computed a variable denoting whether participants were religious (i.e., they reported any religious affiliation) or not (i.e., they reported being either atheist, nonreligious, or spiritual but not religious). Although there may be meaningful differences between the religious groups (for instance, Jews tend to be less prejudiced toward atheists than Muslims or Christians; Hughes, Grossmann, & Cohen, 2015), the dataset did not include a large enough sample from each religious group to explore these nuances in any meaningful way.

For each fast/slow variable and trust, I ran the contrasts from Hypothesis 1 (i.e., comparing the nonreligious and atheist targets to religious targets within the no information level of target reproductive strategy). In cases where these contrasts were significant, I also conducted the contrast from Hypothesis 2, which tested whether reproductive strategy overrode the inferences based on religious information. For open-mindedness, scientific thinking, and the domains of trust, I did not expect the effect of

target religion to differ across levels of target reproductive strategy. Thus, I ran a contrast comparing nonreligious and atheist targets to religious targets, but collapsed across levels of target strategy. As running these analyses separately significantly reduced the sample size, power is also reduced for these analyses, especially for analyses of the religious participants. Thus, I urge caution in interpreting these results.

***Slow Traits*.** The results described above failed to find an effect of target religion on perceived slow traits. However, using the same contrast as above (i.e., comparing the atheist/nonreligious vs. religious targets within the no information level of target strategy), but separately for religious and nonreligious participants, found no significant effect for nonreligious participants, $F(1, 326) = 0.17$, $p = .684$, but a significant effect for religious participants, $F(1, 182) = 6.62$, $p = .011$, $\eta_p^2 = .035$, such that religious participants view the religious targets as "slower" than the atheist and nonreligious targets. Next, I conducted the contrast from Hypothesis 2 (testing whether the effect of target religion was reduced when reproductive strategy was specified) for the religious participants. This contrast did not reach statistical significance, $F(1, 182) = 2.27$, $p = .133$. In other words, information about reproductive strategy did not seem to override these perceptions.

***Undesirable Fast Traits*.** The contrast comparing atheist and nonreligious targets to the religious target within the no information level of target was not significant for nonreligious participants, $F(1, 326) = 1.37$, $p = .243$, nor did it reach statistical significance for religious participants, $F(1, 182) = 3.03$, $p = .083$. Thus, I did not conduct the contrasts from Hypothesis 2 for this variable.

Desirable Fast Traits. The contrast comparing atheist and nonreligious targets to religious target within the no information level of target strategy was significant for nonreligious participants, $F(1, 326) = 16.70$, $p < .001$, $\eta_p^2 = .049$, such that atheist and nonreligious targets were viewed as more likely to possess these desirable fast traits than religious than the religious target. This effect was not significant for religious participants, $F(1, 182) = 0.00$, $p = .998$, suggesting that this effect is limited to nonreligious participants. The contrast from Hypothesis 2 was not significant for the nonreligious participants, $F(1, 326) = 0.03$, $p = .857$, suggesting that reproductive strategy did not override perceptions of desirable fast traits based on target religion.

Trust. The atheist and nonreligious vs. religious target contrast was not significant for nonreligious participants, $F(1, 326) = 0.23$, $p = .633$, but was significant for religious participants, $F(1, 182) = 5.33$, $p = .022$, $\eta_p^2 = .028$. However, for religious participants, the contrast from Hypothesis 2 was not significant, $F(1, 182) = 0.74$, $p = .391$.

Open-Mindedness. Because I did not expect a significant interaction (i.e., that the effect of target religion on perceived open-mindedness would be moderated by target strategy), I conducted a single contrast comparing perceptions of nonreligious and atheist targets to perceptions of religious targets, collapsed across levels of target strategy. This provided more power than testing multiple simple effects.

Among nonreligious participants, this contrast was significant, $(1, 326) = 95.06$, $p < .001$, $\eta_p^2 = .226$. However, there was no effect observed among religious participants, $F(1, 182) = 0.10$, $p = .751$. Thus, the finding that people view atheists and nonreligious individuals as open-minded seems to be driven by nonreligious participants.

Scientific Thinking. I used the same method to assess scientific thinking as open-mindedness; the contrast was significant among nonreligious participants, $F(1, 326) = 182.93$, $p < .001$, $\eta_p^2 = .359$, as well as religious participants, $F(1, 326) = 9.85$, $p = .002$, $\eta_p^2 = .051$. Thus, both religious and nonreligious perceivers rated the atheist and nonreligious targets as more likely to base their beliefs on scientific evidence, although the effect is much larger among nonreligious observers.

Domains of Trust. For the scientific trust scenario, the contrast comparing nonreligious and atheist targets to religious targets was significant among nonreligious participants, $F(1, 326) = 43.76$, $p < .001$, $\eta_p^2 = .118$, but not among religious participants, $F(1, 182) = 0.00$, $p = .983$, suggesting that religious perceivers do not view religious targets as less trustworthy scientists, but nonreligious perceivers do.

For the scenario assessing trust at the expense of one's group, there was no significant effect of target religion for nonreligious or religious participants, and I did not analyze this scenario further.

Finally, for trust with an abortion secret, the contrast was significant among nonreligious participants, $F(1, 326) = 81.90$, $p < .001$, $\eta_p^2 = .201$, as well as nonreligious participants, $F(1, 182) = 6.60$, $p = .011$, $\eta_p^2 = .035$. Although the effect was markedly smaller among religious participants, both nonreligious and religious participants viewed atheists as more likely to keep a secret about an abortion.

DISCUSSION

What do people like about atheists? The answer is a complex one, as atheists are neither a cohesive nor homogenous group. In the absence of other information, past

suggests that people view atheists as living a relatively "fast" lifestyle—that they are relatively uninterested in family, impulsive, and sexually unrestricted (Moon et al., 2018b, 2018a). Although these traits negatively influence trust, they may be beneficial for some purposes: acquiring short-term mates, engaging in risky behavior, and for certain coalitional purposes. Like many other aspects of social perception, these traits are not viewed as universally positive; whether or not these traits are viewed as favorable depends on the motives and vulnerabilities of the perceiver (McArthur & Baron, 1983; Neuberg, Kenrick, & Schaller, 2010). Thus, the affordances atheists offer may be more attractive to individuals who seek such a lifestyle. Ultimately, whether or not people view these perceptions of atheists positively depends on the motivations and vulnerabilities of the perceiver.

The picture is further complicated when considering the dynamic nature of social perception. Perceptions of atheists can be drastically different, depending on additional information. Atheists who are highly educated are likely viewed as less threatening than atheists who are uneducated (although educated atheists may pose a greater intellectual threat; see Cook, Cohen, & Solomon, 2015). The present results represent an investigation of additional information about targets' reproductive strategies. This is a small subset of perceptions that might override or interact with religious information to shape social perception.

Finally, perceptions of atheists likely vary systematically depending on the perceiver. Whether or not someone views atheists as "good" for a certain purpose might depend on their particular strategy for fulfilling that purpose; for instance, people who

prefer committed reproductive strategies are unlikely to search for mates in the same way as those who prefer uncommitted strategies, and might value atheists differently as a potential "wingman" to help them in this pursuit.

The results presented here failed to find evidence for several of the hypothesized perceptions of atheists. Most notably, these results did not replicate the finding that perceivers tend to rate atheists and nonreligious targets as "faster" than religious targets. However, atheists were viewed positively in some ways—as more open-minded, more scientific, and more trustworthy as scientists and better for keeping a secret about an abortion.

When Do People Trust Atheists?

Are atheists trusted? Past research has often assumed that the answer is a straightforward "no." However, a more fine-grained analysis points to several avenues for nuance. The question is not whether people trust atheists, but *when* people trust atheists. First, perceptions of trustworthiness are not inflexible—people look to past behavior (i.e., whether or not someone previously cooperated), rating cooperators as more trustworthy (Barclay, 2004). Second, people often use "trust diagnostic situations" or use "strain tests" to ascertain the extent to which they can trust others, continuously updating their perceptions as they gather new information (J. A. Simpson, 2007; Wieselquist, Rusbult, Foster, & Agnew, 1999).

Thus, even if atheists are distrusted in initial interactions, this effect may play less of a role as individuals become more familiar with one another. Further, the present results suggest that additional information may be stronger determinants of trust (and

some other perceived life history traits) than atheism *per se* (see also Moon et al., 2018a), and atheists may be trusted initially as much as their religious counterparts.

Finally, given some of the constraints on the behavior of religious individuals, there are instances where it may make sense to view them as *less* trustworthy. The current data suggest that this may be the case for scientific honesty and trust with an abortion secret. That is, people view atheists and nonreligious targets as more likely to report scientific findings honestly, even if these findings contradict their worldview. Participants also rated the atheists and nonreligious targets as more likely to keep a secret about an abortion, perhaps reflecting the understood constraints religion tends to impose on sexual morality (Hone et al., 2018; Weeden et al., 2008). These trust effects do not seem to depend on a specific method of being trustworthy, as one of them requires divulging information and the other requires keeping information secret; these scenarios provide instances in which atheists are trusted to do either of these. What seems to matter is the content, or the "*X*" discussed above. When religious beliefs conflict with adherents' ability to carry out some matter, people may trust them less for that purpose.

Limitations

Several of my main hypotheses failed to find support in the current data. Most notable was the finding that religious people were not trusted more than atheists or nonreligious individuals when reproductive strategy was not specified. Past research has shown consistently that religious behavior facilitates trust, across a wide range of methods and populations. Among villages in South India, people make a host of inferences about individuals who engage in costly religious behaviors, and these

inferences are made by all villagers, regardless of their religion (Power, 2017). In the Tyva Republic, people tend to trust individuals who consistently participate in costly religious rituals more than those who do not (Purzycki & Arakchaa, 2013). Studies with American participants have found that Christian religious badges (Ash Wednesday ashes or a necklace with a cross) increase trust among both Christian and non-Christian perceivers (McCullough et al., 2016). Finally, Muslims who engage in religious costly signaling are trusted more than Muslims who do not, even by Christian perceivers (Hall et al., 2015). In sum, there is strong evidence that religious behavior can increase trust in a wide range of situations, even among nonreligious perceivers.

What accounts for the current study's non-replication of this common effect? One dimension discussed by many of the previous studies is costly signaling. By engaging in costly religious behavior, individuals signal something beyond their simple group membership—they signal their devotion to the group, as well as other aspects of their character (Power, 2017; Sosis & Alcorta, 2003). One possibility, then, is that labeling religious targets as "active Christian" did not provide a strong enough cue. If this is the case, the effect of target religion on trust may depend on the target's perceived devotion. Indeed, studies with a similar design have found positive effects of religion on trust simply by labeling the religious targets as "devoted Christians" or by specifying that they attend church regularly (Moon et al., 2018a). Additional data would be useful to test whether religious targets who emphasize their devotion are trusted more (and are more consistently viewed as "slower"). If costlier signals enhance targets' perceived devotion

to their group, it may be that some of the effects demonstrated here (i.e., differences between atheist/nonreligious and religious targets) may even be amplified.

I also did not find a hypothesized effect for one of the trust scenarios: trust at the expense of one's group. That is, people did not view religious targets as less likely to report sexual abuse when it might threaten their group's reputation. It may be that people do not view religious individuals as putting their groups above other ethical interests. Another possibility, however, is that people similarly trust all members of cohesive groups (whether religious or not) to divulge such scandals. Because the item asked participants to imagine the target was a member of a cohesive group, it is difficult to tell whether religious people might be trusted less than nonreligious people who do not belong to a cohesive group.

Finally, although some of the hypothesized effects emerged, the results ultimately point to large effects of ingroup bias. Indeed, although even atheists are quicker to associate immorality with atheism than with theism (Gervais et al., 2017), simpler surveys show that, at least from some samples, atheists may show massive ingroup bias in their evaluations of different groups (Hunsberger & Altemeyer, 2006).

In all, only two potentially positive perceptions held among religious participants: scientific thinking and trust with an abortion secret. This may seem a meager haul, especially considering the wide range of affordances tested. However, these positive perceptions may play important roles in social perception, and may influence the ways people interact with atheists. For some, trusting another with sensitive secrets or being able to trust another's scientific ideas may be important dimensions of social life.

Atheists were not viewed positively in most ways, but the perceptions tested here were a small subset of the possible affordances people can pose. Almost certainly, there are other scenarios in which atheists might be viewed favorably.

Future Directions

As discussed above, reproductive strategies seem to be a salient aspect of social perception based on religious information. However, there are many other cues that may interact with religious information in nuanced ways. Because race significantly influences perceptions of life history traits, with Black men in the United States being stereotyped as particularly "fast" (Williams et al., 2016), religion may interact in complex ways with race to form unique constellations of social perception. For instance, perhaps being religious buffers, to some extent, these negative stereotypes of Black men.

Another possibility is that atheists from certain countries might be viewed differently. Whereas atheism is uncommon and violates social norms in some societies, other societies are largely secular. To the extent that social perceivers understand these dynamics, they may view atheists from secular countries less harshly than atheists from largely religious countries, as atheism is to be expected of the former but not the latter.

Finally, these results do corroborate the notion that reproductive strategy is an important aspect of social perception. Indeed, participants consistently rated uncommitted strategists as "fast," both in desirable and undesirable ways, and committed strategists as "slow" and more trustworthy, consistent with Moon et al. (2018a). In other words, it seems clear that perceived committed reproductive strategies facilitate trust; it remains unclear, however, whether participants in this study viewed religious targets as

more committed than atheist or nonreligious targets. Future work is needed to examine further the implications of reproductive strategies for social perception.

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APPENDIX A

INFORMED CONSENT

Informed consent

Dear Participant:
We are researchers at Arizona State University. We are conducting a research study to examine some of your opinions and perceptions of other people. We are inviting your participation, which will involve a 7 minute survey. You must be 18 years or older to participate in this study.

You will be asked to respond to a series of brief questions, then you will be asked to judge another person's social profile. Your participation in this study is voluntary. You can skip questions if you wish. You can choose not to participate or to withdraw from the study at any time.

You will receive $0.78 payment to your Prolific account, and the benefits of your participation will include providing valuable information regarding how people perceive and understand different individuals. There are no foreseeable risks or harm from your participation.

Your confidentiality will be maintained. Your worker ID will be temporarily stored in order to pay our participants for their time. It, and all other potentially identifying information that is automatically saved to ensure that each person only participates once, will be securely deleted from their associate data file as soon as it is reasonably feasible (i.e., once the participant is paid, or after the survey is complete and everyone is paid). This data will never be linked to your survey data. Please keep in mind that a worker ID can be used to link to your identity. This is a known issue in the online survey community and participants have the option of making their personal information private if they choose. The results of this study may be used in reports, presentations, or publications but your name will not be known by us or readers of these reports.

If you have any questions concerning the research study, please contact the research team at either jordan.w.moon@asu.edu, or adamcohen@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

If you do not agree to participate, please exit the survey at this time. If you agree to participate in the survey, please check the box indicating your consent.

APPENDIX B

STIMULI: SOCIAL MEDIA PROFILES

Name: Jason

Age: 24

Career: Intern

Favorite food: Pizza and ice cream

Religion: Non-religious / Active Christian / Atheist

Dating preferences: [Field omitted for No Information condition] / Ideally, I'd like to find someone I can settle down, start a family, and spend my life with / I'm not looking for a long-term commitment, right now I'd prefer to have fun and keep playing the field

Hobbies: Music, movies, and sports

Figure A1. Fictitious social media profile. Participants viewed this profile including one of the religion variants (in order of appearance above: Nonreligious, Religious, Atheist) and one of the variants of dating preferences (in order of appearance above: No Information, Committed, Uncommitted). Distractor information was held constant across conditions.

APPENDIX C

SURVEY ITEMS

Instructions

First, we'd like to ask a few questions about you and your beliefs. Please answer as honestly as possible. All of your answers will be anonymous.

Religiosity scale (Cohen et al., 2006)

	Not at all	Not much	A little	Somewhat	Quite a bit	Very much	Deeply or extemely
How strongly do you believe in God?	1	2	3	4	5	6	7
How religious are you?	1	2	3	4	5	6	7
How spiritual are you?	1	2	3	4	5	6	7
How important a part of your identity is religion or faith to you?	1	2	3	4	5	6	7
If someone wanted to understand who you are as a person, how important would religion or faith be?	1	2	3	4	5	6	7
	Not at all						Very frequently
How often do you attend religious services?	1	2	3	4	5	6	7
How much do you practice the requirements of a religion?	1	2	3	4	5	6	7

Instructions

Next, you will be shown a random social media profile, and we will ask you to make some guesses about what this person is like. Please pay attention to the profile, both the appearance of the person as well as the information he or she provides.

[One of the profiles will be displayed at random.]

[The following measures will be displayed in random order.]

Positive Slow Life History Traits

How likely would you say it is that the following traits or behaviors describe [name]?

	Extremely unlikely			Neither likely nor unlikely			Extremely likely
Would be a sympathetic listener	1	2	3	4	5	6	7
Has an agreeable personality	1	2	3	4	5	6	7
Tries to be helpful	1	2	3	4	5	6	7
Warm	1	2	3	4	5	6	7
Would be nurturing with children	1	2	3	4	5	6	7

Positive Fast Life History Traits

How likely would you say it is that the following traits or behaviors describe [name]?

	Extremely unlikely			Neither likely nor unlikely			Extremely likely
Would be fun to party with	1	2	3	4	5	6	7
Says what he means regardless of the consequences	1	2	3	4	5	6	7
Can tell a good joke	1	2	3	4	5	6	7
Fun to be around	1	2	3	4	5	6	7
Is socially skilled	1	2	3	4	5	6	7
Would be a good “wing man”	1	2	3	4	5	6	7
Is good in bed	1	2	3	4	5	6	7
Is cool	1	2	3	4	5	6	7

Negative Fast Life History Traits

How likely would you say it is that the following traits or behaviors describe [name]?

	Extremely unlikely			Neither likely nor unlikely			Extremely likely
Gets angry quickly	1	2	3	4	5	6	7
Often acts impulsively	1	2	3	4	5	6	7
Tries to be socially dominant	1	2	3	4	5	6	7
Can become hostile to people who disagree with him	1	2	3	4	5	6	7
Tends to manipulate people to get what he wants	1	2	3	4	5	6	7

Open-Mindedness

How likely would you say it is that the following traits or behaviors describe [name]?

	Extremely unlikely			Neither likely nor unlikely			Extremely likely
Open to alternative viewpoints	1	2	3	4	5	6	7
Tries to keep an open mind	1	2	3	4	5	6	7
Listens to both sides of important issues	1	2	3	4	5	6	7
Considers differing opinions when forming an opinion	1	2	3	4	5	6	7

Scientific Thinking

How likely would you say it is that the following traits or behaviors describe [name]?

	Extremely unlikely			Neither likely nor unlikely			Extremely likely
Interested in scientific knowledge	1	2	3	4	5	6	7
Cares a lot about logical reasoning	1	2	3	4	5	6	7
Tries to base all his beliefs upon facts, evidence, and logic	1	2	3	4	5	6	7

Attention Check (Oppenheimer et al., 2009)

On the next page, you will see a new type of question. SKIP THE QUESTION by advancing to the next page without clicking. This question is simply intended to detect people who are not paying attention.

[new page]

Which of the following contains gluten [participants are allowed to select and unselect multiple responses]

White bread
Sourdough bread
Brown rice
Cottage cheese

Trust (Hall et al., 2015)

How likely would you say it is that the following traits or behaviors describe [name]?

	Extremely unlikely			Neither likely nor unlikely			Extremely likely
Benevolent	1	2	3	4	5	6	7
Has integrity	1	2	3	4	5	6	7
Has the ability to be trustworthy	1	2	3	4	5	6	7
Is trustworthy	1	2	3	4	5	6	7
If you loaned him[her] money, you would expect to get it back							
Can be trusted with a sensitive secret	1	2	3	4	5	6	7

Domains of Trust [1 = *extremely unlikely*, 7 = *extremely likely*]

Scientific trust

Imagine Jason is an intern in a scientific lab. Some of the experiments he has run lately run counter to the way he views the world.

How likely do you think Jason would be to report these results honestly?

Trust at the expense of one's group

Imagine Jason is part of a close-knit social group. He discovers that the leader of his social group is guilty of sexual misconduct, but no one else knows about it. If this knowledge becomes public, it could ruin the reputation of the group.

How likely do you think Jason would be to report this crime?

Abortion secret

Jason finds out that one of his friends recently had an abortion. She asks him to keep the abortion secret, no matter what.

How likely do you think Jason would be to keep this secret?

Brief Demographic Questionnaire

What is your gender?
- Male
- Female

What is your age in years?
- Dropdown menu from 18-90

What is your sexual orientation?
- Heterosexual/straight
- Homosexual/gay/lesbian
- Bisexual
- Other (please specify)

What is your current relationship status?
- Married
- In a committed relationships
- Dating one person
- Dating several people
- Single
- Other (please specify)

What is your religious affiliation?
- Catholic
- Christian – Protestant
- Christian – other
- Mormon
- Jewish
- Muslim
- Hindu
- Buddhist
- Spiritual but not religious
- Atheist
- Agnostic
- Other (please specify)

Do you have any comments about the study?
[text box for free response]

Debriefing

Thank you for completing our survey. You were shown a profile and asked to rate the person in the profile on several traits. Our goal is to examine which inferences people make about others based on different types of information.

If you would like to know more about the study, please contact Jordan Moon at jordan.w.moon@asu.edu or Adam Cohen at adam.cohen@asu.edu.