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Are Narcissists More Likely to Support Terrorism? Exploring the Relationships Between Claiming Fake Religious Knowledge and Support for Violence, Peace, & Apathy.

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ARE NARCISSISTS MORE LIKELY TO SUPPORT TERRORISM? EXPLORING THE RELATIONSHIPS BETWEEN CLAIMING FAKE RELIGIOUS KNOWLEDGE AND SUPPORT FOR VIOLENCE, PEACE, AND APATHY.

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Dedication

To my loving family:

You are my source of comfort in times of stress and joy in times of celebration.

I dedicate this work to you.

Thank you.

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by

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Abstract

Religious overclaiming is a persons' tendency to claim to be familiar with fake religious concepts. In both Christian and Muslim samples, previous research has found a relationship between religious overclaiming and communal narcissism, as well as a relationship between religious overclaiming and support for religious violence. The present research extends previous work by including several different measures of narcissism including grandiose (agentic), vulnerable, communal, and collective narcissism to predict religious overclaiming for the Bible and the Qur'an. Moreover, the present research investigates the relationship between support for violence, peace, and apathy using an Internet Commenter task. The results found that grandiose (agentic), collective, and communal narcissism were associated with religious overclaiming and poor religious accuracy. Moreover, though grandiose (agentic) narcissism did not extend to support for violence, communal and collective narcissism did. Collective narcissism had a direct association with support for violence. While the relationship between communal narcissism and support for violence was fully mediated by intrinsic and extrinsic religiosity. Finally, poor religious knowledge and, interestingly, overclaiming a religion that is not your own predicted support for violence. Additional findings and implications are discussed. Tangentially, the present research also discussed the appropriate use of Signal Detection Theory to measure religious overclaiming.

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Religious overclaiming is the tendency for a person to claim to know religious concepts that do not actually exist. In previous research, using Christian and Muslim samples, participants were asked to rate their familiarity with a series of real religious concepts (i.e., sourced directly from the Christian Bible or Qur'an, respectively) intermixed with false concepts (i.e., realistic-sounding items that were contrived by the research team). The results show that participants who overclaimed religious knowledge—claimed familiarity with the false items—were more likely to express prejudice towards other religious groups (Jones, Neria, Helm, Sahlan, & Carré, *in prep*) and were more likely to support violence for the sake of their religion (Jones, Neria, Helm, Sahlan, & Carré, *under review*). Additionally, participants with accurate religious knowledge—the ability to discriminate real from fake items—were *negatively* associated with support for violence.

Jones, Neria, Helm, Sahlan, & Carré (*under review*, *in press*) replicated their effects several times, and each time the results suggested that there might exist an interaction between narcissism and overclaiming, which is the focus of the present research. Thus, the purpose of the present research project is to expand upon the research concerning the relationship between religious overclaiming and narcissism and to explore the possibility of using religious overclaiming to predict support for terrorism. Additionally, the present research addresses some remaining questions regarding the assessment of overclaiming in general. To help provide context for the present study, the next sections will briefly discuss the research on general overclaiming and religious overclaiming. These sections will be followed by a discussion of the

relationship between narcissism and religious overclaiming. Finally, potential implications for religious overclaiming in the field of terrorism studies are discussed before detailing the present research methodology.

OVERVIEW OF OVERCLAIMING RESEARCH

Inspired by early studies that investigated individual difference characteristics in juvenile delinquents (e.g., Raubenheimer, 1925; see also Paulhus, 2011 for a more complete review), the construct of overclaiming was formally described by Phillips and Clancy in 1972. Generally speaking, overclaiming can be understood as the tendency for a person to claim to know things they could not possibly know (see also, Paulhus & Bruce, 1980). Overclaiming, as a construct, was first adopted by researchers in the field of personality assessment and psychometrics who were concerned about the trustworthiness of self-report data (see Paulhus & Harms, 2004). As such, the construct of overclaiming became associated with research on social-desirable responding (e.g., Tonković, Galić, & Jerneić, 2011) and self-deceptive enhancement (e.g., Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006). However, after the implications surrounding self-report data were better understood (e.g., Bishop, Tuchfarber, & Oldendick, 1986; Goldsmith, 1989; Stone, Bachrach, Jobe, Kurtzman, & Cain, 1999), a new body of research developed that was interested in why some participants seemed to habitually lie on psychological measurements.

One of the largest applications of the overclaiming technique was (and remains) in research related to human resources and personnel evaluation (e.g., Bing, Kluemper, Davison, Taylor, & Novicevic, 2011). For example, Anderson, Warner, and Spencer (1984) found that overclaiming job-related tasks (i.e., claiming to know or perform fake job activities) was negatively associated with job performance (see also Pannone, 1984). Similarly, Paulhus and

Dubois (2014) found overclaiming to be negatively associated with scholastic achievement (see also Joseph, Berry, & Deshpande, 2010; Paulhus, & Harms, 2004; Pesta, & Poznanski, 2009). Seeing the potential applications of overclaiming, researchers quickly began testing its utility in specific employment domains. For example, in a study of Chinese steel company employees, Fu and Deshpande (2012) found overclaiming to be positively associated with self-reported ethical behaviors—but not observed ethical behaviors (see also Randal, & Fernandes, 1991; Schoderbek, & Deshpande, 1996). Additionally, Bazerman (2011) studied the propensity for negotiators to overclaim an impediment to the process of a corporate negotiations or conflict mediations (see also Bazerman, & Tenbrunsel, 2011). Similarly, Calsyn, Kelemen, Jones, and Winter, (2001) consider overclaiming an important individual difference variable to control for when conducting a program evaluation.

The enthusiasm for applied overclaiming research overshadowed much of the drive towards understanding the phenomenon theoretically. Indeed, the theoretical discussion of overclaiming is focused on debating two issues. The first issue theoretical research on overclaiming focuses on is whether overclaiming is a conscious or unconscious process (e.g., John, & Rice, 1994; Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006; Tonković, Galić, & Jerneić, 2011; Kam, Risavy, & Perunovic, 2015; Ludeke, & Makransky, 2016; Bensch, Paulhus, Stankov, & Ziegler, *in press)*. One interesting finding that shows that overclaiming increases in participants when their medial prefrontal cortex (mPFC) is inhibited via transcranial magnetic stimulation (Amati, Oh, Kwan, Jordan, & Keenan, 2010). Considering that there is a growing body of evidence suggests that the mPFC is involved in adaptive behaviors—which are learned but become automatic over time (see Euston, Gruber, & McNaughton, 2012)—this may

suggest that overclaiming may begin as a conscious (learned) impression management technique that becomes a self-deceptive habit.

The importance of the first theoretical issue in overclaiming research notwithstanding, questioning whether overclaiming is conscious or unconscious seems best suited for cognitive psychologist and is therefore not within the scope of the present research. The second theoretical issue, however, focuses on the degree to which narcissism influences the process of overclaiming (e.g., Paulhus, Harms, Bruce, & Lysy, 2003; Paulhus, & Williams, 2002; Tracy, Cheng, Robins, & Trzesniewski, 2009). The present research takes special consideration of the relationship between narcissism and overclaiming by addressing a concern that previous research tends only to study the relationship between overclaiming and one (or sometimes two) forms of narcissism. However, contemporary research on narcissism has identified other form of narcissism that may be differentially associated with overclaiming (especially religious overclaiming). The present research takes the relationship between overclaiming and narcissism as its theoretical starting point to begin to shift the theoretical discussion of narcissism towards a more comprehensive theoretical model of the phenomenon. However, such a task will require a program of well-replicated research that is far beyond the capacity of the present studies.

In sum, overclaiming research found widespread applicability in the fields of industrial / organizational psychology, human resources, and general Business research (e.g., Anderson, Warner, & Spencer, 1984; Fu, & Deshpande, 2012; Randal, & Fernandes, 1991; Schoderbek, & Deshpande, 1996; Bazerman 2011; Bazerman, & Tenbrunsel, 2011). However the research on the applicability of the overclaiming technique has, unfortunately, come at the deficit of understanding the phenomenon theoretically. The present theoretical discussion of overclaiming has identified two general areas of focus: the degree to which overclaiming is a conscious

process, and the degree to which overclaiming is influenced by narcissism. However, there is a third area of concern regarding overclaiming research that has received even less attention than the two theoretical foci previously mentioned. That is the issue of assessing, measuring, and operationalizing overclaiming. Unfortunately, the question of operationalizing overclaiming has not received much scrutiny (cf., Williams, & Zumbo, 2003), which is somewhat surprising considering its popularity in applied research. For this reason, the present research will make special consideration of some measurement issues regarding overclaiming. Consequentially, the following sections will diverge from discussing overclaiming as a construct to discuss its assessment.

ASSESSING OVERCLAIMING IN GENERAL

In their original experiment, Phillips and Clancy (1972) asked participants to rate their familiarity with a set of items that did not actually exist (see also Anderson, Warner, & Spencer, 1984; and Stanovitch, & West, 1989). Later experiments mixed real and fake items and operationalize "overclaiming" as the number of fake items that an individual endorsed (e.g., Stanovich & Cunningham, 1992). Other replications refined the approach by separately analyzing participants' actual knowledge—i.e., the *real* items participants endorsed—and their tendency to overclaim—i.e., the *fake* items that participants endorsed (e.g., Randall & Fernandes, 1991). In 1990, Paulhus and Bruce began working on a standardized assessment of a persons' tendency to overclaim by developing the Over-Claiming Questionnaire (OCQ). The OCQ took trivia items from 10 different domains (e.g., law or popular culture) and mixed them with foils to measure an individuals' actual knowledge as well as their tendency to overclaim (see Paulhus, 2011). Mixing true items and foils together allows researchers to analyze the OCQ using Signal Detection Theory (SDT; Wickens, 2002).

BACKGROUND ON SIGNAL DETECTION THEORY

Broadly speaking, SDT involves measuring the performance of an individual at responding to a target (a "signal") despite uncertainty ("noise"); SDT has its roots in radar-operations where individuals are tasked with identifying potentially hostile radar signals amidst the plethora of friendly signals and background noise (Wickens, 2002). Under SDT, participants' responses are categorized as *hits* when participants claim familiarity with a real item, *false alarms* when participants claim familiarity with a foil, *misses* when participants fail to claim familiarity with a real item, and *correct rejections* when participants fail to claim familiarity with a foil. The major statistics used in SDT are the false alarm rate (FA)—which is calculated by the number of false alarms divided by the total number of foils, and hit rate (H)—which is calculated by the number of hits divided by the total number of true items. Theoretical signal and noise distributions (approximating normal) are then drawn using the average H and FA in a given experiment, respectively (see Figure 1).

Traditionally, the theoretical signal and noise distributions are then used to create indices of response bias and accuracy. Response bias is an individuals' overall tendency to say "yes" or "no," whereas accuracy represents an individuals' ability to distinguish true items from foils. Most researchers agree that overclaiming should be indicated by a measure of response bias, while controlling for accuracy (see Paulhus, 2011). However, there is no universal consensus as to which SDT measures of bias or accuracy should be used. Below is a brief overview of some of the different indices that have been used in overclaiming research (see Stanislaw, & Todorov, 1999; and Wickens 2002 for more complete explanations of SDT concepts). Table 1 shows the mathematical formulations for the SDT indices to be discussed (along with the SPSS syntax used to compute them).

Bias and accuracy indices.

There are two foundational measures of bias and accuracy in SDT. The foundational measure of bias in SDT is the decision criterion λ, which is calculated by taking the negative z-score of FA. Assuming that the theoretical signal and noise distributions have the same standard deviation, then λ can be conceptualized as the point that differentiates whether an individual will respond "yes" or "no" on a particular trial. The response criterion λ can range from $-\infty$ to $+\infty$. The lower the value of λ, the more biased the individual is to say "yes"—meaning the individual has more hits and false alarms (see Figure 2a). The greater the value of λ, the more the individual is biased to say "no"—resulting in fewer hits and false alarms. The foundational measure of accuracy in SDT is d', which is calculated by subtracting the z-score of H from the z-score of FA, and can be conceptualized as the distance between the means of the signal and noise distributions, expressed in standard deviation units (see Figure 2b). The accuracy index d' can range from $-\infty$ to $+\infty$. Greater values of d' express greater accuracy, while a value of zero indicates that the individual is unable to differentiate foils from true items. Negative values of d' suggest either response confusion or sampling error.

The response criterion λ is a basic measure of bias that does not take into account the individuals' ability to distinguish true from false items. Thus, more advanced measures of bias incorporate an accuracy index into their calculation as means of controlling for an individuals' true knowledge. The most popular measure of bias in SDT is a version of λ that accounts for accuracy (as measured by d') called the centered response criterion $\lambda_{centered}$ or, more simply, c. The centered response criterion c can be understood as the distance between the decision criterion and a theoretical neutral point no bias exists. When the standard deviation of the noise and signal distributions are equal, the neutral point (sometimes referred to as the "ideal observer") is defined as the location where the hit and false alarm distributions meet, which can

therefore be understood as half of d'. For that reason, c can be calculated by subtracting half of d' from λ (see Figure 2c). The centered response criterion c can range from $-\infty$ to $+\infty$. Negative values of c indicate a bias towards saying "yes," whereas positive values of c indicate a bias towards saying "no."

Another popular index of response bias is β, or rather its natural logarithm $\ln(\beta)$. The bias index β is expressed by taking the ratio of the heights of the noise and signal distributions at the point denoted by λ (making it a likelihood ratio), this calculation results in an asymmetry that is removed by taking the natural logarithm of β (making $\ln(\beta)$ a log-likelihood ratio; see Wickens, 2002 pp. 28-31). The calculus required to compute β can be simplified by expressing $\ln(\beta)$ as the difference between the squared z-transformed FA and H divided by 2, or as the product of $d'$and c. The bias index $\ln(\beta)$ can range from $-\infty$ to $+\infty$. Interpreting $\ln(\beta)$ is similar to c, however, because $\ln(\beta)$ is conceptualized using the heights of the hit and false alarm distributions it does not assume that the variance of the distributions are equal (see Figure 3c) and can therefore be more appropriate when that assumption is violated (Stanislaw, & Todorov, 1999).

The idea of non-equivalent variances of the signal and noise distributions leads to a problem that has not been adequately addressed by overclaiming research. That is, with the exception of $\ln(\beta)$, all the indices discussed assume that the H and FA distributions are normal and have equal variance (see Figure 3). However, this assumption is not regularly tested in overclaiming research, which may call into question the appropriateness of using d' or c. There are, however, sets of nonparametric SDT indices that may be used when the equal variance assumption is violated. Non-parametric measures in SDT were developed from conceptual plots

of the participants' probability of committing a false alarm against their probability of a hit; different areas under the probability plot are used to define bias and accuracy (Wickens, 2002).

For example, though they did not directly test the equal-variance assumption, Jones and colleagues (*under review*; *in prep*) followed the recommendations of See, Warm, Dember, and Howe (1997) and used B'' as their measure of bias (Grier, 1971). Figure 4a shows a conceptual probability plot that was adapted from Grier (1971) showing three distinct regions: $A1$, $A2$, and $A3$. The probability plots will be populated by data in the region $A1$ when participants show a bias towards saying "no" because region $A1$ shows the area where the probability for hits and false alarms are lowest. Likewise, data will exist in the region $A2$ when participants show a bias towards saying "yes" because region $A2$ shows the area where the probability for hits and false alarms are highest.

Grier (1971) developed the B'' statistic, which can be conceptualized as the difference between $A1$ and $A2$, divided by the sum of $A1$ and $A2$. The bias index B'' can range from -1 to 1 with negative values indicating a bias to say "yes," positive values indicating a bias to say "no," and zero indicating no bias. To measure accuracy, a popular nonparametric measure is called A', which can be expressed as the probability that an individual will be able to distinguish true from false items. If an individuals' accuracy is high, the data under the probability plots will be spread along the left-most and upper-most regions. Therefore, using the Grier's (1971) conceptual probability plot, the accuracy index A' can be understood as $A3$ plus half of $A1$ and $A2$. In this way, A' attempts to approximate a ROC curve (Wickens, 2002), as can be seen in Figure 4b. The accuracy index A' can range from 0.50, indicating that the individuals' ability to differentiate true items from false is no greater than chance, to 1, indicating that the individual can perfectly differentiate true items from false ones.

SDT indices in overclaiming research.

With such a variety of SDT indices to use (actually, the above measures are a small subset of SDT indices, but they represent the most prevalent choices in overclaiming research), the overclaiming literature has not established an agreed upon set of metrics to indicate overclaiming. Moreover, researchers who are not familiar with SDT may find conceptualizing or calculating response bias and accuracy indices difficult (Paulhus, Harms, Bruce, & Lysy, 2003). Indeed, many researchers use simple means or summations as indicators of overclaiming (e.g., Bing, Kluemper, Davison, Taylor, & Novicevic, 2011; Feeney & Goffin 2015; Fu, & Deshpande 2012; Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006; Pesta, & Poznanski 2009; Randall, & Fernandes 1991; Schoderbek, & Deshpande, 1996). Table 2 shows the most popular indices of response bias and accuracy used in overclaiming research organized by the number of articles espousing each one.

To address this inconsistency, Paulhus and Petrusic—in an unpublished manuscript, recommended a set of "commonsense" indices based on untransformed H and FA that they asserted function similarly to the traditional SDT indices discussed above. Using the "commonsense" approach, response bias is measured by dividing the sum of H and FA by 2 and accuracy is measured by subtracting H by FA. Paulhus, Harms, Bruce, and Lysy (2003) discuss these "commonsense" indices briefly and Paulhus (2011) advocates for their use, but the original paper introducing these indices was never published. However, a draft of Paulhus and Petrusic's paper, dated 2007, can be found online (henceforth: Paulhus, & Petrusic, 2007 – a link to the paper can be found in the references).

Paulhus and Petrusic (2007) compared 19 SDT indices of bias and accuracy, including their "commonsense" indices, on the basis of theoretical cogency, factor-analytic performance, and predictive utility. On the basis of theoretical cogency, Paulhus and Petrusic (2007) argue

that their "commonsense" indices are conceptually comparable to traditional SDT measures of response bias and accuracy. Indeed, the "commonsense" indices are actually computationally identical to d' and c, except that the "commonsense" indices do not involve a z-transformation. For this reason, Paulhus and Petrusic (2007) also argue that the "commonsense" indices are easier to comprehend than other SDT indices.

On the basis of factor-analytic performance, Paulhus and Petrusic (2007) included all 19 indices of accuracy and response bias into three separate exploratory factor analyses, one containing accuracy measures, one containing bias measures, and one combining both. The results showed that the "commonsense" accuracy and response bias indices loaded strongly with other measures of accuracy and response bias, respectively. Finally, on the basis of predictive utility, Paulhus and Petrusic (2007) compared all 19 indices on their ability to correlate with a measure of global intelligence as well as a measure of narcissism. The results showed that the "commonsense" metrics performed similarly to other SDT indices: accuracy indices correlated strongly with global intelligence and weakly with narcissism, while the bias indices generally correlated weakly with global intelligence (if at all) and strongly with narcissism.

Overall, Paulhus and Petrusic (2007) argue that their "commonsense" indices perform similarly enough to traditional SDT measures to warrant their use, and ultimately they recommend that either the "commonsense" indices or $d'$and c be used in overclaiming research. Though the original paper was never published, the recommendations that Paulhus and Petrusic (2007) make were widely adopted (cited as "in submission" or else citing Paulhus, Harms, Bruce, & Lysy., 2003; e.g., Atir, Rosenzweig, & Dunning, 2015; Gebauer, Sedikides, & Schrade., 2017; Kam, Risavy, & Perunovic, 2015). Table 2 shows the different indices of response bias and accuracy used by other overclaiming researchers, illustrating the popularity of

Paulhus and Petrusic's (2007) recommendations. Of the overclaiming researchers who do use SDT indices, Table 2 shows that the most popular options are d' and c. This is due to the fact that the bias index c takes accuracy into account in an attempt to partial out the effects of true knowledge from a participants' response bias (Paulhus, & Bruce, 1990).

Controlling for true knowledge when assessing response bias is an accepted standard in the literature. However, the use of parametric measures (e.g., d' and c) to do so relies on some distributional assumptions regarding H and FA that overclaiming researchers do not tend to check. Traditional SDT experiments test whether the assumption that their H and FA distributions are violated (see "equal-variance model" in Wickens, 2002) and vary their choice of indices accordingly. If the hit and false alarm distributions are normal with equivalent variances, then $d'$and c would be appropriate choices. However, if the two distributions are not normal or do not have equivalent variances, then another set of indices should be used. Unfortunately, the overclaiming literature does not discuss the caveats to using d' and c, nor do they discuss the alternatives to d' and c when the normality or equal-variance assumptions are violated. Moreover, Paulhus and Petrusic's (2007) "commonsense" indices would not function as appropriate alternatives as they are essentially simplifications of d' and c.

For this reason, the present research includes tests of normality and equivalent-variance to assess the appropriateness of parametric indices of accuracy and response bias. Further, the present research partially adheres to Paulhus and Petrusic's (2007) advice by involving d' and c, but will not involve their "commonsense" indices. Rather, the present research investigates three alternative SDT indices that may be more useful to overclaiming researchers—especially when tests of normality or equal-variance are violated. Two alternative bias indices were assessed: the nonparametric bias index B'', and the parametric bias index $\ln(\beta)$. The nonparametic B'' was

used by Jones and colleagues (*under review*; *in prep*) and may serve as a universal index of bias for overclaiming researchers as it does not assume normality or equal variance and therefore does not necessitate additional tests to determine its appropriateness. Additionally, though $\ln(\beta)$ is a parametric index, it is robust to non-normality and violations of the equal variance assumption. Finally, the nonparametric index of accuracy A' were included as a potential alternative to d'. The present research includes analyses to assess the appropriateness of certain SDT indices, but more research is needed that directly evaluates which SDT indices are best suited to overclaiming data in general.

RECENT RESEARCH ON OVERCLAIMING

Since its inception, research on overclaiming has demonstrated robust associations with narcissism (Paulhus, Harms, Bruce, & Lysy, 2003; Paulhus, & Williams, 2002; Tracy, Cheng, Robins, & Trzesniewski, 2009). Moreover, there is a larger body of literature linking narcissism with anti-social behaviors and attitudes (e.g., Bushman, & Baumeister, 1998; Campbell, et al., 2002; Gentile, et al., 2010; Golec de Zavala, 2011; Golec de Zavala, & Cichocka, 2012; Golec de Zavala, et al., 2009; Gunderson, et al., 1991; Jones, et al., *under review*; *in prep;* Jones, & Paulhus, 2010; Malkin, 2015; Miller, et al., 2009; Paulhus, & Williams, 2002; Pincus, et al., 2014; Tracy, et al., 2009; Wallace, & Baumeister, 2002; Wink, 1991). Despite this, however, this is surprisingly little research demonstrating the association between narcissism, overclaiming, and anti-social outcomes together. Jones and colleagues (*under review*; *in prep*) were among the first to demonstrate the association between narcissism, religious overclaiming, and prejudice towards other religious groups (*in prep*) as well as the relationship between narcissism, religious overclaiming, and support for religious violence (*under review*).

The exact mechanisms explaining why overclaiming and narcissism are associated with prejudice (Jones, Neria, Helm, Sahlan, & Carré, *in prep*) and out-group derogation (Jones, Neria, Helm, Sahlan, Carré, *under review*) are not yet understood. However, several researchers have noted that there seems to be a dimension of personal identity that might motivate ones' tendency to overclaim. For example, Atir, Rozensweig, and Dunning (2015) found that students who claimed to be knowledgeable about certain domains of knowledge (e.g., finance) tended to overclaim significantly more often about that domain than other domains. As a personality dimension that is characterized by an insecure self-identity and reactive aggression (Jones, & Paulhus, 2010), the relationship between narcissism and overclaiming may belie some useful association to explain why overclaiming is associated with out-group derogation.

Conversely, a study by Dunlop, Bourdage, de Vries, Hilbig, Zettler, and Ludeke (2016) had participants respond to measures of overclaiming, narcissism, and the HEXACO measure of personality and found that openness to experience and actual exposure to knowledge out-predicted narcissism. However, Dunlop and colleagues (2016) only included one form of narcissism and, importantly, their interpretation of their findings hinged on the manner by which the individual identified with the topic for which they were overclaiming. Dunlop and colleagues (2016) explain that an *identity* as someone who is "open to experiences" combined with some actual knowledge of a topic account for more variance in overclaiming than does narcissism alone (as defined by one unidimensional measure). This is a potentially important distinction, especially as it relates to narcissism, because the research on narcissism has recognized different forms of the construct that can be categorized by how the individual *identifies*. The present research addresses the question of identification by incorporating different forms of narcissism that have been identified by contemporary research.

Types of narcissism.

As research on narcissism progressed, several competing models and theories developed around the construct resulting in a typology of narcissism (for review, see Bosson, Lakey, Campbell, Zeigler-Hill, Jordan, & Kernis, 2008). Other than clinical Narcissistic Personality Disorder, four types of trait (or subclinical) narcissism have developed in the literature. These are: grandiose, vulnerable, communal, and collective narcissism.

Grandiose and vulnerable narcissism.

Early research on trait narcissism described the construct as arrogant, self-absorbed, demanding, exploitative, and braggadocios (Bosson, Lakey, Campbell, Zeigler-Hill, Jordan, & Kernis, 2008). This initial conception of narcissism presumed that the narcissistic individual desires social visibility and possesses enough hubris to make explicit demands. However, over time, researchers recognized a group of people who expressed the same mindset as traditional narcissists, but who do not tend to make the overt shows of superiority. Thus the two earliest distinctions in subclinical narcissism were described as *grandiose narcissism*—which typifies the traditional conception of narcissism—and *vulnerable narcissism*—which describe people who have similar tendencies towards entitlement and arrogance but who lack the self-esteem to act on them (see Pincus Ansell, Pimentel, Cain, Wright, & Levy, 2009).

Recently, Krizan & Herlache (*in press*) argued that there is a common element of entitlement to narcissism. However, the form that it takes may be either hubristic (grandiose) or vulnerable, or both. As Bosson (2008) explains, vulnerable narcissism is associated with the same sense of entitlement and willingness to exploit others, but with a resistance to visibility and socializing as well as a tendency to self-report as "inferior" and score low on measures of self-esteem and life-satisfaction. Interestingly, while vulnerable narcissism is associated with low self-esteem, it is not associated with sadness but rather: anger, resentment, emptiness, and shame

(Pincus, Cain, & Wright, 2014). Moreover, while grandiose narcissism can be characterized as a continual search for validation and esteem, vulnerable narcissism seems to be paradoxically characterized by a search for invalidation and psychological scorn or suffering (Sarasohn, 2004). Sarasohn (2004) describes clients who present as vulnerable narcissists to seek pity and express reluctance to let go of their (unwarranted) identities as victims.

Communal narcissism.

Continuing research on narcissism has provided a more nuanced understanding of how different forms of narcissism are theoretically possible. For example, in their paper describing the concept of *communal narcissism*, Gebauer, Sedikides, Verplanken, & Maio (2012) illustrate the role of perceived source of esteem in how a particular form of narcissism will manifest. For example, Gebauer, Sedikides, Verplanken, and Maio (2012) describe the traditional conception of narcissism (i.e., grandiose narcissism) as a continual search for esteem in *agentic* domains. For this reason, researchers who study communal narcissism tend to use the term *agentic narcissism* to describe grandiose narcissism. That is to say, agentic narcissism tends to only be associated with exaggerated feelings of superiority in areas that reflect on them as individuals rather than, say, their identity as members of a group or community. In a similar way, vulnerable narcissism may be understood as a continual search for esteem in self-deprecating domains and may be associated with exaggerated feelings of inferiority.

Extending this line of thinking, Gebauer and colleagues (2012) contrast the agentic (grandiose) form of narcissism with a form of narcissism that can be understood as a continual search for esteem in *communal* domains. This communal form of narcissism shares the common theme of arrogance, entitlement, and exploitativeness. However, instead of making exaggerated shows of superiority in *agentic* domains (e.g., by overstating their intelligence, or showing off

their physique), a communal narcissist is more apt to overstate their value as a group- or community-member. In this way, a communal narcissism is associated with claims of warmth, selflessness, trustworthiness, or other pro-social attributes in ways that cannot be substantiated by evidence. Thus, Gebauer and colleagues (2012) maintain that the manner by which a narcissistic person identifies influences their perceived source of esteem influencing how that individual will express their narcissism.

Collective narcissism.

Older and more widely studied than communal narcissism, the construct of collective narcissism is a form of narcissism that draws their personal esteem from their perceived status as a member of a superior group (Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009). Contrasting with communal narcissism, *collective narcissists* consider themselves superior as a function of the group to which they identify—not as a function of their value within that group. Collective narcissists are extremely protective of their in-group's image, perceive any amount disrespect to their group as a personal attack worthy of retaliation, and tend to suffer from a chronic dissatisfaction with the amount of positive regard paid to their group (Golec de Zavala, 2011).

Collective narcissism has been associated with anti-Semitism in Poland (Golec de Zavala, & Cichocka, 2012), perceived threat from out-groups, unwillingness to forgive out-groups, and preference for military aggression (Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009). Importantly, the construct of collective narcissism out-performs other, more popular, psychological constructs that tend to be associated with out-group derogation—i.e., Social Dominance Orientation (Henry, Sidanius, Levin, & Pratto, 2005; Pratto, Sidanius, Stallworth., &

Malle, 1994), Right Wing Authoritarianism (Altemeyer, 1981), and blind patriotism (Schatz, Staub, & Lavine, 1999).

NARCISSISM AND OVERCLAIMING IN A RELIGIOUS DOMAIN

Previous research has identified a robust relationship between narcissism and religious overclaiming. For example, in a series of studies involving a total of 5,853 Christian participants, Gebauer, Sedikides, and Schrader (2017) found that, overclaiming Christian religious knowledge was associated both with communal narcissism and with the degree to which the participant identifies as an ideal Christian (further confirming Atir, Rosenzweig, & Dunning, 2015). However, while there exists a voluminous body of literature discussing the antisocial outcomes that are associated with narcissism (e.g., Bushman, & Baumeister, 1998; Campbell, et al., 2002; Gentile, et al., 2010; Golec de Zavala, 2011; Golec de Zavala, & Cichocka, 2012; Golec de Zavala, et al., 2009; Gunderson, et al., 1991; Jones, & Paulhus, 2010; Malkin, 2015; Miller, et al., 2009; Paulhus, & Williams, 2002; Pincus, et al., 2014; Tracy, et al., 2009; Wallace, & Baumeister, 2002; and Wink, 1991) as well as the antisocial outcomes that are associated with overclaiming (Anderson, et al., 1984; Bazerman, 2011; Bing, Kluemper, Davison, Taylor, & Novicevic, 2011; Jones, Neria, Helm, Sahlan, & Carré, *under review*; *in prep*; John, & Robins, 1994; Paulhus, 2011; Paulhus, & Dubois, 2014; Pesta, & Poznanski, 2009; Schoderbek, & Deshpande, 1996), there is little research exploring the theoretical relationship between narcissism, overclaiming, and antisocial outcomes together.

In the first program of research to use narcissism and overclaiming together to predict an antisocial outcome, Jones, Neria, Helm, Sahlan, and Carré (*under review*; *in prep*) sought to investigate the potential for narcissism and overclaiming to explain religious prejudice and support for religious violence. The results demonstrate that religious overclaiming was more

associated with communal narcissism than it was with agentic narcissism, whereas secular overclaiming (i.e., academic and vocabulary knowledge) was more associated with agentic narcissism than it was with communal narcissism (Jones, Neria, Helm, Sahlan, & Carré., *under review*; *in prep*). Additionally, the research by Jones and colleagues (*under review*) found that the degree to which a religious person overclaimed religious knowledge predicted the degree to which they held religious prejudices (*in prep*) and whether they would support for religious violence (*under review*). Furthermore, Jones and colleagues (*under review*) demonstrated that narcissism, specifically communal narcissism, contributes to the relationship between religious overclaiming and support for religious violence. Moreover, Jones and colleagues (*under review*) replicated the relationship between communal narcissism, religious overclaiming, and support for religious violence in Christian and Muslim samples.

Previous research has separately identified the relationship between narcissism and reactive aggression (Bettencourt, Talley, Benjamin, & Valentine, 2006; Jones, & Paulhus, 2010) as well as overclaiming and narcissism (Paulhus, 2011; Paulhus, & Bruce, 1990; Paulhus, Harms, Bruce, & Lysy, 2003). However, by incorporating these two lines of research together, the authors establish a potentially important line of research: the degree to which religious overclaiming and narcissism can predict whether an individual will support religious violence. Jones and colleagues (*under review*; *in prep)* represent the first step towards using overclaiming to help understand religious violence. Taken together, their results suggest that communal narcissism may be one potential pathway towards understand the association between overclaiming religious knowledge and support for religious violence. However, a greater discussion into the role that narcissism has historically played in understanding religious violence is important before any further questions can be addressed.

BACKGROUND ON NARCISSISM AND RELIGION RESEARCH

The relationship between narcissism and support for religious violence may be best understood through the factors that most strongly define narcissism: ego-related aggression (e.g., Bettencourt, Talley, Benjamin, & Valentine, 2006; Jones, & Paulhus, 2010), and self-enhancement (e.g., John, & Rice, 1994). There is some debate about whether a person's tendency to overclaim is a function of self-deception (which suggests a lack of awareness) or social desirability (which suggests conscious awareness). For example, some research has found overclaiming to be only weakly related to self-deceptive denial and *negatively* related to self-deceptive enhancement (Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006). Other research has found that participants who overclaim scored higher on measures of impression management (a form social desirability) compared to measures of self-deceptive responding (Tonković, Galić, & Jerneić, 2011). Conversely, separate research has found negative or null associations between overclaiming and social desirability personality items (Kam, Risavy, & Perunovic, 2015; Ludeke, & Makransky, 2016). However, the debate over the intentionality of overclaiming aside, whether it is a function of self-deceptive responding or social desirability (see also Bensch, Paulhus, Stankov, & Ziegler, *in press*), both arguments lend support to the idea that there is a component of identity and self contributes to the overclaiming phenomenon.

Indeed, recent research on overclaiming demonstrates that it interacts with participants' self-reported levels of expertise with the topic (Atir, Rosenzweig, & Dunning, 2015). Thus, the association with identity may belie the greater role of narcissism on overclaiming in general. Most telling, in this regard, is the research showing the consistent positive associations between overclaiming and measures of narcissism (Miller, & Campbell, 2010; Paulhus, & Harms, 2004; Paulhus, & Williams, 2002; Paulhus, Harms, Bruce, & Lysy, 2003). This may suggest that the processes under which overclaiming can occur mirror the processes that underlie narcissistic

decision-making. That is not to say that overclaiming should be considered a proxy to narcissism. Rather, the tendency to overclaim may rely on some of the same factors that define our current understanding of narcissism: Specifically, ego-related aggression and inflated sense of self (be it conscious via impression management, or unconscious via self-deceptive enhancement).

Further relevance can be found in research that investigates the nature of social desirability in religious people. A review of the research demonstrates a pattern suggesting that people who are prone to self-deceptive enhancement tend to approach religion in self-deceptive ways that are socially desirable in their respective communities (see Kramer, & Shariff, 2016). Additionally, Sedikides, & Gebauer (2010) found, in a meta-analytic review of religious self-deception, that people who self-deceptively enhance in the U.S. tend to express false beliefs about themselves in ways that match prevailing American ideals about religion. Whereas, self-deceptive people in the U.K. will more likely express false beliefs that are aligned with British religious ideals (Sedikides, & Gebauer, 2010). Sedikides, & Gebauer's (2010) findings lend support to a critical theoretical point: that the tendency to self-deceive in general explains the tendency to self-deceive in a religious context. That is to say, it is likely not the case that religion causes people to self-deceptively enhance religious knowledge. Rather, people who are predisposed to self-deceptive enhancement are therefore predisposed to express false religious ideals in places where religiosity is highly valued. In sum, where religion is considered culturally important, self-deceptive people will express more religiosity.

Considering that narcissism is robustly associated with reactive aggression (Bettencourt, Talley, Benjamin, & Valentine, 2006; Jones, & Paulhus, 2010), narcissism may also be important to both the theoretical understanding of religious overclaiming and its potential

application in predicting support for religious violence. For this reason, the present research follows up on Jones, Neria, Helm, Sahlan, and Carré (*under review*) to expand the investigation on the relationship between narcissism and religious overclaiming. Additionally, where Jones, and colleagues (*under review*, *in prep*) only included grandiose (agentic) and communal narcissism, the present research will also include vulnerable and collective narcissism. Including collective and vulnerable narcissism has the potential to ascertain more specifically the mechanisms under which identity influences religious overclaiming. For example, if collective narcissism is found to be more strongly correlated with religious overclaiming than communal narcissism that may suggest that an identity as a member *of* a superior group contributes more to overclaiming than an identity as a *superior group member*.

Understanding the specific mechanisms that contribute to religious overclaiming is potentially important as Jones, and colleagues (*under review*) suggest that measures of religious overclaiming may potentially be used as a screening tool for identified individuals who may be susceptible to supporting religious extremism. If religious overclaiming can be understood as a risk factor to religious extremism, then knowing the mechanisms that contribute to religious overclaiming may also advise how screened individuals are treated. For instance, if collective narcissism is more associated to religious overclaiming than communal narcissism, then screened individuals may benefit from a campaign that tries to reduce their identity as a member of a superior group or otherwise increase the perceived value of other groups. If, however, it is found that communal narcissism is more strongly associated with religious overclaiming than collective narcissism, then a campaign that identifies extremism as highly undesirable to the community may be more appropriate.

Developing religious overclaiming measures as screening tools would have sweeping theoretical implications on both the fields of narcissism research as well as the field of terrorism studies. Especially because using narcissism to explain religious extremism has not been well received by most modern researchers in the field of terrorism studies. However, this may be due to a miscommunication between researchers in terrorism studies—who only tend to understand narcissism from a psychodynamic perspective, and modern social psychologists—who have largely redefined the concept of narcissism since the psychodynamic perspective fell out of favor.

NARCISSISM IN THE TERRORISM STUDIES LITERATURE

Early psychological research investigating religious terrorism assumed that an individuals' decision to join a terrorist organization was caused by an underlying childhood trauma, psychopathology, psychological disorder, or personality disturbance (Sageman, 2004). However, as the field became more scientifically rigorous, empirical evidence quickly stacked against the psychopathology hypothesis as an explanation for why people choose to become involved in terrorist activities (Horgan, 2014). Of particular interest was the "malignant narcissism" hypothesis, which asserts that people who decide to involve themselves in terrorist activities are suffering from a clinical form of Narcissistic Personality Disorder as categorized in the DSM-III (NPD; Gunderson, Ronningstam, & Smith, 1991).

Over time, the malignant narcissism hypothesis was disavowed in the terrorism studies literature due to a lack of supporting evidence. Simultaneously, a shift occurred in the field of personality psychology such that it became more concerned with studying personality traits in the everyday population rather than clinically diagnosable personality disturbances. This shift in personality psychology led to an emergence of research on so called "subclinical" manifestations

of personality disorders including narcissism (Foster, & Campbell, 2007; Miller, & Campbell, 2008; 2010; Miller, Gaughan, Pryor, Kamen, & Campbell, 2009). Whereas the construct of narcissism was understood as a discrete clinical disorder (i.e., NPD), now narcissism is considered a continuous personality dimension that can be found outside of clinical populations (Blais, & Little, 2010). Unfortunately, when this shift in the personality psychology literature occurred, the questions regarding narcissism and terrorism were never reconsidered.

While there is little current empirical research investigating the relationship between subclinical expressions of narcissism and their relationship with terrorism, there is theoretical support suggesting that vulnerable narcissism should specifically related to *support* of suicide terrorism (Bobadilla, 2014). In a short commentary, Bobadilla (2014) drew a distinction between the phenomena of *suicide*, *murder-suicide*, and *suicide-terrorism*; he suggested that suicide-terrorism must necessarily involve a sense of narcissistic grandiosity that would enable someone to coordinate and plan a suicide in a way that will both maim or kill bystanders and draw attention to a cause to which you identify. Most other modern research that investigates narcissism and terrorism does not focus so closely on one of subclinical narcissism. Indeed, the majority of terrorism studies research that discusses the relationship between narcissism and terrorism refutes any relationship based solely on the grounds of the old psychopathological definition of narcissism.

Yet, there is an opportunity to reintroduce the concept of narcissism (as a subclinical trait) to the field of terrorism studies. Recently, researchers investigating the psychology of terrorism are calling for establishing a risk model that recognizes that the decision to be involved in terrorism must involve a multitude of variables both personal and societal (Horgan, 2014). Therefore, the present research project has the potential to reintroduce the concept of narcissism

as one potential risk factor in a persons' decision to become involved in terrorist activities. In so doing, the present research may provide the foundations for a possible screening tool using the principals of religious overclaiming to identify people that might be susceptible to extremist ideologies.

A POTENTIAL APPLICATION IN TERRORISM RESEARCH

The relationship between narcissism, religious overclaiming, and support for religious violence (Jones, Neria, Helm, Sahlan, & Carré, *under review*; *in prep*) presents the opportunity for addressing the problem of religious terrorism and terrorist recruitment from a new perspective. Specifically, the relationship between religious overclaiming and support for antisocial behaviors like terrorism has ramifications for a problem in terrorism studies that was described by Horgan in his book *The Psychology of Terrorism* (2014). In his book, Horgan (2014) describes a persons' decision to join a terrorist network as a process in three stages: involvement, engagement, and disengagement.

By *involvement in terrorism*, Horgan (2014) refers to a wide variety of environmental circumstances and psychological factors that contribute to a set of potential decisions that range from merely tolerating the presence of terrorists to passively supporting terrorist activities. By *engagement with terrorism*, Horgan (2014) refers to the range of environmental circumstances and psychological factors that contribute to a persons' decision to actively support terrorism. Such a decision might merely involve monetary donations or it might involve participating in the planning, facilitation, or execution of a terrorist event. Finally, by *disengagement from terrorism*, Horgan (2014) refers to the environmental circumstances and psychological factors that contribute to a person deciding to disassociate from a terrorist group or outright defect. Horgan's terms also include factors outside of the individuals' control, like becoming engaged

by getting extorted into contributing funds to a terrorist organization or becoming disengaged by getting apprehended and detained. According to Horgan (2014), research has paid a deal of great attention to the stages of terrorism where intervention is most difficult (i.e. engagement) and little attention to earlier stages where intervention is more plausible (i.e. involvement). In this way, the present research may address Horgan (2014) by proposing that subclinical narcissism and a propensity to overclaim religious knowledge are potential risk factors for terrorist *involvement*.

In a comprehensive review of terrorism studies research, Horgan (2014) finds few established psychological factors that contribute to a persons' decision to become *involved* in terrorism. However, though Horgan (2014) carefully stresses that terrorist groups and individuals within terrorist groups are extremely heterogeneous, there is one area where he does find homogeneity: Terrorist groups and individual terrorists all tend to be highly identified with an ideological cause and—perhaps more so—to the human figures who embody that cause. Horgan (2014) discusses a study by Post, Sprinzak, and Denny (2003 in Horgan 2014 pp. 92-93) who interviewed 35 incarcerated members of different Palestinian-affiliated terrorist groups, they found extreme heterogeneity in their participants' backgrounds and histories yet they were all uniform in that their childhood heroes were religious terrorists and political extremists.

Respondents to the study by Post and colleagues (2003 in Horgan 2014) listed figures ranging from Abdulla Azzam, a founder of the al-Qaeda terrorist network, to Che Guevara, a (secular) political revolutionary. Moreover, in his book *Understanding Terror Networks*, Sageman (2004) discusses the case histories of 171 known terrorists (mostly Islamic *salafist* terrorists) and suggests that identification with a cause or with extremist figures is actually an emergent quality in recruits. Many of the individuals discussed in Sageman's (2004) study were

not particularly ideological—or even religious—before they were recruited into a terrorist organization. In fact, Sageman (2004) suggests a pattern whereby extreme adherence to ideology or to ideological figures tends to be highest just before, or immediately after, joining a terrorist group.

Identifying with extremist figures is a rare constant that seems to motivate individuals to become involved in terrorist activities (Horgan, 2014). Critically, the concept of identification also seems to be central to the phenomenon of religious overclaiming. Research demonstrates that religious overclaiming is positively associated with support for violence and terrorism (Jones, Neria, Helm, Sahlan, & Carré, *under review*)—which may also have some implications towards the under-researched *involvement* stage of terrorism (Horgan, 2014). Additionally, if the link between domain-specific overclaiming and support for terrorism holds, it would present an opportunity to contribute to a switch from the old paradigm in terrorism research that focuses on *causes* of terrorism to one that emphasizes individual *risk factors* that may contribute to a persons' decision to support terrorism (e.g., Horgan, 2014).

Horgan (2014) argues that terrorism studies should switch to a risk-based paradigm because of the sheer number of different factors that can contribute to an individuals'' decision to become involved or engaged in terrorism is far too numerous for any one theoretical model to describe. By switching to a paradigm that focuses on known risk-factors—rather than one that tries to model causes (see also Newman, 2006)—of terrorist support, the scientific community might be able to adopt a public-health perspective to terrorism that seeks to reduce the risks for terrorism support in a community instead of individual by individual (see Bhui, Hicks, Lashley, & Jones, 2012; McKee, & Coker, 2009). In this way, the tendency to overclaim religious concepts should be explored as a risk factor that may contribute to support for terrorism, thereby

allowing for strategies to be developed that can better discourage false—and thus potentially harmful—religious or ideological information. Additionally, to the degree that narcissism is associated with religious overclaiming and support for terrorism, the present research has the opportunity to present the scientific community with subclinical narcissism as another potential risk factor that may contribute towards a persons' choice to become involved in terrorist activities.

INTRODUCING SUBCLINICAL NARCISSISM TO TERRORISM STUDIES

The early conception of terrorists as victims of psychological trauma or personality disturbances has been discredited (see Horgan, 2014; and Sageman, 2004). Sageman (2004), for instance, found no evidence to suggest that the decision to become involved in terrorism can be explained by any one kind of psychopathology. Indeed, research shows that psychological disorders seem to be distributed equivalently between terrorists and non-terrorists (Horgan, 2014). Additionally, Sageman (2004) did not find any evidence suggesting that terrorists tended to suffer from childhood trauma, pathological delusions, or antisocial personality disorder any more than non-terrorists. According to Horgan (2014) and Sageman (2004), the prevailing psychological interpretations of terrorism in the terrorism studies literature can be reduced to psychodynamic accounts that equate terrorism to children acting out against paternal authority figures.

Yet, Horgan (2014) and Sageman (2004) also seem to recognize that there exist some undefined dispositional commonalities among terrorists. Horgan (2004), for example, characterizes terrorist respondents in this research as "special in a psychological sense" (p. 158) and Sageman (2004) mirrors these sentiments in various parts of his book. Nevertheless, both Sageman (2004) and Horgan (2014) take great care to maintain that these similarities cannot be

accounted for by any particular psychiatric or psychological disturbance. Indeed, clinical diagnoses of personality disorders are rare and therefore it is appropriate for Sageman (2004) and Horgan (2014) to discount them. However, research has demonstrated that *subclinical* manifestations of personality "disorders" are actually quite common, and growing (Gentile, Twenge, & Campbell, 2010). For this reason, investigations into subclinical narcissism may lend some explanatory power in the terrorist studies literature where the clinical definition of narcissism could not.

THE CASE OF BIN LADEN

Sageman (2004) in particular provides compelling arguments for why narcissism should theoretically have nothing to do with a person deciding to be involved in a terrorist organization. However, Sageman (2014) relies on the DSM categorization of narcissism that does not take into account recent developments in narcissistic types (see also Krizan, & Herlache, 2017). For example, in his book, Sageman (2004) uses the example of Usama bin Laden extensively, explaining that religious terrorism, because of its emphasis on piety and general censure of egotism, would repel a narcissist—according to the DSM categorization. Sageman (2004), for instance, describes bin Laden as a gracious and humble leader without grandiosity, entitlement, or a desire for luxury that is characteristic of NPD. However, though Sageman's (2004) argument is appropriate for grandiose narcissism (the subclinical equivalent of NPD), a case can actually be made in support of the idea that bin Laden may have been a *communal* narcissist (e.g., Gebauer, Sedikides, & Schrade, 2017).

According to a psychological understanding of the term, narcissism is primarily focused with protecting and seeking constant validation for a fragile self-concept. Therefore, if being seen as a pious Muslim were critical to a narcissist's self-concept then the egotism, grandiosity,

and desire for luxury that characterize narcissism would be reframed according to a pious self-concept. To continue with the example of bin Laden, reports from sources other than Sageman (2004) detail behaviors that may not be consistent with a traditional understanding of *agentic* narcissism but which *are* descriptive of communal narcissism. For example, the station that bin Laden held within al-Qaeda confirmed on him several religious titles including *Mullah* and *Sheikh*—honorifics which designate someone a religious scholar and authority. According to reports, bin Laden not only used and encouraged these saintly honorifics, he also made concerted efforts to depict himself as a person of great religious esteem akin to the companions of the prophet Muhammad (Fighel, 2007).

In propaganda images bin Laden deliberately staged photographs of himself wearing white robes bathed in otherworldly light reminiscent of Abrahamic conception of angelic beings or other messengers of God (Miliora, 2004). This contrasts with other propaganda images used by *salafist* terrorists, which emphasize themes relating to militancy, retaliation, community, or ethnic history (though bin Laden did allow photographs of himself that includes militaristic imagery they were of less interest to him compared to the photographs he personally staged; Ranstorp, 2007; Prucha, 2016). Interestingly, photographing living things, including humans, is forbidden according to strict interpretations of the hadiths (collections of sayings attributed to the prophet Muhammad which act as a secondary authority to the Qur'an to define sharia law), suggesting an interpretation of sharia law that somehow does not apply to bin Laden or other terrorist leaders. Moreover, bin Laden maintained a distinctive manner of dress and style of facial hair in his everyday living that was peculiarly consistent with the descriptions of holy figures in the Qur'an—which was not typical among his terrorist contemporaries (Wright, 2001).

This preoccupation with his image as an exalted religious figure in propaganda images may suggest that bin Laden had some narcissistic tendencies. However, more telling than bin Laden's visual appearance is the distinctive, anachronistic, manner by which he spoke. Translating audio of bin Laden speaking was a notorious challenge because he tended to speak in an archaic Arabic dialect that is reserved for reciting the Qur'an or other holy works (Lawrence, 2005)—he reportedly even used this vocal affectation in his everyday speaking. For reference, this would be analogous to a Christian leader speaking *exclusively* in language similar to the Douay–Rheims translation of the Holy Bible (e.g., Matthew, 5:40-42: "And if a man will contend with thee in judgment, and take away thy coat, let go thy cloak also unto him. And whosoever will force thee one mile, go with him other two, Give to him that asketh of thee and from him that would borrow of thee turn not away.").

Using Qur'anic Arabic in everyday language was unique to bin Laden and demonstrates a marked fixation with an image of himself as a person who is closer to divine than the ordinary Muslim. Such grandiosity would not be consistent with an agentic narcissist—as Sageman (2004) asserts; however, it is not contraindicative of narcissism in general. By cultivating an impossibly high image of himself in staged photographs and by insisting on speaking using a dialect of Arabic that tends to be restricted to religious text, bin Laden postured himself as more than an ideal member of the Muslim community but a divinely inspired leader—such displays would be perfectly descriptive of *communal* narcissism. To the degree that one can be religious and narcissistic, previous research suggests that religious narcissists may also begin to overclaim their religious knowledge (e.g., Paulhus, Harms, Bruce, & Lysy, 2003; Paulhus & Williams, 2002; Tracy, Cheng, Robins, & Trzesniewski, 2009)—which itself is associated with support for violence and other antisocial outcomes (Jones, Neria, Helm, Sahlan, & Carré, *under review*).

THE VALIDITY OF TRAIT NARCISSISM

Horgan (2014) and Sageman (2004) appropriately criticize the applicability of clinical narcissism (NPD) in terrorism research. However, there have been several developments in the field of trait narcissism research that extended beyond solely considering narcissism a clinical disorder. Modern research on trait narcissism quickly eclipsed research on NPD for several reasons. Admittedly, this is primarily because it is substantially easier to study trait narcissism in the community than it is to study NPD – which can only be done with samples of people diagnosed with NPD (Miller & Campbell, 2010). However, as the research on trait narcissism has grown in popularity, so has the evidence suggesting that trait narcissism and NPD are overlapping constructs (Miller, & Campbell, 2008; 2012; Miller, Gaughan, Pryor, Kamen, & Campbell, 2009).

In fact, research suggests that the trait conception of narcissism is more appropriate and empirically consistent than the clinical conception of narcissism or NPD (Foster, & Campbell, 2007; Miller, Lynam, & Campbell, 2016). For these reasons, the present research works to reintroduce the concept of narcissism, through subclinical (or trait) narcissism into the larger literature on terrorism studies. Specifically, the present research continues the lines of research established by Jones, and colleagues (*under review*) that investigated differential associations between types of narcissism with religious overclaiming. However, while previous research has only included two types of narcissism, the present research incorporates four types of narcissism in an effort to more completely delineate the previously unknown mechanisms by which overclaiming operates and leads to support for religious violence.

The present research

Current research on narcissism and terrorism is empirically incomplete. At present, a comprehensive literature search on narcissism and terrorism will find only theoretical work. One noteworthy example of this suggests that there is a theoretical link between the behaviors of suicide-terrorism and vulnerable narcissism (see Bobadilla, 2014), but most other modern writing on narcissism and terrorism does not focus so closely on one subtype of narcissism. Indeed, the majority of research that refutes a relationship between narcissism and terrorism does so based solely on the grounds of the old psychopathological definition of narcissism rather than the contemporary conceptions of the construct that developed from continuing research. Moreover, to the degree that religious overclaiming is associated with terrorist *involvement* there is potential to use measures of religious overclaiming to identify individuals who may be more likely to become *involved*, or eventually *engaged*, in terrorism. However, though separate bodies of research have demonstrated a connection between overclaiming and narcissism (Paulhus, 2011; Paulhus, & Bruce, 1990; Paulhus, Harms, Bruce, & Lysy, 2003) and overclaiming and support for religious violence (Jones, Neria, Helm, Sahlan, & Carré, *under review*; *in press*), there is presently little research investigating the potential connection between narcissism and support for religious violence through religious overclaiming.

The present research project seeks to contribute to the research on terrorist *involvement* that Horgan (2014) claims is underserved. At present, it is unclear what forms of narcissism might be most associated with religious overclaiming or support for terrorism. For this reason, the present research project examines a wide swath of variables that have been shown to associate with religious overclaiming in order to help inform future research by specifying which relationships should be scrutinized further. However, before anything can be said about religious

overclaiming and its practical applications with terrorism research, a better understanding of the phenomenon of religious overclaiming itself is needed. Therefore the present research is comprised of two studies: The first study investigates the relationship between four types of narcissism on religious overclaiming; and the second study extends that relationship to include a proxy measure of support for terrorism (adapted from Jones, Neria, Helm, Sahlan, & Carré, *under review*)

QUESTIONS & PREDICTIONS

The goal of the present research project is to expand upon the theoretical understanding of religious overclaiming. Therefore, the present research project involved constructing large scale exploratory Structural Equations Models (SEM), following Kline (2011), that will attempt to address three theoretical questions regarding religious overclaiming in one model. First, there is a strong association between overclaiming and narcissism that merits investigation. Specifically, the proposed study builds upon previous research that has demonstrated that communal narcissism (Gebauer, Sedikides, Verplanken, & Maio, 2012) is more closely related to religious overclaiming than is agentic narcissism (Gebauer, Sedikides, & Schrade, 2017; Jones, Neria, Helm, Sahlan, & Carré, *under review*). The present study replicates Jones and colleagues (*under review*) by incorporating measures of communal and agentic narcissism and, additionally, the present study extends previous research (i.e., Jones, Neria, Helm, Sahlan, & Carré, *under review*; and Gebauer, Sedikides, & Schrade, 2017) by also including vulnerable narcissism and collective narcissism.

Previous research has shown a relationship between communal narcissism and religious overclaiming (Gebauer, Sedikides, & Schrade, 2017; Jones, Neria, Helm, Sahlan, & Carré, *under review*), therefore, it is predicted that communal narcissism would be associated with religious

overclaiming. However, it is expected that the relationship between communal narcissism and religious overclaiming should be diluted with the addition of collective narcissism. Collective narcissism has an established history of predicting out-group derogation (Golec de Zavala, 2011; Golec de Zavala, & Cichocka, 2012) similar to some of the associations found with religious overclaiming (Jones, Neria, Helm, Sahlan, & Carré, *under review*). Therefore, it is expected that collective narcissism would be more closely associated with religious overclaiming than communal narcissism. Finally, vulnerable narcissism has a theoretical relationship with an individuals' decision to become engaged in a terrorist event (Bobadilla, 2014). It may, therefore, be reasonable to expect that vulnerable narcissism would be associated with religious overclaiming. However, to the degree that the relationship between religious overclaiming depends on the individuals' sense of community, it may be more appropriate to expect constructs like communal or collective narcissism to be more closely related to religious overclaiming than vulnerable narcissism.

Secondly, at present, there has not been a study on religious overclaiming that has included measures of overclaiming from two different religious traditions (i.e., Christianity and Islam) nor has any previous study included measures of agentic and communal overclaiming. Though there have been studies that have investigated Bible overclaiming with samples of Christians and Qur'an overclaiming with samples of Muslims, there has yet to be a study that exposed participants who subscribe to one religious tradition to measures of religious overclaiming from another tradition. That is to say, for example, no study has exposed Christian participants to a measure of Qur'an overclaiming. Therefore, the proposed study extended previous research by exposing all participants to both Bible overclaiming and Qur'an overclaiming.

By incorporating both Bible and Qur'an overclaiming into one model, the present study has the opportunity to assess whether the phenomenon of religious overclaiming is restricted to an individuals' own faith. Assessing whether participants of one religious tradition may overclaim knowledge from another religious tradition would clarify some ambiguity surrounding the overclaiming effect. Specifically, it would establish whether or not someone may identify as "*knowledgeable about a religion*" without actually subscribing to that religion—a question for which there is some evidence (Jones, Neria, Helm, Sahlan, & Carré, *under review*) but which has not been directly tested. Additionally, by incorporating measures of agentic and communal overclaiming, the present research has the opportunity to correlate the measures of religious overclaiming with that of communal overclaiming to validate religious overclaiming as a communal domain.

Though it may be reasonable to expect that religious overclaiming would be found exclusively to individuals within their own religious tradition (i.e., that only Christians would overclaim Bible knowledge and only Muslims would overclaim Qur'an knowledge), previous research suggests otherwise. In Jones, and colleagues (*under review*) religious overclaiming was found even among participants who claimed to be atheist or otherwise non-religious—though Jones, and colleagues (*under review*) did not expose religious participants to overclaiming measures of religious traditions other than their own. Atir, Rosenzweig, & Dunning (2015) found that overclaiming tends to be strongest in domains with which their participants felt especially identified; that does not, however, suggest that it is impossible to identify as "*knowledgeable about other religions*" without subscribing to those religious traditions as well. It is therefore expected that participants in the proposed study would overclaim religious knowledge of religious traditions other than their own.

Thirdly, previous research has demonstrated that religious overclaiming is more associated with communal narcissism than agentic narcissism (Jones, Neria, Helm, Sahlan, Carré, *under review*). Additionally, other research has shown that individuals tend only to overclaim in domains to which they identify (Atir, Rosenzweig, & Dunning, 2015). Therefore, in addition to including a measure of communal narcissism, the proposed study also included a measure of agentic and communal overclaiming (Gebauer, Paulhus, Sedikides, & Elliot, *in prep*). The agentic and communal overclaiming measures were developed to identify whether individuals overclaim in domains commonly associated with agentic knowledge (i.e., the international stock market, chemistry & physics, market principles, and leading educational institutions) and communal knowledge (i.e., humanitarian aid organizations, nature & animal protection organizations, parenting & childcare, and international health charities). In so doing, the present study was able to correlate participants' performance on religious overclaiming to measures of agentic and communal overclaiming. Stronger correlations between communal overclaiming and religious overclaiming compared to agentic overclaiming would lend support to the idea that religion can be considered a communal domain (e.g., Atir, Rosenzweig, & Dunning, 2015). It is expected that the religious overclaiming measures would be more closely associated with communal overclaiming than agentic overclaiming.

Additionally, the present research is also making an important methodological advancement by using SEM techniques to analyze the data (Kline, 2011; Weston, & Gore, 2006). Previous research has shown consistent linear associations between communal narcissism and religious overclaiming (Gebauer, Sedikides, & Schrade, 2017; and Jones, Neria, Helm, Sahlan, & Carré *under review*), however, these studies exhibited traditional statistical analyses that assume zero measurement error and independence between all variables. Considering that the

proposed study measured many different forms of narcissism and overclaiming at once, it would be somewhat inappropriate to use a traditional statistical procedure (e.g., multiple linear regression) that assumes these variables are independent (Cheng, 2001; Hancock, 2003; Kline, 2011). For this reason, the proposed study used SEM to extend the previous research done by Jones and colleagues (*under review*) and Gebauer and colleagues (2017) in such a way as to account for the inter-correlation between the different measures of narcissism.

GENERAL METHODS

The present research consisted of two studies that explored the relationships between narcissism, religious overclaiming, and support for terrorism (through a proxy variable). Study 1 involved including measures of agentic (i.e., grandiose) narcissism, communal narcissism, vulnerable narcissism, and collective narcissism into a large SEM to develop a model of the relationship between these types of narcissism with Bible and Qur'an overclaiming as well as agentic and communal overclaiming. Study 2 involved replicating and extending Study 1 by including outcome measures taken from Jones and colleagues (*under review*) that asks participants the degree to which they support violent-defensive (as a proxy for terrorism), peaceful, and apathetic statements about religion. For both Studies 1 and 2, participants were recruited using Amazon Mechanical Turk (Mturk), an online crowd-sourcing platform, and were directed to the actual study using the online survey platform Qualtrics. Participants only were recruited from the United States via Mturk. Recruitment was attempted in an Iranian University (following Jones, Neria, Helm, Sahlan, & Carré, *under review*; *in prep*) but political circumstances made it impossible.

GENERAL PLAN OF ANALYSIS & COMPLICATIONS ADDRESSED

Descriptive statistics and correlations were examined using IBM SPSS and data visualizations were constructed using Wolfram Mathematica. Primary analyses for Studies 1 and 2 involved assessing the equal-variance assumption, which addresses the appropriateness of either parametric or nonparametric bias and accuracy indices. Afterwards, correlations and multiple linear regressions were performed before conducting the exploratory structural equation models (SEMs) in M*plus*. A Bonferroni multiplicity correction was conducted for all correlations and multiple linear regressions by multiplying the resulting p-value by the number of tests conducted. Tables disclosing correlation and regression statistics flagged significant results according to whether they were significant at the $\alpha = .05$ level (denoted by an asterisk "*"), $\alpha = .001$ level (denoted by a dagger "†"), or if they remained significant after a Bonferroni correction (denoted by a double-dagger "‡"). The analyses for Study 1 and 2 concluded with a set of exploratory SEMs following techniques illustrated in Kline (2011) using the M*plus* statistical package for latent variable modeling (Muthén, & Muthén, 2006).

The data for Studies 1 and 2 were intended to be fitted to hypothesized models found in Figures 5(a) and 6(a), respectively. However, serious model specification problems existed within the measurement portion of the SEM—particularly concerning the measures chosen to indicate grandiose and vulnerable narcissism (the NPI-13 and the BPNI). For this reason, the originally proposed models had to be adjusted such that the narcissism measures no longer indicate higher-order latent narcissism factor. These changes can be seen in Figures 5(b) and 5(b), respectively. Coincidently, a very recent paper by Miller, Lynam, Hyatt, and Campbell (*in press*) details issues with the PNI and NPI that are of the same nature as the problems found the present research (see also Miller, Lynam, & Campbell, 2016).

The hypothesized models were then intended to be specified and respecified in an exploratory fashion using modification indices and recommendations made by Bowen (2014); Hooper, Coughlan, & Mullen (2008); Kline (2011); and Muthén, & Muthén (2006). However, problems similar to the one detailed above—to be discussed in their respective sections—made model specification using modification indices impossible. Consequently, the exploratory SEM analyses were run in an iterative process that fit separate components of the structural model separately, removing problematic variables until no more problematic variables existed (Anderson, & Gerbing, 1988). A problematic variable was any variable that (1) contributed to model misspecification, or (2) did not associate with any other variable in the model. The exploratory process of model specification should result in a similar set of relationships between models in both Study 1 and 2.

The chi square test of model fit (χ^2) was intended to be used to assess whether the model is consistent with the covariance data, with lower values and a nonsignificant p-value suggesting better fit (Kline, 2011). The Root Mean Square Error of Approximation ($RMSEA$) provides a range of inferences with values below .05 indicating excellent fit, values between .05 and .08 indicating good fit, values between .08 and .10 indicating acceptable to borderline fit, and values greater than .10 indicating poor fit (Browne & Cudeck, 1993; Steiger & Lind, 1980). The Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI, synonymous with $NNFI$ or non-normed fit index) both suggest that values greater than .90 indicate acceptable fit and values greater than .95 indicate good to excellent fit (Bentler & Bonnett, 1980; Kline 2011). Finally, the Standardized Root Mean Square Residual ($SRMR$) suggests, perhaps too liberally (Kline, 2011), that values lower than .08 indicate better fit (Hu, & Bentler, 1999).

However, the problems associated with the SEMs in the present research had impacts on the fit of models. All of the χ^2 statistics were significant, suggesting poor covariance coverage, and the models resulting from the exploratory SEMs tended to be saturated (i.e., their $df = 0$). Conventional SEM analyses are conducted in experimental research that is assessing the causality between variables (Browne, & Cudeck, 1993; Kline, 2011), as such the traditional fit indices described above are not meant to assess the appropriateness of exploratory research. Indeed, traditional fit indices actually penalize additional parameters in an attempt to encourage parsimony (Browne, & Cudeck, 1993; Cheng, 2001; Rigdon, 1996), which effectively penalizes exploratory research as well. For these reasons, model fit statistics for the SEMs are not as relevant as those in the multiple linear regression procedures that they follow (e.g., Bollen, & Long, 1993). If a regression model were not significant, further SEM analyses would not have been attempted (e.g., Bollen, & Lennox, 1991).

Study 1 – narcissism and religious overclaiming

Study 1 involves a Structural Equation Model (SEM) using six measures (NPI-13, BPNI-G, BPNI-V, HNS, Com.N, and Col.N) to assess four types of subclinical narcissism (grandiose, vulnerable, communal, and collective) and their relationship to Bible-, Qur'an-, agentic-, and communal-overclaiming. In so doing, the measurement model of the SEM can also serve as an analysis of the differential performance of these six narcissism measures. Figure 5(a), shows the proposed structural model that was assessed in Study 1, there were six measures of narcissism intended to assess four forms of narcissism. Grandiose narcissism was intended to be indicated by the grandiose subscale of the Brief Pathological Narcissism Inventory (BPNI-G; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009) as well as the 13-item Narcissistic Personality Inventory (NPI-13; Raskin & Hall, 1979). Vulnerable narcissism was intended to be indicated by the vulnerable subscale of the BPNI (BPNI-V) and the Hypersensitive Narcissism Scale (HNS; Hendin, & Cheek, 1997). Finally, collective narcissism (Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009) and communal narcissism (Gebauer, Sedikides, Verplanken, & Maio, 2012) was indicated by their respective measures (see below). Figure 5(b) shows the adjusted models that resulted from the NPI-13, BPNI, and HNS failing to indicate higher-order grandiose and vulnerable latent narcissism factors. The adjusted models involve using each scale as correlated indicators of their own narcissism factor.

POWER ANALYSIS & PARTICIPANTS

An *a prori* power analysis was conducted with software developed by Preacher & Coffman (2006) following the not-close fit approach (Kline, 2011) using an alpha of 0.05, a desired power of 0.80, null *RMSEA* of 0.05, alternative *RMSEA* of 0.01, and 46 degrees of freedom (*df*). The results of the power analysis indicted that approximately 282 participants

were necessary for power of 0.80 (approximately 488 participants for a power of 0.99). The present study over-sampled to ensure that it is adequately powered in case participants needed to be. Thus a total of 493 participants were recruited for Study 1 (compensated 50¢ each); however, 111 participants were omitted for failing to complete the study resulting in 382 participants available for analysis. Careless responding was controlled by omitting participants' responses on questionnaires where they failed an attention-check.

Also note that the power calculations were made assuming that all measures used will be parceled. The term *parcels* in SEM refers to the practice of simplifying the measurement models by summarizing all of the items within a given scale or its factors, if a scale has an underlying factor structure, with the mean score of that scale. The main advantage of parceling in SEM is that it can substantially simplify calculations for both power analyses and model specification. Though use of parcels is under debate, it has been recommended when there are a large number of parameters to estimate (Bandalos, 2002; Little, Rhemtulla, Gibson, & Schoemann, 2013).

MATERIALS

Narcissism measures.

Studies 1 and 2 involved the two most popular measures of subclinical grandiose and vulnerable narcissism are the Narcissistic Personality Inventory-13 (PNI-13; Gentile, Miller, Hoffman, Reidy, Zeichner, & Campbell, 2013) and the Brief Pathological Narcissism Inventory (BPNI; Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2015). To assess other types of narcissism, the present study used the Hypersensitive Narcissism Scale (HNS; Hendin, & Cheek, 1997), the Collective Narcissism Scale (Col.N; de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009) and the Communal Narcissism Scale (Com.N; Gebauer, Sedikides, Verplanken, & Maio, 2012).

The Narcissistic Personality Inventory – 13.

Adapted from the original Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979), the 13-item version (the NPI-13) is the preferred version for brief assessments of narcissism because it maintains the theoretically consistent three-factor structure of narcissism that was first described by Ackerman and colleagues (2011; cf., Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2015). The NPI-13 consists of 13 forced-choice binary items that each consists of two statements: one narcissistic statement and one non-narcissistic statement (see Appendix A). The three factor solution that describes the NPI-13 consist of "Leadership / Authority" (four items; e.g., 1 = "*I like having authority over other people*;" 0 = "*I don't mind following orders*"), "Grandiose / Exhibitionism" (five items; e.g., 1 = "*I will usually show off if I get the chance*;" 0 = "*I try not to be a show off*"), and "Entitlement / Exploitativeness" (four items; e.g., 1 = "*I find it easy to manipulate people*;" 0 = "*I don't like it when I find myself manipulating people*"). Research suggests that the NPI-13 is best suited for capturing Grandiose Narcissism (Maxwell, Donnellan, Hopwood, & Ackerman, 2011); for that reason, The BPNI and HNS were used to indicate Vulnerable Narcissism.

The Brief Pathological Narcissism Inventory.

The original Pathological Narcissism Inventory (PNI; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009) was created to address some theoretical inconsistencies that some researchers found with the NPI (see, Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2015). The brief version of the PNI (the BPNI) was constructed to allow quick measurement of pathological narcissism that retains a more complex hierarchical factor structure compared to the NPI. The BPNI consists of 28 items measured on a 7-point Likert scale (see Appendix B). The BPNI consists of a two-factor solution.

The first higher-order factor is "Grandiosity," which indicated by three lower-order factors: "Exploitativeness" (four items; e.g., "*I can make anyone believe anything I want them to*"), "Self-Sacrificing Self-Enhancement" (four items; e.g., "*I try to show what a good person I am through my sacrifices*"), and "Grandiose Fantasy" (four items; e.g., "*I often fantasize about being recognized for my accomplishments*"). The Second higher-order factor is "Vulnerability," and is indicated by four lower-order factors: "Contingent Self-Esteem" (four items; e.g., "*When people don't notice me, I start to feel bad about myself*"), "Hiding the Self" (four items; e.g., "*It's hard to show others the weaknesses I feel inside*"), "Devaluing" (four items; e.g., "*Sometimes I avoid people because I'm concerned they won't acknowledge what I do for them*"), and "Entitlement Rage" (four items; e.g., "*I typically get very angry when I'm unable to get what I want from others*").

The PNI and BPNI have found utility in measuring subclinical narcissism (Paulhus &Williams, 2002; Wallace & Baumeister, 2002), and has the added benefit of being able to measure both grandiose and vulnerable narcissism. However, some research suggests that the BPNI may not be well suited for measuring vulnerable narcissism (see Miller, & Campbell, 2011; and Miller, Lynam, & Campbell, 2016). Therefore, the portion of the PNI that measures vulnerable narcissism was be supplemented with the Hypersensitive Narcissism Scale (HNS, forthcoming).

The Hypersensitive Narcissism Scale.

Originally developed to complement the NPI, the Hypersensitive Narcissism Scale (HNS; Hendin, & Cheek, 1997) was designed to measure Covert Narcissism (a construct that is theoretically similar to Vulnerable Narcissism; Wink, 1991). The HNS consists of 10 items that are measured on a 7-point Likert Scale all of which measure a single factor (see Appendix C):

hypersensitive, or vulnerable narcissism (e.g., "*My feelings are easily hurt by ridicule or by the slighting remarks of others*"). To supplement the BPNI in its assessment of Vulnerable Narcissism—and, additionally, to compare its ability to measure vulnerable narcissism—both the BPNI and the HNS was used to measure vulnerable narcissism.

The Communal Narcissism Scale.

As one of the newest interpretations of narcissism, the Communal Narcissism Scale (Com.N) measures a type of narcissism that exists when a persons' sense of self becomes tied with their community and their usefulness within their community (Gebauer, Sedikides, Verplanken, & Maio, 2012). Communal narcissism is similar to traditional conceptions of narcissism (called "agentic narcissism" by Gebauer, Sedikides, Verplanken, & Maio, 2012). Both communal and agentic narcissism is characterized by grandiosity, power seeking, and entitled, and—critically—both agentic and communal narcissism seek agentic praise. However, where agentic narcissism is correlated with people seeking personal, individualizing such displays as grandiosity, power, and esteem; communal narcissism seeks community-oriented displays.

One study illustrates this dichotomy by demonstrating that narcissism ("agentic" narcissism) is associated with greater self-appraisals in individual-oriented domains such as intelligence and extraversion, but not community-oriented domains like agreeableness and morality (Campbell, Rudich, & Sedikides, 2002). Though this study did not measure communal narcissism, it is expected that the results would be exactly reversed such that participants scoring high in communal narcissism would inflate their appraisals of their agreeableness and morality, but not intelligence and extraversion. In this way, people high in communal narcissism seek to be perceived as the most respected member of their community by making exaggerated claims or

displays of pro-social concepts. The Com.N consists of 16 items (e.g., "*I am the most helpful person I know*") measured on a 7-point Likert scale that are designed to converge onto a one-factor solution called "Communal Narcissism" (see Appendix D). The Com.N is the only scale that used to assess communal narcissism.

The Collective Narcissism Scale.

Another nuanced manifestation of narcissism is measured by the Collective Narcissism Scale (Col.N; Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009). Collective narcissism is associated with an inflated sense of group-worth rather than self-worth alone; however, collective narcissism are motivated by the belief that they belong to the most deserving or entitled group. The Col.N consists of 9-items (e.g., "*I wish other groups would more quickly recognize the authority of my group*") measured on a 7-point Likert scale that are designed to converge onto a one-factor solution called "Collective Narcissism" (see Appendix E). The Col.N is the only scale that used to assess collective narcissism.

Overclaiming measures.

The present studies used two measures of religious overclaiming, one focusing on the Christian Bible and the other focusing on the Qur'an. Additionally, the present study measured agentic and communal forms of overclaiming.

Religious overclaiming.

The present study used two measures of religious overclaiming that were developed in Jones, Neria, Helm, Sahlan, and Carré (*under review*). The Bible Over-Claiming Questionnaire (BOCQ) is designed to measure overclaiming of Christian religious knowledge (Appendix F). Participants are exposed to several real Bible figures, events, locations, ranging from relatively easy (e.g., "*Judas betrays Jesus*") to relatively difficult (e.g., "*Boaz married Ruth*") and asked to

rate their familiarity with these items. However, interspersed between the true items are several fake items that were designed to appear plausible but which are not located in the Christian Bible (e.g., "*The servants of anointment*," or "*Roman injunction of Paulhus*"). All items were developed with the assistance of volunteers from a Methodist congregation in New Jersey, true items had their veracity confirmed and false items were vetted to ensure they could not be reasonably confused for a true item.

Additionally, the present study provided participants with a measure of overclaiming of Islamic religious knowledge called the Qur'an Over-claiming Questionnaire (QOCQ). The QOCQ was designed similarly to the BOCQ (see Appendix G). Participants are exposed to several real Qur'anic figures, events, locations, ranging from relatively easy (e.g., "*Adam as the first prophet of God*") to relatively difficult (e.g., "*Taking the spirit of Addis*") and asked to rate their familiarity with these items. However, interspersed between the true items are several fake Bible items that were designed to appear plausible but which are nonetheless not located in the Christian Bible (e.g., "*Aaron and his brother Saul*," or "*Treasure of Nimrud*"). All items were developed with the assistance of an Islamic expert from a university in Iran who did not wish to be identified. True items had their veracity confirmed and false items were vetted to ensure they could not be reasonably confused for a true item.

Agentic-communal overclaiming.

To contrast the religious overclaiming measures, the present study also involved exposing participants to a measure of agentic overclaiming and communal overclaiming. Both agentic and communal forms of overclaiming are measured by the Agentic-Communal Over-Claiming Questionnaire 12 (AGCO-OCQ12; Gebauer, Paulhus, Sedikides, & Elliot, *in prep*). The AGCO-OCQ12 consists of 24 items (See Appendix H) divided into two assessments. The AOCQ

consists of the first 12 items in the AGCO-OCQ12 that measure participants' overclaiming in four agentic domains (i.e., the international stock market, chemistry & physics, market principles, and leading educational institutions). The COCQ consists of the second 12 items in the AGCO-OCQ12 that measure overclaiming in four communal domains (humanitarian aid organizations, nature & animal protection organizations, parenting & childcare, and international health charities). For each domain there are three items, two of which are real (e.g., "*The Theory of General Relativity*") while one is fake (i.e., "*The Mander Periodical Equation*"). Participants are asked to measure their familiarity with each item on a 7-point Likert scale ranging from 0 ("*I never heard of it*") to 6 ("*I am very familiar with it*"). Similar to the BOCQ and QOCQ, the AGCO-OCQ12 was modeled after Paulhus, Harms, Bruce, and Lysy. (2003) and is meant to be analyzes following SDT.

PROCEDURE

Participants were told that they were responding to a survey on "personality and trivia." After consenting, participants were randomly exposed to two blocks: one containing the measures of narcissism, and one containing the religious overclaiming measures. The order of the blocks was randomized, the order of the measures within the blocks was randomized, and the order of the items within the measures was randomized. Participants were then given a suspicion probe, after which participants were debriefed and given an opportunity to comment on the study before exiting the study.

RESULTS

Scale properties & descriptive statistics.

Interpreting reliability estimates followed recommendations by McDonald (1999). Cronbach's coefficient alpha were calculated using SPSS, CFAs were run in M*plus*. The NPI-13 overall had

good reliability ($\alpha = .82$) and excellent model fit ($CFI = .98$; $TLI = .97$; $RMSEA = .04$). Note that, in SEM notation λ refers generally to an item or factor loading and should not be confused with the SDT response criterion that use the same symbol. The items of the NPI loaded strongly onto their factors (lowest $\lambda = .71$) and the lower-order factors loaded strongly onto the higher-order factor (lowest $\lambda = .78$). The factors of the NPI-13 had poor to fair reliability; they were Leadership / Authority ($\alpha = .74$), Grandiose / Exhibitionism ($\alpha = .70$), Entitlement / Exploitativeness ($\alpha = .66$).

The BPNI overall had excellent overall reliability ($\alpha = .94$), but some problems arose when assessing model fit. The Grandiose and Vulnerable subscales failed to indicate a higher-order factor, though they would indicate two correlated factors but specifying a model with two separate Vulnerable and Grandiose factors also showed good to excellent fit ($CFI = .90$; $TLI = .89$; $RMSEA = .07$; $SRMR = .06$). The grandiose subscale of the BPNI had good reliability ($\alpha = .87$). The items indicating lower-order factors in the Grandiose subscale of the BPNI loaded well onto their factors (lowest $\lambda = .51$) and the lower-order factors loaded well onto the higher order Grandiose factor (lowest $\lambda = .54$). The factors of the BPNI-grandiose scale had fair to good reliability; they were Exploitativeness ($\alpha = .80$), Self-Sacrificing Self-Enhancement ($\alpha = .77$), and Grandiose Fantasy ($.87$). The items indicating lower-order factors in the Vulnerable subscale of the BPNI loaded strongly onto their factors (lowest $\lambda = .60$) and the lower order factors loaded strongly onto the higher order factors (lowest $\lambda = .77$). The vulnerable subscale also had excellent reliability ($\alpha = .94$) and the factors of the BPNI-vulnerable scale had good reliability; they were Contingent Self-Esteem ($\alpha = .87$), Hiding the Self ($\alpha = .80$), Devaluing ($\alpha = .85$), and Entitlement Rage ($\alpha = .81$). The items indicating lower-order factors in the Vulnerable subscale of the BPNI loaded well onto their factors (lowest

$\lambda = .60$) and the lower-order factors loaded well onto the higher order Grandiose factor (lowest $\lambda = .76$).

The HNI had excellent overall reliability ($\alpha = .93$) but poor model fit ($CFI = .80$; $TLI = .78$; $RMSEA = .10$; $SRMR = .07$). The items indicating the unidimensional HNS factor loaded adequately (lowest $\lambda = .44$). The Com.N had excellent reliability ($\alpha = .93$) but poor model fit ($CFI = .78$; $TLI = .74$; $RMSEA = .15$; $SRMR = .09$). The items indicating the unidimensional Com.N factor loaded adequately (lowest $\lambda = .49$). The Col.N had good reliability ($\alpha = .89$) and poor model fit ($CFI = .88$; $TLI = .84$; $RMSEA = .15$; $SRMR = .05$). One item (number 7, a reverse-coded item) did not correlate well with the rest of the scale and removing the item improved the reliability (to $\alpha = .92$) but did not change the model fit. Future analyses do not include that item. Descriptive statistics for the narcissism measures can be found in Table 3.

The overclaiming measures are not considered latent variables and therefore do not lend themselves to CFA and are instead treated as exogenous observed variables. The BOCQ had excellent reliability for both the true items ($\alpha = .98$) and the foils ($\alpha = .96$). The average H was 41.23% ($SD = 20.88\%$) and the average FA was 12.87% ($SD = 19.68\%$). Figure 7 shows a plot of the participants'' H and FA displayed as coordinate plane such that FA is displayed on the x-axis and H is displayed on the y-axis. Across the diagonal is a dashed line referencing the point when H and FA are equal. Points below the diagonal indicate participants whose FA was higher than their H, points above the diagonal indicate participants whose H was higher than their FA. As can be seen from Figure 7, many participants (37.1%) did not claim familiarity with any of the foils, while the remainder claimed familiarity with at least one.

The QOCQ also had excellent reliability for both true items ($\alpha = .96$) and for the foils ($\alpha = .91$). The average H was 23.77% ($SD = 16.18\%$) and the average FA was 19.21% ($SD =$

19.54%). Figure 8 shows a plot of the participants' H and FA displayed as a coordinate plane such that FA is displayed on the x-axis and H is displayed on the y-axis. The plot shows lower overall H and greater FA compared to the BOCQ. More participants were below the diagonal line and fewer were above the diagonal line compared to the BOCQ. Also, interestingly, fewer participants did not claim familiarity with the foils (11.5%) compared to the BOCQ.

The AOCQ demonstrated good reliability for both the true items ($\alpha = .85$) and for the foils ($\alpha = .87$). The average H was 14.59% ($SD = 22.79\%$) and the average FA was 14.41% ($SD = 21.72\%$). Figure 9 shows a plot of the participants' H and FA displayed as a coordinate plane such that FA is displayed on the x-axis and H is displayed on the y-axis. As can be seen in Figure 9, the AOCQ exhibited a greater range of participants with H near 1 and FA near 0. A total of 47.8% of participants did not claim familiarity on any of the foils but visibly more participants also exhibited greater FA than H as many points appear below the diagonal. The COCQ demonstrated fair reliability for the true items ($\alpha = .73$) and good reliability for the foils ($\alpha = .82$). The average H was 47.73% ($SD = 17.81\%$) and the average FA was 18.06% ($SD = 22.66\%$). Figure 10 shows a plot of the participants' H and FA displayed as a coordinate plane such that FA is displayed on the x-axis and H is displayed on the y-axis. The COCQ shows a similar pattern to the AOCQ except that there are slightly more coordinates below the diagonal. A total of 35.4% of participants claimed no familiarity with the foils on the COCQ.

Scoring the overclaiming measures.

Traditional SDT assessments involve a binary choice where individuals report either "yes," indicating that they detect a stimulus, or "no," indicating that they do not. However, binary choices tend to put strain on participants (especially novice participants) and they often require a very large number trials, causing fatigue (Wickens, 2002). To combat both of these

challenges, overclaiming questionnaires adopt a typical Likert-style rating questionnaire where participants report the degree to which they are familiar with an item (Paulhus, Harms, Bruce, & Lysy, 2003; Wickens, 2002). Rating questionnaires reduce the response burden on participants by giving them an alternative to a dichotomous choice, which may not wholly reflect the degree to which they feel they are familiar with the item (Wickens, 2002). Participants do not feel forced to declare one way or another and are allowed to express degrees of certainty in their assertions. Moreover, scoring rating questionnaires results in richer data that allows researchers to reduce the number of trials they are required to ask of participants, thus reducing the time needed to participate in the task (Wickens, 2002).

Whereas scoring a binary questionnaire involves calculating H and FA by taking the means of their respective trials, scoring a rating questionnaire requires calculating means for one minus the number of response-points provided to participants—for both H and FA items. For example, the overclaiming questionnaires used in the present study involve a 7-point scale which required recoding the data six time and collecting means for each iteration of the recoded data. The first step (Step A) of this process involves recoding all responses of "1" (denoting no familiarity) into "0" and recoding all responses of 2-7 (denoting some degree of familiarity with an item) into "1". In the next step (Step B), responses of 1 and 2 are recoded "0" and responses of 3-7 are recoded as "1". This process is repeated for every value of the Likert-type scale minus one until the final step (Step F, in this case) where responses of 1 through 6 are recoded "0" and only responses of 7 are recoded "1". Finally, means are calculated for each step (A through F) of the recoded H and FA yielding a 12 total means per participant: 6 means (A through F) for the H trials and 6 means (A through F) for the FA trials.

The process of recoding and averaging the raw H and FA data for one minus the total number of response points has the effect of creating cutoff criteria (A through F; see Figure 11) for each point on the Likert-scale provided to the participants (see Wickens, 2002). In this way, the cutoff at point A represents the cutoff between where a participant responded with a 1 (indicating no familiarity) and 2 (the lowest degree of familiarity). Similarly, B represents the cutoff between where a participant responded with a 2 (the lowest degree of familiarity) to the point where the participant responded with a 3 (the next highest degree of familiarity)—and so on. The cutoff scores generated for H and FA, together, are used to assess whether the equal-variance model holds (Wickens, 2002). Moreover, the six cutoff scores generated for H and FA can be averaged to create composite metrics of H and FA that are used to compute SDT indices of response bias and accuracy. Descriptive statistics for the overclaiming measures and their SDT indices can be found in Table 4.

Assessing equality of variance.

The traditional SDT indices of response bias and accuracy assume the variance between H and FA are equivalent. Following Wickens (2002), the equal variance assumption of each overclaiming measure was assessed by plotting an isosensitivity function using the z-transformed cutoff criteria for each overclaiming measure. An isosensitivity function involves plotting H and FA for each cutoff as ordered pairs such that the x-axis represents FA and the y-axis represents H. An isosensitivity function can be plotted using raw H and FA or as Gaussian transformations. The figures in the present study displayed the latter because using Gaussian transformations makes it easier to interpret and to evaluate the equal-variance and normality assumption.

Interpreting the isosensitivity functions involves drawing a straight line that best fits the coordinates and evaluating the slope of that line. If the equal-variance model is true, the slope of

the line will approximate 1. Evaluating the equal-variance assumption involves assessing the degree to which the line departs from 1. The solid lines on the figures correspond the line that best fits the decision criteria, the dashed lines illustrates what the line would look like if its slope was exactly 1. The further away the solid line is from the dashed line, the more the overclaiming measure violates the equal-variance assumption. Additionally, the isosensitivity function can also be used to infer normality. If the coordinates do not noticeably deviate from a straight line then normality can be assumed, however, if the points exhibit a noticeably curvilinear relationship then the normality assumption is violated.

Figure 12 shows the isosensitivity functions for each of the four overclaiming measures used in the present study. Below each of the plots is the formula for a line that best describes the coordinates. Examining the isosensitivity functions shows that the slopes of the lines drawn for the BOCQ (Figure 12a) and QOCQ (Figure 12b) demonstrate the furthest deviation from 1 (0.82 and 0.86, respectively). However, the slopes of the lines drawn for the AOCQ (Figure 12c) and the COCQ (Figure 12d) do a better job of approximating 1 (1.08 and 1.10, respectively). Moreover, the coordinates for BOCQ and QOQC all fall well within the line, demonstrating normality. However, the coordinates for the AOCQ and the COCQ seem to deviate slightly from their line (AOCQ more so than the COCQ), though this deviation is not enough to violate the normality assumption.

Because the overclaiming measures each showed some violations of normality or equal-variance, using a parametric index of response bias and accuracy (i.e., d' or c) would not be ideal. The equal-variance assumption was particularly noticeable in the BOCQ, for that reason the parametric measures d' and c may lead to spurious results depending on whether H or FA had greater variance. In this case, the fact that the slope of the line for the BOCQ is less than one

indicates that FA distribution has smaller variance than the H distribution, which may lead to inflated estimates of bias and accuracy if a traditional parametric measure was used (Wickens, 2002). There are a set of adjustments that can be made to d' and c that can account for non-equal variance using parameters of the isosensitivity functions (Wickens, 2002), however, a simpler solution would be to use a measure such as $\ln(\beta)$, which is parametric but robust to normality violations and also does not rely on the equal-variance assumption to measure response bias. Similarly, the nonparametric index B'' seems a suitable alternative when faced with such violations. Moreover, the index A' is a widely accepted nonparametric measure of accuracy. The performance of the different SDT indices arecompared to evaluate their predictive utility.

Correlations.

Pearson product moment correlations were conducted in IBM SPSS to assess the relationship between the measures with each other as well as a preliminary step to investigate the relationship between narcissism and religious overclaiming using several different SDT indices. To address the question of multiplicity, a Bonferroni correction was applied which multiplied the p-values by 676 to adjust for all possible correlations between the variables (Cohen, Cohen, West, & Aiken, 2003; Keppel, & Wickens, 2004). Table 5 displays correlations of the narcissism measures with each other, as expected, they show a positive associations between all measures of narcissism that were maintained after a Bonferroni correction. Table 6 displays correlations of the H and FA for each of the overclaiming measures with each other, they also show positive associations with each other that were maintained after a Bonferroni correction.

Table 7 displays the correlations between the different narcissism measures and the different response bias indices. Significant correlations are flagged, including correlations that

remain significant after a Bonferroni multiplicity correction is applied. The expected pattern is that narcissism should correlate positively with FA but negatively with the response bias indices. This is because negative values for response bias indicate that a participant is biased to say "yes," and therefore will claim to be familiar with the foils. The results suggest that the NPI associates strongest with response bias and accuracy compared to the other narcissism scales across all the overclaiming measures, followed by the Com.N. Surprisingly, Col.N and HNS are demonstrating weak associations with response bias. Moreover, the different indices of response bias seem to be performing similarly for the BOCQ, AOCQ, and COCQ, significant correlations tend to remain significant after the Bonferroni correction is applied. The QOCQ, however, shows that the indices $\ln(\beta)$ and B'' do not remain significant after the Bonferroni correction is applied.

Table 8 displays the correlations between the different narcissism measures and the different accuracy indices. Significant correlations are flagged—including correlations that remain significant after a Bonferroni multiplicity correction is applied. The expected pattern is that narcissism should correlate negatively with H and negatively with the accuracy indices, indicating that greater narcissism is associated with worse accuracy. Intriguingly, the narcissism scales tended not to correlate with the raw measure of H for the majority of the overclaiming measures. However, looking at the accuracy measures shows a fairly consistent pattern of negative association with accuracy for the BOCQ, AOCQ, and COCQ. The QOCQ, however, showed inconsistent associations among the different narcissism measures and the accuracy indices. The pattern of correlations was consistent enough with expectations to move on to further analyses.

Multiple linear regressions.

Multiple linear regressions were conducted in IBM SPSS as a penultimate step to investigate the relationship between narcissism and religious overclaiming. Separate regressions were conducted predicting bias and accuracy with the separate narcissism measures for each of the overclaiming measures. Table 9 shows the combined results of five separate regression procedures predicting bias with each of the bias indexes being considered. Table 10 shows the same with the three different accuracy indices. Adjusted multiple correlations of determination ($\tilde{R}^2$) were reported as measures of effect size for each regression procedure, raw (with 95% confidence intervals) and standardized beta coefficients were reported for each predictor, predictors that were significant after applying a Bonferroni correction were flagged. Multicollinearity statistics were assessed for each model but are not reported because (following Cohen, Cohen, West, & Aiken, 2003 and Keppel, & Wickens, 2004) they did not suggest that multicollinearity was high enough to warrant attention (lowest $Tolerance = .26$ and highest $VIF = 3.8$).

The BOCQ.

Curiously, the results regarding narcissism show that only the NPI and Com.N are consistent predictors of response bias in the BOCQ. As predicted, the NPI predicts greater FA and greater bias towards reporting familiarity with the BOCQ (indicated by a negative slope). Moreover, the Com.N scale showed a very similar predictive pattern of with equivalent standardized slopes as the NPI-13. No other narcissism measure demonstrated consistent associations with response bias for the BOCQ. It is curious that the NPI-13 but not the BPNI-G associated with response bias for the BOCQ. Regressing $\ln(\beta)$ onto the NPI-13 ($\beta = -.27, p < .001$) and the BPNI-G ($\beta = -.10, p = .07$) shows that the NPI-13 out-predicts the BPNI-G as a measure of grandiose narcissism (using other bias indices reveals similar results). Moreover,

investigating tolerance ($.851$) and the variance inflation factor ($VIF = 1.175$) show that multicollinearity is not an issue between NPI and BPNI-G (see Cohen, Cohen, West, & Aiken, 2003; Keppel, & Wickens, 2004). Only when regressing $\ln(\beta)$ onto the NPI-13 ($\beta = -.26$, $p < .001$) and an overall measure of BPNI ($\beta = .12$, $p = .02$), expressed as the mean of the grandiose and vulnerable subscales, does the BPNI yield consistently significant results.

The results regarding the BPNI are concerning, especially considering that the CFA for the measure (reported earlier) also demonstrated that the grandiose and vulnerable subscales would not indicate an overall narcissism factor. The plan of analysis for the present study is to use the NPI-13 and the BPNI-G as indicators of an overall narcissism factor. However, considering the performance of the BPNI in the present study, it may be best to omit the BPNI altogether. This issue will be revisited when the results of the SEMs are disclosed.

The results predicting BOCQ accuracy (see Table 10) using narcissism reveal an inconsistent pattern of association with the different SDT indices. The model regressing H onto the narcissism measures was not significant overall. The model regressing d' onto the narcissism measures ($\tilde{R}^2 = .19$) show significant associations only with the NPI-13 ($\beta = -.31$, $p < .001$), the BPNI-V ($\beta = -.22$, $p < .05$), and Com.N ($\beta = -.22$, $p < .001$); additionally, the NPI-13 and the Com.N scales were significant after a Bonferroni correction. The model regressing A' onto the narcissism measures only show a significant association for the NPI ($\beta = -.19$, $p < .001$).

The QOCQ.

The results predicting QOCQ bias (see Table 11) using narcissism reveal another inconsistent pattern of association with the different SDT indices. The NPI was only a significant predictor in models that used FA, λ, and c as the outcome variable. The BPNI-V was

only a significant predictor of FA and the Col.N scale significantly predicted $\ln(\beta)$, and B''. However, the Com.N demonstrated significant and theoretically consistent associations with all SDT indices. Moreover, the results predicting QOCQ accuracy (see Table 12) show that the NPI and Com.N are both significant predictors of H and d'.

The AOCQ & COCQ.

The results predicting AOCQ bias (see Table 13) using narcissism show that the NPI and Com.N are the only consistent predictors across all SDT indices. No other narcissism measure associated with any of the bias indices for the AOCQ. The results predicting AOCQ accuracy (see Table 14) are less consistent. The model regressing H onto the naricissism measures is only significantly predicted by BPNI-G, the model regressing d' onto the narcissism measures is significantly predicted by the NPI, BPNI-G, and Com.N, and the model regressing A' onto the narcissism measures is only predicted by the BPNI-G and Com.N. The results predicting COCQ bias (see Table 15) and COCQ accuracy (see Table 16) exhibit the same exact pattern as those for AOCQ except that the model regressing the accuracy index $A'$is also predicted by the NPI as well as the BPNI-G and Com.N.

Structural equation model specification.

The narcissism and overclaiming measures were entered into an SEM on M*plus* using a maximal likelihood estimator with robust standard errors. Initially, the SEM was going to be specified and respecified using modification indices following Bowen (2014); Hooper, Coughlan, & Mullen (2008); Kline (2011); and Muthén, & Muthén (2006). However, the model exhibited some unexpected complications that did not allow for the proposed approach. First, the NPI-13, BPNI, and HNS failed to indicate a higher-order factor for grandiose and vulnerable narcissism in the manner that was proposed (see Figure 5a). Several different models were

specified attempting to indicate higher-order grandiose and vulnerable narcissism factors in the manner proposed by Figure 5a, but they all failed. The NPI-13 and BPNI grandiose subscale were particularly uncooperative indicators of grandiose narcissisms—even though the both are ostensibly measures of the same latent construct.

A number of confirmatory and exploratory factor analyses were run investigating the factor structures of the combined measures. The results of an exploratory factor analysis using the items from both measures revealed that the items only tended to load onto their respective scales and did not load into factors of the other scales—even when they were supposedly describing the same latent factor. This was unexpected, but not without precedent as several studies exist that call into question the convergent validity of the NPI-13 with the BPNI-grandiose subscale (Miller, Lynam, Hyatt, & Campbell, *in press*). For this reason, the narcissism scales were treated as separate predictors. An additional problem was encountered when modification indices were used in an attempt to specify the SEM. Specifying the model in this way did not gradually improve model fit and resulted in a non-convergence after the 12^{th} step. For this reason, model specification proceeded by setting all possible regression parameters between narcissism and overclaiming and removing parameters that were non-significant.

The results of the SEM can be seen in Figure 16. The fit of the model cannot be assessed as the model with the most significant parameters was found to be saturated (i.e., $df = 0$). This resulted in all fit indices exhibiting "perfect" fit ($CFI = 1$; $TLI = 1$; $RMSEA = 0$; $SRMR = 0$). However, the fit of the model is not of great concern as the present study is not proposing a causal model but rather an exploratory set of associations that will need to be substantiated by further research. Models were run using all SDT indices previously discussed, the results did not vary according to the set of indices used except for a few occasional model convergence

problems that resulted with some indices were used (e.g., using B'' required a higher number of iterations before converging compared to other indices). For this reason, when discussing SEM results, explicit mention of the particular SDT index being used will be replaced by referring to them more generally as "bias" and "accuracy."

SEM correlations.

The pattern of associations between the sets of variables measured can be seen in Figure 16, however, space and legibility constraints did not allow for the size of the correlations to be disclosed therein. All correlations between the overclaiming measures were significant ($.19 \leq r \leq .67$, all $p < .001$) as were all correlations between the narcissism measures ($.16 \leq r \leq .53$). However, of particular interest are the correlations between the religious, communal, and agentic overclaiming. As predicted, the religious overclaiming bias indices were correlated more strongly with communal than agentic overclaiming. Qur'an bias was correlated with communal bias ($r = .51,\ p < .001$) stronger than it correlated with agentic bias ($r = .48,\ p < .001$). Similarly, Bible bias was correlated with communal bias ($r = .55, p < .001$) stronger than it did with agentic bias ($r = .53, p < .001$). However neither pairs of correlations were found to be significantly different after testing them following Lee and Preacher (2013). Contrary to what was expected, Qur'an accuracy correlated weaker with communal accuracy ($r = .24, p < .001$) than it did with agentic accuracy ($r = .30, p < .001$), and Bible accuracy correlated weaker with communal accuracy ($r = .36,\ p < .001$) than it did with agentic accuracy ($r = .41,\ p < .001$). However, neither of these correlations were found to be significantly different either.

SEM path loadings.

The results show that Bible accuracy was only significantly predicted by grandiose (agentic) narcissism as measured by the NPI-13 ($\beta = -.29, p < .001$) and communal narcissism

($\beta = -.18$, $p < .05$), suggesting that greater scores on these narcissism measures resulted in worse accuracy on the BOCQ. Similarly, Bible bias was negatively predicted by the NPI-13 ($\beta = -.15$, $p < .05$) and communal narcissism ($\beta = -.16$, $p < .05$), suggesting that greater scores on these narcissism measures resulted in greater tendency to say "yes" on the BOCQ. Interestingly, Qur'an accuracy was negatively predicted by communal narcissism ($\beta = -.26$, $p < .001$) and positively predicted by collective narcissism ($\beta = .22$, $p < .05$). Qur'an bias was only predicted by communal narcissism ($\beta = -.26$, $p < .001$). Accuracy on the AOQC and COCQ were both negatively predicted by the NPI-13 ($\beta = -.13$, $p < .05$ and $\beta = -.21$, $p < .001$, respectively) and communal narcissism ($\beta = -.36$, $p < .001$ and $\beta = -.31$, $p < .001$, respectively). However, accuracy on the AOCQ was only predicted by the NPI-13 ($\beta = -.12$, $p < .05$) while accuracy on the COCQ was predicted by both the NPI-13 ($\beta = -.14$, $p < .05$) and communal narcissism ($\beta = -.30$, $p < .001$).

Study 1 discussion

The goal of Study 1 was to examine the relationship between different types of narcissism and religious, agentic, and communal overclaiming. Overall, the results show that grandiose narcissism (as measured by the NPI-13) and communal narcissism out predict collective and vulnerable narcissism. The NPI-13 was negatively associated with Bible bias, suggesting that greater scores on grandiose (agentic) narcissism resulted in a greater bias towards saying "yes," as well as Bible accuracy, suggesting that greater narcissism results in worse Bible accuracy. This shows that grandiose narcissism leads to greater overclaiming paired with worse accuracy for Bible items. Communal narcissism had the same set of associations as grandiose (agentic) narcissism with some important differences.

Interestingly, while grandiose (agentic) narcissism was only associated with the BOCQ, communal narcissism associated negatively with bias and accuracy for both the BOCQ and the QOCQ. Suggesting that communal narcissism has a more consistent association with religious overclaiming in general. Interestingly, collective overclaiming was found to be positively associated with Qur'an accuracy, suggesting that greater collective narcissism is results in greater accuracy for the Qur'an. Moreover, collective overclaiming was not associated with Qur'an bias—interpretation of these results will be postponed pending the results of Study 2.

Assessing the equal-variance assumption in Study 1 suggests that the FA and H distributions for the BOCQ and QOCQ are not equivalent, contraindicating the use of parametric SDT indices like $d'$and c. Strict adherence to SDT would suggest that non-parametric or robust measures of bias (e.g., B'' or $\ln(\beta)$) and accuracy (e.g., A') should be used. Despite these violations of normality, and in-line with Paulhus and Petrusic (2007), the different bias indices performed similarly in multiple regressions and SEMs, suggesting that the specific choice of bias measure may not be consequential—though the same could not be said for the accuracy indices. Study 2 replicates the analytic procedures of Study 1 to further investigate the impact that choosing a particular SDT bias and accuracy index has on the results. Examining the correlations between agentic and communal narcissism on overclaiming did not yield support for the hypothesis that religious overclaiming could be considered a communal domain—at least in the way that Gebauer, Sedikides, and Schrade (2017; *in prep*) operationalize it in the AGCO-OCQ12.

Moreover, though the correlations revealed that all narcissism measures associated with bias for all overclaiming measures, the regressions showed grandiose narcissism, as measured by the NPI-13, and communal narcissism tended to outperform the other measures of narcissism as

predictors of bias for all overclaiming measures. Inputting the variables into a SEM further confirmed that the NPI-13 and communal overclaiming are better predictors of bias than are the BPNPI, HNS, and collective narcissism measures. In this way, Study 1 confirmed that there is a relationship between narcissism and religious overclaiming that is worth exploring further. Study 2, therefore, expanded upon this relationship in three ways. First, Study 2 included measures of religiosity (e.g., intrinsic, extrinsic, quest) as covariates to religious overclaiming to examine whether narcissism remains a significant predictor of religious overclaiming. Secondly, Study 2 extended Study 1 by including an outcome variable that measured the degree to which participants support terrorism. Thus, Study 2 built upon the overclaiming literature in general by assessing the degree to which overclaiming can be used as a predictor of support for terrorism. Thirdly, Study 2 examined mediating effects (in an SEM environment) between narcissism, religiosity, and religious overclaiming has on support for terrorism.

Including religious covariates.

In the psychology of religion literature, religious orientations (or, religiosity) are distinctive approaches to religion adopted by those who identify as religious and practice a religious tradition. Originally conceptualized by Allport and Ross (1967), the concept of intrinsic and extrinsic religiosity was meant to resolve a paradox concerning the early psychological study of religion and prejudice. Specifically, that, overall, religious participation predicted greater prejudice but a subsample of religious participants reliably predicted less prejudice. In exploring this phenomenon, Allport and Ross (1967) conceived of a bipolar continuum of two approaches to religion. On one end of the spectrum, extrinsic religiosity was termed to categorize the majority of religious individuals who perceive of religion as a means to

an end, who practice religion because they expect social (e.g., social advancement) or psychological benefits (e.g., self-satisfaction) for doing so.

Extrinsically religious individuals were identified as the reason that religiosity, overall, was associated with greater prejudice. Allport and Ross (1967) describe extrinsic religiosity as an "immature" approach to religion that regards it as a resource to be protected, hoarded, and certainly not shared. Yet, on the other end of the spectrum, intrinsic religiosity was termed to categorize a minority of religious individuals who regard religion as an ends in-and-of itself. Such individuals were described as genuinely dedicated to the precepts of their religion and unmotivated or otherwise oblivious to the idea of using religion to satisfy a social or personal desire. The authors describe intrinsic religiosity as a "mature" approach to religion that explains why only this minority of religious individuals is negatively associated with prejudice—because they have a genuine desire to practice their religion without the artifice of social or personal advancement that transforms religion into a finite resource.

Overtime, the conceptions of intrinsic and extrinsic religiosity have been refined in three ways (Gorsuch, & McPherson, 1989). First, intrinsic and extrinsic religiosities have been re-conceptualized as two discrete factors, rather than two ends of a continuum. Second, extrinsic religiosity has been recognized as having two sub-factors. The sub-factors of extrinsic religiosity have to do with the degree to which the individual expects social and personal benefits from the practice of religion. The last way that intrinsic and extrinsic religiosity have been refined is by sanitizing pejorative words like "immature" from descriptions of extrinsic religiosity to increase the focus on the phenomenon as opposed to making value-judgments (i.e., Kirkpatrick, & Hood, 1990).

Though the study of the psychology of religion has been dominated by intrinsic and extrinsic religiosity, a third approach to religion has been described that differs from extrinsic religiosity in that it does not endorse religion as a utilitarian means to personal or social end, nor does it endorse religion dogmatically as an ends in itself. Rather, the concept of quest religiosity consider religion as an active search for existential meaning—distinct from agnosticism or "spiritualism"—that resists dogma and embraces personal spiritual discovery (Batson, & Schoenrade, 1911a; b; Batson, Schoenrade, & Ventis, 1993).

The three religious orientations (intrinsic, extrinsic, and quest) have demonstrated differential associations in the literature (see Donahue, 1985). For example, Jennings (2016) shows that the three religious orientations differentially associate with measures of conservatism (intrinsic is positive, quest is negative, and extrinsic is non-significant), authoritarianism (intrinsic and extrinsic are positive, and quest is negative), dogmatism (intrinsic and extrinsic are positive, and quest is negative), and other individual difference variables. Moreover, quest religiosity (in Christian and Muslim samples) is the only religious orientation to associate negatively with prejudice against homosexuality (Droogenbroeck, Spruyt, Siongers, & Keppens, 2016).

However, although the relationship between the here religious orientations and prejudice is well documented, the relationship between religiosity and religious overclaiming is not. Though, there is evidence suggesting that religious orientations are best understood in conjunction with identity measures (Fulton, 1997; Burris, & Jackson, 2000; Markstrom-Adams, & Smith, 1996; Sanchez, & Carter, 2005; Watson, Morris, Hood, Milliron, & Stutz, 1998; Ysseldyk, Matheson, & Anisman, 2011). To the degree that religiosity and religious overclaiming are related to a persons' identity there is reason to expect that the two sets of

constructs might interact with each other in meaningful ways. Similarly, though there is scant research investigating the effects of religiosity on support for terrorism (a politically troubling subject to broach), there is research showing that religiosity can lead to an expressed desire to stop terrorism (Adamczyk, & LaFree, 2015; see also Levav, Kohn, & Billig, 2008). However, other research has demonstrated that two additional religiosity variables are predictive of support for terrorism: frequency of religious service attendance, and frequency of prayer.

In four studies drawing samples from eight vastly different countries representing Muslims, Jews, and three different Christian sects, Ginges, Hansen, and Norenzayan (2009) unequivocally demonstrated that religious belief *per se* does not categorically predict support for terrorism (see also Ginges, & Atran, 2009; and Ginges, Atran, Medin, & Shikaki, 2007). However, the authors did find that above average frequency of religious service attendance (i.e., *mosque*, *temple*, *church*) robustly predicts whether an individual endorses religious terrorism—while frequency of prayer does not. Considering the direct relationship between frequency of religious service attendance and support for terrorism it seems prudent to include a question about the participants' religious service attendance and prayer frequency in Study 2. In total, Study 2 involved six religious covariates: intrinsic religiosity, extrinsic-religiosity (subdivided into social and personal components), quest religiosity, and finally a question asking the frequency by which the participants prayed and attended religious services.

Study 2 – predicting support for terrorism

Study 2 involves a similar SEM to study 1 in order to confirm the relationships between the variables that were specified therein. Similar to Study1, a problem arose in Study 2 that did not allow the BPNI, NPI-13, and HNS to indicate their intended latent narcissism factors. Figure 6(a), shows the proposed structural model that was assessed in Study 2, there were six measures of narcissism intended to assess four forms of narcissism. Grandiose narcissism was intended to be indicated by the Grandiose subscale of the Brief Pathological Narcissism Inventory (BPNI-G; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009) as well as the 13-item Narcissistic Personality Inventory (NPI-13; Raskin & Hall, 1979). Vulnerable narcissism was intended to be indicated by the vulnerable subscale of the BPNI (BPNI-V) and the Hypersensitive Narcissism Scale (HNS; Hendin, & Cheek, 1997). Figure 6(b) shows the adjusted models that resulted from the NPI-13, BPNI, and HNS failing to indicate higher-order grandiose and vulnerable latent narcissism factors.

Additionally, Study 2 did not include the measures of agentic and communal overclaiming (Gebauer, Paulhus, Sedikides, & Eliot, *in prep*). Rather, Study 2 involved an outcome variable adapted from studies 3 and 7 in Jones, Neria, Helm, Sahlan, and Carré (*under review*). Jones, and colleagues (*under review*) had participants read statements that could either be violent, hostile, peaceful, or apathetic to religion. Participants were asked to read each prompt and were asked if they would like to pray for this person, the amount of time that participants spent on the "prayer window" was measures as a dependent variable. Study 2 involved a similar task where participants were shown prompts adapted from Internet commenters. However, rather than ask participants to pray, participants in Study 2 simply answered a question regarding the degree to which they support the statements made by each of

the Internet commenters. Finally, Study 2 included some measures of some passible covariates including participants' religious orientation (quest, intrinsic, extrinsic), frequency of prayer, and frequency of religious attendance.

POWER ANALYSIS & PARTICIPANTS

A similar *a prori* power analysis to Study 1 was conducted for Study 2 with software developed by Preacher & Coffman (2006) following the not-close fit approach (Kline, 2011) using an alpha of 0.05, a desired power of 0.80, null *RMSEA* of 0.05, alternative *RMSEA* of 0.01, and 93 degrees of freedom (*df*). The results of the power analysis indicted that approximately 186 participants were necessary for power of 0.80 (314 participants for a power of 0.99). Again, the present study over-sampled to ensure that it is adequately powered in case any participants needed to be omitted. Thus, a total of 393 participants were recruited for Study 2 (compensated $1 each); however. 36 were omitted for leaving the study prematurely resulting in 357 participants available for analysis. Similar to Study 1, the power analyses for Study 2 were made assuming that all measures used will be parceled. Moreover, participant data was omitted for any and all sections of the experiment where an attention check indicated careless or inattentive responding.

MATERIALS

Study 2 involved the same measures of narcissism and religious overclaiming as Study 1, however Study 2 removed the AGCO-OCQ12 in order to include the following covariates and outcome variables borrowed from Jones, Neria, Helm, Sahlan, and Carré (*under review*).

Covariates.

Because Study 2 involved an explicitly religious outcome variable in the form of participants reading hypothetical Internet comments on the topic of religion, the following religious covariates were measured.

Religious orientation.

To measure religious orientation, two scales were used. First, the Revised Intrinsic / Extrinsic religiosity scale (I/E-R; Gorsuch & McPherson, 1989) was used to measure intrinsic and extrinsic religious orientation. The I/E-R is an adaptation of the original intrinsic / extrinsic religiosity scale developed by Allport and Ross (1967) that consists of 14 items, measured on a 7-point scale (See Appendix I). The I/E-R is divided into 3 correlated factors: intrinsic religiosity (6 items), which can be understood as the idea that religion should be practiced for its own sake (e.g., "*My whole approach to life is based upon my religion*"). The second factor of the I/E-R is related to extrinsic religiosity (8 items), which can be understood as the idea that religion should be practiced because its practice brings external benefits.

Extrinsic religiosity is further divided into a social component (e.g., "*I go to church mainly because I enjoy seeing people I know there*") and a personal component (e.g., "*It doesn't much matter what I believe so long as I am good*"). Because the proposed study may have included participants of multiple religious traditions, any reference to a particular religion were adapted to read more generally (e.g., "*I go to church mainly because I enjoy seeing people I know there*" was changed to "*I attend religious services mainly because I enjoy seeing people I know there*").

Additionally, a third religious orientation has been identified in the literature: quest religiosity (Batson, & Schoenrade, 1991b), which can be understood as the idea that religion should be practiced as way to approach complex existential questions and personal

enlightenment. The Quest Religiosity scale consists of 12 items, measured on a 7-point scale, broken down into 3 factors (see Appendix J). The first factor consists of 4 items and is described as "Readiness to face existential questions without reducing their complexity" (RTF; e.g., "*I was not very interested in religion until I began to ask questions about the meaning and purpose of my life*"). The second factor also consists of 4 items and is described as "Self-criticism and perception of religious doubt as positive" (SCP; e.g., "*For me, doubting is an important part of what it means to be religious*"). Finally, the third factor also consists of 4 items and is described as "Openness to change" (OTC; e.g., "*There are many religious issues on which my views are still changing*").

Frequency of prayer and religious attendance.

Previous research has found that frequently or religious service attendance and frequency of prayer differentially associate with antisocial outcomes (Ginges, Hansen, & Norenzayan, 2009; Ginges, & Atran, 2009; Ginges, Atran, Medin, & Shikaki, 2007), and should be considered separately from the religiosity questions above. Study 2 borrowed from Ginges, Hansen, and Norenzayan (2009) and asked participants two questions. Participants were asked "*How often do you pray?*" and "*How often do you attend religious services?*" using a 7-point scale (1 = "*never*," 2 = "*on religious holidays*," 3 = "*once a week*," 4 = "*once a week and on religious holidays*," 5 = "*more than once a week*," 6 = "*once a day*," and 7 = "*multiple times a day*").

Outcome variables.

Adapted from Jones, Neria, Helm, Sahlan, and Carré. (*under review*; studies 3 and 7), participants were asked to indicate their support to three hypothetical internet commenters who have made remarks on the topic of religion.

Internet comments task.

Participants read three passages (presented in random order) by three hypothetical Internet commenters who took one of three positions regarding religion: *violent-defensive*, *peaceful*, *hostile*, and *apathetic*. Unbeknownst to the participants, if the participants reported to be Christian or Muslim the comments were adapted to mention the Christian or Muslim communities, participants who did not report to be Christian or Muslim did not see this (see appendix K). For this reason, a set of demographic questions were taken at the beginning of the study with a question asking the participants' religious tradition in the middle of the set so as to disguise its purpose.

The violent-defensive commenter expressed defensive sentiments decrying the slaughter of "Christians" or "Muslims" (or "people," depending on what the participant reported) and expressed a support for violent retaliation for perceived attacks. The peaceful commenter asserted that "Christianity" or "Islam" (or "they," depending on what the participant reported) advocates kindness and expressed a desire to coexist peacefully with atheists and members of other religious traditions. Finally, the apathetic commenter made vague indifferent comments about religion in general without endorsing or opposing any specific tradition (the apathetic commenter's statement did not vary according to the participants' reported religion).

Immediately below each commenter, a question asked participants "*How much do you support this person?*" and was measured using a 7-point scale (1 = "-3 = *I completely oppose this person*," 2 = "-2 = *I moderately oppose this person*," 3 = "-1 = *I slightly oppose this person*," 4 = "0 = *I am neutral about this person*," 5 = "$+1$ = *I slightly support this person*," 6 = "$+2$ = *I moderately support this person*," and 7 = "$+3$ = *I completely support this person*"). Support for the violent-defensive commenter served as a proxy measure for the participants'

likelihood to support religious terrorism while support for the peaceful and apathetic commenters served as counterfactuals.

PROCEDURE

Participants were told that they are responding to a survey on "personality and religious opinions." After consenting, participants were first be exposed to a demographic questionnaire followed by the Internet commenter task. After this, participants were shown three blocks; one block contains the religious orientation scales as well as the frequency of prayer and religious attendance questions. Another block contains the measures of narcissism. And a third block contains the religious overclaiming measures. The order of the blocks was randomized, the order of the measures within the blocks was randomized, and the order of the items within the measures was randomized. Participants were then given a suspicion probe where they were asked what they thought the purpose of the study was, after which participants were debriefed and given an opportunity to comment on the study before exiting the study.

RESULTS

Demographics.

Participants were 357 respondents (61.10% female; $m_{age} = 38.35$, $SD_{age} = 13.46$) to an open survey on Mturk. The majority of participants were recruited from the US (96.90%), and reported being mostly of European heritage (69.50%), followed by African heritage (9.80%), Asian heritage (8.40%), Latino/a heritage (6.40%), as well as others (5.80%). The majority of respondents held a bachelor's degree (37.80%) followed, by some college (35.90%), a graduate degree (15.40%), high school diploma (10.10%), and very few respondents had less than a high school education (0.80%). Religiously, more than half of the participants identified as Christian (e.g., Protestant, Catholic, or Orthodox; 57.60%), followed by no religious identification (e.g.,

Atheist, Agnostic, or Humanist; 32.50%), spiritual or "other" (4.20%), an eastern religious tradition (e.g., Buddhist, Hindu, Baha'i; 3.40%), and finally Jewish (e.g., Reform, Conservative, or Reconstructivist; 2.30%). No participants reported identifying as Muslim (e.g., Sunni, Shi'a, or Sufi). Removing participants who declared no religious identification and other non-Christian participants had no effect on the results of the present study (consistent with Jones, Neria, Helm, Sahlan, & Carré, *under review*; *in prep*).

Scale properties & descriptive statistics.

Descriptive statistics for the narcissism measures can be found in Table 17. For study 2, the NPI-13 overall had good reliability ($\alpha = .84$) and excellent model fit ($CFI = .95$; $TLI = .94$; $RMSEA = .07$). The items of the NPI loaded strongly onto their factors (lowest $\lambda = .70$) and the lower-order factors loaded strongly onto the higher-order factor (lowest $\lambda = .76$). The factors of the NPI-13 had poor to fair reliability; they were Leadership / Authority ($\alpha = .80$), Grandiose / Exhibitionism ($\alpha = .74$), Entitlement / Exploitativeness ($\alpha = .66$).

The BPNI overall had excellent overall reliability ($\alpha = .94$) but again, the Grandiose and Vulnerable subscales failed to indicate a higher-order factor, though they would indicate two correlated factors. The grandiose subscale of the BPNI had good reliability ($\alpha = .87$), the model fitting two separate Vulnerable and Grandiose factors also showed excellent fit ($CFI = .93$; $TLI = .92$; $RMSEA = .06$; $SRMR = .05$). The items indicating lower-order factors in the Grandiose subscale of the BPNI loaded well onto their factors (lowest $\lambda = .47$) and the lower-order factors loaded well onto the higher order Grandiose factor (lowest $\lambda = .65$). The factors of the BPNI-grandiose scale had fair to good reliability; they were Exploitativeness ($\alpha = .80$), Self-Sacrificing Self-Enhancement ($\alpha = .74$), and Grandiose Fantasy ($.87$). The items indicating lower-order factors in the Vulnerable subscale of the BPNI loaded strongly onto their factors

(lowest $\lambda = .64$) and the lower order factors loaded strongly onto the higher order factors (lowest $\lambda = .79$). The vulnerable subscale .also had excellent reliability ($\alpha = .94$) and the factors of the BPNI-vulnerable scale had good reliability; they were Contingent Self-Esteem ($\alpha = .88$), Hiding the Self ($\alpha = .85$), Devaluing ($\alpha = .85$), and Entitlement Rage ($\alpha = .82$).

The HNI had excellent overall reliability ($\alpha = .94$) but only poor to good model fit ($CFI = .83$; $TLI = .82$; $RMSEA = .09$; $SRMR = .06$). The items indicating the unidimensional HNS factor loaded well (lowest $\lambda = .55$). The Com.N had excellent reliability ($\alpha = .93$) but poor model fit ($CFI = .75$; $TLI = .71$; $RMSEA = .16$; $SRMR = .10$). The Col.N had good reliability ($\alpha = .88$) and improved model fit compared to Study 1 ($CFI = .95$; $TLI = .93$; $RMSEA = .09$; $SRMR = .04$). One item (number 7, a reverse-coded item) did not correlate well with the rest of the scale' removing the item improved the reliability (to $\alpha = .90$) but did not change the model fit. With one exception, the items indicating the unidimensional Col.N factor loaded well (lowest $\lambda = .64$); the one problematic item loaded poorly ($\lambda = .17$), however. Future analyses do not include that item.

Descriptive statistics for the religious covariates, as well as the support for the internet commenters, can be found in Table 18. The I/E-R scale had good overall reliability ($\alpha = .87$) but poor model fit ($CFI = .77$; $TLI = .72$; $RMSEA = .17$; $SRMR = .16$). Most of the items of the I/E-R scale loaded strongly onto their lower-order factors, with four exceptions discussed below. The Intrinsic Religiosity subscale had excellent reliability ($\alpha = .90$) and excellent model fit ($CFI = .95$; $TLI = .91$; $RMSEA = .15$; $SRMR = .04$). The items of the Intrinsic Religiosity subscale loaded strongly onto their unidimensional factor (lowest $\lambda = .71$). The Extrinsic Religiosity – Social subscale had good model fit ($\alpha = .80$) and, strangely, the model was found to have "perfect fit" ($CFI = 1$; $TLI = 1$; $RMSEA = 0$; $SRMR = 0$). A "perfect fit" is typically

associated with a fully saturated model (Kline, 2011), however, this was not the case as the degrees of freedom for the present analysis was greater than zero ($df = 6$).

Regardless, the items of the Extrinsic Religiosity – Social loaded strongly onto their unidimensional factor (lowest $\lambda = .87$), with one exception. One item ("*My whole approach to life is based on my religion*" see Appendix I) did not inter-correlate well with the rest of the items and improved the reliability when removed (to $\alpha = .93$), this item also loaded poorly onto its factor ($\lambda < .40$). The Extrinsic Religiosity – Personal subscale had very poor reliability ($\alpha = .32$) and very poor model fit ($CFI = .75$; $TLI = .25$; $RMSEA = .30$; $SRMR = .10$). The items of the Extrinsic Religiosity – Personal subscale are mostly (three of four) reverse-coded items. For this reason the three reverse coded items loaded positively onto their factor (one of which loaded poorly, $\lambda < .40$), but the one item that was not reverse-coded loaded negatively (and poorly, $|\lambda| < .40$). One (reverse-coded) item ("*It doesn't much matter what I believe so long as I am good.*") did not inter-correlate well with the rest of the items and improved the reliability when removed (to $\alpha = .90$). This pattern of poor and problematic reliability and model fit was not expected. However, the present study continued to include all subscales of the I/E-R in all analyses to investigate the degree to which their inclusion yielded problematic results.

The Quest scale had good overall reliability ($\alpha = .84$) and good model fit ($CFI = .89$; $TLI = .85$; $RMSEA = .10$; $SRMR = .08$). The items of the Quest scale loaded adequately onto their lower-order factors (lowest $\lambda = .55$), with two exceptions discussed below; the lower order factors loaded strongly onto their higher order factor (lowest $\lambda = .75$). The factors of the Quest scale had fair reliability. The factors of the Quest scale were "Readiness to face existential questions without reducing their complexity" (RTC; $\alpha = .75$), "Self-criticism and perception of religious doubt as positive" (SCP; $\alpha = .55$), and "Openness to change" (OTC; $\alpha = .77$). One

reverse-coded item indicating the SCP factor ("*I find religious doubts upsetting*") did not correlate well with the other items in that factor and improved reliability when removed (to $\alpha = .78$), the same item did not load well onto its factor ($\lambda < 4$). Additionally, one reverse-coded item in the OTC factor ("*I do not expect my religious convictions to change in the next few years.*") did not load well ($\lambda < 4$). Both the poorly loading items were reverse-coded, removing them improved model fit (to $CFI = .93$; $TLI = .90$; $RMSEA = .10$; $SRMR = .07$).

The overclaiming measures are not considered latent variables and therefore do not lend themselves to CFA and are instead treated as exogenous observed variables. The BOCQ had excellent reliability for both the true items ($\alpha = .98$) and the foils ($\alpha = .95$). The average H was 39.31% ($SD = 21.94\%$) and the average FA was 11.01% ($SD = 18.45\%$). Figure 13 shows a plot of the participants'' H and FA displayed as coordinate plane such that FA is displayed on the x-axis and H is displayed on the y-axis. Across the diagonal is a dashed line referencing the point when H and FA are equal. Points below the diagonal indicate participants whose FA was higher than their H, points above the diagonal indicate participants whose H was higher than their FA. As can be seen from Figure 13, many participants (37.1%) did not claim familiarity with any of the foils, while the remainder claimed familiarity with at least one.

The QOCQ also had excellent reliability for both true items ($\alpha = .97$) and for the foils ($\alpha = .91$). The average H was 23.59% ($SD = 15.91\%$) and the average FA was 19.21% ($SD = 19.09\%$). Figure 14 shows a plot of the participants' H and FA displayed as a coordinate plane such that FA is displayed on the x-axis and H is displayed on the y-axis. The plot shows lower overall H and greater FA compared to the BOCQ. More participants were below the diagonal line and fewer were above the diagonal line compared to the BOCQ. Interestingly, fewer

participants did not claim familiarity with the foils (10.3%) compared to the BOCQ. Descriptive statistics for the overclaiming measures and their SDT indices can be found in Table 19.

Assessing equality of variance.

Following Wickens (2002), the equal variance assumption of each overclaiming measure was assessed by plotting an isosensitivity function using the six z-transformed H and FA rates for each overclaiming measure. Figure 15 shows the isosensitivity functions for the BOCQ and QOCQ used in the present Study 2. Below each of the plots is the formula for a line that best describes the coordinates. Examining the isosensitivity functions shows that the slopes of the lines drawn for the BOCQ (Figure 15a) and QOCQ (Figure 15b) demonstrate a similar pattern as they did in Study 1, suggesting unequal-variance—especially for the BOCQ. The coordinates for BOCQ and QOQC all fit well to a straight line, demonstrating normality. Because the overclaiming measures each showed some violations of normality or equal-variance, using parametric indices of response bias and accuracy (i.e., d' or c) may not be ideal. The equal-variance assumption was particularly noticeable in the BOCQ, for that reason the parametric measures d' and c may lead to spurious results depending on whether H or FA had greater variance.

In this case, the fact that the slope of the line for the BOCQ is less than one indicates that FA distribution has smaller variance than the H distribution, which may lead to inflated estimates of bias and accuracy if a traditional parametric measure was used (Wickens, 2002). There is a set of adjustments that can be made to d' and c that can account for unequal variance using parameters of the isosensitivity functions (Wickens, 2002), however, a simpler solution would be to use a measure such as $\ln(\beta)$, which is parametric but robust to normality violations and also does not rely on the equal-variance assumption to measure response bias. Similarly, the

nonparametric index B'' seems a suitable alternative when faced with such violations. Moreover, the index A' is a widely accepted nonparametric measure of accuracy. The performance of the different SDT indices were compared to evaluate their predictive utility.

Correlations.

Pearson product moment correlations were conducted in IBM SPSS to assess the relationship between the measures with each other as well as a preliminary step to investigate the relationship between narcissism and religious overclaiming using several different SDT indices. To address the question of multiplicity, a Bonferroni correction was applied that multiplied the *p*-values by 625 to adjust for all possible correlations between the variables (Cohen, Cohen, West, & Aiken, 2003; Keppel, & Wickens, 2004). Table 20 displays the correlations between the participants' support for the internet commenters, the religiosity measures, the narcissism measures, and the overclaiming indices. Consistent with expectations, participants' support for the violent-defensive commenter was negatively associated with most religiosity measures except Extrinsic Religiosity and Religious Service Attendance. Additionally, Table 20 shows that the support for the violent defensive commenter did not correlate with either support for the peaceful nor apathetic commenters, while support for the peaceful commenter did correlate with support for the apathetic commenter ($r = 0.27, p < .001$).

The religiosity covariates, despite their poor internal consistency, differentially associated with support for the internet commenters. Intrinsic religiosity only correlated with support for the peaceful commenter ($r = .40,\ p < .001$). The extrinsic-social religiosity scale correlated positively with both violent-defensive ($r = .18, p < .05$) and peaceful comments ($r = .15, p < .05$) and negatively with apathetic comments ($r = -.14,\ p < .05$); the extrinsic-personal religiosity scale only correlated with support for the apathetic commenter ($r = .29,\ p <$

.001).Finally, the quest religiosity scale only correlated with the support for the peaceful ($r = .13$, $p < .05$) and apathetic commenter ($r = .29$, $p < .001$). Additionally, prayer frequency and religious service attendance showed similar correlational patterns with the peaceful ($r = .26$, $p < .001$ and $r = .16$ and $p < .05$, respectively) and apathetic commenters ($r = -.11$, $p < .05$ and $r = -.25$, $p < .001$), and no relation with the violent-defensive commenter.

Grandiose narcissism as measured by the NPI-13 correlated positively with support for the violent-defensive commenter ($r = .22$, $p < .001$) and negatively with the peaceful commenter ($r = -.11$, $p < .05$); as measured by the BPNI, grandiose narcissism only correlated with support for the violent-defensive commenter ($r = .15$, $p < .05$). Vulnerable narcissism correlated equivalently positive with support for the violent-defensive commenter for both BPNI-vulnerable and HNS (both $r = .24$, $p < .001$), however, the BPNI-vulnerable also correlated negatively with the peaceful commenter ($r = -.13$, $p < .05$) whereas the HNS did not. Interestingly, Com.N correlated positively with both violent-defensive ($r = .13$, $p < .05$) and peaceful commenters ($r = .15$, $p < .05$), and Col.N only correlated with the violent defensive commenter ($r = .24$, $p < .001$).

The results regarding the BOCQ show a consistent pattern of association with support for the internet commenters regardless of the specific SDT index chosen. All the BOCQ bias indices correlated significantly negative with support for the violent-defensive ($-.12 \leq r \leq -.23$) and the peaceful commenters ($-.12 \leq r \leq -.22$). Negative correlations with bias indices indicate that the more support an individual expresses for a commenter, the more bias that person is to say "yes" in the BOCQ. The results are less consistent with BOCQ accuracy as the parametric d' index of accuracy only correlated with support for the violent-defensive commenter ($r = -.31$, $p < .001$) whereas the nonparametric A' correlated negatively with the violent-defensive

($r = -.22,\ p < .001$) and apathetic commenters ($r = -.11,\ p < .05$) and positively with support for the peaceful commenter ($r = .13, p < .05$).

The results regarding the QOCQ bias show a similarly consistent pattern of association with support for the internet commenters, with one exception. Generally, regardless of the SDT bias index chosen, the QOCQ bias indices only correlated significantly with support for the violent-defensive commenter ($-.13 \leq r \leq -.21$), however, the bias index c also correlated negatively with support for the peaceful commenter ($r = -.12,\ p < .05$). The results show a similar inconsistency with QOCQ accuracy as with BOCQ accuracy. The parametric index d' only correlated with support for the violent-defensive commenter ($r = -.21, p < .001$) whereas the nonparametric index A' only correlated with support for the peaceful commenter ($r = .11$, $p < .05$). Table 21 displays the correlations between participants' religiosity, narcissism, and religious overclaiming indices, showing an expected pattern of inter-correlation between predictors and covariates.

Multiple linear regressions.

Multiple linear regressions were conducted in IBM SPSS as a penultimate step to investigate the relationship between narcissism, religious overclaiming, and support for the internet commenters. Two sets of regressions were conducted, one conducted predicting bias and accuracy with the religiosity and narcissism measures for each of the overclaiming measures, and another predicting support for the internet commenters with religiosity, narcissism, and overclaiming. Table 22 shows the combined results of five separate regression procedures predicting bias with each of the bias indexes being considered. Table 23 shows the same with the three different accuracy indices. Adjusted multiple correlations of determination ($\tilde{R}^2$) were reported as measures of effect size for each regression procedure, raw (with 95% confidence

intervals) and standardized beta coefficients were reported for each predictor, predictors that were significant after applying a Bonferroni correction were flagged. Multicollinearity statistics were assessed for each model but are not reported because (following Cohen, Cohen, West, & Aiken, 2003 and Keppel, & Wickens, 2004) they did not suggest that multicollinearity was high enough to warrant attention (lowest $Tolerance = .21$ and highest $VIF = 3.9$).

The BOCQ & QOCQ.

When entered simultaneously with religiosity, only Com. N remains as a consistently significant predictor of BOCQ bias (see Table 22) whereas extrinsic-social and frequency of religious service attendance become significant predictors. The results for BOCQ accuracy (see Table 23) show the NPI-13, extrinsic-personal, and quest religiosity are consistent significant predictors. Similarly, the results predicting QOCQ bias (see Table 24) using narcissism and religiosity show that only Com. N and frequency of religious service attendance tend to predict accuracy. Additionally, the results regarding QOCQ accuracy show an inconsistent pattern of association with the SDT indices of accuracy (see Table 25). A set of hierarchical regressions was conducted on the BOCQ and QOCQ bias and accuracy indices with the narcissism measures in the first step and the religiosity measures in the second step. The results show that, with the exception of the models predicting QOCQ $\ln(\beta)$ and QOCQ B'', the religiosity measures explained a significant amount of the variance over the narcissism measures ($.04 \leq \Delta R^2 \leq .31$, all models $p < .05$).

Internet commenters.

Separate multiple linear regressions were conducted predicting support for the violent-defensive, peaceful, and apathetic commenters (see Table 26). The SDT indices chosen for the present analyses were restricted to $\ln(\beta)$ for bias and A' for accuracy. This decision was made

after examining the multicollinearity statistics, which indicated great multicollinearity with the SDT indices FA, λ, c, B'', H, d', and A' (the greatest problems were with λ and c; lowest $Tolerance = -.02$ and highest $VIF = 1697.62$). There were no such problems with multicollinearity among the indices $\ln(\beta)$ and A' (lowest $Tolerance = .53$, highest $VIF = 1.90$). Intrinsic religiosity negatively predicted support for the violent-defensive commenter ($\beta = -.21$, $p < .05$) and positively predicted support for the peaceful commenter ($\beta = .52$, $p < .001$). Conversely, extrinsic-social religiosity predicted support for the violent-defensive commenter ($\beta = .20$, $p < .05$), and extrinsic-personal religiosity negatively predicted support for the apathetic commenter ($\beta = -.13$, $p < .05$). Frequency of prayer did not predict support for any of the commenters, but frequency of religious service attendance did negatively predict support for the apathetic commenter ($\beta = -.36$, $p < .001$).

Amongst the narcissism measures, support for the peaceful commenter was negatively predicted by both the NPI-13 ($\beta = -.12$, $p < .05$) and the BPNI-vulnerable ($\beta = -.28$, $p < .05$). Moreover, Com.N predicted support for the apathetic commenter ($\beta = .14$, $p < .05$) and Col. N predicted support for the violent-defensive commenter ($\beta = .16$, $p < .05$). Interestingly, BOCQ bias did not predict support for any of the commenter but QOCQ bias was a significant predictor of the violent defensive commenter ($\beta = -.14$, $p < .05$). Greater bias towards saying "yes" on the QOCQ—in a sample that contained no Muslims—predicted greater support for the violent-defensive commenter. Moreover, BOCQ accuracy was a significant negative predictor of support for the violent-defensive commenter ($\beta = -.14$, $p < .05$), suggesting the worse accuracy predicted greater support for the violent-defensive commenter. Finally, QOCQ accuracy did not predict support for any of the commenters.

The results of these regressions are similar to those conducted above in that the religiosity measures seemed to out-predict the narcissism measures. A set of hierarchical regressions were conducted on support for the internet commenters using the narcissism measures in the first step, the religiosity measures in the second step, and the overclaiming bias and accuracy indices in the third step. The results show that including the religiosity measures in the second step consistently increase the amount of variance explained compared to models that only included the narcissism measures ($.06 \leq \Delta R^2 \leq .22$, all model $p < .05$). Additionally, including the religious overclaiming indices in the third step only significantly increased the amount of variance explained in the model predicting support for the violent-defensive model ($\Delta R^2 = .04$, $p < .05$).

Structural equation model specification.

Similar to study 1, the different narcissism measures failed to indicate a higher-order narcissism factor. Moreover, several severe problems were encountered when trying to specify the SEM using modification indices as proposed above. For example, the most impactful modification indices suggested alterations that were not theoretically consistent (e.g., suggesting that support for the peaceful commenter should be regressed onto itself). Additionally, continuing by selecting only those modification indices that were theoretically consistent resulted in non-convergence after the 9th step. Most troubling, however, was that progressing with specification using modification indices actually resulted in worsening model fit at each step.

For this reason, model specification followed an iterative process (e.g., Cheng, 2001) to eliminate parameters that do not associate with support for the internet commenters. As a first step, a model was specified in M*plus*, using a maximal likelihood estimation with robust

standard errors, that regressed support for the internet commenters on BOCQ bias and accuracy, this was followed by a similar model regressing support for the internet commenters on QOCQ accuracy and bias, followed by a model using the narcissism measures, and finally a model using the religiosity covariates. The following predictors were removed because they failed to associate with any of the support outcomes: HNS, BPNI-G, BPNI-V, and prayer frequency.

Two more models were run regressing support for the internet commenters on the remaining narcissism measures (NPI-13, Col.N, and Com.N), religiosity measures (intrinsic, extrinsic-social, extrinsic-personal, quest, and frequency of religious service attendance), but which included BOCQ and QOCQ indices separately. All parameters in the two models were significantly associated with at least one support outcome. Finally, the exploratory model was assessed that investigated the direct and indirect effects of narcissism on support for the internet commenters through religious overclaiming and religiosity.

The exploratory analysis assessed a mediation model that estimates the direct effects of narcissism, religious overclaiming, and religiosity on support for the internet commenters as well as the indirect effects of narcissism on support for the internet commenters through religious overclaiming and religiosity (see Figure 6b). Figure 17 shows the results of the exploratory model. Similar to Study 1, the exploratory model was saturated (i.e., $df = 0$), which resulted in all fit indices indicating "perfect" fit ($CFI = 1$; $TLI = 1$; $RMSEA = 0$; $SRMR = 0$); however, the fit of the model is not of concern as the present study is not proposing a causal model but rather an exploratory set of associations that will need to be substantiated by further research. Additionally, traditional fit indices are not meant to measure exploratory models of this nature as they are designed to penalize additional parameters in an attempt to encourage parsimony (Bollen, & Long, 1993; Kline, 2011; Rigdon, 1996).

Nevertheless, an SEM remains an ideal analytic strategy for exploratory research for its ability to simultaneously model the relationships between several predictors onto several outcome measures in a way that reduces error caused by multiplicity (i.e., family-wise error) as well as for its ability to model correlated error variance—which is not possible with multiple linear regression (Cheng, 2001; Kline, 2011). In other words, because multiple linear regression assumes the relationship between predictors is independent, it is not an ideal approach for modeling relationships between correlated predictors. Whereas multiple linear regression makes estimations by holding each predictor constant, SEM can account for correlations between predictors and can therefore provide a more holistic set of inferences than regression analysis is capable (Cheng, 2001; Kline, 2011). Note that the SEM models were all run using every SDT indices previously discussed, the results did not vary according to the set of indices used except for a few occasional model convergence problems that resulted with some indices were used. For example, using A' for the QOCQ resulted in model non-convergence because of extremely low variance in QOCQ performance overall. However, this issue was fixed by multiplying A' by a constant (Muthén, & Muthén, 2006), using a transformed accuracy index yielded similar results.

SEM correlations.

The pattern of associations between the sets of variables measured can be seen in Figure 17, however, space and legibility constraints did not allow for the size of the correlations to be disclosed therein. The results show that support for the violent-defensive commenter did not correlate with support for the other commenters. However, support for the peaceful commenter did correlate with support for the apathetic commenter ($r = 34$, $p < .001$). The three narcissism measures that were included in the exploratory model correlated significantly with each other.

Interestingly, grandiose (agentic) narcissism as measured by the NPI-13 correlated negatively with both communal ($r = -.36$, $p < .001$) and collective narcissism ($r = -.36$, $p < .001$).

Additionally, communal narcissism and collective narcissism correlated positively with each other ($r = .39$, $p < .001$). Regarding the religiosity measures, intrinsic religiosity correlated with extrinsic-social ($r = .53$, $p < .001$), extrinsic-personal ($r = .37$, $p < .001$), quest ($r = .19$, $p < .05$), and frequency of religious service attendance ($r = .52$, $p < .001$). Moreover, extrinsic-social religiosity correlated with extrinsic-personal ($r = .14$, $p < .05$), quest ($r = .24$, $p < .001$), and frequency of religious service attendance ($r = .51$, $p < .001$). Further, extrinsic religiosity-personal correlated with quest ($r = -.21$, $p < .001$), and frequency of religious service attendance ($r = .32$, $p < .001$). Finally, quest religiosity was also correlated with frequency of religious service attendance ($r = .12$, $p < .05$).

SEM path loadings.

Regarding the religiosity measures, the results show that intrinsic religiosity was only significantly predicted by communal narcissism ($\beta = .33$, $p < .001$); extrinsic-social was predicted negatively by the NPI-13 ($\beta = -.16$, $p < .05$), and positively by communal ($\beta = .22$, $p < .001$) and collective narcissism ($\beta = 12$, $p < .05$). Extrinsic religiosity-personal was not significantly predicted by anything, and quest religiosity was only significantly predicted by communal narcissism ($\beta = 13$, $p < .05$). Regarding religious overclaiming, the results show that Qur'an bias was only significantly predicted by frequency of religious service attendance ($\beta = -.27$, $p < .05$) such that greater service attendance resulted in more bias to say "yes."

Qur'an accuracy was not predicted by any other variable, likely because of poor performance on the QOCQ overall. Note this may have been the case given that no Muslims were in the sample. Moreover, when accounting for religiosity and narcissism, Bible bias was

only significantly predicted by quest religiosity ($\beta = -.13$, $p < .05$) and frequency of religious service attendance ($\beta = -.34$, $p < .001$). However, Bible accuracy was negatively predicted by collective narcissism ($\beta = -.12$, $p < .05$) and extrinsic-social religiosity ($\beta = -.22$, $p < .001$) and positively predicted by intrinsic religiosity ($\beta = .31$, $p < .001$), extrinsic-personal ($\beta = .28$, $p < .001$), quest ($\beta = .29$, $p < .001$), and frequency of religious service attendance ($\beta = .16$, $p < .05$).

Finally, regarding the internet commenters, support for the apathetic commenter was positively predicted by communal narcissism ($\beta = 13$, $p < .05$), quest religiosity ($\beta = .31$, $p < .001$), and negatively predicted by frequency of religious service attendance ($\beta = -.26$, $p < .001$). Moreover, support for the peaceful commenter was positively predicted by intrinsic religiosity ($\beta = .49$, $p < .001$), and negatively predicted by Bible bias ($\beta = -.17$, $p < .05$). Lastly, support for the violent-defensive commenter was positively predicted by collective narcissism ($\beta = .19$, $p < .05$) and extrinsic-social religiosity ($\beta = .20$, $p < .05$), and negatively predicted by intrinsic religiosity ($\beta = -.19$, $p < .05$), Qur'an bias ($\beta = -.18$, $p < .05$; greater bias to say "yes" predicts greater support), and Bible accuracy ($\beta = -.14$, $p < .05$; worse accuracy predicts greater support).

SEM indirect effects.

An added benefit of SEM is its ability to model mediational relationship between variables with relative ease (Kline, 2011). To assess indirect effects, the data was run through a bootstrapping procedure that estimated the model parameters by randomly sampled from the data a total of 1,000 times (Muthén, & Muthén, 2006). To describe the indirect effects, the following terms will be used (adapted terminology from Kline, 2011 and Muthén, & Muthén, 2006). Let x refer to a variable used to predict y and let m refer to a variable that mediates the relationship

between x and y. A *direct effect* (β_{DE}) will refer to the standardized multiple regression coefficient of x on y ($\beta_{DE} = \beta_x$). An *indirect effect* (β_{IE}) will refer to an interaction term that is the product of the direct effects of x and m on y ($\beta_{IE} = \beta_x \times \beta_m$).

The present study involved multiple mediating variables so a *specific indirect effect* (β_{SI}) will refer to the product of the direct effects of x and however many mediators were involved on y ($\beta_{SI} = \beta_x \times \beta_{m_1} \times ... \times \beta_{m_n}$). The *total indirect effect* (β_{TI}) refers to the sum of indirect effects assessed between x and y ($\beta_{TI} = \beta_{SI_1} + \cdots + \beta_{SI_n}$). Finally, the *total effect* (β_{TE}) refers the sum of the direct effects and indirect effects ($\beta_{TE} = \beta_{DE} + \beta_{TI}$). The present study was concerned with the degree to which religious overclaiming can be used to predict support for violent remarks, as well as the degree to which narcissism may influence this support. For this reason, the indirect effects of narcissism onto support for the Internet commenters, through religious overclaiming and the religiosity covariates, was assessed.

Support for the violent-defensive commenter.

The results concerning the indirect relationship between grandiose (agentic) narcissism as measured by the NPI-13 on support for the violent-defensive commenter are not straightforward—but predictors with similar patterns of indirect effects may be interpreted in the same manner. The results show no significant direct relationship between the NPI-13 and support for the violent-defensive commenter, however, both the total indirect effects ($\beta_{TI} = -.07,\ p < .05$) and the total effects were significant ($\beta_{TE} = -.16,\ p < .05$). Contrary to expectations, the total indirect and the total effects are negative. Moreover, there are no significant specific indirect effects between the NPI-13 to support for the violent-defensive commenter. This lack of positive association suggests that the NPI-13 is exerting some influence

on support for the violent-defensive commenter, but the relationship is unclear (Muthén, & Muthén, 2006).

The results concerning the indirect relationship between communal narcissism on support for the violent-defensive commenter show non-significant total, total indirect, and direct effects, but do show significant specific indirect effects. The results show a significant interaction between communal narcissism and intrinsic religiosity ($\beta_{SI} = -.06,\ p < .05$), Bible accuracy ($\beta_{SI} = -.01,\ p < .05$), and extrinsic religiosity-social ($\beta_{SI} = .04,\ p < .05$). The relationship between collective narcissism on support for the violent defensive commenter showed a significant total ($\beta_{TE} = .23,\ p < .001$) and direct effect ($\beta_{DE} = .19,\ p < .05$) but no significant total indirect effect nor specific indirect effects.

The relationship between intrinsic religiosity and support for the violent-defensive commenter showed significant total ($\beta_{TE} = -.24,\ p < .05$), total indirect ($\beta_{TI} = -.05$), and direct effects ($\beta_{DE} = -.19,\ p < .05$). The only significant specific indirect effect of intrinsic religiosity on support for the violent-defensive commenter was through Bible accuracy ($\beta_{SI} = -.04,\ p < .05$). Religious service attendance showed no significant effect on support for the violent-defensive commenter. The relationship between extrinsic-social religiosity and support for the violent-defensive commenter showed significant total ($\beta_{TE} = .24,\ p < .05$) and direct effects ($\beta_{DE} = .20,\ p < .05$), but no significant total indirect effects.

The only significant specific indirect effect of extrinsic religiosity-social on support for the violent-defensive commenter was through Bible accuracy ($\beta_{SI} = .03,\ p < .05$). The relationship between extrinsic-personal religiosity and support for the violent-defensive commenter showed significant total indirect effects ($\beta_{TE} = -.05,\ p < .05$), but no significant total nor direct effects. The only significant specific indirect effect of extrinsic religiosity-

personal on support for the violent-defensive commenter was through Bible accuracy ($\beta_{SI} = -.04$, $p < .05$). The relationship between quest religiosity and support for the violent-defensive commenter showed no significant total, total indirect, nor direct effects, but it did show a significant specific indirect effect through Bible accuracy ($\beta_{SI} = -.04$, $p < .05$).

Support for the peaceful commenter.

The relationship between the NPI-13 and support for the peaceful commenter show a significant total effect ($\beta_{TE} = .15$, $p < .05$), but no significant total indirect, direct, nor specific direct effects. The relationship between communal narcissism and support for the peaceful commenter show a significant total ($\beta_{TE} = .24$, $p < .001$) and total indirect ($\beta_{TI} = .15$, $p < .001$), but no significant direct effect. The only significant specific indirect effect of communal narcissism on support for the peaceful commenter was through intrinsic religiosity ($\beta_{SI} = .16$, $p < .001$). The relationship between intrinsic religiosity and support for the peaceful commenter show a significant total ($\beta_{TE} = .48$, $p < .001$) and direct effect ($\beta_{DE} = .48$, $p < .001$), but no total indirect nor specific indirect effects. There were no significant direct nor indirect relationships between collective narcissism, frequency of religious service attendance, extrinsic-social, extrinsic-personal, nor quest religiosity on support for the peaceful commenter.

Support for the apathetic commenter.

The relationship between communal narcissism and support for the apathetic commenter show a significant total ($\beta_{TE} = .12$, $p < .05$) and direct effect ($\beta_{DE} = .13$, $p < .05$), but no significant total indirect effect. The only significant specific indirect effect of communal narcissism on support for the apathetic commenter was through religious service attendance ($\beta_{SI} = -.05$, $p < .05$). The relationship between frequency of religious service attendance and support for the apathetic commenter show a significant total ($\beta_{TE} = -.25$, $p < .001$) and direct

effect ($\beta_{DE} = -.26,\ p < .001$), but no significant specific indirect effects. The relationship between extrinsic-personal religiosity and support for the apathetic commenter show a significant total effects ($\beta_{TE} = -.17,\ p < .05$), but no significant direct nor specific indirect effects. Finally, the relationship between quest religiosity and support for the apathetic commenter show a significant total ($\beta_{TE} = .28,\ p < .001$) and direct effects ($\beta_{DE} = .31,\ p < .001$), but no significant specific indirect effects. There were no significant direct, indirect, nor specific indirect relationships between the NPI-13, collective narcissism, intrinsic, nor extrinsic-social religiosity on support for the apathetic commenter.

STUDY 2 DISCUSSION

The results of Study 2 goes far to delineate the complicated relationship between narcissism, religiosity, overclaiming, and support for terrorism. Specifically, the exploratory SEM model helped cull the set of narcissism variables suggesting that the most critical forms of narcissism to understanding religious overclaiming and support for terrorism are grandiose (agentic), communal, and collective narcissism. Additionally, Study 2 demonstrated that measures of religiosity are substantially more important to understanding support for terrorism than originally thought. The results of the regression analyses demonstrated that the religiosity variables accounted for more of the variance in participants' decision to support the violent-defensive commenter than did the narcissism variables. Moreover, the results of the SEM show two general mediational pathways. The first pathway shows a mediational interaction between narcissism, religiosity, and support for the Internet commenters and the second pathway shows a similar mediational interaction between religiosity, religious overclaiming, and support for the Internet Commenters.

The surprisingly poor model fit of the extrinsic religiosity scales was not expected. The concept of intrinsic and extrinsic religiosity is a foundational construct in the psychology of religion literature. It seems the popularity of the constructs of intrinsic and extrinsic religiosity concealed some pointed criticism regarding their use. For instance, Kirkpatrick, & Hood (1990) review studies that reported similar structural problems in the intrinsic and extrinsic religiosity scales to those that were discovered in the present research. The authors bemoan the popularity of the intrinsic and extrinsic religiosity scales during the reported 20 years (47 years, at the time of this writing) that they have been in use and vehemently call for a more psychometrically sound alternative. It is uncertain why there not been an alternative to the intrinsic extrinsic religiosity scales in the popular literature. One thought is that—despite their poor structural integrity—the composite scores of the intrinsic extrinsic religiosity scales still show predictive utility. Indeed, once they were parceled, the present research demonstrated significant results with the intrinsic, extrinsic-social, and extrinsic-personal subscales.

Another idea is, that these scales exhibited such poor structural integrity may be indicative of changing perceptions regarding religion, which would require an updated version of the scale to account for changes in the modern approach to religion. Additionally, many of the poorly fitting items were reverse-coded. Reverse-coding items has been discouraged by psychometricians precisely because they tend to contribute to poor model fit (McDonald, 1999). Revisions to the I/E-R scale should do away with reverse-coded items and, if there are concerns of inattentive responding, modern attention-checks should be encouraged instead. The SEMs were particularly sensitive to the poor-fitting religiosity scales and caused a litany of misspecification and non-convergence issues. After all the measures were parceled these issues disappeared.

Similar to Study 1, assessing the equal-variance assumption in Study 2 found that the equal-variance assumption did not hold for the BOCQ, though it may have held for the QOCQ. The QOCQ also demonstrated remarkably low accuracy and high FA in Study 2 that make interpreting the accuracy indices difficult. Particularly for the BOCQ, strict interpretation of the SDT indices requires that robust or non-paramtric SDT indices be used for response bias (e.g., $\ln(\beta)$ or B'') as well as accuracy (e.g., A'). The results of the regression analyses using the different SDT bias indices show that, especially for the BOCQ, the parametric bias index c yielded fewer significant results than did the robust index $\ln(\beta)$ or the nonparametric index B''.

Though narcissism continued to be a significant predictor, the results of the inferential analyses suggest that the inclusion of the religiosity covariates account for a greater amount of the variance in how the participants declared their support for the Internet commenters than did the narcissism measures. Unlike Study 2, when the religiosity covariates were included in the regression models, the NPI-13 stopped being a significant predictor of religious bias for both the BOCQ and QOCQ, though communal overclaiming remained a significant predictor of religious bias. Interestingly, the regression models showed that the religious covariates that had to do with a social component of religiosity (i.e., extrinsic-social and frequency of religious service attendance) were more predictive of religious bias than were those that had to do with intrinsic or personal motivation. On the other hand, the NPI-13 remained a significant negative predictor of Bible accuracy (as did communal narcissism, but only when using A') whereas intrinsic, extrinsic-personal, and quest religiosity were positive predictors.

The most interesting results came from the SEM from Study 2 after eliminating the variables that did not predict any other variable (i.e., HNS, BPNI, and prayer frequency). When accounting for the interrelationships between the variables, the results of the SEM showed that

the NPI-13 was not a direct predictor of any of the religious overclaiming measures nor of support for any of the internet commenters. The NPI was only a significant predictor of extrinsic religiosity-social. Communal narcissism was found to be a direct predictor of support for the apathetic commenter and an indirect negative predictor of the violent defensive commenter, through intrinsic religiosity and Bible accuracy, and the peaceful commenter through intrinsic religiosity. Additionally, collective narcissism was found to be a direct positive predictor of support for the violent-defensive commenter.

Support for the apathetic commenter was directly predicted by quest religiosity and negatively predicted by religious service attendance. Support for the peaceful commenter was positively predicted by intrinsic religiosity and negatively predicted by Bible bias—suggesting that the more an individual claims familiarity with false Bible items the more likely the individual is to support the peaceful commenter. Moreover, the violent defensive commenter was positively predicted by extrinsic-social religiosity (negatively mediated by Bible accuracy), and negatively predicted by intrinsic religiosity, and extrinsic-personal religiosity. Critically, Qur'an bias was a direct negative predictor of support for the violent defensive—suggesting that the more likely an individual is to claim familiarity with Qur'an items, the more likely that individual is to support the violent-defensive commenter.

General discussion

The results of the present research have implications for future research concerning the relationship between narcissism, religiosity, overclaiming, as predictors of support for terrorism. The present study demonstrates a first step towards accumulating a set of risk factors that are associated with an individuals' decision to become *involved* in terrorism (i.e., Horgan, 2014), and therefore presents an opportunity to intervene in such individuals well before they fall risk to seriously entertain thoughts about *engaging* in terrorism. Study 1 confirmed the theoretical relationship between narcissism and religious overclaiming and demonstrated that grandiose (agentic) narcissism and communal narcissism are differential predictors of religious overclaiming.

Contrary to Bobadilla (2014), vulnerable narcissism was not a predictor of religious bias nor accuracy. This, however, does not invalidate the theoretical consistency of Bobadilla's claims as his comments were specifically addressing the phenomenon of suicide terrorism. The present research may, therefore, suggest that the mechanisms surrounding *support* for terrorism (i.e., *involvement* according to Horgan, 2014) are different than the mechanisms underlying the decision to participate in a suicide-mission (i.e., *engagement* according to Horgan, 2014). This is consistent with observations made by field-researchers who know that the terrorist recruits who are willing to undergo in a suicide-mission are vastly overwhelmed by the number of passive-supporters in a community that harbors terrorists (Horgan, 2014; Sageman, 2004).

Surprisingly, collective narcissism was not a predictor of religious overclaiming in Study 1, it was predicted that collective narcissism would out-perform communal narcissism in predicting the religious bias. However, collective narcissism demonstrated its utility as a direct predictor of support for the violent-defensive commenter. This finding suggests that the

relationship between different types of narcissism and support for terrorism is more nuanced than previously imagined—especially when considering the myriad of mediating variables that were discovered between narcissism and support for terrorism. For example, the relationship between communal narcissism and support for the violent-defensive commenter was mediated through intrinsic religiosity, extrinsic-social religiosity, and Bible accuracy along three distinct pathways. The first two pathways demonstrate that as communal narcissism increases, so does intrinsic religiosity. Intrinsic religiosity then increases Bible accuracy, ultimately exerting a negative association with support for the violent defensive commenter. However, the third pathway shows that communal narcissism also increases extrinsic-social religiosity, which has the effect of increasing the individuals' support for the violent defensive commenter.

Alternatively, collective narcissism was shown to have a direct positive relationship with support for the violent defensive commenter, and a separate negative association with Bible accuracy. If the differential associations between communal and collective narcissism hold across future replications, then these effects have the potential to guide two distinct paths of intervention for individuals who might be at-risk of succumbing to terrorist propaganda. For individuals who are communally narcissistic, the associations between intrinsic religiosity and Bible accuracy hint at the most effective strategies for intervention. For communal narcissistic individual, effective treatments should involve a campaign demonstrating that terrorism and religious extremism is highly undesirable in their community while, alternatively, demonstrating that practicing peaceful acceptance of different faith traditions are sources of positive esteem. Conversely, the path towards intervening with a collectively narcissistic individual is more opaque. Though, the results of Study 2 suggest that a campaign that increases identification with

a religious community while simultaneously working to increase accuracy of ones' religious knowledge may be beneficial.

The results of study 2 demonstrate the complex relationship between narcissism and religiosity. However, they also demonstrate that the predictive power of religiosity measures exceeds that of narcissism. Previous research on religiosity demonstrates that the group- (social) component of religion is more strongly associated with support for aggression and terrorism (Ginges, Hansen, & Norenzayan, 2009; see also Ginges, & Atran, 2009; Ginges, Atran, Medin, & Shikaki, 2007; Saroglou, Corneille, & Van Cappellen, 2009; Van Cappellen, Corneille, Cols, & Saroglou, 2011). The results of Study 2 are in line with the psychology of religion literature in that above average religious service attendance and extrinsic-social religiosity predicted greater support for the violent defensive commenter and less support for the peaceful and apathetic commenter. Conversely, intrinsic, extrinsic-personal, and quest religiosity were either positive predictors of support for the peaceful commenter, negative predictors of support for the violent-defensive commenter, or neutral (positive predictor of the apathetic commenter).

Taken together, the results concerning narcissism and religiosity work to confirm that one of the most critical components of religious overclaiming (and perhaps of overclaiming in general) is the degree to which an individual identifies with the topic about which they overclaim. Dunlop and colleagues (2016) exhibited a set of findings that may intuitively seem to discount the relationship between narcissism and overclaiming by finding that "openness to experience" (via the HEXACO model of personality) was a greater predictor of overclaiming than was narcissism. However, their explanation of their findings revolved around two components: first, the induvial who overclaims has a strong identity as someone who is "open to

experiences," and second, the individual who overclaims about a topic should actually be well-exposed to the topic of interest.

Because both Studies 1 and 2 showed some violations of the equal-variance assumption, the present study suggests that overclaiming research use nonparametric indices of response bias and accuracy. Practically, however, it should be noted that the results of the present research did not vary when different SDT indices were used, suggesting that violations of the equal-variance assumption would need to be larger to make a substantive impact on the results. The results of the present research agree with and expand upon Dunlop, Bourdage, de Vries, Hilbig, Zettler, and Ludeke's (2016) findings within the framework of religious overclaiming in two ways. First, the present research accounted for the concept of identification with several measures of narcissism and religious orientation (whose differences all stem from their self-identity). And second, the present research accounted for actual religious knowledge and habits (i.e., religious accuracy, frequency of religious services attendance, and frequency of prayer). The results demonstrated the same two components were critical in understanding the relationship between overclaiming, narcissism, and support for terrorism in a religious context.

Because the present research was only able to sample from mostly Christian Americans, and because the results demonstrate that the facets of religiosity that concern group-identity (religious service attendance and extrinsic-social religiosity), the results of the present research confirm that a high degree of identification with a subject (in this case religion) is required for overclaiming to exist. Previous research has already established the relationship between identification with a topic and overclaiming that topic (Atir, Rosenzweig, & Dunning, 2015), and identification with ones' religion was directly assessed by Jones and colleagues (*under review*). Moreover, exposure (as measured by religious service attendance, and religious background) as

well as actual knowledge about the topic of interest (as measured by religious accuracy) was also critical in the present experiment as they were for Dunlop and colleagues (2016).

LIMITATIONS & FUTURE DIRECTIONS

Considering the interactions between religiosity and religious overclaiming, future directions in religious overclaiming should emphasize more closely the role of religiosity on support for terrorism (or other anti-social outcomes). Moreover, future studies should, necessarily, consider more complicated mediational models when researching religious overclaiming. Indeed, a future replication of this project might benefit from treating the outcome variables as binary (conceptualized, perhaps, via a Facebook style "like" / "dislike" button), this would allow for the results to be analyzed as a moderation model. Such a study would facilitate a Johnson-Neyman regions of significance analysis to capture the exact threshold where religiosity or religious overclaiming influence a person to support (or, "like") a terroristic statement.

The use of the poorly fitting intrinsic and extrinsic religiosity scales is one potential flaw in the present study. Kirkpatrick, & Hood (1990) were so unambiguous in their criticism of the intrinsic and extrinsic religiosity scales that it is surprising that there is still no better-performing alternative to measure those particular religiosity constructs. Moving forward, future research should consider the New Indices of Religious Orientation Revised scale (NIROR), a modern and psychometrically sound scale that assesses intrinsic, extrinsic, and quest religiosity (Francis, Fawcett, Robbins, & Stairs, 2016).

Another key limitation to the present study was the scope from which the sample was drawn. No participants who identified as Muslim were recruited in the present study, which limits the findings of the present research to mostly Christian Americans. This limitation does

not discredit the value of the present results, as they demonstrate very clearly that the degree to which participants in the present sample were willing to support the violent-defensive commenter depended upon their willingness to overclaim a religion that was not their own (in addition to their inability to identify items that were of their own religion). This is an invaluable finding that may contribute directly to support for certain acts of state-sponsored terrorism (e.g., US-led bombing campaigns against mostly Muslim countries).

Moreover, the present research may generalize to samples of Abrahamic religions other than Christianity. For example, within a hypothetical sample of participants who identify as Muslim and who overclaim knowledge of the Christian Bible and demonstrate poor accuracy for the Qur'an. Though previous research demonstrates that the overclaiming phenomena generalizes widely between Christian and Muslim samples (Jones, Neria, Helm, Sahlan, & Carré, *under review*; *in prep*), without actually collecting data from predominantly Muslim samples the present research can only speculate. Nonetheless, the present study remains a promising proof-of-concept that can be used to motivate replications within more difficult-to-reach samples of Muslims (or even other Christians or Jews) from outside of the US.

It is also important to note that because of the nascent nature of this line of research, the present study should be understood as an exploratory launching point for larger programs of research that will begin to address some of the most pressing concerns that underlay the relationship between narcissism, overclaiming, identity, and support for terrorism. Furthermore, because continuing research on the relationship between narcissism and support for terrorism is so sparse, the present study hopes to inspire others to incorporate more nuanced questions of personality and individual differences into their investigations of terrorism and terrorist support.

The present research confirmed that communal narcissism is central, amongst the different forms of narcissism, to religious overclaiming. Even when including grandiose (agentic), vulnerable, and collective narcissism, communal narcissism demonstrated consistent relationships with overclaiming in Study 1, and exhibited a critically important relationship with the religiosity measures in Study 2 that ultimately influenced support for the Internet commenters. Future research should therefore examine the mediational relationship between communal narcissism and religiosity more closely to better understand this specific pathway that contributes to support for terrorism in the hopes that it can start delineating a pathway towards intervention campaigns. Interestingly, grandiose (agentic) narcissism seemed to leverage some indirect effect on support for the internet commenters that could not be delineated by the present study. This may suggest there exists a similar mediational relationship between grandiose (agentic) narcissism and support for terrorism through either religious overclaiming or religiosity (or both). However, future research will be needed that directly specifically tests for such a mediational relationship. Additionally, the results of Study 2 demonstrated a direct relationship between collective narcissism and support for the violent-defensive commenter. Future research should investigate that relationship more closely to determine if there are any variables that might intervene with the relationship between collective narcissism and support for terrorism.

Additionally, the role of religiosity should be taken more seriously as a mediating variable in research studying religious overclaiming and support for terrorism. It is absolutely paramount to maintain the distinction between religions *per se* and religiosity. Previous research demonstrated that religions themselves do not categorically contribute to a desire to support terrorism (Ginges, Hansen, Norenzayan, 2009; see also Ginges, & Atran, 2009; and Ginges, Atran, Medin, & Shikaki, 2007)—this fact must be maintained. However, the present research

demonstrates that an individuals' approach to their own religion (intrinsic, extrinsic, quest) may have serious ramifications to how they approach religious-group conflicts.

Additionally, it is unknown to what degree the present research generalizes to forms of non-religious overclaiming. Certainly, it should not be expected that religiosity would influence non-religious overclaiming nor support for violence in non-religious domains. However, considering that communal narcissism (and, to a lesser degree, collective narcissism) was a robust predictor in both Studies 1 and 2, it seems reasonable to expect that there should a group-component to overclaiming that drives the effect of support for violence. Future studies should replicate the present research using non-religious domains with similar in-group / out-group dichotomies and which may reasonably inspire violence. For example, politics and political violence, the environment and eco-terrorism, as well as animal rights activists and animal rights extremism may be excellent domains of knowledge for a replication of the present research.

Finally, the role of the group component in overclaiming research—and especially overclaiming research that is concerned with support for violence—raises questions regarding the role of social conformity in the relationship between overclaiming and support for violence. Researchers investigating the psychology of religion have made great use of psychologically priming participants for religion (that is, exposing participants subconsciously to concepts referring to God or an organized religious tradition) to see what kind of effect that has on their behaviors or attitudes. Paradoxically, research has shown that religious priming can influence a person to behave pro-socially (e.g., Norenzayan, & Shariff, 2008; Pichon, Boccato, & Saroglou, 2007; Randolph-Seng, & Nielsen, 2007; Shariff, & Norenzayan, 2007) and anti-socially (e.g., Johnson, Rowatt, & LaBouff, 2010; 2011; McKay, Efferson, Whitehouse, & Fehr, 2010). However, in every experiment involving the effects of religious priming on behavior exists a

there exists a largely unrecognized mediating variable that has to with the participants suggestibility and predisposition towards conformity (Saroglou, Corneille, & Van Cappellen, 2009; Van Cappellen, Corneille, Cols, & Saroglou 2011).

The theoretical argument, therefore, is that religious priming effects the probability that a participant will conform to a pro-social or anti-social request. Similarly, the results of the present research showing that extrinsic-social religiosity played a particularly influential role in predicting support for violence may have overlooked a critically important role of conformity, submissiveness, or suggestibility that may be crucial to understanding the relationship between overclaiming and support for violence. It may even be the case that suggestibility—not openness to experience—better explains the results of Dunlop, Bourdage, de Vries, Hilbig, Zettler, and Ludeke, (2016). Future research should investigate a greater spectrum of variables that includes dispositional conformity, submissiveness, or suggestibility—which itself seems to lead to questions of leadership and authority.

Indeed, the results of the present research represent a substantial first step towards disentangling the theoretical mechanisms the underlay overclaiming and support for violence. Moreover, though the role of narcissism was a central point of investigation in the present study, it was only a starting point. There may be other variables of greater concern, but narcissism was the only variable consistently discussed in the (admittedly scant) theoretical literature on overclaiming. Returning to Horgan's (2014) argument, the present research may, in due course, exist to confirm that there exists a multidimensional confluence of factors, internal and external, that influence a persons' decision to support or be involved in terroristic violence.

CONCLUSIONS

The ultimate ambition of the present program of research is to contribute to the understanding of religious overclaiming and support for terrorism in a way that contributes to the call made by Horgan (2014) that such research shift from a paradigm that stresses causal factors to one that emphasizes risk factors instead (Bhui, Hicks, Lashley, & Jones, 2012; McKee, & Coker, 2009). Additionally, the present research addresses a second concern raised by Horgan (2014) that the prevailing research in the field of terrorism studies does not consider the earliest stages of *involvement* with terrorism. Thus, the present research deviated from traditional psychological research that emphasizes individuals' attitudes towards terrorist attacks, and instead asked questions related to the degree to which individuals endorse support for terroristic statements. In this way, the present studies have demonstrated a relationship between narcissism and religious overclaiming and, more critically, two mediational pathways that contribute to support for terrorism.

The first mediational pathway involves communal narcissism and religiosity and the second mediational pathway involves religiosity and accuracy about another religion. Additionally, the present study unveiled a direct relationship between collective narcissism and support for the violent-defensive commenter. Certainly, the present study cannot be considered an exhaustive list of risk factors to terrorism support. Rather, the results of this exploratory study provide a promising first glance into some of the psychological domains that afford the most immediate attention to the research on religious overclaiming. Specifically, the present research helps delineate the ability of religious overclaiming measures to predict support for terrorism (or, conversely, support for peace) and its relationship with general religiosity and narcissism. Future research will need to build upon the associations found by the present research, but the hope is that the present study will inspire launch a program of research that will further confirm

the relationships found herein as well as work to produce actionable intervention strategies for individuals at risk of succumbing to terroristic propaganda, and promote campaigns that will encourage peaceful interfaith dialogue.

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Table 1. Formulae and SPSS syntax used to calculate SDT indices.

Category	Index	Mathematical Formulation	SPSS syntax used
Bias	λ	$-1 \times \Phi^{-1}(FA)$	COMPUTE L = -PROBIT(FA).
	c	$-1 \times \left(\frac{\Phi^{-1}(H) + \Phi^{-1}(FA)}{2}\right) = \lambda - \frac{d'}{2}$	COMPUTE C = -(PROBIT(H) + PROBIT(FA))/2.
	$\ln(\beta)$	$\frac{\Phi^{-1}(FA)^2 - \Phi^{-1}(H)^2}{2} = d' \times c$	COMPUTE LB = DP * (L - (.5 * DP)).
	B''	$\text{sign}(H - FA) \times \left(\frac{H(1-H) - FA(1-FA)}{H(1-H) + FA(1-FA)}\right)$	DO IF H >= FA. COMPUTE BPP = (H*(1 - H) - FA*(1 - FA)) / (H*(1 - H) + FA*(1 - FA)). ELSE IF H < FA. COMPUTE BPP = (FA*(1 - FA) - H*(1 - H)) / (FA*(1 - FA) + H*(1 - H)). END IF.
Accuracy	d'	$\Phi^{-1}(H) - \Phi^{-1}(FA)$	DP = PROBIT(H) - PROBIT(FA).
	A'	$\frac{1}{2} + \left(\text{sign}(H - FA) \times \left(\frac{(H-FA)^2 + \lvert H - FA \rvert}{4\max(H, FA) - 4(H)(FA)}\right)\right)$	DO IF H >= FA. COMPUTE AP = (1/2) + (((H - FA)*(1 + H - FA)) / 4*H*(1-FA)). ELSE IF H < FA. COMPUTE _AP = (1/2) + (((FA - H)*(1 + FA - H)) / 4*FA*(1-H)). END IF.

Note: All indices were sourced from Stanislaw & Todorov (1999) and Wickens (2002)

Table 2. List of SDT indices of overclaiming by authors

Description	Accuracy	Response bias	Used by…
Basic SDT indices[a]	H	FA	Atir, et al., (2015); Ludeke, & Makransky, (2016); Pesta, & Poznanski, (2009).
Traditional SDT indices[a]	d'	c	Hülür, el al., (2011); Kam, et al., (2015); Paulhus, et al., (2003); Tonković, et al., (2011).
Non-parametric SDT indices[a]	A'	B''	Jones, et al., (*under review*); (*in prep*).
"Commonsense" indices[b]	$H - FA$	$\frac{H + FA}{2}$	Atir, et al., (2015); Gebauer, et al., (2017); Kam, et al., (2015); Paulhus (2011); Paulhus & Dubois (2014); Paulhus & Harms (2004); Swami, et al, (2011); Tonković, et al., (2011); Ziegler, et al., (2013).
Other SDT bias indices[a]		λ	N/A
		$\ln(\beta)$	N/A

Note: [a] denotes that the indices were sourced from Stanislaw & Todorov (1999) and Wickens (2002); [b] denotes that the indices originated from Paulhus & Petrusic (2007).

Table 3. Descriptive statistics of the narcissism measures in Study 1.

	Mean	SD	Skewness	SE	Kurtosis	SE
BPNI overall	3.45	1.00	0.07	0.12	-0.16	0.24
Grandiose - BPNI	3.80	1.06	-0.22	0.12	-0.09	0.24
Exploitativeness	3.56	1.25	0.11	0.12	-0.49	0.24
Self-Sacrificing Self-Enhancement	4.09	1.22	-0.33	0.12	0.13	0.24
Grandiose Fantasy	3.77	1.51	-0.18	0.12	-0.77	0.24
Vulnerable - BPNI	3.19	1.20	0.21	0.12	-0.51	0.24
Contingent Self-Esteem	2.96	1.38	0.43	0.12	-0.54	0.24
Hiding the Self	3.74	1.38	-0.12	0.12	-0.54	0.24
Devaluing	2.96	1.35	0.33	0.12	-0.79	0.24
Entitlement Rage	3.09	1.33	0.37	0.12	-0.53	0.24
NPI overall	1.23	0.24	1.00	0.13	0.35	0.25
Leadership / Authority	1.71	0.34	-0.87	0.13	-0.60	0.25
Grandiose / Exhibitionism	1.79	0.28	-1.16	0.13	0.31	0.25
Entitlement / Exploitativeness	1.81	0.27	-1.39	0.13	1.00	0.25
HNS	3.42	1.09	0.09	0.12	-0.25	0.25
Com. N	3.84	1.14	0.01	0.13	-0.03	0.25
Col. N	3.49	1.20	-0.03	0.12	-0.59	0.25

Table 4. Descriptive Statistics of the Overclaiming measures and SDT indices for Study 1.

		Mean	SD	Min	Max	Skewness	SE	Kurtosis	SE
BOCQ	FA	0.13	0.20	0.00	0.97	1.87	0.12	2.92	0.25
	H	0.41	0.21	0.00	0.96	0.26	0.12	-0.55	0.25
	λ	1.54	0.90	-1.91	2.33	-0.99	0.12	0.11	0.25
	c	0.89	0.68	-1.82	2.55	-0.70	0.12	0.35	0.25
	$\ln(\beta)$	1.36	1.04	-1.14	2.71	-0.16	0.12	-1.45	0.25
	B''	0.60	0.41	-0.53	1.00	-0.53	0.12	-1.15	0.25
	d'	1.28	0.76	-0.45	3.33	-0.07	0.12	-0.60	0.25
	A'	0.55	0.06	0.50	0.83	1.96	0.12	4.20	0.25
QOCQ	FA	0.21	0.21	0.00	0.94	1.29	0.12	0.99	0.25
	H	0.25	0.17	0.00	0.93	1.27	0.12	1.88	0.25
	λ	1.05	0.84	-1.59	2.33	-0.34	0.12	-0.28	0.25
	c	0.88	0.68	-1.47	2.56	-0.53	0.13	0.42	0.25
	$\ln(\beta)$	0.40	0.61	-1.60	2.53	1.29	0.13	1.91	0.25
	B''	0.26	0.31	-0.21	1.00	1.27	0.13	0.61	0.25
	d'	0.27	0.43	-0.96	1.73	0.63	0.13	0.43	0.25
	A'	0.50	0.01	0.50	0.54	2.47	0.12	8.90	0.25
AOCQ	FA	0.15	0.23	0.00	1.00	1.53	0.12	1.46	0.25
	H	0.42	0.23	0.00	1.00	0.05	0.12	-0.68	0.25
	λ	1.46	1.01	-2.33	2.33	-0.90	0.12	-0.06	0.25
	c	0.80	0.73	-1.96	2.03	-0.77	0.13	0.22	0.25
	$\ln(\beta)$	1.29	1.16	-2.68	2.71	-0.13	0.13	-1.27	0.25
	B''	0.55	0.47	-1.00	1.00	-0.52	0.13	-0.75	0.25
	d'	1.23	0.89	-1.65	3.48	0.05	0.13	-0.62	0.25
	A'	0.55	0.06	0.50	0.86	2.14	0.12	5.38	0.25
COCQ	FA	0.19	0.24	0.00	1.00	1.27	0.12	0.72	0.25
	H	0.48	0.18	0.00	1.00	0.30	0.12	0.12	0.25
	λ	1.24	1.02	-2.33	2.33	-0.55	0.12	-0.57	0.25
	c	0.63	0.69	-2.33	1.79	-0.88	0.12	0.73	0.25

$\ln(\beta)$	1.14	1.18	-2.48	2.71	0.13	0.12	-1.22	0.25
B''	0.47	0.46	-1.00	1.00	-0.21	0.12	-1.03	0.25
d'	1.20	0.88	-0.94	3.58	0.02	0.12	-0.86	0.25
A'	0.55	0.05	0.50	0.88	2.04	0.12	6.22	0.25

Table 5. Intercorrelations of narcissism measures for Study 1.

	1.	2.	3.	4.	5.	6.
1. NPI	1‡	0.39‡	0.28‡	0.24‡	0.37‡	0.37‡
2. BPNI-G	0.39‡	1‡	0.55‡	0.45‡	0.52‡	0.48‡
3. BPNI-V	0.28‡	0.55‡	1‡	0.83‡	0.23‡	0.51‡
4. HNS	0.24‡	0.45‡	0.83‡	1‡	0.18†	0.46‡
5. Com.N	0.37‡	0.52‡	0.23‡	0.18†	1‡	0.47‡
6. Col.N	0.37‡	0.48‡	0.51‡	0.46‡	0.47‡	1‡

Note: † denotes that the correlation was significant at the 0.001 level. ‡ denotes that the correlation was significant after a Bonferroni correction.

Table 6. Correlations of the FA and H of all overclaiming measures for Study 1.

	1.	2.	3.	4.	5.	6.	7.	8.
1. BOCQFA	1‡	0.54‡	0.76‡	0.72‡	0.74‡	0.40‡	0.69‡	0.44‡
2. BOCQH	0.54‡	1‡	0.47‡	0.58‡	0.33‡	0.39‡	0.29‡	0.45‡
3. QOCQFA	0.76‡	0.47‡	1‡	0.92‡	0.66‡	0.33‡	0.65‡	0.43‡
4. QOCQH	0.72‡	0.58‡	0.92‡	1‡	0.63‡	0.38‡	0.59‡	0.45‡
5. AOCQFA	0.74‡	0.33‡	0.66‡	0.63‡	1‡	0.56‡	0.75‡	0.49‡
6. AOCQH	0.40‡	0.39‡	0.33‡	0.38‡	0.56‡	1‡	0.36‡	0.57‡
7. COCQFA	0.69‡	0.29‡	0.65‡	0.59‡	0.75‡	0.36‡	1‡	0.55‡
8. COCQH	0.44‡	0.45‡	0.43‡	0.45‡	0.49‡	0.57‡	0.55‡	1‡

Note: † denotes that the correlation was significant at the 0.001 level. ‡ denotes that the correlation was significant after a Bonferroni correction.

Table 7. Correlations between narcissism measures and bias indices for Study 1.

	BOCQ					QOCQ				
	FA	λ	c	$\ln(\beta)$	B''	FA	λ	c	$\ln(\beta)$	B''
NPI	**.37**‡	**-.34**‡	**-.27**‡	**-.31**‡	**-.33**‡	**.30**‡	**-.24**‡	**-.23**‡	**-.15**†	**-.11***
BPNI-G	**.25**‡	**-.24**‡	**-.20**‡	**-.20**‡	**-.22**‡	**.24**‡	**-.24**‡	**-.23**‡	**-.18**†	**-.14**†
BPNI-V	**.24**‡	**-.22**‡	**-.14**†	**-.19**‡	**-.19**‡	**.22**‡	**-.20**‡	**-.19**‡	**-.11***	-0.09
HNS	**.19**‡	**-.17**†	**-.11***	**-.13***	**-.14**†	**.16**†	**-.15**†	**-.16**†	**-.11***	**-.11***
Com.N	**.35**‡	**-.33**‡	**-.28**‡	**-.29**‡	**-.31**‡	**.36**‡	**-.32**‡	**-.33**‡	**-.23**‡	**-.19**‡
Col.N	**.25**‡	**-.23**‡	**-.19**‡	**-.20**‡	**-.21**‡	**.22**‡	**-.17**†	**-.18**†	-.04	-0.01
	AOCQ					COCQ				
	FA	λ	c	$\ln(\beta)$	B''	FA	λ	c	$\ln(\beta)$	B''
NPI	**.34**‡	**-.32**‡	**-.29**‡	**-.29**‡	**-.30**‡	**.41**‡	**-.37**‡	**-.34**‡	**-.27**‡	**-.30**‡
BPNI-G	**.27**‡	**-.26**‡	**-.25**‡	**-.21**‡	**-.24**‡	**.29**‡	**-.30**‡	**-.30**‡	**-.25**‡	**-.26**‡
BPNI-V	**.23**‡	**-.22**‡	**-.17**†	**-.21**‡	**-.21**‡	**.24**‡	**-.24**‡	**-.20**‡	**-.18**†	**-.19**‡
HNS	**.19**‡	**-.19**‡	**-.12***	**-.17**†	**-.17**†	**.19**‡	**-.18**†	**-.14**†	**-.11***	**-.12***
Com.N	**.34**‡	**-.32**‡	**-.29**‡	**-.32**‡	**-.34**‡	**.44**‡	**-.43**‡	**-.41**‡	**-.38**‡	**-.41**‡
Col.N	**.26**‡	**-.24**‡	**-.22**‡	**-.24**‡	**-.242**‡	**.30**‡	**-.30**‡	**-.27**‡	**-.25**‡	**-.26**‡

Note: * denotes that the correlation is significant at the 0.05 level; † denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction.

Table 8. Correlations between narcissism measures and accuracy indices for Study 1.

	BOCQ			QOCQ		
	H	A'	d'	H	A'	d'
NPI	.03	**-.22**‡	**-.38**‡	**.23**‡	-.02	**-.23**‡
BPNI-G	.09	**-.12***	**-.21**†	**.22**†	.02	**-.18**†
BPNI-V	.01	**-.16**†	**-.26**†	**.20**†	-.02	**-.13***
HNS	-.02	**-.17**‡	**-.22**‡	**.15**‡	-.05	**-.11***
Com.N	**.12***	**-.15**†	**-.29**†	**.31**†	-.01	**-.27**†
Col.N	.09	-.08	**-.21**†	**.21**†	.04	-.08
	AOCQ			COCQ		
	H	A'	d'	H	A'	d'
NPI	**.10***	**-.16**†	**-.29**†	**.12***	**-.24**†	**-.36**†
BPNI-G	**.15**†	-.07	**-.20**†	**.19**†	**-.11***	**-.22**†
BPNI-V	.04	**-.15**†	**-.25**†	.06	**-.16**†	**-.25**†
HNS	.02	**-.15**‡	**-.23**‡	.01	**-.14**‡	**-.20**‡
Com.N	.03	**-.25**†	**-.36**†	**.17**†	**-.24**†	**-.39**†
Col.N	.07	**-.14**†	**-.24**†	.09	**-.16**†	**-.30**†

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction.

Table 9. Multiple regression analyses using narcissism measures to predict various SDT bias indices of the BOCQ in Study 1.

	FA $(\tilde{R}^2 = .19)$		λ $(\tilde{R}^2 = .16)$		c $(\tilde{R}^2 = .10)$		$\ln(\beta)$ $(\tilde{R}^2 = .13)$		B'' $(\tilde{R}^2 = .14)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	**0.26**‡	**0.21 (0.13, 0.3)**	**-0.24**‡	**-0.91 (-1.3, -0.53)**	**-0.18***	**-0.50 (-0.8, -0.20)**	**-0.22**‡	**-0.97 (-1.42, -0.51)**	**-0.24**‡	**-0.41 (-0.59, -0.23)**
BPNI-G	-0.05	-0.01 (-0.03, 0.01)	0.04	0.04 (-0.07, 0.15)	0.01	0.01 (-0.08, 0.09)	0.05	0.05 (-0.08, 0.18)	0.04	0.02 (-0.03, 0.07)
BPNI-V	**0.18***	**0.03 (0, 0.06)**	-0.14	-0.11 (-0.24, 0.03)	-0.07	-0.04 (-0.15, 0.07)	-0.18	-0.16 (-0.32, 0)	-0.12	-0.04 (-0.11, 0.02)
HNS	-0.04	-0.01 (-0.04, 0.02)	0.02	0.01 (-0.12, 0.15)	0.03	0.02 (-0.09, 0.13)	0.08	0.08 (-0.08, 0.24)	0.03	0.01 (-0.05, 0.07)
Com.N	**0.26**‡	**0.05 (0.03, 0.06)**	**-0.24**‡	**-0.19 (-0.28, -0.1)**	**-0.20***	**-0.12 (-0.19, -0.05)**	**-0.22**†	**-0.20 (-0.31, -0.09)**	**-0.23**‡	**-0.08 (-0.13, -0.04)**
Col.N	-0.02	0 (-0.02, 0.02)	0.02	0.01 (-0.08, 0.1)	-0.01	-0.01 (-0.08, 0.06)	0.02	0.02 (-0.09, 0.12)	0.02	0.01 (-0.03, 0.05)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. All models are significant.

Table 10. Multiple regression analyses using narcissism measures to predict various SDT accuracy indices of the BOCQ in Study 1.

	H^{X} $(\tilde{R}^2 = .07)$		d' $(\tilde{R}^2 = .19)$		A' $(\tilde{R}^2 = .06)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	-0.03	-0.02 (-0.12, 0.07)	**-0.31**‡	**-0.99 (-1.31, -0.67)**	**-0.19**†	**-0.04 (-0.07, -0.02)**
BPNI-G	0.07	0.01 (-0.01, 0.04)	0.12	0.08 (-0.01, 0.17)	0.05	0 (0, 0.01)
BPNI-V	0	0 (-0.04, 0.03)	**-0.22***	**-0.14 (-0.25, -0.03)**	-0.07	0 (-0.01, 0.01)
HNS	-0.08	-0.02 (-0.05, 0.02)	-0.01	0 (-0.12, 0.11)	-0.12	-0.01 (-0.02, 0)
Com.N	0.08	0.01 (-0.01, 0.04)	**-0.22**‡	**-0.14 (-0.22, -0.07)**	-0.12	-0.01 (-0.01, 0)
Col.N	0.07	0.01 (-0.01, 0.03)	0.07	0.04 (-0.03, 0.12)	0.10	0 (0, 0.01)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. X denotes that the model was not significant.

Table 11. Multiple regression analyses using narcissism measures to predict various SDT bias indices of the QOCQ in Study 1.

	FA $(\tilde{R}^2 = .16)$		λ $(\tilde{R}^2 = .12)$		c $(\tilde{R}^2 = .12)$		$\ln(\beta)$ $(\tilde{R}^2 = .06)$		B'' $(\tilde{R}^2 = .05)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	**0.18**†	**0.16 (0.07, 0.25)**	**-0.13***	**-0.45 (-0.81, -0.08)**	**-0.12***	**-0.33 (-0.63, -0.03)**	-0.09	-0.22 (-0.5, 0.06)	-0.05	-0.06 (-0.21, 0.08)
BPNI-G	-0.03	-0.01 (-0.03, 0.02)	-0.01	-0.01 (-0.11, 0.09)	-0.01	0 (-0.09, 0.08)	-0.05	-0.03 (-0.11, 0.05)	-0.05	-0.02 (-0.06, 0.02)
BPNI-V	**0.19***	**0.03 (0, 0.07)**	-0.12	-0.08 (-0.21, 0.05)	-0.11	-0.06 (-0.17, 0.04)	-0.02	-0.01 (-0.11, 0.09)	0.03	0.01 (-0.04, 0.06)
HNS	-0.06	-0.01 (-0.04, 0.02)	-0.01	-0.01 (-0.14, 0.12)	-0.01	-0.01 (-0.12, 0.1)	-0.09	-0.05 (-0.15, 0.05)	-0.14	-0.04 (-0.09, 0.01)
Col.N	**0.29**‡	**0.05 (0.03, 0.08)**	**-0.27**‡	**-0.20 (-0.28, -0.11)**	**-0.28**‡	**-0.17 (-0.24, -0.1)**	**-0.23**†	**-0.12 (-0.19, -0.06)**	**-0.21***	**-0.06 (-0.09, -0.02)**
Col.N	-0.04	-0.01 (-0.03, 0.01)	0.08	0.05 (-0.03, 0.14)	0.07	0.04 (-0.03, 0.11)	**0.17***	**0.09 (0.02, 0.15)**	**0.18***	**0.05 (0.01, 0.08)**

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. All models are significant.

Table 12. Multiple regression analyses using narcissism measures to predict various SDT accuracy indices of the QOCQ in Study 1.

	H $(\tilde{R}^2 = .11)$		d' $(\tilde{R}^2 = .09)$		A'^{X} $(\tilde{R}^2 = 0)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	**0.12***	**0.08 (0.01, 0.16)**	**-0.16***	**-0.28 (-0.48, -0.09)**	-0.03	0 (0, 0)
BPNI-G	-0.02	0 (-0.02, 0.02)	0	0 (-0.05, 0.05)	0.06	0 (0, 0)
BPNI-V	0.16	0.02 (0, 0.05)	-0.10	-0.03 (-0.1, 0.03)	0.02	0 (0, 0)
HNS	-0.05	-0.01 (-0.04, 0.02)	-0.01	-0.01 (-0.07, 0.06)	-0.11	0 (0, 0)
Com.N	**0.24**‡	**0.04 (0.02, 0.06)**	**-0.25**‡	**-0.10 (-0.14, -0.05)**	-0.05	0 (0, 0)
Col.N	0	0 (-0.02, 0.02)	0.15*	0.05 (0.01, 0.1)	0.09	0 (0, 0)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. ^{X} denotes that the model was not significant.

Table 13. Multiple regression analyses using narcissism measures to predict various SDT bias indices of the AOCQ in Study 1.

	FA $(\tilde{R}^2 = .18)$		λ $(\tilde{R}^2 = .15)$		c $(\tilde{R}^2 = .12)$		$\ln(\beta)$ $(\tilde{R}^2 = .13)$		B'' $(\tilde{R}^2 = .15)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	**0.22**‡	**0.2 (0.11, 0.3)**	**-0.20**‡	**-0.84 (-1.28, -0.41)**	**-0.19**†	**-0.57 (-0.9, -0.24)**	**-0.18**†	**-0.88 (-1.4, -0.36)**	**-0.19**†	**-0.37 (-0.57, -0.16)**
BPNI-G	0	0 (-0.03, 0.03)	0	0 (-0.12, 0.12)	-0.07	-0.05 (-0.14, 0.04)	0.07	0.08 (-0.07, 0.22)	0.04	0.02 (-0.04, 0.07)
BPNI-V	0.11	0.02 (-0.01, 0.05)	-0.09	-0.08 (-0.23, 0.08)	-0.07	-0.04 (-0.16, 0.08)	-0.14	-0.13 (-0.32, 0.05)	-0.13	-0.05 (-0.13, 0.02)
HNS	0.01	0 (-0.03, 0.04)	-0.02	-0.02 (-0.18, 0.13)	0.05	0.03 (-0.08, 0.15)	0.01	0.01 (-0.17, 0.2)	0.02	0.01 (-0.07, 0.08)
Com.N	**0.23**‡	**0.05 (0.02, 0.07)**	**-0.22**‡	**-0.20 (-0.3, -0.09)**	**-0.16***	**-0.10 (-0.18, -0.02)**	**-0.24**‡	**-0.25 (-0.37, -0.12)**	**-0.26**‡	**-0.11 (-0.16, -0.06)**
Col.N	0.01	0 (-0.02, 0.02)	-0.01	-0.01 (-0.11, 0.09)	-0.02	-0.01 (-0.09, 0.06)	-0.02	-0.02 (-0.14, 0.1)	-0.01	0 (-0.05, 0.04)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. All models are significant.

Table 14. Multiple regression analyses using narcissism measures to predict various SDT accuracy indices of the AOCQ in Study 1.

	H $(\tilde{R}^2 = .02)$		d' $(\tilde{R}^2 = .08)$		A' $(\tilde{R}^2 = .18)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	0.07	0.07 (-0.04, 0.18)	**-0.17**[*]	**-0.63 (-1.01, -0.24)**	-0.09	-0.02 (-0.05, 0.01)
BPNI-G	**0.21**[*]	**0.04 (0.02, 0.07)**	**0.16**[*]	**0.13 (0.02, 0.24)**	**0.19**[*]	**0.01 (0, 0.02)**
BPNI-V	-0.05	-0.01 (-0.05, 0.03)	-0.15	-0.11 (-0.25, 0.02)	-0.10	-0.01 (-0.01, 0)
HNS	-0.05	-0.01 (-0.05, 0.03)	-0.08	-0.07 (-0.2, 0.07)	-0.09	0 (-0.01, 0)
Com.N	-0.10	-0.02 (-0.05, 0)	**-0.34**[‡]	**-0.27 (-0.36, -0.18)**	**-0.30**[‡]	**-0.02 (-0.02, -0.01)**
Col.N	0.04	0.01 (-0.02, 0.03)	0.03	0.02 (-0.07, 0.11)	0.04	0 (0, 0.01)

Note: [*] denotes that the correlation is significant at the 0.05 level; [†]denotes that the correlation is significant at the 0.01 level; [‡] denotes that the correlation is significant after a Bonferroni correction. All models are significant.

Table 15. Multiple regression analyses using narcissism measures to predict various SDT bias indices of the COCQ in Study 1.

	FA $(\tilde{R}^2 = .26)$		λ $(\tilde{R}^2 = .24)$		c $(\tilde{R}^2 = .20)$		$\ln(\beta)$ $(\tilde{R}^2 = .16)$		B'' $(\tilde{R}^2 = .20)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	**0.27**‡	**0.26 (0.17, 0.36)**	**-0.23**‡	**-0.97 (-1.38, -0.55)**	**-0.20**‡	**-0.57 (-0.86, -0.28)**	**-0.13***	**-0.64 (-1.15, -0.14)**	**-0.16***	**-0.31 (-0.5, -0.11)**
BPNI-G	-0.06	-0.01 (-0.04, 0.01)	0.03	0.03 (-0.08, 0.15)	-0.04	-0.02 (-0.11, 0.06)	0.01	0.02 (-0.13, 0.16)	0.02	0.01 (-0.05, 0.06)
BPNI-V	0.15	0.03 (0, 0.06)	-0.16	-0.14 (-0.28, 0.01)	-0.12	-0.07 (-0.17, 0.03)	-0.17	-0.17 (-0.35, 0.01)	-0.15	-0.06 (-0.13, 0.01)
HNS	-0.04	-0.01 (-0.04, 0.02)	0.06	0.05 (-0.09, 0.2)	0.08	0.05 (-0.05, 0.15)	0.12	0.13 (-0.05, 0.31)	0.10	0.04 (-0.03, 0.11)
Com.N	**0.35**‡	**0.07 (0.05, 0.09)**	**-0.33**‡	**-0.29 (-0.39, -0.2)**	**-0.29**‡	**-0.18 (-0.25, -0.11)**	**-0.31**‡	**-0.32 (-0.44, -0.2)**	**-0.33**‡	**-0.13 (-0.18, -0.09)**
Col.N	0	0 (-0.02, 0.02)	-0.02	-0.02 (-0.11, 0.08)	-0.01	-0.01 (-0.07, 0.06)	-0.03	-0.03 (-0.14, 0.09)	-0.03	-0.01 (-0.05, 0.04)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. All models are significant.

Table 16. Multiple regression analyses using narcissism measures to predict various SDT accuracy indices of the COCQ in Study 1.

	H $(\tilde{R}^2 = .04)$		d' $(\tilde{R}^2 = .22)$		A' $(\tilde{R}^2 = .09)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	0.04	0.03 (-0.05, 0.11)	**-0.24**‡	**-0.88 (-1.24, -0.51)**	**-0.17***	**-0.04 (-0.06, -0.01)**
BPNI-G	**0.17***	**0.03 (0.01, 0.05)**	**0.15***	**0.13 (0.02, 0.23)**	**0.15***	**0.01 (0, 0.01)**
BPNI-V	0.04	0.01 (-0.02, 0.04)	-0.17	-0.13 (-0.26, 0)	-0.11	0 (-0.01, 0)
HNS	-0.12	-0.02 (-0.05, 0.01)	0.01	0.01 (-0.12, 0.14)	-0.04	0 (-0.01, 0.01)
Com.N	0.09	0.01 (-0.01, 0.03)	**-0.31**‡	**-0.24 (-0.33, -0.16)**	**-0.23**‡	**-0.01 (-0.02, -0.01)**
Col.N	-0.01	0 (-0.02, 0.02)	-0.05	-0.03 (-0.12, 0.05)	0.02	0 (0, 0.01)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction. All models are significant.

Table 17. Descriptive statistics of the narcissism measures for Study 2.

	Mean	SD	Skewness	SE	Kurtosis	SE
BPNI overall	3.38	1.09	0.17	0.13	-0.24	0.26
Grandiose - BPNI	3.76	1.09	0.02	0.13	-0.05	0.26
Exploitativeness	3.45	1.30	0.13	0.13	-0.47	0.26
Self-Sacrificing Self-Enhancement	4.10	1.17	-0.24	0.13	0.11	0.26
Grandiose Fantasy	3.73	1.60	-0.07	0.13	-0.89	0.26
Vulnerable - BPNI	3.10	1.27	0.23	0.13	-0.63	0.26
Contingent Self-Esteem	2.85	1.43	0.52	0.13	-0.56	0.26
Hiding the Self	3.70	1.55	-0.03	0.13	-0.80	0.26
Devaluing	2.87	1.40	0.38	0.13	-0.75	0.26
Entitlement Rage	2.98	1.36	0.35	0.13	-0.63	0.26
NPI overall	1.23	0.25	1.17	0.13	0.39	0.26
Leadership / Authority	1.26	0.35	1.04	0.13	-0.32	0.26
Grandiose / Exhibitionism	1.22	0.29	-1.11	0.13	0.58	0.26
Entitlement / Exploitativeness	1.20	0.28	1.31	0.13	0.66	0.26
HNS	3.31	1.17	0.09	0.13	-0.56	0.26
Com.N	3.87	1.17	0.09	0.13	0.06	0.26
Col.N	3.53	1.19	0.00	0.13	-0.27	0.26

Table 18. Descriptive statistics of the religiosity measures for Study 2.

	Mean	SD	Skewness	SE	Kurtosis	SE
Supports Violent-Defensive	2.67	1.75	0.70	0.13	-0.71	0.26
Supports Peaceful	4.86	1.94	-0.63	0.13	-0.71	0.26
Supports Apathetic	5.03	1.81	-0.79	0.13	-0.34	0.26
I/E-R	3.39	1.42	-0.21	0.13	-0.86	0.26
Intrinsic Religiosity	3.90	1.72	-0.18	0.13	-0.96	0.26
Extrinsic Religiosity – Social	2.62	1.38	0.60	0.13	-0.31	0.26
Extrinsic Religiosity – Personal	4.21	1.16	0.13	0.13	-0.07	0.26
Quest	3.80	1.08	-0.03	0.13	-0.50	0.26
RTF	3.33	1.46	0.14	0.13	-0.62	0.26
SCP	4.13	1.24	0.00	0.13	-0.26	0.26
OTC	3.94	1.20	-0.12	0.13	-0.22	0.26
Prayer frequency	3.78	2.36	0.08	0.13	-1.62	0.26
Religious service attendance	2.14	1.39	1.26	0.13	1.01	0.26

Table 19. Descriptive Statistics of the Overclaiming measures and SDT indices for Study 2.

		Mean	SD	Min	Max	Skewness	SE	Kurtosis
BOCQ	FA	0.12	0.19	0.00	0.97	2.12	0.13	4.13
	H	0.40	0.22	0.00	0.96	0.19	0.13	-0.81
	λ	1.58	0.88	-1.91	2.33	-1.19	0.13	0.81
	c	0.96	0.70	-1.86	2.55	-0.67	0.13	0.62
	$\ln(\beta)$	1.33	0.99	-1.15	2.71	-0.12	0.13	-1.36
	B''	0.62	0.39	-0.39	1.00	-0.56	0.13	-1.13
	d'	1.25	0.76	-0.45	3.14	-0.04	0.13	-0.45
	A'	0.55	0.06	0.50	0.80	1.62	0.13	2.49
QOCQ	FA	0.20	0.20	0.00	1.00	1.41	0.13	1.55
	H	0.24	0.17	0.00	1.00	1.34	0.13	2.56
	λ	1.08	0.82	-2.33	2.33	-0.48	0.13	0.35
	c	0.93	0.69	-2.33	2.56	-0.58	0.13	1.31
	$\ln(\beta)$	0.39	0.59	-1.18	2.52	1.58	0.13	2.62
	B''	0.26	0.32	-0.42	1.00	1.24	0.13	0.61
	d'	0.27	0.42	-0.77	1.71	0.72	0.13	0.76
	A'	0.50	0.01	0.50	0.54	2.55	0.13	9.36

Table 20. Correlations between support for Internet commenters, religiosity, narcissism, and religious overclaiming indices in Study 2.

	1.	2.	3.
1. Support Violent-Defensive	1	-0.08	-0.03
2. Support Peaceful	-0.08	1	**0.27**‡
3. Support Apathetic	-0.03	**0.27**‡	1
4. Intrinsic Religiosity	-0.06	**0.40**‡	-0.09
5. Extrinsic Religiosity – Social	**0.18***	**0.15***	**-0.14***
6. Extrinsic Religiosity – Personal	-0.01	0.05	**-0.29**‡
7. Quest religiosity	-0.08	**0.13***	**0.29**‡
8. Prayer frequency	-0.06	**0.26**‡	**-0.11***
9. Religious service attendance	0.08	**0.16***	**-0.25**‡
10. NPI	**0.22**‡	**-0.11***	-0.07
11. BPNI – Grandiose	**0.15***	0	0.08
12. BPNI – Vulnerable	**0.24**‡	**-0.13***	0.03
13. HNS	**0.24**‡	-0.09	0.04
14. Com.N	**0.13***	**0.15***	0.07
15. Col.N	**0.24**‡	-0.02	0
16. BOCQ FA	**0.26**‡	**0.12***	0.01
17. BOCQ λ	**-0.23**‡	**-0.16***	-0.05
18. BOCQ c	**-0.12***	**-0.22**‡	-0.02
19. BOCQ $\ln(\beta)$	**-0.21**‡	**-0.12***	-0.08
20. BOCQ B''	**-0.21**‡	**-0.17***	-0.07
21. BOCQ d'	**-0.31**‡	0.03	-0.07
22. BOCQ A'	**-0.22**‡	**0.13***	**-0.11***
23. QOCQ FA	**0.24**‡	0.09	0.02
24. QOCQ λ	**-0.21**†	-0.09	-0.05
25. QOCQ c	**-0.20**†	**-0.12***	-0.02
26. QOCQ $\ln(\beta)$	**-0.18**†	0.04	-0.08
27. QOCQ B''	**-0.13***	0.01	-0.08

28. QOCQ d'	**-0.21**‡	0.05	-0.09
29. QOCQ A'	-0.04	**0.11***	-0.05

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction.

Table 21. Correlations between religiosity, narcissism, and religious overclaiming indices in Study 2.

	1.	2.	3.	4.	5.	6.
1. Intrinsic Religiosity	1	**0.56**‡	**0.31**‡	**0.23**‡	**0.78**‡	**0.55**‡
2. Extrinsic Religiosity – Social	**0.56**‡	1	0.07	**0.30**‡	**0.36**‡	**0.57**‡
3. Extrinsic Religiosity – Personal	**0.31**‡	0.07	1	**-0.23**‡	**0.41**‡	**0.26**‡
4. Quest religiosity	**0.23**‡	**0.30**‡	**-0.23**‡	1	**0.15***	**0.13***
5. Prayer frequency	**0.78**‡	**0.36**‡	**0.41**‡	**0.15***	1	**0.55**‡
6. Religious service attendance	**0.55**‡	**0.57**‡	**0.26**‡	**0.13***	**0.55**‡	1
7. NPI	0.07	**0.32**‡	-0.05	**0.14***	0.02	**0.21**‡
8. BPNI – Grandiose	0.08	**0.25**‡	**-0.20**†	**0.23**‡	-0.01	0.10
9. BPNI – Vulnerable	-0.01	**0.21**‡	**-0.13***	**0.22**‡	-0.06	**0.11***
10. HNS	0.01	**0.21**†	**-0.15***	**0.21**†	-0.06	0.08
11. Com.N	**0.33**‡	**0.34**‡	-0.03	**0.18***	**0.19**†	**0.26**‡
12. Col.N	**0.16***	**0.30**‡	-0.09	**0.14***	0.07	**0.16***
13. BOCQ FA	**0.19**†	**0.41**‡	-0.05	**0.15***	**0.18**†	**0.37**‡
14. BOCQ λ	**-0.23**‡	**-0.39**‡	0.04	**-0.16***	**-0.21**†	**-0.37**‡
15. BOCQ c	**-0.34**‡	**-0.35**‡	-0.08	**-0.21**†	**-0.35**‡	**-0.43**‡
16. BOCQ $\ln(\beta)$	**-0.18**†	**-0.34**‡	0.04	**-0.12***	-0.10	**-0.27**‡
17. BOCQ B''	**-0.24**‡	**-0.36**‡	0.04	**-0.14***	**-0.19**†	**-0.34**‡
18. BOCQ d'	0.10	**-0.26**‡	**0.23**‡	0.01	**0.17***	-0.06
19. BOCQ A'	**0.34**‡	0.03	**0.36**‡	**0.13***	**0.38**‡	**0.28**‡
20. QOCQ FA	**0.20**†	**0.34**‡	-0.06	**0.17***	**0.19**†	**0.31**‡
21. QOCQ λ	**-0.20**†	**-0.29**‡	0.07	**-0.19**†	**-0.17***	**-0.27**‡
22. QOCQ c	**-0.26**‡	**-0.32**‡	0.02	**-0.20**†	**-0.23**‡	**-0.36**‡
23. QOCQ $\ln(\beta)$	-0.01	**-0.11***	**0.11***	-0.10	0.03	-0.05
24. QOCQ B''	-0.06	**-0.12***	0.09	**-0.11***	-0.08	**-0.14***
25. QOCQ d'	0.04	**-0.12***	**0.16***	-0.06	0.03	-0.05
26. QOCQ A'	**0.29**‡	**0.14***	**0.12***	**0.16***	**0.32**‡	**0.27**‡

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the correlation is significant at the 0.01 level; ‡ denotes that the correlation is significant after a Bonferroni correction.

Table 22. Multiple regression analyses using narcissism measures to predict various SDT bias indices of the BOCQ in Study 2.

	FA $(\tilde{R}^2 = .22)$		λ $(\tilde{R}^2 = .19)$		c $(\tilde{R}^2 = .22)$		$\ln(\beta)$ $(\tilde{R}^2 = .15)$		B'' $(\tilde{R}^2 = .17)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	0.02	0.02 (-0.07, 0.10)	0.01	0.03 (-0.37, 0.42)	0.1	0.28 (-0.03, 0.6)	-0.07	-0.29 (-0.76, 0.17)	0.02	0.03 (-0.15, 0.21)
BPNI-G	-0.03	-0.01 (-0.03, 0.02)	0.03	0.02 (-0.09, 0.14)	0	0 (-0.09, 0.09)	0.02	0.02 (-0.11, 0.16)	-0.01	0 (-0.06, 0.05)
BPNI-V	-0.02	0 (-0.03, 0.03)	0.04	0.03 (-0.12, 0.17)	0.06	0.03 (-0.08, 0.15)	0.04	0.03 (-0.14, 0.19)	0.02	0.01 (-0.06, 0.07)
HNS	0.14	0.02 (-0.01, 0.05)	-0.11	-0.09 (-0.23, 0.05)	-0.13	-0.08 (-0.19, 0.03)	-0.06	-0.05 (-0.21, 0.11)	-0.07	-0.02 (-0.09, 0.04)
Com.N	0.10	0.02 (0, 0.04)	**-0.13***	**-0.1 (-0.19, -0.01)**	-0.07	-0.04 (-0.12, 0.03)	**-0.18***	**-0.15 (-0.26, -0.05)**	**-0.15***	**-0.05 (-0.09, -0.01)**
Col.N	0.02	0 (-0.02, 0.02)	-0.05	-0.03 (-0.13, 0.06)	-0.02	-0.01 (-0.09, 0.06)	-0.04	-0.03 (-0.14, 0.07)	-0.04	-0.01 (-0.06, 0.03)
INTR	**-0.22***	**-0.02 (-0.04, 0)**	0.13	0.07 (-0.02, 0.16)	0.05	0.02 (-0.05, 0.09)	0.03	0.02 (-0.09, 0.12)	0.06	0.01 (-0.03, 0.06)
EXTS	**0.29‡**	**0.04 (0.02, 0.06)**	**-0.23***	**-0.14 (-0.23, -0.06)**	-0.10	-0.05 (-0.12, 0.02)	**-0.20***	**-0.15 (-0.25, -0.04)**	**-0.19***	**-0.05 (-0.09, -0.01)**
EXTP	-0.11	-0.02 (-0.04, 0)	0.10	0.08 (-0.01, 0.16)	0.03	0.02 (-0.05, 0.08)	0.05	0.04 (-0.05, 0.14)	0.10	0.03 (0, 0.07)
Quest	0	0 (-0.02, 0.02)	-0.02	-0.01 (-0.1, 0.07)	-0.10	-0.06 (-0.13, 0)	0.01	0 (-0.09, 0.1)	0	0 (-0.04, 0.04)
PRAY	0.15	0.01 (0, 0.03)	-0.12	-0.04 (-0.11, 0.02)	**-0.18***	**-0.05 (-0.1, -0.01)**	0.05	0.02 (-0.05, 0.09)	-0.07	-0.01 (-0.04, 0.02)
SERV	**0.23†**	**0.03 (0.01, 0.05)**	**-0.23†**	**-0.14 (-0.23, -0.06)**	**-0.29‡**	**-0.14 (-0.21, -0.08)**	**-0.14***	**-0.10 (-0.2, -0.01)**	**-0.21***	**-0.06 (-0.1, -0.02)**

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the regression is significant at the 0.01 level; ‡ denotes that the regression is significant after a Bonferroni correction. All models are significant.

Table 23. Multiple regression analyses using narcissism measures to predict various SDT accuracy indices of the BOCQ in Study 2.

	H $(\tilde{R}^2 = .31)$		d' $(\tilde{R}^2 = .24)$		A' $(\tilde{R}^2 = .30)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	**-0.15***	**-0.13 (-0.22, -0.04)**	**-0.12***	**-0.03 (-0.05, 0)**	**-0.17***	**-0.52 (-0.85, -0.18)**
BPNI-G	0.03	0.01 (-0.02, 0.03)	0.03	0 (-0.01, 0.01)	0.07	0.05 (-0.05, 0.15)
BPNI-V	-0.08	-0.01 (-0.05, 0.02)	-0.05	0 (-0.01, 0.01)	-0.03	-0.02 (-0.14, 0.1)
HNS	0.12	0.02 (-0.01, 0.06)	0.03	0 (-0.01, 0.01)	-0.02	-0.01 (-0.13, 0.1)
Com.N	-0.02	0 (-0.02, 0.02)	-0.10	0 (-0.01, 0)	**-0.17***	**-0.11 (-0.19, -0.03)**
Col.N	-0.03	-0.01 (-0.03, 0.02)	-0.10	0 (-0.01, 0)	-0.07	-0.04 (-0.12, 0.04)
INTR	0.11	0.01 (-0.01, 0.04)	**0.24***	**0.01 (0, 0.01)**	**0.23***	**0.10 (0.02, 0.18)**
EXTS	-0.07	-0.01 (-0.03, 0.01)	**-0.23†**	**-0.01 (-0.01, 0)**	**-0.34‡**	**-0.19 (-0.26, -0.11)**
EXTP	**0.11***	**0.02 (0, 0.04)**	**0.26‡**	**0.01 (0.01, 0.02)**	**0.18***	**0.12 (0.05, 0.19)**
Quest	**0.20‡**	**0.04 (0.02, 0.06)**	**0.21‡**	**0.01 (0.01, 0.02)**	**0.14***	**0.1 (0.03, 0.16)**
PRAY	**0.17***	**0.02 (0, 0.03)**	0.04	0 (0, 0)	0.05	0.02 (-0.04, 0.07)
SERV	**0.32‡**	**0.05 (0.03, 0.07)**	**0.23†**	**0.01 (0, 0.01)**	0.01	0.01 (-0.06, 0.08)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the regression is significant at the 0.01 level; ‡ denotes that the regression is significant after a Bonferroni correction. All models are significant.

Table 24. Multiple regression analyses using narcissism measures to predict various SDT bias indices of the QOCQ in Study 2.

	FA $(\tilde{R}^2 = .16)$		λ $(\tilde{R}^2 = .12)$		c $(\tilde{R}^2 = .16)$		$\ln(\beta)$ $(\tilde{R}^2 = .03)$		B'' $(\tilde{R}^2 = .03)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	0	0 (-0.1, 0.09)	0.03	0.10 (-0.29, 0.49)	0.06	0.17 (-0.15, 0.49)	-0.05	-0.12 (-0.42, 0.18)	0.06	0.07 (-0.09, 0.23)
BPNI-G	-0.09	-0.02 (-0.05, 0.01)	0.08	0.06 (-0.06, 0.17)	0.06	0.04 (-0.05, 0.13)	0.05	0.03 (-0.06, 0.11)	0.01	0 (-0.04, 0.05)
BPNI-V	0.04	0.01 (-0.03, 0.04)	0.04	0.03 (-0.11, 0.17)	0.05	0.03 (-0.09, 0.14)	0.12	0.06 (-0.05, 0.16)	0.08	0.02 (-0.04, 0.08)
HNS	0.11	0.02 (-0.01, 0.05)	-0.13	-0.09 (-0.23, 0.04)	-0.14	-0.08 (-0.2, 0.03)	-0.13	-0.07 (-0.17, 0.04)	-0.06	-0.02 (-0.07, 0.04)
Com.N	**0.16**[*]	**0.03 (0.01, 0.05)**	**-0.16**[*]	**-0.11 (-0.2, -0.02)**	-0.13	-0.07 (-0.15, 0)	**-0.16**[*]	**-0.08 (-0.15, -0.01)**	-0.11	-0.03 (-0.07, 0.01)
Col.N	0.04	0.01 (-0.01, 0.03)	-0.07	-0.05 (-0.14, 0.04)	-0.06	-0.03 (-0.11, 0.04)	-0.09	-0.05 (-0.11, 0.02)	-0.12	-0.03 (-0.07, 0.01)
INTR	-0.15	-0.02 (-0.04, 0)	0.09	0.04 (-0.05, 0.13)	0.03	0.01 (-0.06, 0.09)	0.09	0.03 (-0.04, 0.1)	0.16	0.03 (-0.01, 0.07)
EXTS	**0.19**[*]	**0.03 (0.01, 0.05)**	-0.13	-0.08 (-0.16, 0.01)	-0.10	-0.05 (-0.12, 0.02)	-0.05	-0.02 (-0.09, 0.04)	-0.03	-0.01 (-0.04, 0.03)
EXTP	-0.11	-0.02 (-0.04, 0)	0.11	0.08 (0, 0.16)	0.09	0.05 (-0.02, 0.12)	0.07	0.04 (-0.03, 0.1)	0.11	0.03 (0, 0.06)
Quest	0.04	0.01 (-0.01, 0.03)	-0.07	-0.05 (-0.13, 0.03)	-0.08	-0.05 (-0.12, 0.02)	-0.05	-0.02 (-0.09, 0.04)	-0.05	-0.01 (-0.05, 0.02)
PRAY	0.15	0.01 (0, 0.03)	-0.12	-0.04 (-0.1, 0.02)	-0.08	-0.02 (-0.07, 0.03)	0	0 (-0.05, 0.05)	-0.13	-0.02 (-0.04, 0.01)
SERV	**0.17**[*]	**0.02 (0.01, 0.04)**	**-0.16**[*]	**-0.09 (-0.17, -0.01)**	**-0.26**[‡]	**-0.13 (-0.2, -0.06)**	-0.03	-0.01 (-0.07, 0.05)	-0.13	-0.03 (-0.06, 0)

Note: [*] denotes that the correlation is significant at the 0.05 level; [†]denotes that the regression is significant at the 0.01 level; [‡] denotes that the regression is significant after a Bonferroni correction. All models are significant.

Table 25. Multiple regression analyses using narcissism measures to predict various SDT accuracy indices of the QOCQ in Study 2.

	H $(\tilde{R}^2 = .19)$		d' $(\tilde{R}^2 = .12)$		A' $(\tilde{R}^2 = .06)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
NPI	-0.03	-0.02 (-0.1, 0.06)	-0.05	-0.09 (-0.3, 0.12)	-0.01	0 (0, 0)
BPNI-G	-0.08	-0.01 (-0.03, 0.01)	0.08	0.03 (-0.03, 0.09)	0.05	0 (0, 0)
BPNI-V	0	0 (-0.03, 0.03)	0.01	0 (-0.07, 0.08)	-0.15	0 (0, 0)
HNS	0.17	0.02 (0, 0.05)	-0.04	-0.01 (-0.09, 0.06)	0.12	0 (0, 0)
Com.N	0.12	0.02 (0, 0.04)	**-0.19***	**-0.07 (-0.12, -0.02)**	0.04	0 (0, 0)
Col.N	0.02	0 (-0.02, 0.02)	-0.08	-0.03 (-0.08, 0.02)	-0.07	0 (0, 0)
INTR	0	0 (-0.02, 0.02)	**0.24***	**0.06 (0.01, 0.11)**	0.06	0 (0, 0)
EXTS	0.13	0.02 (0, 0.03)	-0.13	-0.04 (-0.09, 0.01)	-0.10	0 (0, 0)
EXTP	-0.03	0 (-0.02, 0.01)	**0.15***	**0.06 (0.01, 0.1)**	0.02	0 (0, 0)
Quest	0.09	0.01 (0, 0.03)	0.02	0.01 (-0.04, 0.05)	**0.13***	**0 (0, 0)**
PRAY	0.07	0.01 (-0.01, 0.02)	-0.13	-0.02 (-0.06, 0.01)	0.17	0 (0, 0)
SERV	**0.22***	**0.03 (0.01, 0.04)**	-0.01	0 (-0.05, 0.04)	**0.18***	**0 (0, 0)**

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the regression is significant at the 0.01 level; ‡ denotes that the regression is significant after a Bonferroni correction. All models are significant.

Table 26. Multiple regression analyses using religiosity, narcissism, and overclaiming to predict support for the Internet commenters.

	Violent-defensive $(\tilde{R}^2 = .15)$		Peaceful $(\tilde{R}^2 = .22)$		Apathetic $(\tilde{R}^2 = .23)$	
	β	B (95% CI)	β	B (95% CI)	β	B (95% CI)
INTR	**-0.21***	**-0.2 (-0.4, 0)**	**0.52**‡	**0.58 (0.36, 0.8)**	-0.05	-0.06 (-0.26, 0.15)
EXTS	**0.20***	**0.25 (0.07, 0.44)**	-0.09	-0.12 (-0.33, 0.08)	-0.12	-0.16 (-0.35, 0.03)
EXTP	0.11	0.15 (-0.03, 0.33)	-0.04	-0.06 (-0.26, 0.14)	**-0.13***	**-0.2 (-0.38, -0.01)**
Quest	-0.09	-0.13 (-0.31, 0.05)	0.09	0.16 (-0.04, 0.36)	**0.35**‡	**0.56 (0.37, 0.74)**
PRAY	0.02	0.01 (-0.12, 0.15)	-0.12	-0.1 (-0.24, 0.05)	0.13	0.1 (-0.04, 0.24)
SERV	0.03	0.03 (-0.15, 0.21)	0.04	0.05 (-0.15, 0.26)	**-0.27**‡	**-0.36 (-0.55, -0.17)**
NPI	0.09	0.61 (-0.22, 1.43)	**-0.12***	**-0.98 (-1.89, -0.06)**	-0.08	-0.58 (-1.43, 0.28)
BPNI-G	-0.10	-0.15 (-0.39, 0.09)	0.09	0.17 (-0.1, 0.44)	-0.02	-0.03 (-0.28, 0.22)
BPNI-V	-0.03	-0.05 (-0.35, 0.25)	**-0.28***	**-0.44 (-0.77, -0.1)**	-0.16	-0.23 (-0.54, 0.08)
HNS	0.18	0.25 (-0.03, 0.54)	0.10	0.17 (-0.15, 0.49)	0.15	0.24 (-0.06, 0.54)
Com.N	0	0 (-0.19, 0.2)	0.05	0.09 (-0.13, 0.31)	**0.14***	**0.23 (0.03, 0.43)**
Col.N	**0.16***	**0.23 (0.03, 0.42)**	0	-0.01 (-0.22, 0.21)	-0.04	-0.06 (-0.26, 0.14)
BOCQ ln(β)	-0.01	-0.02 (-0.23, 0.19)	-0.07	-0.13 (-0.37, 0.1)	-0.10	-0.19 (-0.41, 0.03)
QOCQ ln(β)	**-0.14***	**-0.39 (-0.72, -0.07)**	0.03	0.1 (-0.27, 0.46)	-0.03	-0.1 (-0.44, 0.24)
BOCQ A'	**-0.14***	**-4.39 (-8.74, -0.04)**	-0.06	-2.12 (-6.96, 2.72)	-0.10	-3.26 (-7.77, 1.25)
QOCQ A'	0.05	17.23 (-24.13, 58.59)	0.05	18.02 (-27.96, 64)	0.01	5.01 (-37.85, 47.87)

Note: * denotes that the correlation is significant at the 0.05 level; †denotes that the regression is significant at the 0.01 level; ‡ denotes that the regression is significant after a Bonferroni correction. All models are significant.

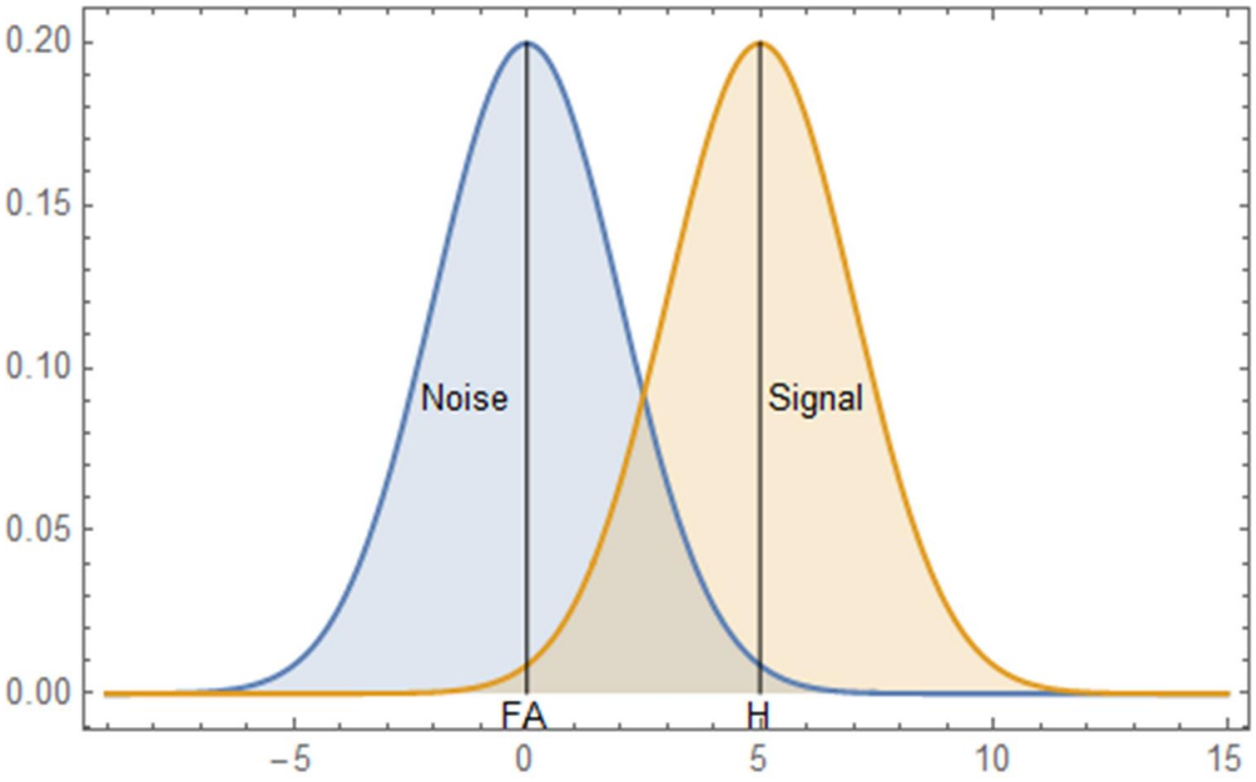


Figure 1: Theoretical noise and signal distributions drawn from SDT experiments.

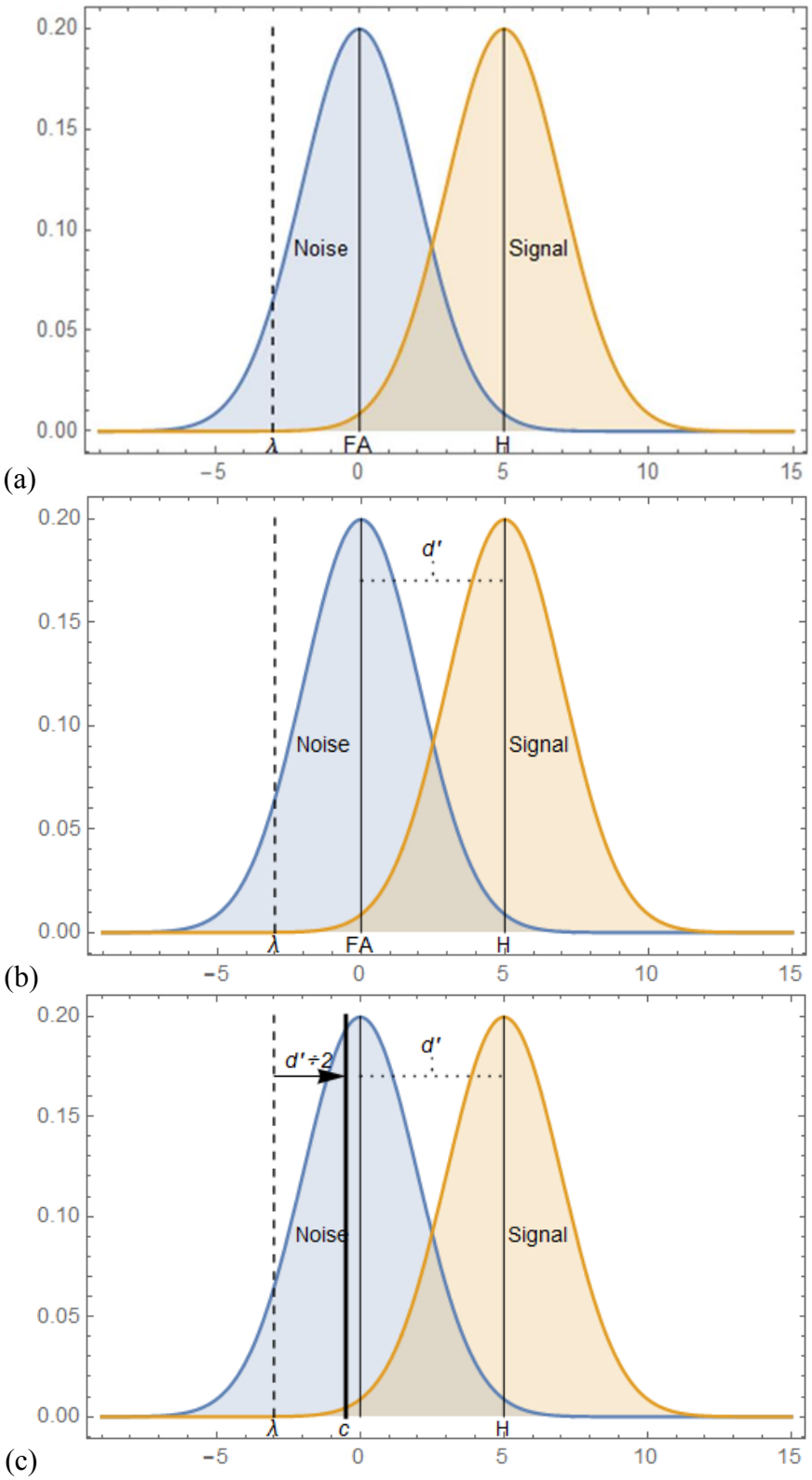


Figure 2: (a) The decision criterion λ showing an extreme bias to say "yes". (b) The accuracy index d'. (c) The centered decision criterion c.

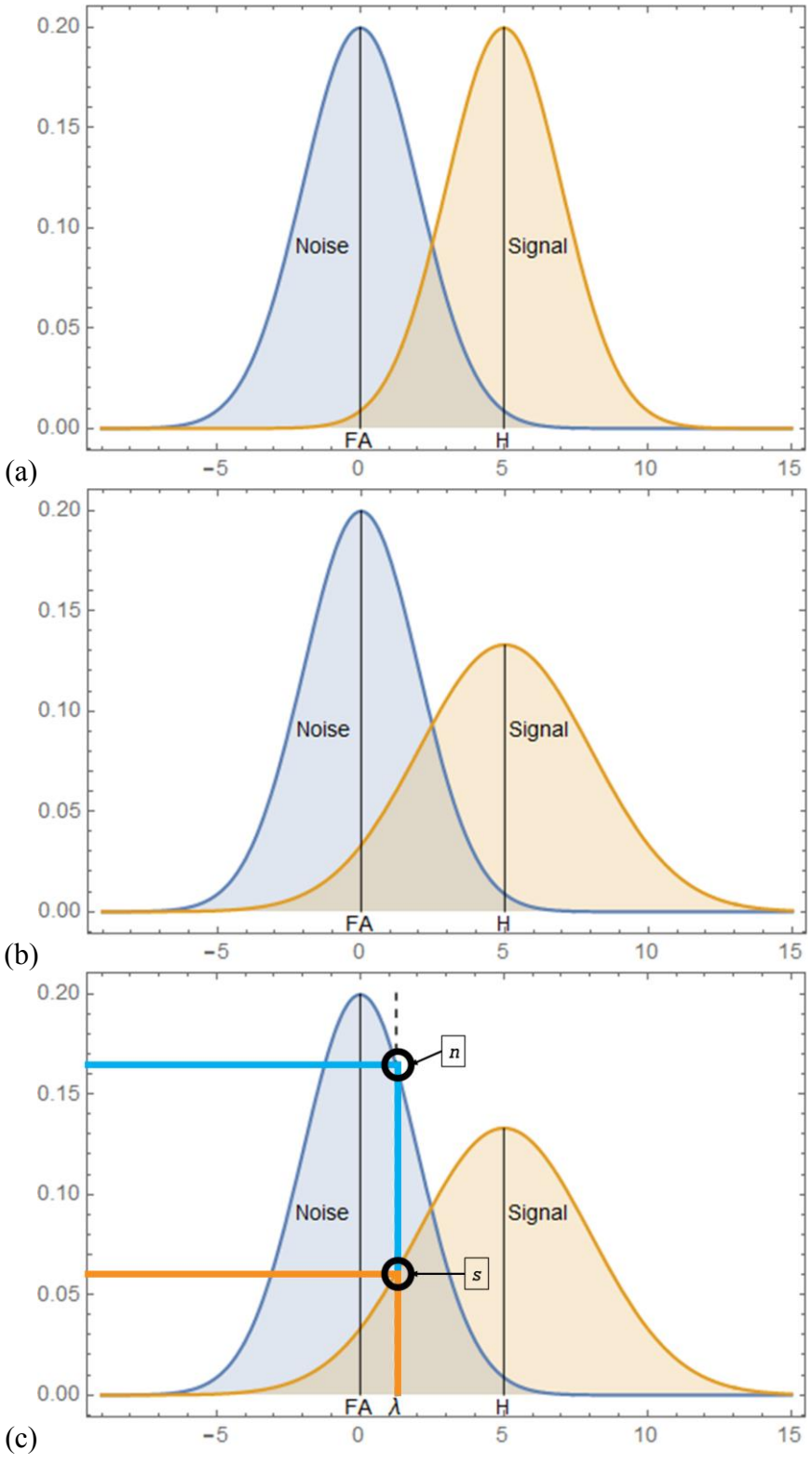
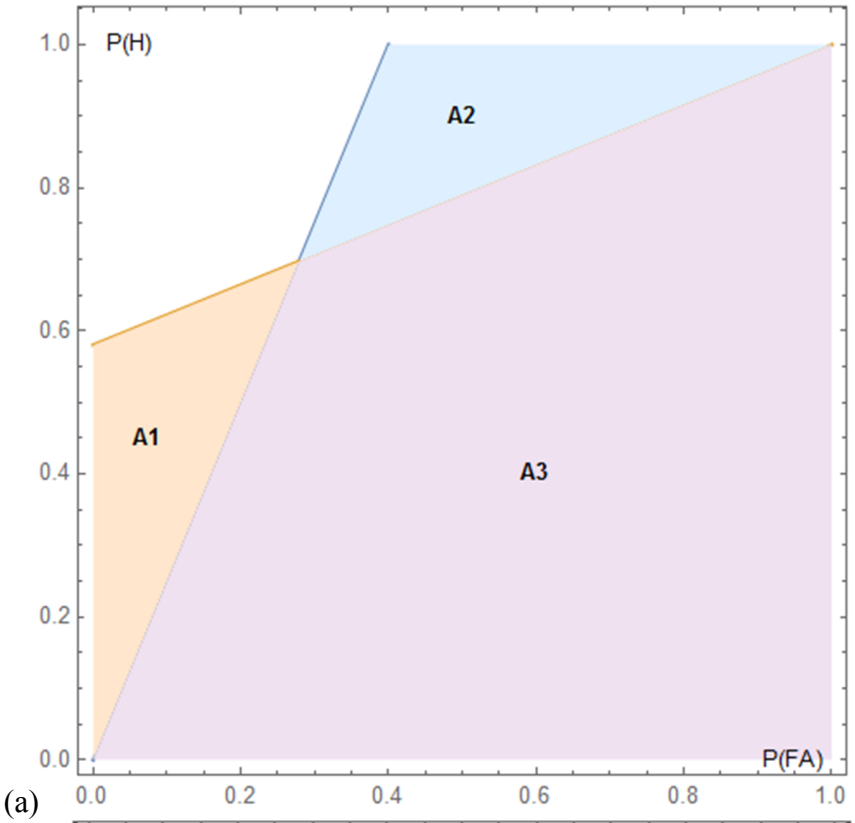
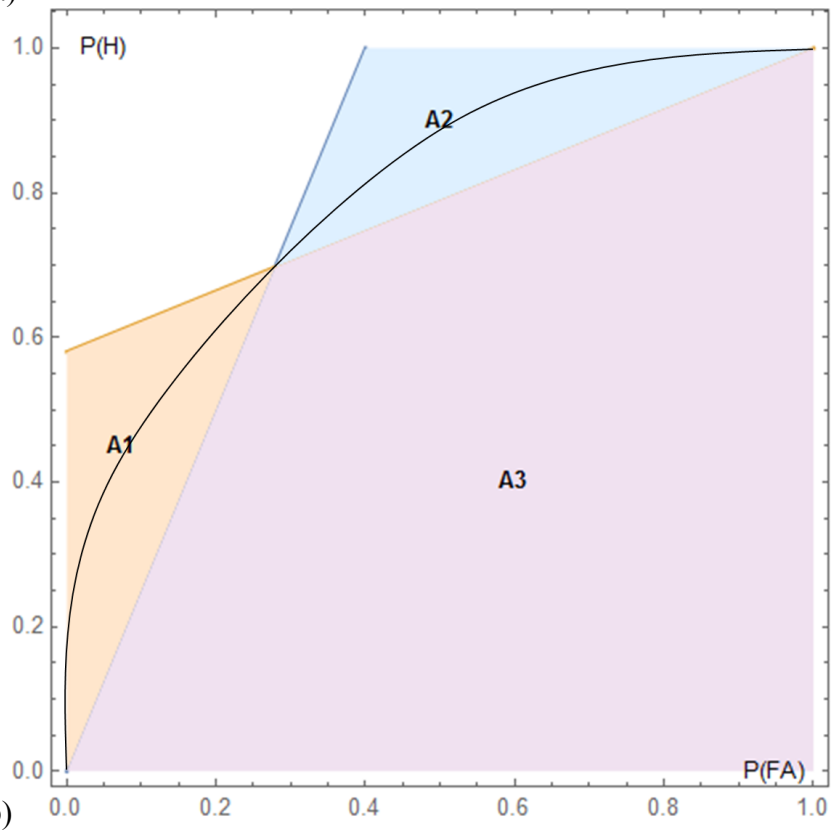


Figure 3: (a) Signal and noise distributions when the equal variance assumption is met. (b) Signal and noise distributions when the equal variance assumption is violated. (c) Calculation of $\ln(\beta)$ involves taking the ratio of the heights of the signal and noise distributions at λ.

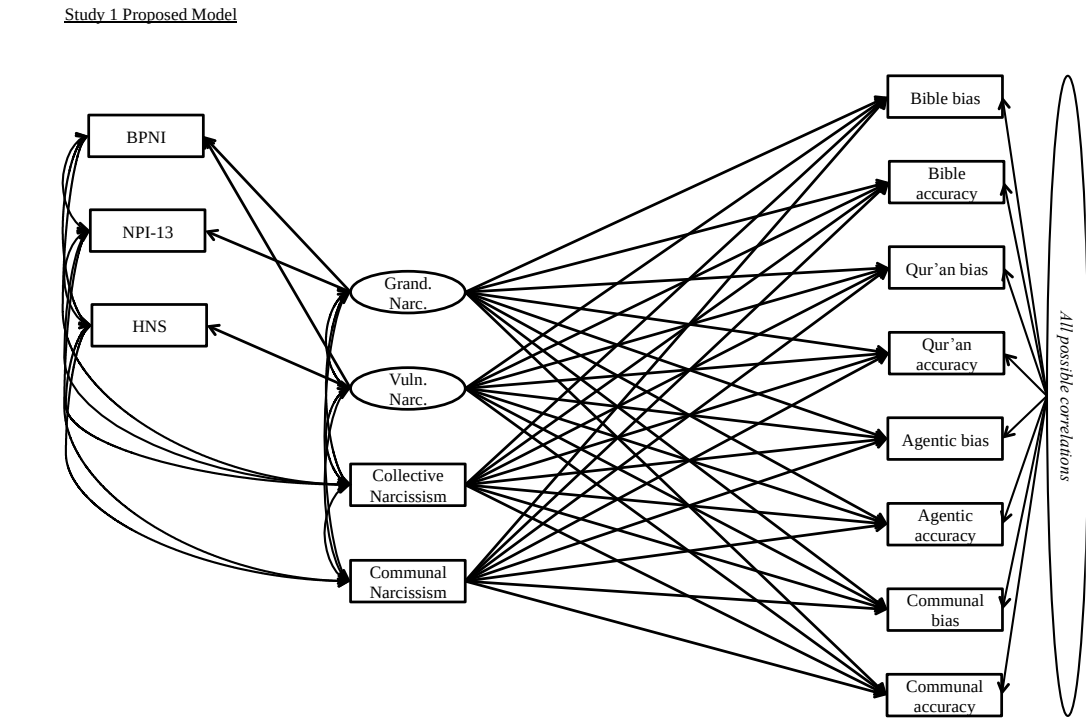


(a)

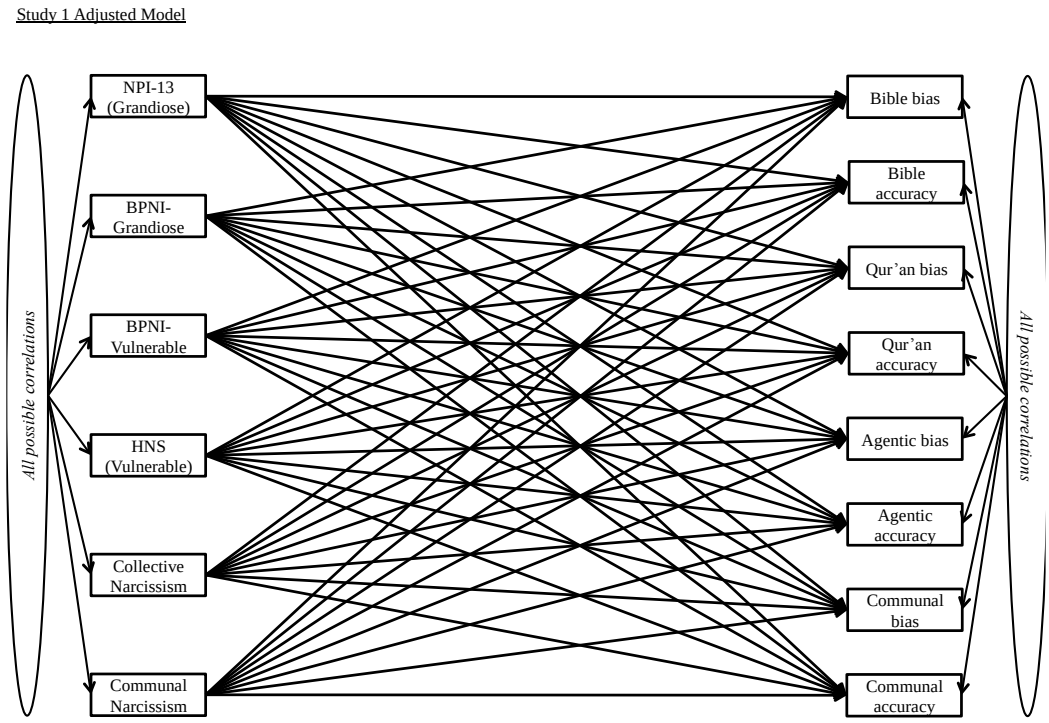


(b)

Figure 4: (a) Adapted conceptual probability plot from Grier (1971). (b) The accuracy index A' approximates a ROC curve.



(a)



(b)

Figure 5. (a) Proposed and (b) adjusted structural equation models for Study 1.

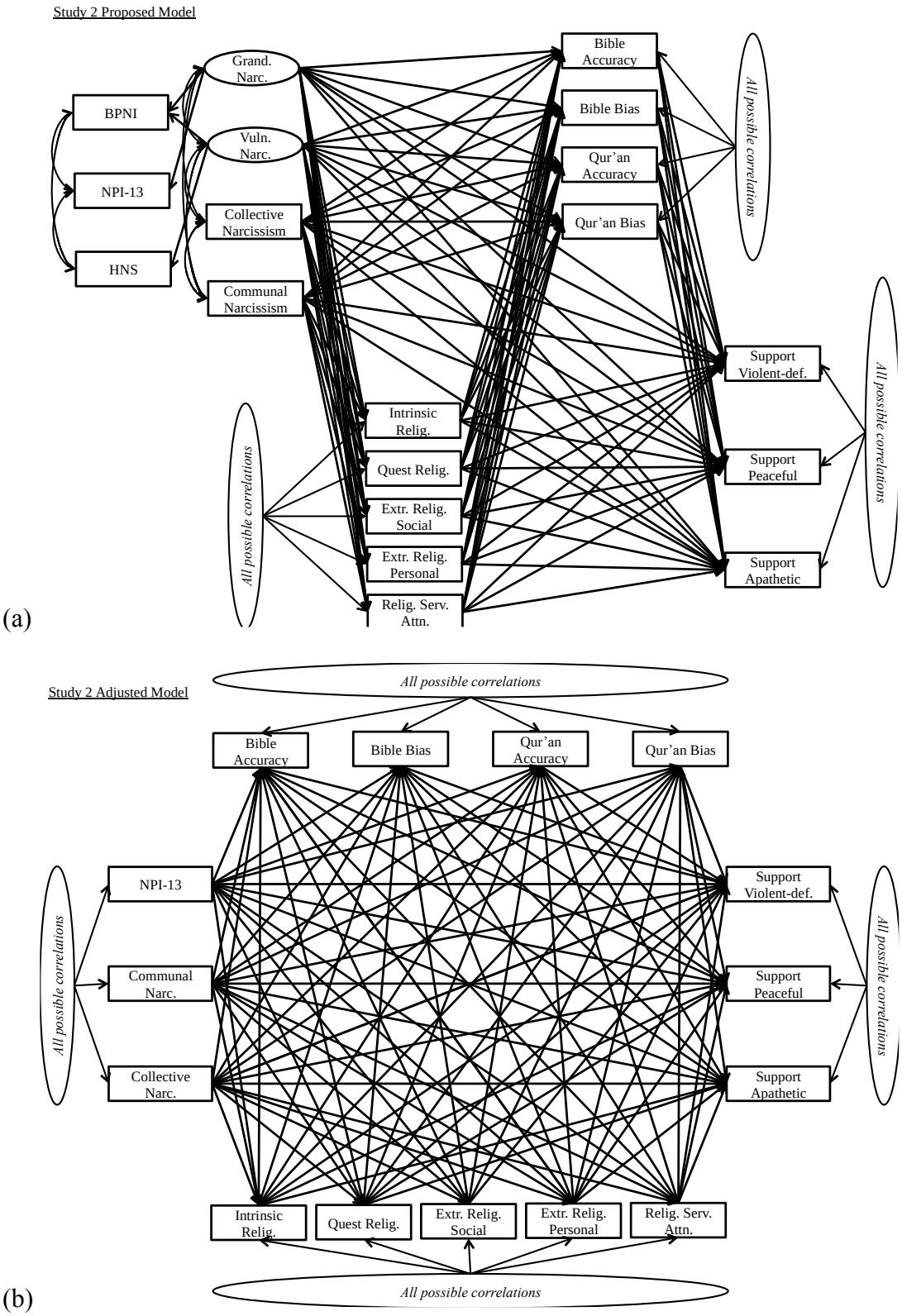


Figure 6. (a) Proposed and (b) adjusted structural equation models for Study 2.

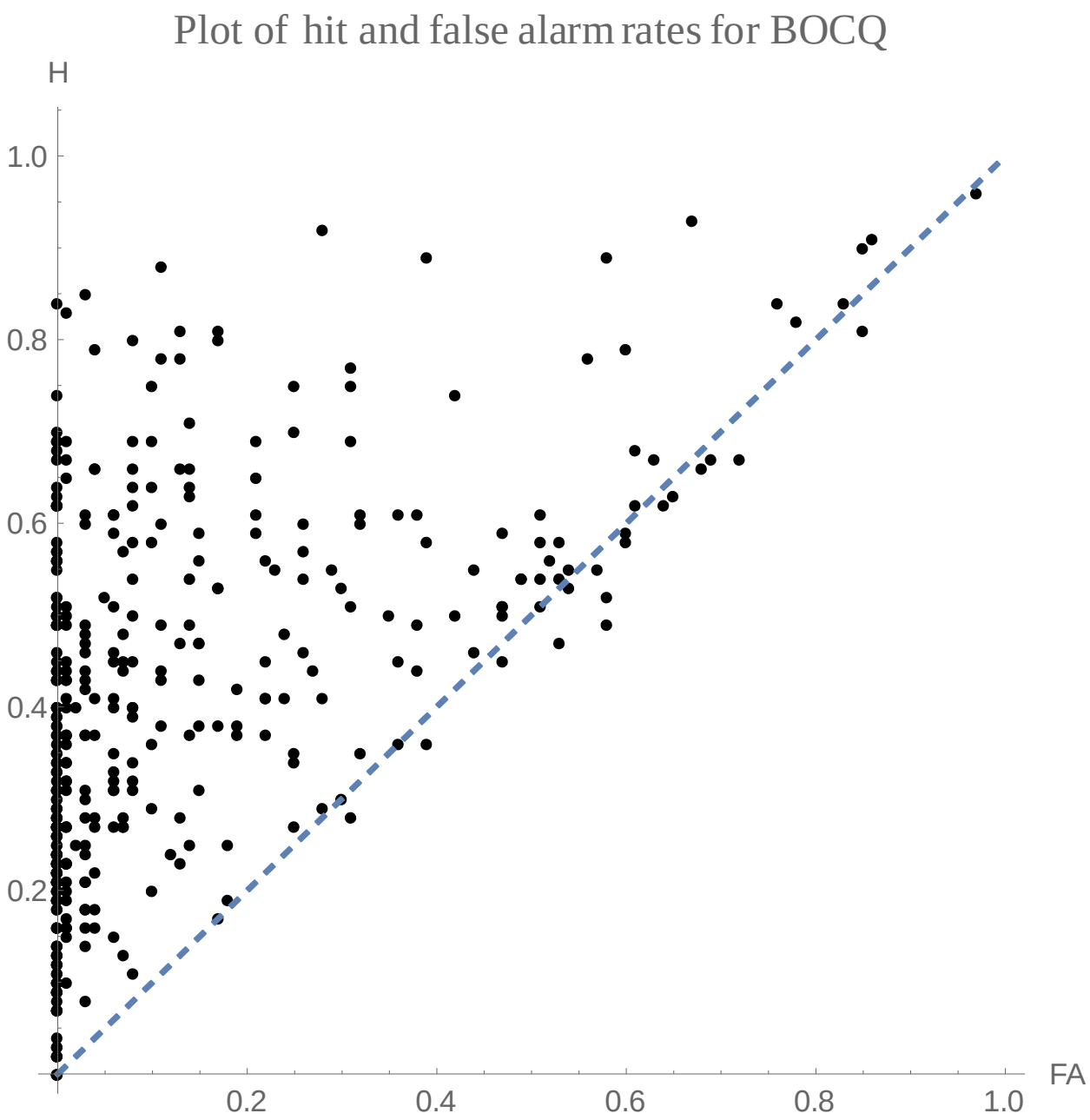


Figure 7. Plot of H and FA for BOCQ in Study 1.

Note: The diagonal line indicates the point when H and FA are equal.

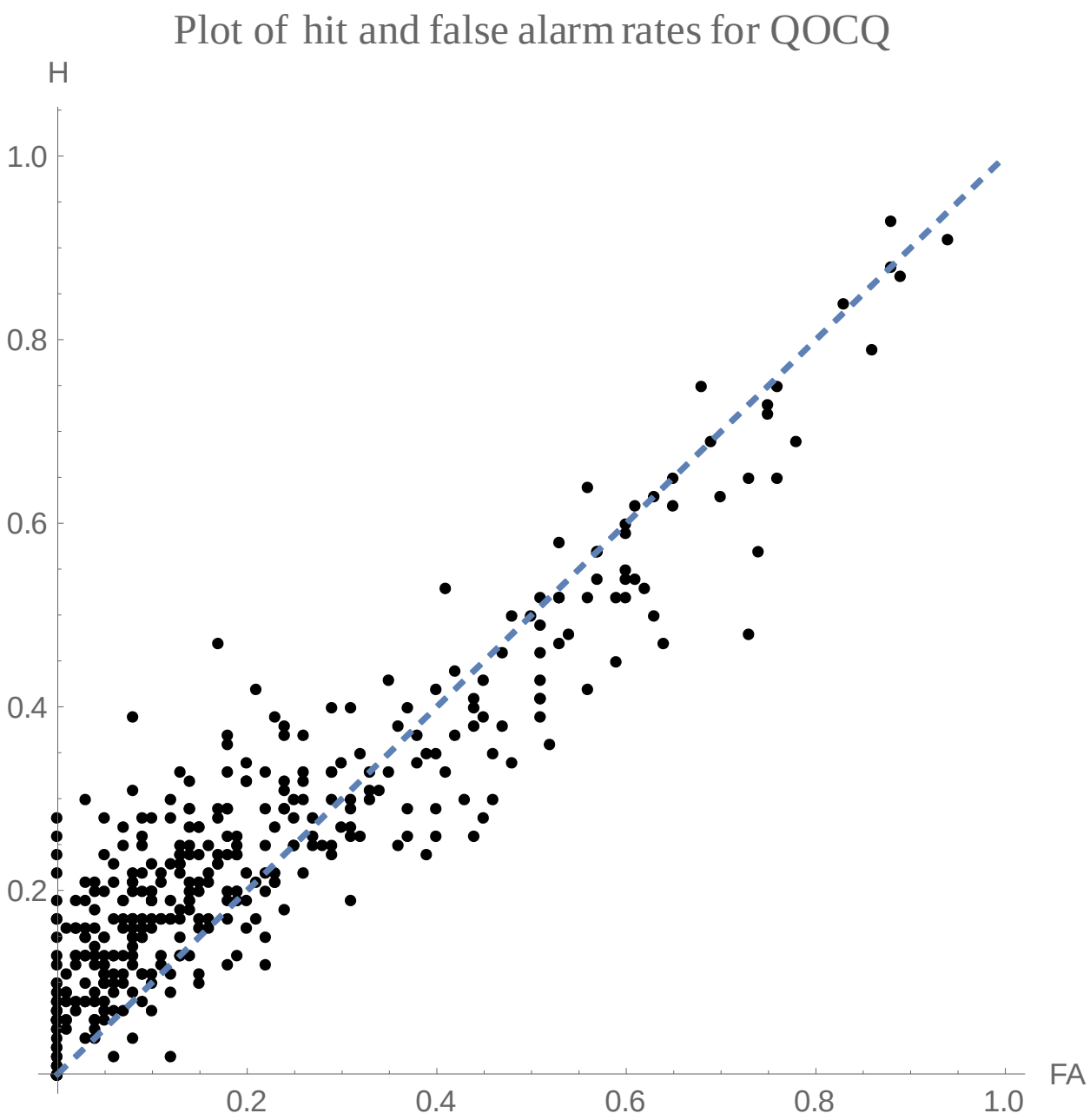


Figure 8. Plot of H and FA for QOCQ in Study 1.

Note: The diagonal line indicates the point when H and FA are equal.

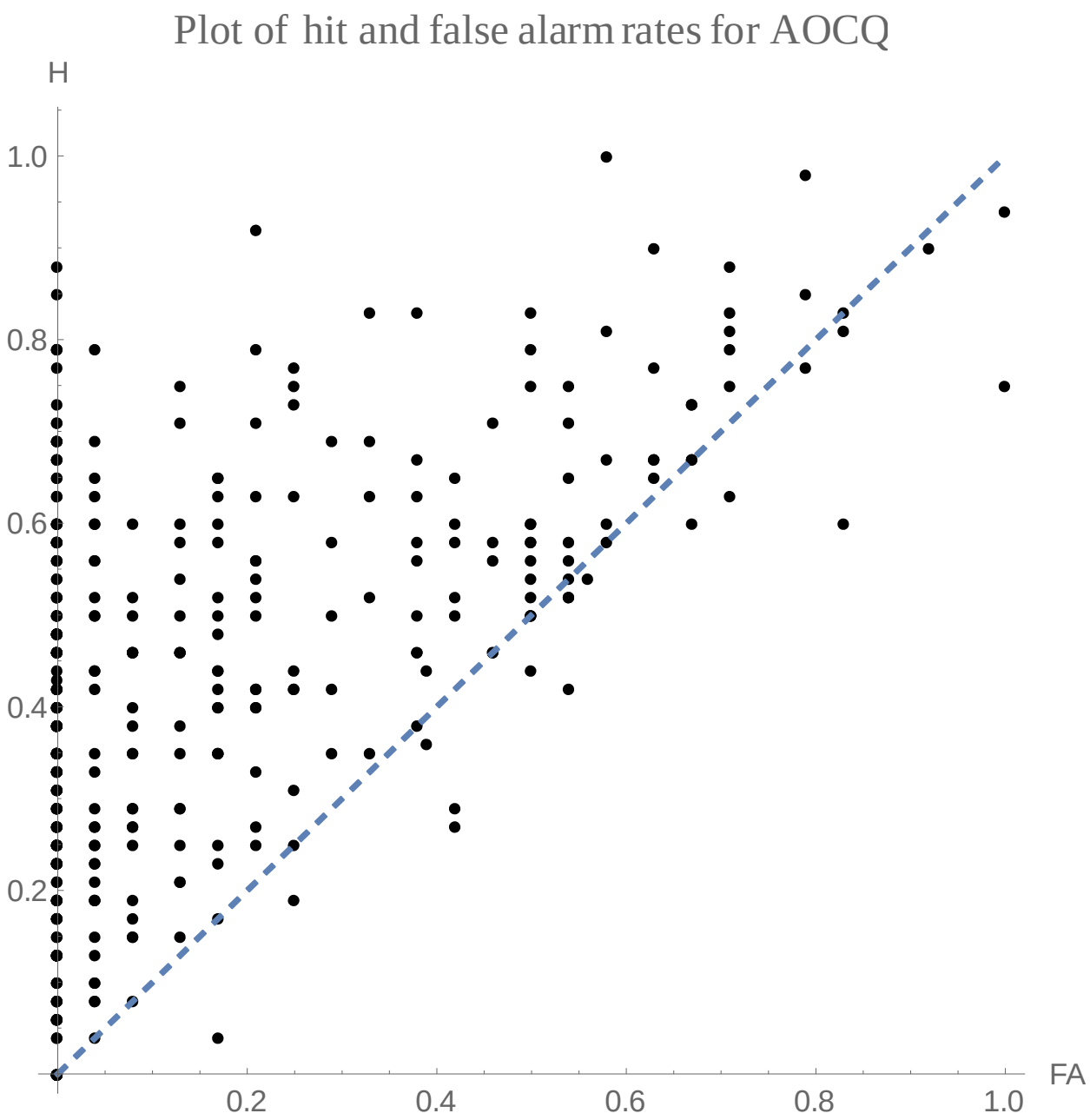


Figure 9. Plot of *H* and *FA* for AOCQ in Study 1.

Note: The diagonal line indicates the point when *H* and *FA* are equal.

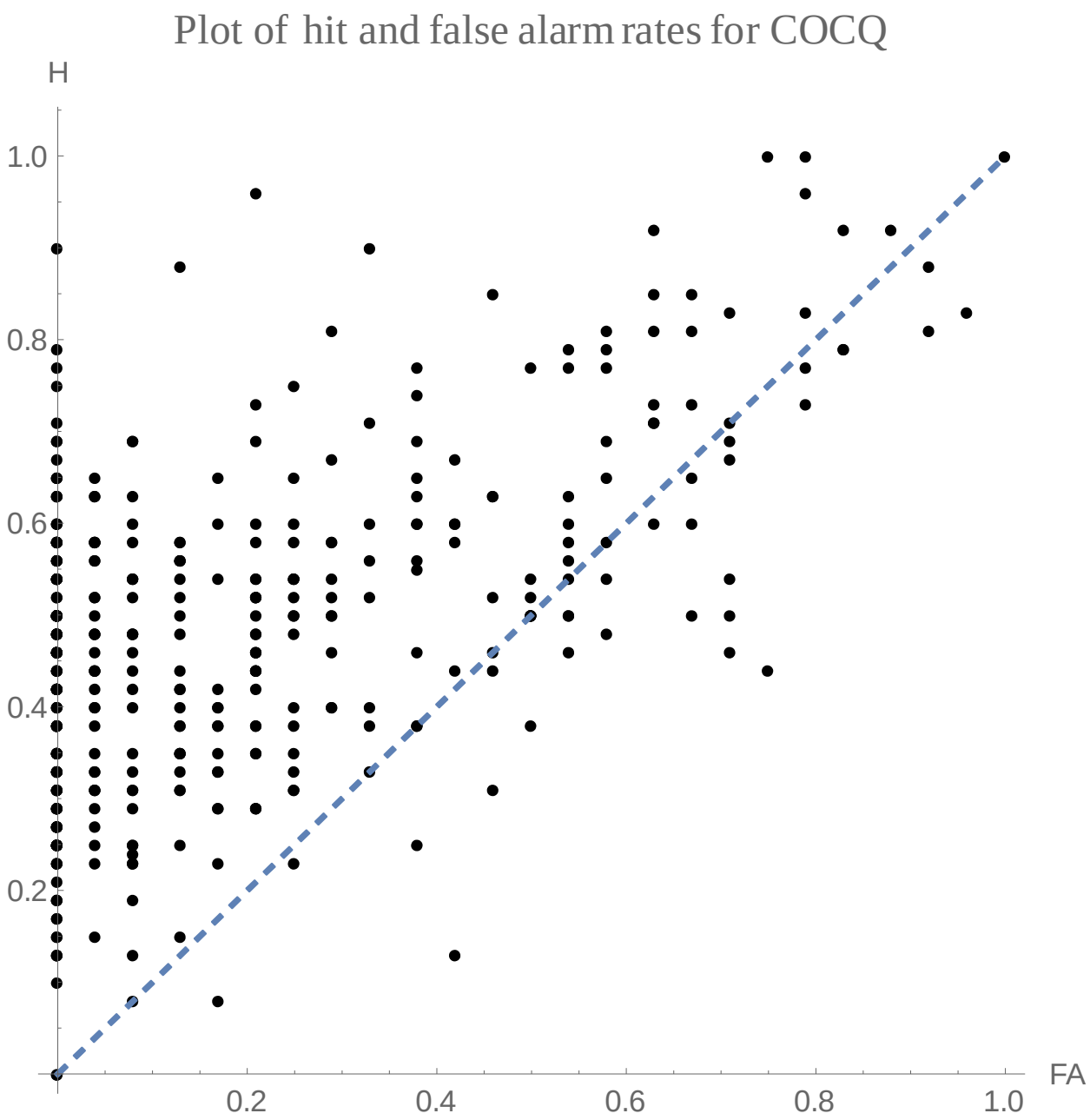


Figure 10. Plot of H and FA for COCQ in Study 1.

Note: The diagonal line indicates the point when H and FA are equal.

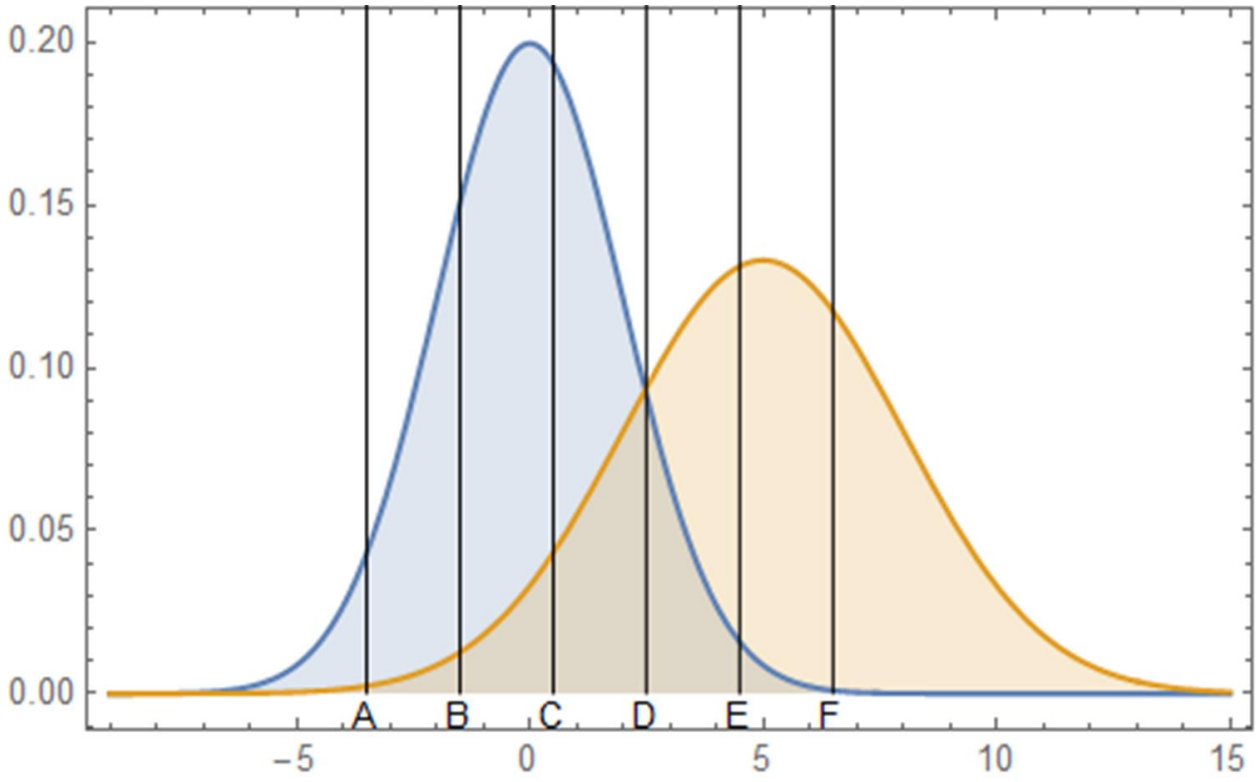


Figure 11: Six cutoff criteria representing the thresholds between the scales points for an overclaiming questionnaire using a 7-point Likert scale.

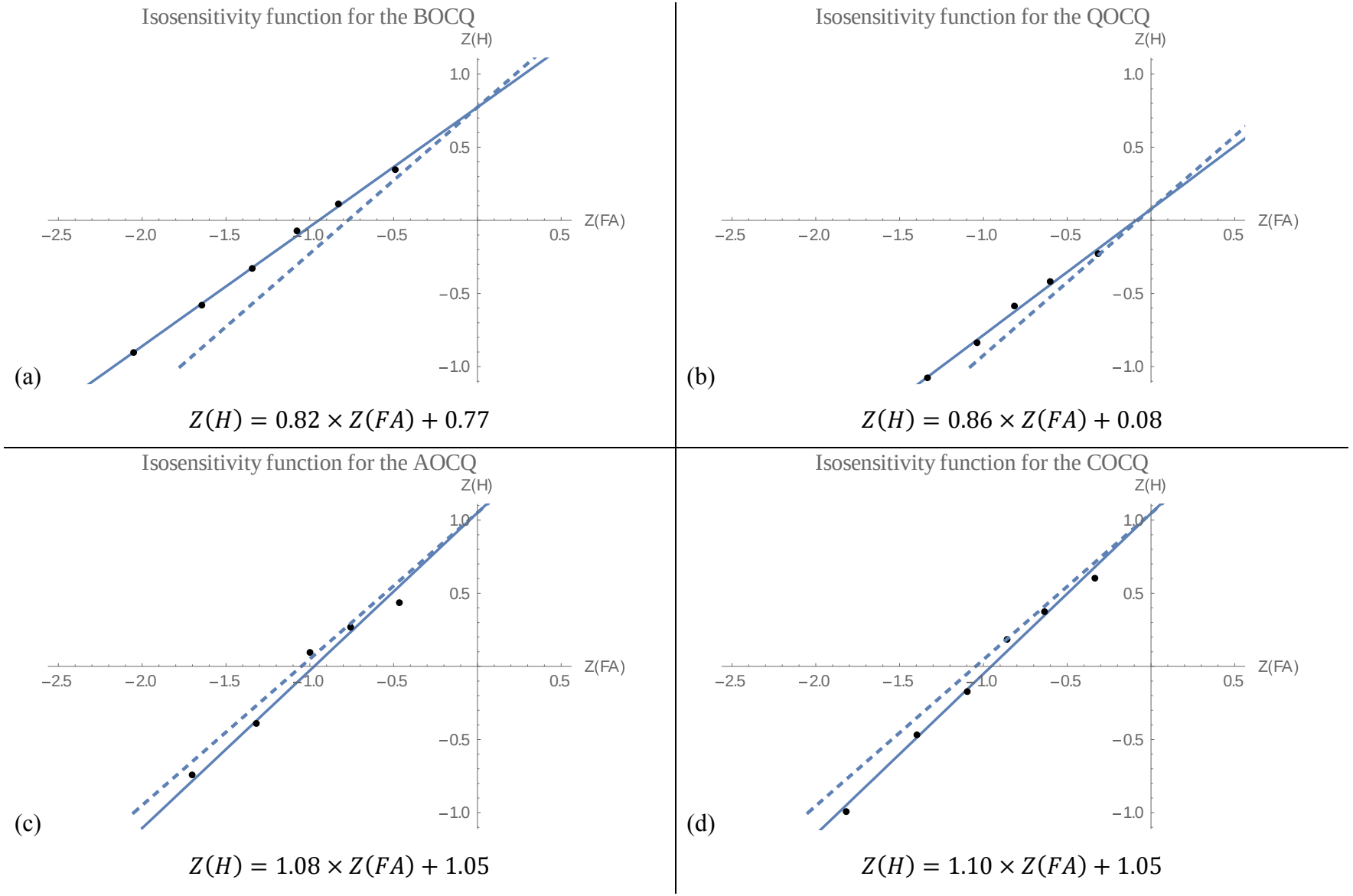


Figure 12. Isosensitivity functions for Study 1.

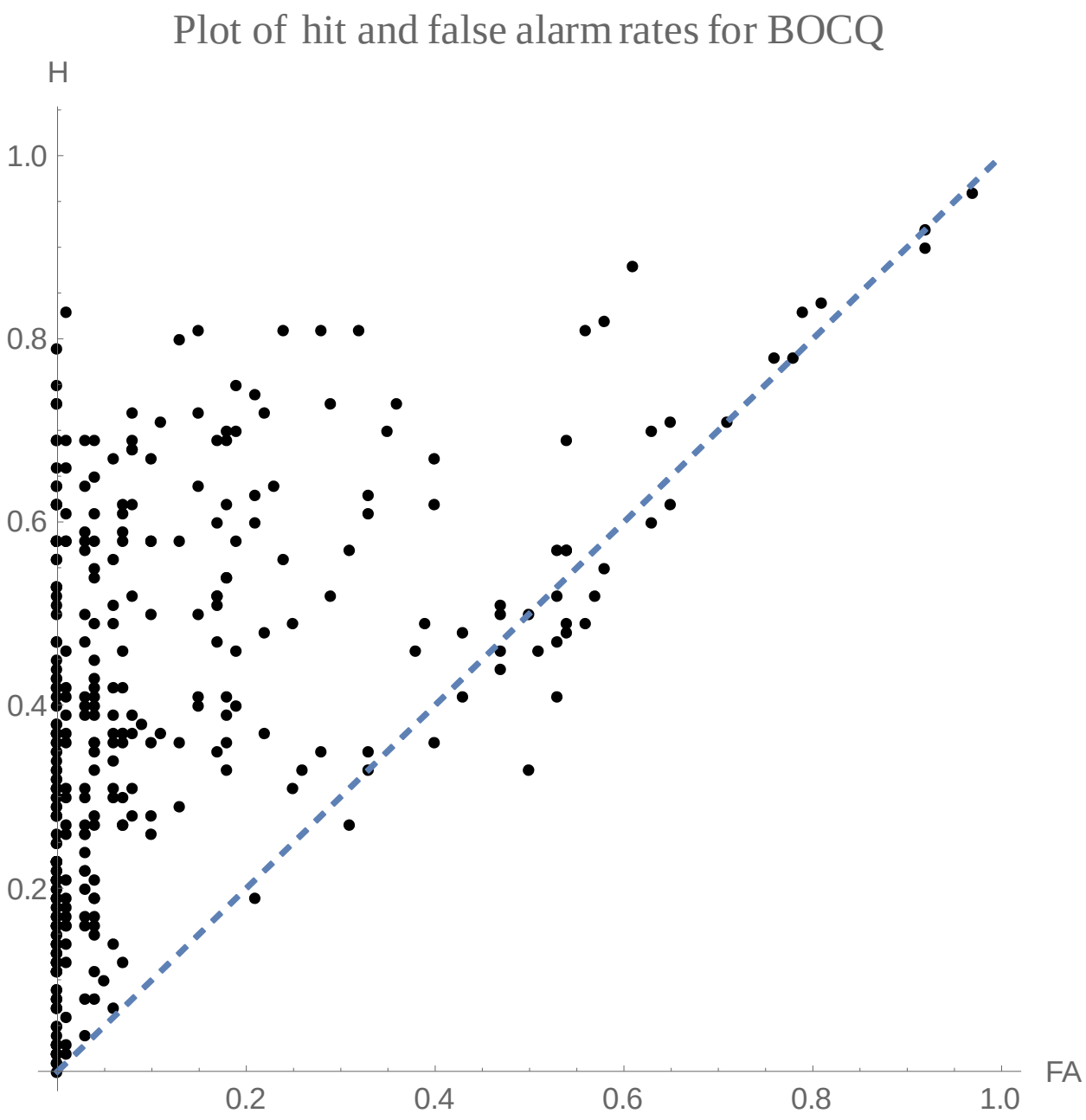


Figure 13. Plot of H and FA for BOCQ in Study 2.

The diagonal line indicates the point when H and FA are equal

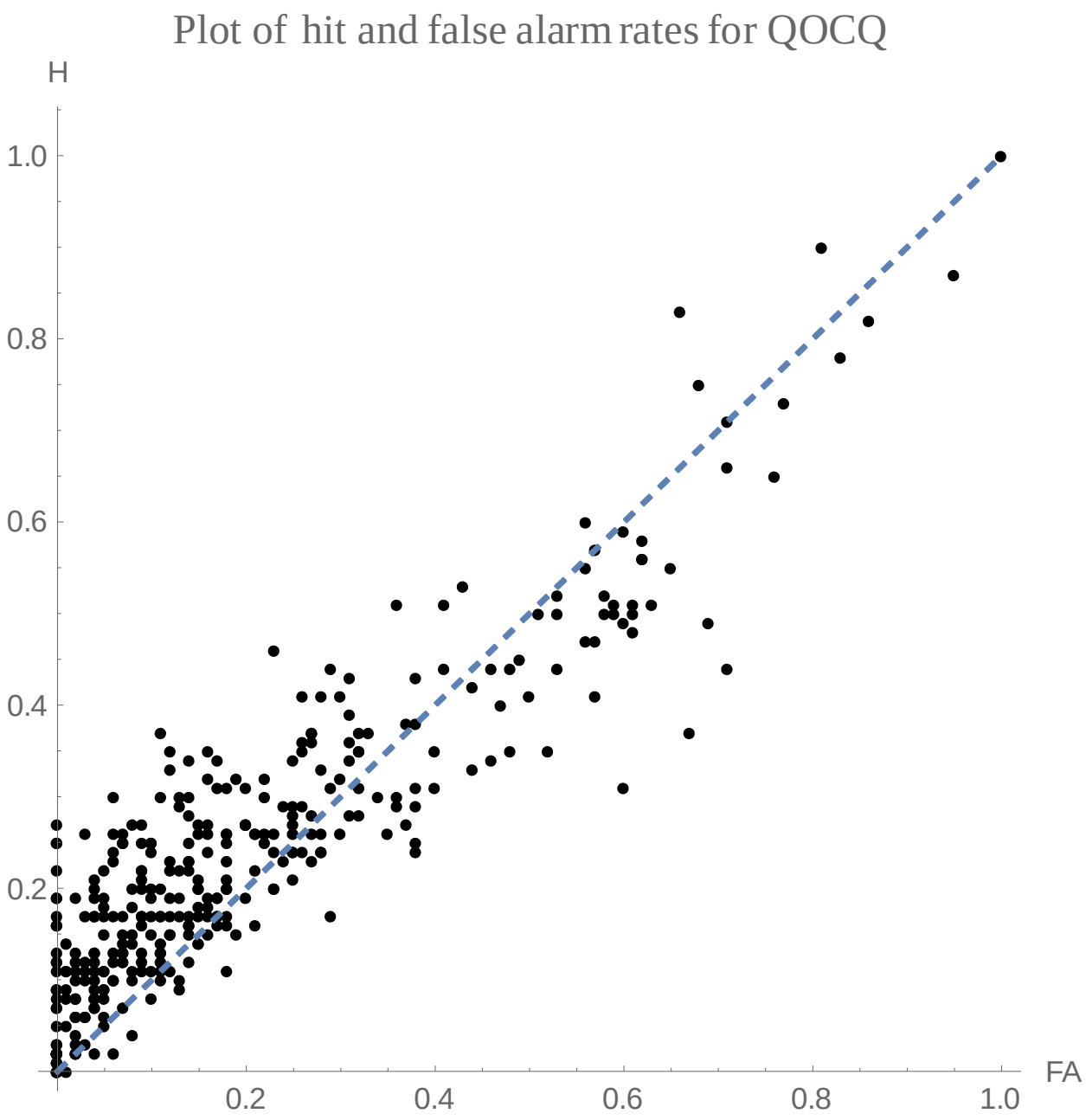
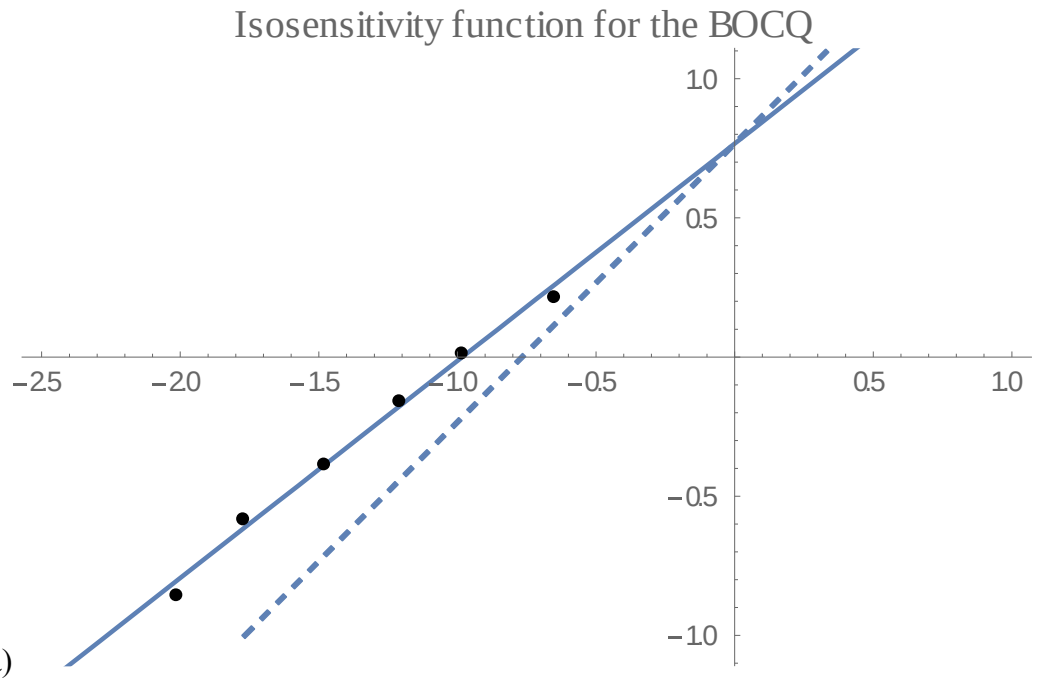


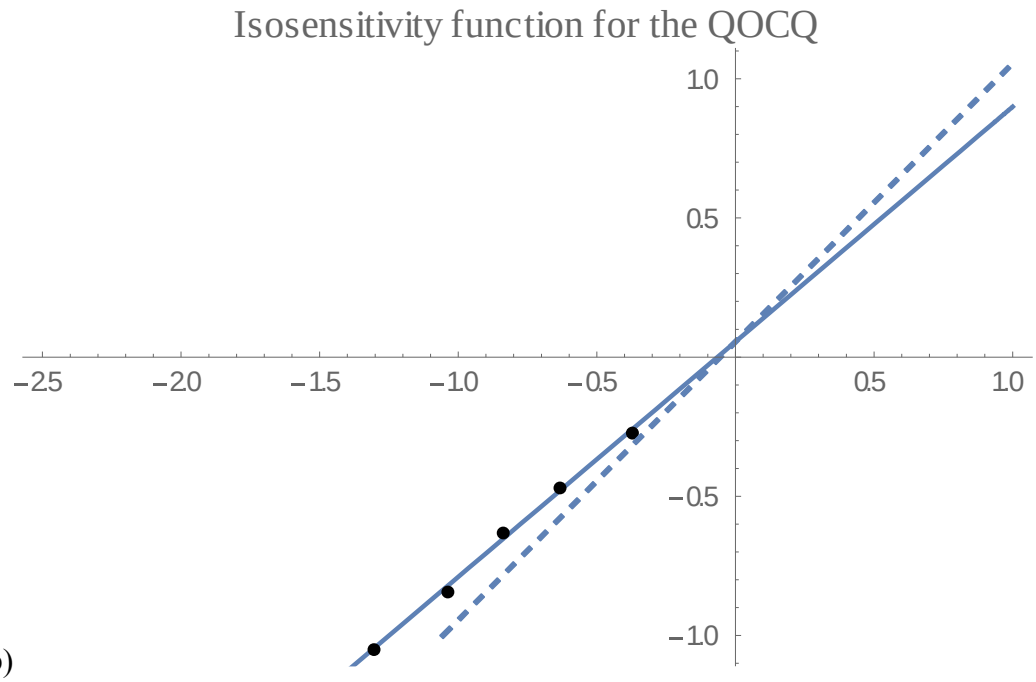
Figure 14. Plot of H and FA for QOCQ in Study 2.

Note: The diagonal line indicates the point when H and FA are equal.



(a)

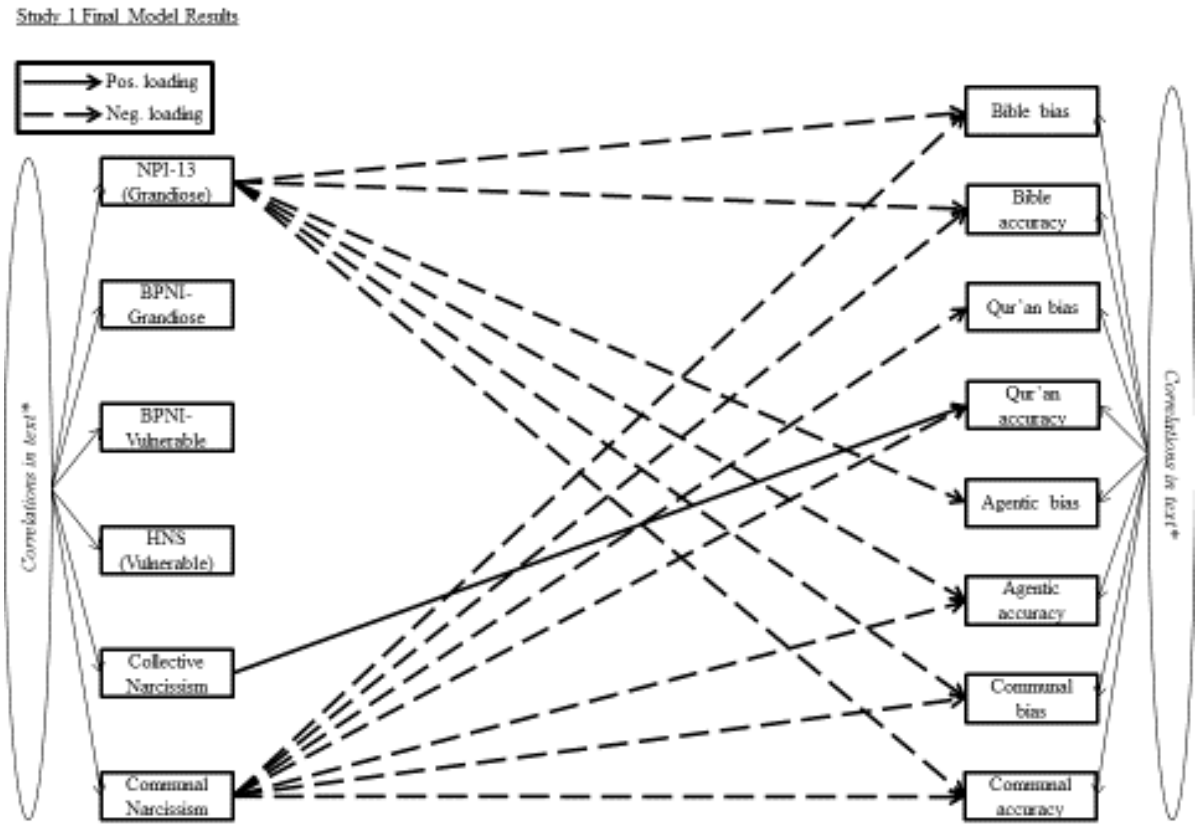
$$Z(H) = 0.78 \times Z(FA) + 0.77$$



(b)

$$Z(H) = 0.84 \times Z(FA) + .05$$

Figure 15. Isosensitivity functions for Study2.



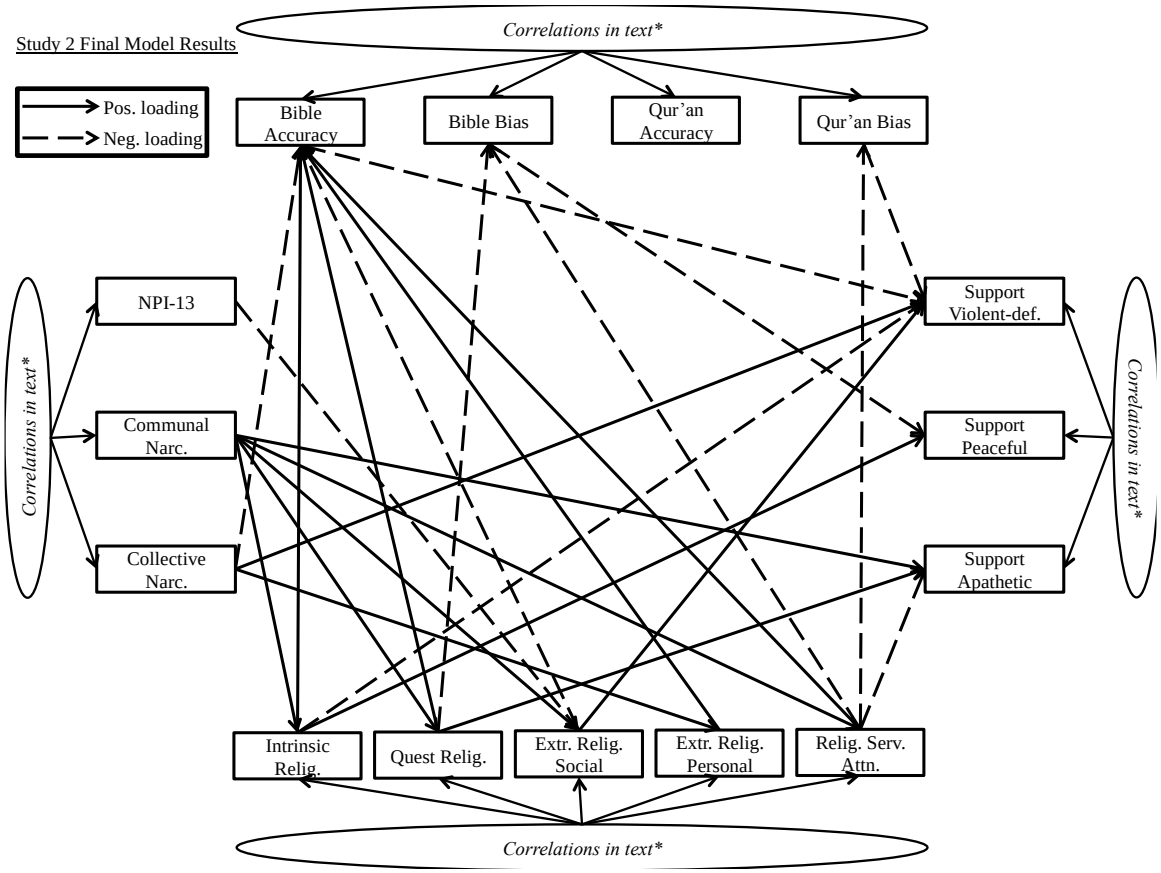
(a)

Narcissism	β	Overclaiming
NPI-13	-0.15*→	Bible bias
NPI-13	-0.29†→	Bible accuracy
NPI-13	-0.13*→	Agentic accuracy
NPI-13	-0.12*→	Agentic bias
NPI-13	-0.21†→	Communal accuracy
NPI-13	-0.15*→	Communal bias
Communal Narc.	-0.16*→	Bible bias
Communal Narc.	-0.18*→	Bible accuracy
Communal Narc.	-0.26†→	Qur'an bias
Communal Narc.	-0.26†→	Qur'an accuracy
Communal Narc.	-0.36†→	Agentic accuracy
Communal Narc.	-0.30†→	Communal bias
Communal Narc.	-0.31†→	Communal accuracy
Collective Narc.	0.22*→	Qur'an accuracy

(b)

Figure 16. (a) SEM results summary for Study 1 and (b) beta weights for significant effects.

Note: * denotes significance at the .05 level, † denotes significance at the .001 level.



(a)

(b)

Narcissism	β	Religiosity	β	Overclaiming	β	Support
NPI-13	-0.17*→	Extr. Relig. Social				
Communal Narc.	0.33†→	Intrinsic relig.	→	→	-0.06*→	Violent. Def.
Communal Narc.	0.33†→	Intrinsic relig.	0.31†→	Bible accuracy	-0.01*→	Violent. Def.
Communal Narc.	0.22†→	Extr. Relig. Social	→	→	0.04*→	Violent def.
Communal Narc.	0.33†→	Intrinsic relig.	→	→	0.16†→	Peaceful
Communal Narc.	→	→	→	→	0.13*→	Apathetic
Communal Narc.	0.21†→	Relig. Serv. Attn.	→	→	-0.05*→	Apathetic
Communal Narc.	0.13*→	Quest relig.				
Collective Narc.	→	→	→	→	0.19*→	Violent def.
Collective Narc.	→	→	-0.12*→	Bible accuracy		
Collective Narc.	0.12*→	Extr. Relig. Social				
		Extr. Relig. Social	→	→	0.20*→	Violent def.
		Extr. Relig. Social	-0.22†→	Bible accuracy	0.03*→	Violent def.
		Intrinsic relig.	→	→	-0.19*→	Violent def.
		Intrinsic relig.	0.31†→	Bible accuracy	-0.04*→	Violent. Def.
		Extr. Relig. Personal	0.28†→	Bible accuracy	-0.04*→	Violent def.
				Bible accuracy	-0.14*→	Violent. Def.
				Qur'an bias	-0.18*→	Violent def.
		Intrinsic relig.	→	→	0.49†→	Peaceful
				Bible bias	-0.17*→	Peaceful
		Quest relig.	→	→	0.31†→	Apathetic
		Relig. Serv. Attn.	→	→	-0.26†→	Apathetic
		Relig. Serv. Attn.	-0.27*→	Qur'an bias		
		Relig. Serv. Attn.	-0.34†→	Bible bias		
		Quest relig.	-0.13*→	Bible bias		
		Quest relig.	0.29†→	Bible accuracy		
		Relig. Serv. Attn.	0.16*→	Bible accuracy		

Figure 17. (a) SEM results summary for Study 2 and (b) beta weights for significant effects.

Note: * denotes significance at the .05 level, † denotes significance at the .001 level.

Appendix A: The 13-item Narcissistic Personality Inventory

(Raskin & Hall, 1979)

Factor label	#	Narcissistic response	Neutral response
Leadership / Authority	1.	I like having authority over other people	I don't mind following orders.
	2.	I have a strong will to power	Power for its own sake doesn't interest me.
	3.	People always seem to recognize my authority	Being an authority doesn't mean that much to me.
	4.	I am a born leader	Leadership is a quality that takes a long time to develop.
Grandiose / Exhibitionism	5.	I know that I am a good person because everybody keeps telling me so	When people compliment me I sometimes get embarrassed.
	6.	I like to show off my body	I don't particularly like to show off my body.
	7.	I like to look at my body	My body is nothing special.
	8.	I will usually show off if I get the chance	I try not to be a show off.
	9.	I like to look at myself in the mirror	I am not particularly interested in looking at myself in the mirror.

Entitlement / Exploitativeness	10.	I find it easy to manipulate people	I don't like it when I find myself manipulating people.
	11.	I insist upon getting the respect that is due me	I usually get the respect that I deserve.
	12.	I expect a great deal from other people	I like to do things for other people.
	13.	I will never be satisfied until I get all that I deserve	I take my satisfactions as they come.

Appendix B: The Brief Pathological Narcissism Inventory

(Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009)

Factor label	Facet label	Item text
Grandiosity:	Exploitativeness	1. I can usually talk my way out of anything 2. I can make anyone believe anything I want them to 3. I find it easy to manipulate people 4. I can read people like a book
	Self-Sacrificing Self-Enhancement	5. I feel important when others rely on me 6. Sacrificing for others makes me the better person 7. I like to have friends who rely on me because it makes me feel important 8. I try to show what a good person I am through my sacrifices
	Grandiose Fantasy	9. I often fantasize about accomplishing things that are probably beyond my means 10. I often fantasize about being rewarded for my efforts 11. I often fantasize about performing heroic deeds 12. I often fantasize about being recognized for my accomplishments
Vulnerability:	Contingent Self-Esteem	13. When people don't notice me, I start to feel bad about myself 14. It's hard to feel good about myself unless I know other people admire me 15. I am preoccupied with thoughts and concerns that most people are not interested in me 16. It's hard for me to feel good about myself unless I know other people like me

Hiding the Self	17. I often hide my needs for fear that others will see me as needy and desperate 18. It's hard to show others the weaknesses I feel inside 19. I can't stand relying on other people because it makes me feel weak 20. When others get a glimpse of my needs, I feel anxious and ashamed
Devaluing	21. Sometimes I avoid people because I'm concerned that they'll disappoint me 22. When others don't meet my expectations, I often feel ashamed about what I wanted 23. Sometimes I avoid people because I'm afraid they won't do what I want them to do 24. Sometimes I avoid people because I'm concerned they won't acknowledge what I do for them
Entitlement Rage	25. I get annoyed by people who are not interested in what I say or do 26. I typically get very angry when I'm unable to get what I want from others 27. It irritates me when people don't notice how good a person I am 28. I will never be satisfied until I get all that I deserve

Appendix C: The Hypersensitive Narcissism Scale

(Hendin, & Cheek, 1997)

Item text
1. I can become entirely absorbed in thinking about my personal affairs, my health, my cares or my relations to others.
2. My feelings are easily hurt by ridicule or by the slighting remarks of others.
3. When I enter a room I often become self-conscious and feel that the eyes of others are upon me.
4. I dislike sharing the credit of an achievement with others.
5. I feel that I have enough on my hands without worrying about other people's troubles.
6. I feel that I am temperamentally different from most people.
7. I often interpret the remarks of others in a personal way.
8. I easily become wrapped up in my own interests and forget the existence of others.
9. I dislike being with a group unless I know that I am appreciated by at least one of those present.
10. I am secretly "put out" or annoyed when other people come to me with their troubles, asking me for my time and sympathy.

Appendix D: The Communal Narcissism Scale

(Gebauer, Sedikides, Verplanken, & Maio, 2012)

Item text
1. I am the most helpful person I know.
2. I am going to bring peace and justice to the world.
3. I am the best friend someone can have.
4. I will be well known for the good deeds I will have done.
5. I am (going to be) the best parent on this planet.
6. I am the most caring person in my social surrounding.
7. In the future I will be well known for solving the world's problems.
8. I greatly enrich others' lives.
9. I will bring freedom to the people.
10. I am an amazing listener.
11. I will be able to solve world poverty.
12. I have a very positive influence on others.
13. I am generally the most understanding person.
14. I'll make the world a much more beautiful place.
15. I am extraordinarily trustworthy.
16. I will be famous for increasing people's well-being.

Appendix E: The Collective Narcissism Scale

(Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009)

Item text
1. I wish other groups would more quickly recognize the authority of my group
2. My group deserves special treatment
3. I will never be satisfied until my group gets all it deserves
4. I insist upon my group getting the respect that is due to it
5. It really makes me angry when others criticize my group
6. If my group had a major say in the world, the world would be a much better place
7. I do not get upset when people do not notice achievements of my group
8. Not many people seem to fully understand the importance of my group
9. The true worth of my group is often misunderstood

Appendix F: The Bible Over-Claiming Questionnaire

(Jones, Neria, Helm, Sahlan, Carré, *under review*)

Bible Familiarity

Below is a list of stories, concepts, or people who appear in the Bible...Please indicate how familiar you are with each on a scale of 0 (never heard of it) to 6 (extremely familiar).

For example, if the item said "Jesus", you would probably write a '6' beside it because Jesus is very familiar. However, if the item said "Fred Gruneberg" (my next door neighbor) you would write a '0' to indicate you never heard of him.

e.g., 6 Jesus

0 Fred Gruneberg

In other words, the difficulty of the items ranges from easy to impossible.

1. Pentecost
2. Boaz marries Ruth
3. Judas betrays Jesus†
4. The prophet Haggai
5. The siege of Jerusalem
6. Cain and Abel†
7. Tobit's song of praise†
8. The last seven plagues
9. ***Cast of Nissius†****
10. Jesus calms the seas
11. John the Baptist†
12. Stephen's Martyrdom
13. Victory over Lysias†
14. Noah and the ark†
15. The decree of Darius
16. ***The journey of Aruk****

17. The second book of Samuel†
18. The prodigal son
19. The book of Judges†
20. Soren's Temple†*
21. Menelaus of Jerusalem
22. The destruction of Sodom and Gomorrah†
23. The crime of Amnon†
24. The Ten Commandments†
25. The servants of anointment†*
26. Manna from the heavens
27. To touch His cloak†
28. King Herod
29. Roman injunction of Paulhus*
30. The exodus of Egypt†
31. The book of law†
32. Daniel in the lion's Den
33. The second plague†
34. Moses parts the red sea†
35. Parable of the tenants
36. The book of Baruch†
37. Peter, James, and John
38. From Egypt to Sinai†
39. Cardinal law of the prophecies†
40. The Maccabean revolt
41. The sins of Solomon†
42. The reply to Caspar*
43. Abraham, Isaac, and Jacob
44. Flight to Horeb†
45. The book of Zechariah
46. The four horsemen
47. Peter denies Jesus

48. Barabus the murderer
49. The cave of Durban
50. David and Golliath†
51. Jesus in the Garden of Gethsemane†
52. Leadership of Judas Maccabeus
53. The curse of Levenson*
54. Visit of Queen of Sheba
55. The worshipers of Baal
56. The Army Seventeen†*
57. Laws concerning Nazirites
58. Death of Abijah†
59. Hour horns and four blacksmiths†
60. The last supper†
61. The alter of Khartoum†*
62. The second royal decree†
63. Count of the twelve tribes
64. The book of Amos
65. Thomas doubts Jesus†
66. Invasion of Sennacherib
67. The Bottle of Eli*
68. The story of Amorelus†*
69. The day of atonement†
70. Achior in Bethulia
71. Jesus curses a fig tree
72. The book of Job
73. The book of Nehemiah

†Denotes that the item is included in the BOCQ-36 short form

****Items in underline & Italics are foils***

Appendix G: The Qur'an Over-Claiming Questionnaire

(Jones, Neria, Helm, Sahlan, Carré, *under review*)

Qu'ran Familiarity

Below is a list of stories, concepts, or people who appear in the Qur'an...Please indicate how familiar you are with each on a scale of 0 (never heard of it) to 6 (extremely familiar).

For example, if the item said "Mohammed, the messenger of God ", you would probably write a '6' beside it because Mohammed is very familiar. However, if the item said "Farzad Helm" (my next door neighbor) you would write a '0' to indicate you never heard of him.

e.g., 6 Mohammed

0 Farzad Helm

In other words, the difficulty of the items ranges from easy to impossible.

1. Adam as the first prophet of God
2. Joseph was thrown by his brothers into a pit
3. The prophet Jacob
4. The prophet Moses
5. Abraham and Hagar
6. ***Aaron and his brother Saul****
7. Ishmael and Isaac were Abraham's Children
8. The Abraha's corps
9. The prophet Jesus
10. The prophet David
11. David's son, Solomon
12. Blessed virgin Mary, mother of Jesus
13. The Prophet Yahiya
14. The prophet Khidr
15. ***As-hab al Kahf, companions of cave and Islam invitation****
16. The prophet Zulqarnain

17. The prophet Zechariah
18. The prophet Ayoub and the Devil asking the God allowing him to take Ayoub's wealth and children
19. The prophet Yunus
20. The prophet Hood guided the Aad people
21. Cain and Abel
22. ***Treasure of Nimrud****
23. The son of prophet Noah was drowned
24. Noah's ark
25. Pharaoh
26. Noah's people faced with an extreme storm
27. Resurrection of the dead and healing of the sick by Jesus
28. A boy in the Nile
29. The Prophet Shuaib
30. Queen of Sheba
31. ***Abraham and the whale****
32. ***Ismail Breaks the idols****
33. The prophet Saleh and the folk of Thamud
34. Phil companions
35. The Cattle of Israel
36. ***The Job (Ayoub) and interpretation of dreams****
37. Joseph returned to Canaan
38. Jacob's cry
39. A caw that revived a young man
40. ***The king Nimrud cast Ishmael into the fire****
41. Harut and Marut
42. Pharaoh's folk
43. Faithful of Pharaoh
44. Gog and Magog
45. Companions of Al Janna, pride and wealth and killing the Prophets
46. Luqman and Aziz

47. Satan in Paradise
48. Balaam
49. Abraham growths in the cave
50. The story of Lille Almbyt
51. Battles of Badr, Uhud and Khandaq, commanded by Ali ibn Abi Talib*
52. Commanding of Saul
53. Goliath, stout hero
54. Teenager Saul killed Goliath*
55. The ark of the covenant and its role in the Jesus's invitation*
56. Abraham was cast into the fire
57. Abraham sacrificed his son, Ishmael
58. Moses made a hole in the boat*
59. Taking the spirit of Addis
60. Moses rescued the animals*
61. Prophet Lot proposed to righteous people to marry his daughters*
62. Folk of median
63. Moses and the righteous servant
64. Shaddad's heaven.
65. Pharaoh and Haman
66. Simultaneous martyrdom of multiple prophets
67. Elijah and the defeat of queen of Saba*
68. Elijah and the people worshiped the sun*
69. Kingdom of Abraham*
70. Dhul-Kifl
71. Ys, the messenger of God
72. The prophet Aziz
73. The followers of Akhdvd
74. Dwellers of the wood
75. The followers of Hejer
76. The followers of Ras
77. The followers of Rqym

78. The followers of Sabbath

79. The folk of Toba

80. <u>Dhul-Kifl buried next to Adam</u> *

* ***<u>Denotes a foil.</u>***

Appendix H: The Agentic-Communal Over-Claiming Questionnaire 12

(Gebauer, Paulhus, Sedikides, & Elliot, *in prep*)

Agentic overclaiming subscale

The following 12 items refer to central topics within the achievement and success domain. We want to find out how good your knowledge is regarding these topics. Please indicate your knowledge about each of these 12 core achievement and success topics by rating your familiarity with each item.	
Domain	Item
1. International Stock Market	a. Nikkei b. Blue Chips c. Alpha Centauri Index (ACI)
2. Chemistry & Physics	a. The Theory of General Relativity b. The Mander Periodical Equation c. Thermodynamics
3. Market Principles	a. Nash Equilibrium b. Game Theory c. Satured Market Hub
4. Leading Educational Institutions	a. Massachusetts Institute of Technology (MIT) b. The Wall Institute Berlin (WIB) c. London School of Economics (LSE)

Communal overclaiming subscale

The following 12 items refer to central topics within the social and humanity domain. We want to find out how good your knowledge is regarding these topics. Please indicate your knowledge about each of these 12 core social and humanity topics by rating your familiarity with each item.	
Domain	Item text
1. Humanitarian Aid Organizations	a. Red Cross International b. International Well-Being Fund (IWBF) c. Doctors Without Borders
2. Nature & Animal Protection Organizations	a. Greenpeace b. WWF International c. WildlifeProtected
3. Parenting & Childcare	a. Declaration of the Rights of the Child b. Overparenting c. UN Act Against Childism (UNAC)
4. International Health Charities	a. Asch Aids Aid (AAA) b. The Stroke Association c. International Children's Heart Foundation

Scoring:

Foils of the Agency subscale: "Alpha Centauri Index (ACI)," "The Mander Periodical Equation," "Satured Market Hub," and "The Wall Institute Berlin (WIB)."

Foils of the Communion subscale: "International Well-Being Fund (IWBF),"WildlifeProtected,"UN Act Against Childism (UNAC)," and "Asch Aids Aid (AAA)."

Appendix I: Revised Intrinsic / Extrinsic religiosity scale

(Gorsuch & McPherson, 1989)

Factor	Item text
Intrinsic	1. I enjoy reading about my religion 2. It is important to me to spend time in private thought and prayer. 3. I have often had a strong sense of God's presence 4. I pray mainly to gain relief and protection 5. I try hard to live all my life according to my religious beliefs 6. Prayer is for peace and happiness
Extrinsic Social	7. I go to church because it helps me to make friends 8. I go to church mostly to spend time with my friends. 9. My whole approach to life is based on my religion. 10. I go to church mainly because I enjoy seeing people I know there.
Extrinsic Personal	11. It doesn't much matter what I believe so long as I am good. (Reversed.) 12. What religion offers me most is comfort in times of trouble and sorrow. 13. Although I am religious, I don't let it affect my daily life. (Reversed.) 14. Although I believe in my religion, many other things are more important in life. (Reversed.)

Appendix J: The Quest Religiosity Scale

(Batson, & Schoenrade, 1991)

Factor	Item text
Readiness to face existential questions without reducing their complexity	1. I was not very interested in religion until I began to ask questions about the meaning and purpose of my life. 2. I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world. 3. My life experiences have led me to rethink my religious convictions. 4. God wasn't very important for me until I began to ask questions about the meaning of my own life.
Self-criticism and perception of religious doubt as positive	5. It might be said that I value my religious doubts and uncertainties. 6. For me, doubting is an important part of what it means to be religious. 7. I find religious doubts upsetting. (Reversed) 8. Questions are far more central to my religious experience than are answers.
Openness to change	9. As I grow and change, I expect my religion also to grow and change. 10. I am constantly questioning my religious beliefs. 11. I do not expect my religious convictions to change in the next few years. (Reversed.) 12. There are many religious issues on which my views are still changing.

Appendix K: Internet Commenter Task

(Adapted from Jones, Neria, Helm, Sahlan, Carré, *under review*)

Fictitious statements written by hypothetical Internet commenters:

- **Violent-defensive:** We live in an imperfect world where faithful [Christians / Muslims / people] are slaughtered every day… It is time to strike back… Let them know what it is like to fear death... Do not believe the lies, there is support for violence when there is no other choice…
- **Peaceful:** [Christianity advocates / Islam advocates / I advocate] the use of kindness… When Gods' Kingdom comes, there will be no need for guns or any other weapon… God's people must welcome everybody into their community: sinners, atheists, even people from other religions.
- **Apathetic:** There are a lot of perspectives out there, some good, some bad... I don't really believe any one religion has "nailed it" yet… There are problems each religion… Overall though, I think it is great to believe in something bigger than the here and now.

Vita

Adon Lee Neria was born and raised in El Paso, Texas. The eldest son of Leopoldo and Rebecca Neria, he graduated from El Dorado High School in 2008 and enrolled in The University of Texas at El Paso (UTEP) with the Jessie H. & Mary Gibbs fund scholarship. As an undergraduate, he worked as a volunteer research assistant under Drs. Michael Zárate, Christian Meissner, and Osvaldo Morera while also volunteering to help immigrants become naturalized citizens of The U.S. and working 3 jobs. Adon was later elected secretary of Psi Chi, The International Honor Society in Psychology and accepted a research internship with The National Center for Border Security and Immigration, a Department of Homeland Security Center of Excellence. Adon completed an Honors Thesis on the effects of religious argumentation on submissiveness under Dr. Zárate and graduated *summa cum laude* with a B.A. in psychology and a minor in religious studies. As a graduate student, Adon contributed to papers presented to The Society for Personality and Social Psychology, The American Psychology and Law Society, The Society for the Scientific Study of Psychopathy and published in the journals *Personality and Individual Differences* and *Evolutionary Psychological Science*. Adon is also a reviewer for the journal *Personality and Individual Differences* and has experience conducting program evaluations for the El Paso Juvenile Probation Department. Adon is currently interviewing with New Orleans Police Department, the Travis County Juvenile Probation Department, and other local and federal government agencies.

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