

DOES EGO THREAT INCREASE  
PARANOIA?

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To my wife Anne: Thank you for your love and support.

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## Abstract

The goal of the current research was to test whether an ego threat increases paranoia, whether the increase in paranoia was mediated by state self-esteem, and whether the increase in paranoia was moderated by the personality characteristics of agreeableness and or neuroticism. Participants in the ego threat condition completed a very difficult “intelligence test” and were told that they scored poorly on it. There were four behavioral and questionnaire measures of paranoia including: a measurement of the distance participants sat from the experimenter during the debriefing, how much they trusted a stranger in a video, how much they liked/trusted the experimenter, and the Suspiciousness subscale of the Schizotypal Personality Questionnaire (SPQ-S; Raine, 1991). Overall, the results provide mixed support that ego threat increases paranoia. In addition, males tended to display more paranoia in response to the ego threat than did females. However, the increase in paranoia does not appear to be mediated by state self-esteem. Participants low in agreeableness tended to score higher on the paranoia measures in the ego threat condition than in the control condition. These findings suggest that ego threat can increase paranoia and that the effect of ego threat on paranoia is moderated by levels of agreeableness

## Does Ego threat Increase Paranoia?

Paranoia has been defined as “a pervasive and unwarranted mistrust of others,” (Bernstein, Useda, & Siever, 1995, p.45). People with paranoia tend to think others cannot be trusted, and in more extreme forms, fear that others are out to get them. A number of psychopathologists have hypothesized that paranoia is associated with biases or errors in self-relevant information processing (Bentall & Kaney, 1996; Blackwood, Howard, Bentall, & Murray, 2001; Fenigstein, Scheier, & Buss, 1975, Lenzenweger, Bennett, & Lilienfeld, 1997). For example, paranoia has been conceptualized as a result of excessive self-focused attention in which the individual thinks that others are having negative thoughts about him or her (Fenigstein & Vanable, 1992). These conceptualizations strongly suggest that self-relevant information processing is involved in the development of paranoia. In addition, paranoia is a symptom of several types of psychopathology including, but not limited to, schizophrenia, paranoid personality disorder, schizotypal personality disorder, and mood disorders with psychotic features (American Psychiatric Association, 1994). Studying paranoia is also important for understanding delusions because most people with delusions have some persecutory delusions (Appelbaum, Robbins, & Roth, 1999).

One form of psychopathology to which paranoia is closely related is schizotypy. Schizotypy can be defined as traits that are similar to schizophrenia but in a diminished form, and schizotypy is thought to reflect a liability for schizophrenia. (Chapman, Chapman, Raulin, & Edell, 1978; Meehl, 1962). However, previous research suggests that paranoia is separate from other facets of schizotypy. For example, many studies on schizotypy that employed exploratory or confirmatory factor analysis have shown that

factor models with a separate paranoia factor provide statistically better fit to the data than do models that include paranoia as part of another schizotypy factor (Bergman et al., 1996; Bergman, Silverman, Harvey, Smith, & Siever, 2000; Reynolds, Raine, Mellinger, Venables, & Mednick, 2000; Stefanis et al., 2004). In a recent study (Cicero & Kerns, in preparation), I found that paranoia was best conceptualized as a distinct but correlated factor of schizotypy. Moreover, as will be discussed below, paranoia showed different associations with facets of self-relevant information processing compared to the other schizotypy factors. In summary, previous research suggests that paranoia is a distinct and potentially important aspect of risk for schizophrenia and other related psychopathology.

It has been hypothesized that self-esteem is involved in the etiology and maintenance of paranoia. Two separate theories have suggested roles for self-esteem in paranoia. First, paranoia has been characterized as a defensive reaction that serves to maintain high levels of explicit self-esteem in the face of low underlying feelings of self-worth (Bentall, Kinderman, & Kaney, 1994). This model has been referred to as the “paranoia as defense model.” However, other psychopathologists have taken an opposite stance, noting that paranoid thoughts are largely negative and ego-dystonic in nature. For example, an individual may have a persecutory delusion that he is being plotted against because he believes that he is a bad person. Thus, researchers have suggested that paranoia is a direct reflection of low explicit and implicit self-esteem (Bowins & Shugar, 1998; Freeman et al., 1998; Freeman et al., 2004, Garety & Freeman, 1999; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001). This theory posits that people with paranoia either experience paranoid thoughts as a result of having low self-esteem, or that paranoia causes people to have low self-esteem due to the negative nature of most

paranoid thoughts. As discussed below, there is strong support for the second model, that paranoia is related to low explicit self-esteem.

However, researchers have not tested if paranoia can be caused by threats to self-esteem. Instead, paranoia researchers have focused on testing two predictions borne out of the paranoia as defense model. First, researchers have tested whether paranoia is associated with an exaggerated self-serving bias. Second, researchers have tested whether paranoia is related to an interaction between implicit and explicit self-esteem such that people with high explicit but low implicit self-esteem have the highest levels of paranoia. However, research on these theories has provided inconsistent results at best. Before testing predictions based on the paranoia as defense model, it is necessary to establish that paranoia can be the result of threats to self-esteem.

The current study tests whether reductions in self-esteem can cause an increase in paranoia. As reviewed below, paranoia has been consistently linked to low explicit self-esteem (e.g., Bowins & Shugar, 1998; Freeman et al., 1998; Freeman et al., 2004, Garety & Freeman, 1999; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001). Recent research suggests that paranoia is also associated with low implicit self-esteem (Cicero & Kerns, in preparation; McKay, Langdon, & Coltheart, 2007; Moritz, Werner, & von Collanni, 2006). However, none of these studies have examined if paranoia can be caused by a decrease in self-esteem. Moreover, self-esteem is associated with a wide range of psychopathology (Silverstone, 1991). This leads to the question of why a decrease in self-esteem would lead to paranoia as opposed to other symptoms of psychopathology (e.g., depressed mood, narcissism, anhedonia, etc...). One possible explanation is that self-esteem only causes paranoia in people with specific personality

traits such as low agreeableness or high neuroticism. These personality traits have been shown to be related to paranoia (Lynam & Widiger, 2001, Trull et al., 2001). Moreover, it is unclear if specific ego threats will have the same effect on men and women, or if paranoia is as common in women as it is in men. Thus, the current study tested these two personality characteristics and gender as possible moderators of the relation between ego threat and paranoia.

As mentioned previously, paranoia researchers have often tested two predictions based on the paranoia as defense model. These two predictions are that people with paranoia have an exaggerated self-serving attributional style and that people with paranoia have high explicit/low implicit self-esteem. The following sections review the literature on these two predictions as well as the associations between paranoia and low explicit self-esteem and high public self-consciousness.

### *Attributional Style and Paranoia*

One prediction from the paranoia as defense model that researchers have tested is whether people with paranoia have an exaggerated self-serving attributional style (e.g., Kinderman, Kaney, Morely, & Bentall, 1992; Lyon, Kaney, & Bentall, 1994).

Attributional style refers to individual differences in causal attributions for life events (Peterson et al., 1982). For example, one individual may attribute a recent salary raise to hard work, while another may attribute it to chance or circumstances. In general, people tend to have a positively biased self-serving attributional style in which they attribute positive events to global, stable, and internal causes and bad events to specific, fleeting, and external causes (see Mezulis, Abramson, Hyde, & Hankin, (2004) for a meta-

analysis). It has been hypothesized that people with paranoia have an exaggerated self-serving bias. People with paranoia are thought to be more likely to attribute negative events to external causes and positive events to internal causes than are people without paranoia (Kinderman, Kaney, Morely, & Bentall, 1992; Lyon, Kaney, & Bentall, 1994). In doing so, people with paranoia take too much responsibility for positive events and not enough responsibility for negative events. Researchers have hypothesized that this is a defensive function against low self-esteem by refusing to acknowledge that they could have caused negative occurrences in their lives.

However, research on this topic has produced mixed results. Some studies have found an exaggerated self-serving bias (e.g., Kinderman, Kaney, Morely, & Bentall, 1992; Lyon, Kaney, & Bentall, 1994), while others have found no relation between attributional style and paranoia (e.g., Martin & Penn, 2001). In fact, one recent meta-analysis found that the magnitude of self-serving bias in schizophrenia spectrum disorders was not significantly different from normal samples (Mezulis, Abramson, Hyde, & Hankin, 2004). Additionally, table 1 shows the effect sizes of studies comparing people with paranoia to normal populations. This is different from Mezulis et al.'s 2004 paper because my meta-analysis only includes studies that focused on paranoia or persecutory delusions rather than all schizophrenia spectrum disorders. If people with paranoia have an increased self-serving bias, they should have a positive mean effect size for internal attributions for positive life events, and a negative mean effect size for internal attributions for negative life events. As shown in table 1, results are mixed. Some studies have found the self-serving bias, while others have found no differences,

and some have even found the opposite to predicted pattern. Moreover, the mean effect size weighted by sample size is not significant.

In a recent study, I found that paranoia was not associated with an exaggerated self-serving bias. However, I did find that narcissism was associated with an exaggerated self-serving bias (See current Figure 1; Cicero & Kerns, in preparation). This is important because it suggests that the null results are not due to problems with methodology, as has been suggested (Kinderman & Bentall, 1996). Instead, null results for paranoia and positive results for narcissism suggest that paranoia may not really be related to an exaggerated self-serving attributional bias.

#### *Paranoia and Self-Esteem*

The second prediction of the paranoia as defense model is related to self-esteem. In particular, this theory suggests a central role of self-esteem in the formation and maintenance of paranoia symptoms. In this theory, paranoia is thought to be the result of individuals attempting to maintain high levels of explicit self-esteem despite low underlying self-worth or implicit self-esteem (Bentall & Kaney, 1996; Bentall, Kinderman, & Kaney, 1994; Kinderman & Bentall, 1996a). For this hypothesis to be true, paranoia would have to be linked to high explicit self-esteem, but low implicit self-esteem.

Until relatively recently, measures of implicit self-esteem were not available to paranoia researchers. Instead, paranoia researchers have inferred levels of implicit self-esteem from the Dysfunctional Attitudes Scale (Bentall & Kaney, 1996; Bentall & Kinderman, 1994), observer reports of attributional style (Fear et al., 1996; Kinderman et

al., 1992), the Emotional Stroop Task (EST: Kinderman, 1994; Bentall & Kaney, 1989; Smith, Freeman, & Kuipers, 2005), the Pragmatic Inference Task (PIT: Lyon et al., 1994), or self-discrepancies (Kinderman & Bentall, 1996a). None of these studies have found that paranoia is associated with high explicit self-esteem or low implicit self-esteem. This may be due to methodological limitations on the measures of implicit self-esteem. In particular, the measures they used either have poor reliability (i.e., close to zero) or are not considered to measure implicit self-esteem at all (Bosson, Swann, & Pennebaker, 2000). In contrast, research has shown that the Implicit Association Test (IAT; Greenwald, Farnham, & Schwartz, 1998) is the most reliable and valid measure of implicit self-esteem (Bosson, Swann, & Pennebaker, 2000). Moreover, implicit social cognition researchers have used the IAT to show that high explicit but low implicit self-esteem predicts narcissism (Jordan et al., 2003; Jordan et al., 2005). In a recent study, I found that paranoia is associated with low implicit self-esteem when controlling for other schizotypy facets (see current figure 2; Cicero & Kerns, in preparation). This provides evidence that people with paranoia also have low levels of implicit self-esteem. In the same study, I replicated the results of Jordan et al. (2003) and showed that an interaction between implicit and explicit self-esteem was related to narcissism. Again, this suggests that there was not a methodological problem with the data, but that paranoia is associated with low implicit self-esteem.

In addition, previous research has consistently shown that paranoia is correlated with low explicit self-esteem (Combs & Penn, 2004; Drake et al., 2004; Ellet, Lopes & Chadwick, 2003; Martin & Penn, 2001). In a recent study, I found that paranoia is associated with low-explicit self-esteem when controlling for other facets of schizotypy

(see current figure 3; Cicero & Kerns, in preparation). Moreover, two recent studies have shown that schizophrenia (McKay, Langdon, & Coltheart, 2007) and persecutory delusions (Moritz, Werner, & von Collanni, 2006), are associated with low implicit and low explicit self-esteem.

### *Paranoia and Self-Consciousness*

In addition to attributional style and self-esteem, it has been hypothesized that paranoia is associated with self-consciousness. The role of self-consciousness in paranoia is reviewed because previous research suggests that increasing levels of self-consciousness can increase paranoid thoughts and behaviors (Fenigstein & Venable, 1992). Moreover, some studies on paranoia and self-consciousness are methodologically analogous to the current study and will be discussed below.

In particular, paranoia has been conceptualized as a result of excessive self-focused attention in which the individual incorrectly thinks that other people are thinking negative thoughts about him or her or plotting against him or her (Fenigstein et al., 1975; Fenigstein & Venable, 1992; Greenwald, 1980). Indeed, paranoia has been shown consistently to be associated with public self-consciousness (Combs & Penn, 2004; Fenigstein & Venable, 1992; Fenigstein et al. 1975). Public self-consciousness can be defined as awareness of the self as a social object (private self-consciousness is defined as awareness to one's own thoughts or ideas). Moreover, Fenigstein and Venable (1992) showed that people had increased feelings of being watched (an analogue measure of paranoia) when they manipulated self-focused attention. Again, this suggests an essential role of self-relevant information processing in paranoia. In a recent study, I replicated

this result, showing that paranoia is related to public self-consciousness (see current figure 4; Cicero & Kerns, in preparation). In addition, research by Fenigstein and Venable is important because they were able to experimentally increase paranoia. This is relevant because not all psychopathological phenomena can be studied experimentally in analogue studies (Sher & Trull, 1996). However, research by Fenigstein and Venable suggests that paranoia might be amenable to experimental analogue studies to further test paranoia theories.

### Overview and Goals

The first goal of the current study is to determine if ego threat can cause an increase in paranoia. Previous research strongly suggests that paranoia is associated with low implicit and explicit self-esteem. However, one major problem with previous research is that it has not attempted to determine if paranoia causes low self-esteem or if low self-esteem causes paranoia. In addition, it is possible that a third variable causes both, such as neuroticism or depression. The current research manipulates self-esteem to see if lowering self-esteem via an ego threat will increase paranoia. I expected to find that temporarily lowering self-esteem will increase paranoia on both questionnaire and behavioral measures.

As stated previously, paranoia has also been shown to be associated with high public self-consciousness. In an analogous study to the current research, Fenigstein and Venable (1992) manipulated self-consciousness to test whether an increase in self-consciousness would cause more paranoia. They asked participants to write stories with either self-relevant words (e.g., me, mine, my, I) or neutral words. Participants who

wrote self-relevant essays were more likely than those who wrote neutral essays to think that they were being watched from behind a two-way mirror. This research answered an important question in paranoia research: that self-consciousness is involved in the development of paranoia. The current research aims to answer a similar question about the role of self-esteem in the etiology of paranoia. Like Fenigstein and Venable's 1992 study, the current study manipulated a facet of self-relevant information processing to test whether it increased paranoia.

The second goal of the current study is to examine potential mediators of ego threat and paranoia. I expected to find that a decrease in self-esteem mediates the effect of ego threat on paranoia. However, I expected that the effect of ego threat on paranoia would not be mediated by the mood variables of anger, sadness, or anxiety. Most previous research has shown that ego threats do not cause an increase in negative emotions (e.g., Dewall & Baumeister, 2006; Gardner et al., 2000), and the studies that have found a difference have found that mood does not mediate the effects of ego threat on outcome variables.

The third goal of the current research is to examine other variables that may moderate the relationship between ego threat and paranoia. Low self-esteem is associated with a wide range of psychopathology. One possibility is that only certain people will respond to lowered self-esteem with paranoid thoughts and behaviors. In a recent study, I found that paranoia was associated with the five-factor model characteristics of low agreeableness and high neuroticism (Cicero & Kerns, in preparation). Other researchers have examined individual facets of the five-factor model traits. For example, Lynam and Widiger (2001) used an expert consensus approach to

describe prototypic cases of personality disorders. In particular, people with paranoid personality disorder are expected to be high in angry hostility, while low in trust, compliance, and tendermindedness. Trull, Widiger, and Burr (2001) found that paranoia was associated with high neuroticism facets of anxiety, hostility, depression, self-consciousness, and vulnerability as well as low agreeableness facets of trust, altruism, compliance, and tendermindedness. These facets may moderate the relationship between ego threat and paranoia.

In addition to personality variables moderating the relation between ego threat and paranoia, there may be important differences between males and females in their experience of paranoia. Previous research suggests that levels of schizotypal traits may vary in gender (Chmielewski, Fernandes, Yee, & Miller, 1995). Moreover, the experience of the ego threat may be different in women and men. Research has shown that men tend to value individualism, while women tend to value social acceptance more than men (e.g., Josephs, Markus, & Tafarodi, 1992; McBride, Bacchiochi, & Bagby, 2005). Thus, women and men may differ in their responses to the ego threat. For example, women may be more sensitive to a social exclusion ego threat, while men may be more sensitive to an individualistic achievement ego threat like the one in the current study.

In summary, the current study examines whether an ego threat can cause an increase in paranoia, whether this effect is mediated by self-esteem, and whether agreeableness and neuroticism, and gender moderate this effect.

*Measurement of Paranoia*

There are several scales available to measure paranoia in the general population or college student samples including the Paranoia and Suspiciousness Questionnaire (PSQ; Rawlings & Freeman, 1996), the Paranoid Personality Disorders Features Questionnaire (PPDFQ; Useda & Trull, unpublished dissertation), subscales of the Schizotypal Personality Questionnaire (SPQ; Raine, 1991) and Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson, 2002) among others. In a recent study, I used all of these to measure paranoia. For the current research, I used the suspiciousness subscale of the Schizotypal Personality Questionnaire (SPQ-S) because it had adequate reliability and is the shortest of the available measures.

Despite the reliability and validity of the SPQ to measure paranoia, it is unclear if the SPQ can detect state changes in suspiciousness. Although there is some evidence that schizotypy symptoms fluctuate over time and between situations (Myin-Germeys et al., 2005), it is unclear if a manipulation can increase paranoia as measured by a questionnaire. The SPQ-S is designed to measure trait paranoia scores as opposed to state paranoia scores. The wording of questionnaires, time frames, and answer choices may influence the responses of participants (Schwarz, 1999). For example, the SPQ-S may be more sensitive to state changes in paranoia if participants are asked how they feel *right now* as opposed to how they generally feel. This may pick up on paranoid feelings as a result of the ego threat.

In addition to questionnaire measures of paranoia, researchers have used behavioral analogue measures of paranoia including whether the participant thinks he or she is being watched behind a two-way mirror (Fenigstein & Venable, 1992), how long

participants take to complete an informed consent form, and how far away they sit from the experimenter (Combs & Penn, 2004). In these studies, the authors found that people with higher levels of paranoia, as measured by questionnaire during a pretest, were more likely to think they were being watched from behind the mirror, sit farther away from the experimenter, and take longer reading the informed consent form. In addition, Combs and Penn asked participants to answer the following questions on a Likert scale from 1 (Strongly Disagree) to 6 (Strongly Agree): 1) The experimenter was friendly, 2) the experimenter was hostile, 3) The experimenter was analyzing my actions, 4) the experimenter was influencing my performance, and 5) The experimenter was trustworthy. Although the five items had poor reliability ( $\alpha=0.34$ ), Combs and Penn (2004) reported that participants high in subclinical paranoia were more likely to think the experimenter was influencing their performance, the experimenter was analyzing their actions, and that the experimenter was not trustworthy.

As stated previously, one conceptualization of paranoia describes it as extreme mistrust. Although not designed to measure paranoia, Johnson-George and Swap (1982) developed a scale to measure interpersonal trust. Dunn and Schweitzer (2005) used this scale to measure differing levels of trust after a mood manipulation. They asked participants to list three coworkers or acquaintances and then picked the middle one. Participants filled out the Trust Inventory about this particular person (full measure is in Appendix B). In one study, they reported that participants watched a video of an interview of a college student on neutral topics and used this person as the subject of the Trust Inventory. In the current study, I used the Trust Inventory after showing participants a video clip of an interview with a graduate student.

*Ego threat Manipulations*

Researchers have developed several different methods for manipulating ego threat. For example, researchers have used vignettes that were designed to criticize, reject, ignore, or insult the participant (Bond, Ruara, & Wingrove, 2006). A major problem with using vignettes as a manipulation of ego threat is that the participant does not actually experience the ego threat. Rather, they imagine having an ego threat, which is less powerful than actually experiencing it. Researchers have also used intellectual threats such as difficult questions from the Graduate Record Examination (GRE). In this manipulation, participants are told that they scored below average on an intelligence test (Park & Crooker, 2005; Stucke & Sporer, 2002).

Similar manipulations have included tests designed to be too difficult to complete, such as the Remote Associations Test (RAT; Heatherton & Vohs, 2000). In addition, one study threatened people's egos by accusing them of "cracking under the pressure" while playing a video game in which higher scores would win them money (Baumeister, Heatherton, & Tice, 1993), and another study assumed that individuals would naturally experience ego threat during their first semester at an Ivy league school (Vohs & Heatherton, 2003). For the current study, I chose to use an intelligence ego threat manipulation because participants are all college students. Presumably, academic aptitude is important for their feelings of self-worth and salient for them at this stage of their lives. If low self-esteem contributes to the experience of paranoia, then temporarily decreasing self-esteem with an ego threat should cause an increase in paranoia. In addition, it is possible that participants could react to an ego threat differently based on gender, as has been mentioned previously.

## Method

### Participants

Participants (n=131) were undergraduate college students at a large Midwestern public university who completed the study as partial completion of a course requirement. Three participants were excluded for expressing doubt about the true purpose of the study, one participant was excluded because a friend told her about the study before she participated, and four were excluded for not being native English speakers. This resulted in 123 usable participants. The mean age of participants was 18.74 (SD=0.71). Participants were 44.7% male, 87% White, and 9.8% African-American. There were 48 participants in the control condition and 75 in the ego threat condition. Participants in the control condition were 39.6 % female and 89.6% White. The mean age was 18.94 (SD=0.56). Participants in the ego threat condition were 65.3 % female and 85.3 % White. The mean age was 18.61 (SD=0.77).

### Materials

*Paranoia.* The Suspiciousness Subscale of the Schizotypal Personality Questionnaire (SPQ-S; Raine, 1991) is an 8 item yes-no questionnaire designed to measure paranoia in a non-psychiatric sample (e.g., Do you sometimes get concerned that friends or coworkers are not really loyal or trustworthy?). The SPQ is a 74 item yes-no questionnaire designed to measure schizotypal personality disorder based on DSM-III-R (1987) criteria. For the purposes of the current study, the instructions on the SPQ were changed. Participants were instructed to answer how they feel *right now* as opposed to how they generally feel. The Suspiciousness subscale of the Schizotypal Personality

Questionnaire had adequate reliability ( $\alpha=0.78$ , see table 2) in the current study. The SPQ-S score was positively skewed, so the measure was square root transformed. The transformed variable was closer to normal than the original.

*Self-Esteem Scales.* Trait Explicit self-esteem was measured with the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The scale is a 10 item likert scale ranging from 1-4, “strongly agree” to “strongly disagree.” Higher scores represent increased levels of self-esteem. The Rosenberg self-esteem scale is perhaps the most common measure of explicit self-esteem. It had high reliability in the current study (see table 2).

*State Self-Esteem.* State self-esteem was measured with the State Self-Esteem Scale (Heatherton & Polivy, 1991). The State Self-Esteem Scale is a 20-item Likert-type scale designed to measure temporary changes in individual self-esteem. The scale contains three subscales for academic performance, social evaluation, and appearance. The Self-Esteem Scale has been shown to have good internal reliability (Coefficient  $\alpha=.92$ ; Linton & Masriott, 1996). The State Self-Esteem Scale had high internal reliability in the current study ( $\alpha=.82$ , see Table 2).

*Implicit Self-Esteem.* Implicit self-esteem was measured with the self-esteem Implicit Association Test (IAT; Greenwald & Farnham, 2000). The self-esteem IAT involves five steps. In each step, participants are asked to categorize stimuli presented in the middle of the screen as quickly and accurately as possible by pressing a key on the left side (the letter w) or right side (the letter o) of the keyboard. Category labels remain at the top of the screen to the left and right throughout the entire task. Participants saw a red “X” in the middle of the screen if they made a mistake. The first block of 20 trials is a practice block. Participants are presented with the category labels “not me” in the upper

left-hand corner of the screen and “me” in the upper right hand corner of the screen. Stimulus words are either “not me” words (i.e., it, that, other) or “me” words (i.e., me, my, mine). Following De Houwer (2001) and Jordan et al. (2003) we used non-person pronouns (e.g., “that”) for the “not me” category rather than other-person pronouns (e.g., “them”) so that the IAT effect would not be influenced by an implicit dislike for other people. Participants press the left key for “not me” words and the right key for “me” words. The second block of twenty trials is also a practice block. In this block, the category labels are “unpleasant” and “pleasant” in the upper left and right-hand corner of the screen, respectively. Stimulus words are either “unpleasant” words (e.g., torture, vomit, filth) or “pleasant” words (e.g., cuddle, joy, kindness). The third block contains 60 trials (the first 20 are practice), with the category labels “not me or unpleasant” in the upper left-hand corner and “me or pleasant” in the upper right-hand corner. Stimulus words are either “not me or unpleasant” words or “me or pleasant” words. The fourth block is a practice block of 20 trials, with the category labels “me” and “not me” in the upper left and right-hand corner, respectively. The fifth and final block contains 60 trials (the first 20 are practice), with the category labels “me or unpleasant” in the upper left-hand corner and the words “not me or pleasant” in the upper right-hand corner. Larger implicit self-esteem is thought to be reflected by faster responses on the third block (i.e., “me” and “pleasant” sharing the same response) than on the fifth block (i.e., “me” and “unpleasant” sharing the same response). Self-Esteem IAT scores were calculated as suggested by Greenwald and Farnham (2000). Latencies greater than 3000 ms were recoded to 3000 ms and scores less than 300 ms were recoded to 300 ms. Participants with 10% of there scores below 300 ms or above 3000 ms were excluded from the

analysis. This resulted in 4 participants being excluded from the analysis. The self-esteem score was calculated by subtracting the mean latencies in block 3 from the mean latencies in block 5 and log-transforming the difference

The self-esteem IAT has been shown to have the highest test-retest reliability of all existing measures of implicit self-esteem (Bosson et al., 2000). In addition, Greenwald and Farnham (2000) found the IAT to have adequate reliability for measuring implicit self-esteem. Moreover, implicit self-esteem as measured with the IAT has been shown to predict different outcomes than self-esteem accessed with explicit measures (Bosson et al., 2003; de Jong, 2002; Schimmack & Diener, 2003).

*Mood.* The mood measure was adapted from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants rated the following words instead: angry, mad, irritated, gloomy, sad, upset, anxious, nervous, and worried on a Likert scale from 1 (very slightly or not at all) to 5 (extremely).

*Personality.* To measure five-factor model personality traits, participants completed a 100-item version of the International Personality Item Pool (Goldberg, 1999), with five 20-item subscales for each of the five factors of personality: agreeableness (e.g., “I sympathize with other people’s feelings”), neuroticism (e.g., “I get stressed out easily”), conscientiousness (e.g., “I am always prepared”), extroversion (e.g., “I am the life of the party”), and openness to experience (e.g., “I have a vivid imagination”). Participants rate their agreement with items on a 5 item Likert scale from 1 (very inaccurate) to 5 (very accurate). In addition, participants completed the following facet subscales of the IPIP: anxiety, hostility, depression, self-consciousness,

vulnerability, trust, altruism, compliance, and tendermindedness. All subscales had good internal reliability in the current study (see Table 2).

*Ego threat Manipulation.* The ego threat manipulation was adapted from Park and Crooker (2005) and Stucke and Sporer (2002). Participants in the ego threat condition were told:

“We are interested in the relation between personality characteristics and intelligence. You have just completed the personality test portion of the study. In the next part of the study, you will complete an intelligence test.

This test measures general verbal intelligence and reasoning ability, and has been found to be a good predictor of academic and career success.

The Reasoning and Verbal Acuity Battery was designed to measure intelligence. It has been validated in numerous studies in the United States and Canada. The test consists of five parts, each tapping different sets of intellectual skills. These parts include analogies, antonyms, sentence completions, and verbal non-verbal matching. This combination of tasks has been shown to be optimal for assessing general intelligence.

One unique aspect of this test is that it factors in how quickly you answer the questions. So, you will want to answer as quickly as possible. If you do not answer in 30 seconds, no answer will be recorded for that question.”

Next, participants completed a five part test including analogies, antonyms, sentence completions, syllogisms, and a verbal/nonverbal matching test. For analogies, the instructions were: “Each question below consists of a related pair of words or phrases, followed by five pairs of words or phrases labeled A through E. Select the pair that best expresses a relationship similar to that expressed in the original pair.” For antonyms, the instructions were: “Each question consists of a word printed in capital letters followed by five lettered words or phrases. Choose the lettered word or phrase that is most nearly OPPOSITE in meaning to the word in capital letters. Since some of the questions require you to distinguish fine shades of meaning, be sure to consider all of the choices before deciding which one is best.” For sentence completions, the instructions were: “Each sentence on the following screens has either one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five lettered words or five sets of words. Choose the word or set of words that best fits the meaning of the sentence as a whole.” For syllogisms, the instructions were: “the next section, you will be presented with a word and four pictures. These pictures will be labeled 1, 2, 3, or 4. Your task is to press the number of the picture that corresponds to the word underneath the picture.”

After participants completed the test, they were told that the computer program was calculating their scores. The program paused for 7 seconds and then presented the following feedback: “The program has calculated your scores. The following is your percentile rank compared to all college students in the United States and Canada: Analogies: 51st percentile, Antonyms: 54th percentile,

Sentence completions: 56th Percentile, Syllogisms: 33rd Percentile, Verbal-Non Verbal Matching Task: 38th Percentile.”

Participants in the control condition did not complete the “intelligence test” portion of the study. Instead, they went directly from the IPIP to the social interaction.

*Social Interaction.* Following Dunn and Schweitzer (2005), participants watched a video of a neutral interview with a graduate student. The interviewer asked the participant 8 questions from the neutral portion of the Autobiographical Memory Task (AMT; Barnhofer, de Jong-Meyer, Kleinpa, & Nikesch, 2002). The interviewee was asked a series of questions regarding neutral topics, such as “tell me a specific memory when you were with a family member, at a restaurant, shopping for someone else, etc....” The interviewee was instructed to speak about each neutral topic for 60-90 seconds. The total interview was seven minutes and 30 seconds long. The interview was recorded in VHS format and then converted to a Windows Media File, which was played on the computer for participants. Then, participants completed the Trust Inventory (Dunn & Schweitzer, 2005; Johnson-George & Swap, 1982) about the person in the video. In the Trust Inventory, participants answer 10 questions on a Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree) such as “I would give (interviewee) an important letter to mail after he mentions that he is stopping by the post office today” and “I would expect (interviewee) to pay me back if I loaned him one hundred dollars.”

The trust inventory had moderate reliability ( $\alpha=.69$ , see Table 2). Further examination reveals that one item (If Ben laughed unexpectedly at something I did or said, I would know he was being unkind) had a negative corrected item-total correlation

( $r = -.19$ ). With this item removed the Cronbach's alpha increases to .75. Thus, for the purposes of this study, this item was removed from the analyses.

*Evaluation of the Experimenter.* Following Combs and Penn (2004) participants were asked to answer the following items on a likert scale from 1 (Strongly Disagree) to 6 (Strongly Agree): 1) The experimenter was friendly, 2) the experimenter was hostile, 3) The experimenter was analyzing my actions, 4) the experimenter was influencing my performance, 5) The experimenter was trustworthy, and 6) the experimenter was watching me through the window in the cubicle. The sixth item was added to the current study. It was adapted from Fenigstein and Venable (1992) to be similar to their outcome variable of "Someone was watching me from behind the mirror." In the current study, participants completed the IPIP and ego threat manipulations in a room with six cubicles. Each cubicle had a window such that the experimenter could have been reasonably been watching the participants. However, participants were run at 15 minute intervals, so the experimenter was in the room with the participants only to get participants started on the computer tasks. Participants were all run by a single experimenter who acted neutrally toward everyone.

The evaluation of the experimenter scale had poor reliability ( $\alpha = .53$ ). Combs and Penn (2002) noted the poor reliability of the scale and analyzed the items individually (see Table 2). Moreover, principle components factor analysis revealed that the scale has two latent factors. Oblique rotation shows that the first factor, labeled experimenter evaluations-paranoia, is composed of three items: 1) The experimenter was analyzing my actions, 2) The experimenter was influencing my performance, and 3) The experimenter was watching me through the window in the cubicle. The second factor,

experimenter evaluations-liking, is composed of the other three items: 1) The experimenter was friendly (reverse coded), 2) The experimenter was hostile, and 3) The experimenter was trustworthy (reverse coded). Table 3 shows the rotated factor scores of these items.

*Behavioral Measure of Paranoia.* After the last measure of the study, participants were told to come find the experimenter in the room where they completed the informed consent at the beginning of the study. When the participant arrived, the experimenter was sitting at a desk in one corner of the room and told the participant to “pull up a chair so we can talk about the study before you go.” There was one chair in the room that was facing the wall at the other corner of the room such that the participant would have to pick up the chair and turn it around before sitting. When the participant left after the debriefing, the experimenter measured how far the participant sat from the experimenter.

Analyses revealed that the distance measure was not normally distributed. A histogram of the distance variable showed that it was positively skewed. Participants ranged from 37.80 inches to 101.50 inches, with a mean of 56.74 inches. The distance variable was transformed by taking the square root of the values. In addition, participants 4 standard deviations above the mean were excluded from analyses involving the distance variable. This resulted in two participants in the ego threat condition being excluded from the analyses. While most participants pulled the chair towards the experimenter and sat down, these two participants simply turned the chair around and sat down, resulting in a much larger distance than other participants. There were no outliers lower than the mean. The resultant variable after the transformation was closer to normally distributed.

*Procedure.* Participants were randomly assigned to either the ego threat or the neutral, no feedback condition. They completed an informed consent form and demographic questionnaire. Then, they completed the IPIP. After the IPIP, participants in the ego threat condition completed the ego threat manipulation. Next, participants watched the video of the neutral interview, completed the trust inventory, and evaluated the experimenter. Then, participants completed the mood rating, the Rosenberg Self-Esteem Scale, the State Self-Esteem Scale, and the Suspiciousness subscale of the Schizotypal Personality Questionnaire. Participants then completed the Self-Esteem Implicit Association Test. Finally, participants entered another room for the debriefing and the distance they sat from the experimenter was measured.

*Data Analysis.* First, the correlations among the variables in the study are examined. These are broken down and examined by condition (i.e., ego threat or control; see Appendix A, table A1 and A2). Correlations were examined to see if there were differential correlations between groups, if the paranoia measures were correlated with each other, and if the paranoia measures were correlated with hypothesized moderators (i.e., agreeableness and neuroticism) and mediators (i.e., state self-esteem and mood). Second, the main effects are examined with MANOVA and with between groups independent samples t-tests for groups without taking into consideration possible moderators or mediators. This was done to see if participants in the ego threat condition had higher scores on the paranoia measures than did participants in the control condition. In addition, this tested if the ego threat lead to a decrease in state self-esteem as hypothesized. Third, the moderators of gender, agreeableness, and neuroticism are tested based on a standard regression model of interactions and simple effects (Pedhauzer,

1997). A regression model with the 3-way interaction among gender, condition, and either agreeableness or neuroticism was tested. A four-way interaction between gender, condition, neuroticism, and agreeableness was not tested because it was not hypothesized that agreeableness would interact with neuroticism. If the 3-way interaction was not significant, 2-way interactions were examined. If there were no significant 2-way interactions, then the main effects were examined. If the 3-way interaction was significant, then the file was split by gender and two-way simple interaction effects were examined. Finally, the possible mediator, performance self-esteem, was tested based on the framework of Baron and Kenny (1986) and MacKinnon et al. (2002).

Regression analyses are sensitive to outliers (Pedhazur, 1997). In general, schizotypy measures, including paranoia measures, tend to not be normally distributed (Chmielewski, Fernandes, Yee, & Miller, 1995). Thus, it is especially important in this type of research to consider the impact of outliers. Studentized deleted residuals (SDR; Pedhazur, 1997), cook's D (Cook, 1979), and leverage values were calculated for each participant in each analysis. SDRs are distributed as a t-distribution with  $N-k-2$   $df=123-2-2=119$ . For a two-tailed t-test with  $df$  of 119, the critical value is 1.96. Participants with SDRs greater than 1.96 or less than -1.96 or with cook's Ds scores greater than all the others were considered outliers. However, outliers were treated on a case by case basis. No outliers were excluded unless otherwise noted.

## Results

*Manipulation Checks.* In order to test if the manipulations worked, independent samples t-tests were run comparing participants by groups on their state self-esteem scores and mood scores.

*Self-Esteem.* There was a trend for participants in the control condition to have overall higher levels of state self-esteem than participants in the ego threat condition ( $t=1.437$ ,  $p = .153$ , see table 4). In addition, participants in the control condition had higher levels of performance state self-esteem than did participants in the ego threat condition ( $t = 2.535$ ,  $p = .013$ ). However, there were no significant differences between groups in appearance self-esteem ( $t = .344$ ,  $p = .732$ ), social self-esteem ( $t = .487$ ,  $p = .627$ ), or trait self-esteem as measured by the Rosenberg Self-Esteem Scale ( $t = .324$ ,  $p = .746$ ). In addition, there was not a significant difference between groups in implicit self-esteem scores ( $t = .311$ ,  $p = .757$ ). This suggests that the ego threat caused participants to have lower state performance self-esteem, but it did not cause them to have lower implicit self-esteem or social or appearance state self-esteem. This makes sense conceptually because the ego threat was related to performance of the participants.

Overall, participants did not differ between gender in their state self-esteem ( $t = .576$ ,  $p = .566$ ), trait self-esteem ( $t = -1.371$ ,  $p = .173$ ), performance state self-esteem ( $t = -.804$ ,  $p = .423$ ), and implicit self-esteem ( $t = .303$ ,  $p = .763$ ). However, females tended to have higher levels of social state self-esteem than did males ( $t = 2.059$ ,  $p = .042$ ). Moreover, there were no significant differences in self-esteem between gender when the data were analyzed separately for the ego threat condition and the control condition. This

suggests that males and females had similar levels of self-esteem in the ego threat condition and in the control condition.

*Mood.* There were no significant differences among participants in the ego threat and control condition for state anger ( $t = 1.535$ ,  $p = .127$ ), state sadness ( $t = .952$ ,  $p = .343$ ), and state anxiety ( $t = -.852$ ,  $p = .396$ , see table 5).

*Correlations.* The correlations among all of the variables used in the study are shown in Appendix A. Table A1 shows the correlations among the scales for the ego threat condition, and Table A2 shows the correlations among the scales for the control condition. If the measures of paranoia are all measuring the same thing (i.e., paranoia), then the measures should be correlated with each other in both conditions. In addition, if the ego threat causes a decrease in state self-esteem which causes paranoia, then the paranoia measures should be correlated with state self-esteem in the ego threat condition, but either uncorrelated or less strongly correlated in the control condition. If personality moderates the effects of ego threat on paranoia, then neuroticism and agreeableness should be correlated with the paranoia measures.

The paranoia measures were mostly positively correlated with each other, albeit non-significantly (see Table 6). The Paranoia experimenter evaluation was correlated with the SPQ-S ( $r=.16$ ) Neuroticism is significantly associated with SPQ-S ( $r=.49$ ), while agreeableness is negatively associated with the SPQ-S ( $r=-.20$ ). In addition, neuroticism is correlated with the paranoia experimenter evaluation ( $r=.17$ ).

There were some differences in correlations between conditions. While Appendix A shows all of the correlations in the study, only some particularly important ones are highlighted in the text here. In the control condition, the SPQ-S is not associated

with performance state self-esteem ( $r = -.16$ ), but the two are negatively correlated with the ego threat condition ( $r = -.33$ ). The finding that performance state self-esteem is only significantly associated with the SPQ in the ego-threat condition supports the hypothesis that the ego threat causes participants to have low self-esteem, which in turn causes them to be paranoid. Formal tests of this hypothesis are shown below.

The experimenter evaluation was negatively correlated with performance state self-esteem in both conditions (ego threat:  $r = -.24$ , control:  $r = -.35$ ). The paranoia experimenter evaluation was negatively correlated with performance state self-esteem both conditions (ego threat:  $r = -.32$ , control:  $r = -.35$ ). This suggests that the relation between experimenter evaluation and self-esteem may not have been significantly affected by the presence or absence of an ego threat.

*MANOVA.* A multivariate general linear model was run with condition as the independent variable and the square root transformed distance variable, trust inventory score, experimenter evaluation, and square root transformed SPQ-S scores as the dependent variables. There was not a significant effect of condition on participant's paranoia (Wilks' Lambda = .996,  $f(4, 113) = 0.102$ ,  $p = .982$ ). The non-significant manova is appropriate given that the dependent variables are not significantly associated with each other and the ego threat was not significantly associated with the dependent variables.

*Main Effects: Comparisons between groups:* In order to test if ego threat increased paranoia on specific paranoia measures, independent samples t-tests were run comparing groups in the ego threat and control condition.

*Distance.* As mentioned previously, 2 participants were excluded from the analyses for scoring over four standard deviations above the mean. A regression analysis with the square root of distance as the dependent variable and condition as the independent variable showed that there was not a main effect for condition on distance ( $t=.596$ ,  $p = .552$ , see table 7). However, there was a significant interaction between gender and condition predicting the distance participants sat from the experimenter ( $t=2.238$ ,  $p = .027$ , see table 8). Further analyses revealed that there was a simple main effect for males ( $t=2.112$ ,  $p = .039$ ) but not for females ( $t=-.259$ ,  $p = .796$ ). This can be interpreted that males sat further away from the experimenter in the ego threat condition than in the control condition, but that there was not an association among females (See Figure 5).

*Self-Report Paranoia.* There were no significant differences between groups on their paranoia scores ( $t = -.641$ ,  $p = .523$ , see table 7). There was a trend towards a significant interaction between gender and condition predicting the square root transformed SPQ-S scores ( $t = 1.738$ ,  $p = .085$ , see Figure 6).

*Trust Inventory.* There were no significant differences in trust inventory scores based on condition ( $t = -.101$ ,  $p = .920$ , see table 7) nor was there a significant gender by condition interaction ( $t = -.311$ ,  $p = .756$ ).

*Evaluation of the Experimenter.* Participants did not differ by condition in their overall experimenter evaluation ( $t = -.227$ ,  $p = .821$ , see table 7), paranoia experimenter evaluation ( $t = -.901$ ,  $p = .369$ ), or liking paranoia scores ( $t=.625$ ,  $p = .533$ , see table 9). Participants were more likely to say that “the experimenter was watching me through the window in the cubicle” if they were in the ego threat condition ( $t=-2.574$ ,  $p = .011$ ). In

addition, this varied by gender with female participants being more likely than males to think they were being watched through the window in the cubicle ( $t=2.123$ ,  $p = .036$ ).

Finally, Table 10 shows the differences in paranoia scores by gender.

### Mediation

According to Baron and Kenny (1986), three things must be true in order to conclude that there is a mediation effect. First, the independent variable must be associated with the dependent variable and the hypothesized mediator. Second, the hypothesized mediator must be associated with the dependent variable. Third, the association between the independent variable and the dependent variable must be reduced when the dependent variable is regressed on the independent variable and the hypothesized mediator simultaneously. The hypothesized mediator in the current study was performance state self-esteem. As mentioned previously, performance state self-esteem is significantly associated with condition ( $t = 2.535$ ,  $p = .013$ ). However, performance state self-esteem is not associated with distance ( $t = .689$ ,  $p = .492$ ). Thus, performance state self-esteem cannot mediate the association between distance and condition.

Since there was a simple main effect of condition on distance in males, a mediation model including only males was also run. Condition was not significantly associated with performance state self-esteem in males ( $t = -1.566$ ,  $p = .123$ ). Thus, state self-esteem could not have mediated this effect.

As mentioned previously, ego threat increased participants' feelings that they were being watched through the window in the cubicle. The mediation model was tested

to see if this effect was mediated by performance state self-esteem (see Figure 7). Ego threat increased participants feelings that they were being watched from the window in the cubicle ( $t = 2.574, p = .011$ ). Ego threat decreased performance self esteem ( $t = 2.535, p = .013$ ). Performance state self-esteem significantly predicts feelings of being watched through the window ( $t = 2.896, p = .004$ ). When performance state self-esteem is added as an independent variable into the regression model predicting feelings of being watched, ego threat no longer significantly predicts feelings of being watched ( $t = 1.863, p = .063$ ). A Sobel's z-test was conducted to see if this was a statistically significant decrease (Sobel, 1982). The Sobel's test approached statistical significance ( $z = 1.789, p = .079$ ). This suggests that there was a trend for performance state self-esteem to mediate the effect of ego threat on the increase in paranoia.

There were no other significant associations between condition and paranoia variables, even when including only males or females. In addition, none of the mood variables were associated with experimental condition, so they could not have possibly mediated the effect of condition on paranoia.

#### Moderation

For all moderations, studentized deleted residuals, Cook's D values, and leverage scores were calculated as previously discussed. Participants with high scores were examined for validity of their responses.

*Distance.* As mentioned previously, two participants were excluded from these analyses for having distance scores greater than four standard deviations above the mean. There was a trend towards a significant three-way interaction among gender, condition,

and agreeableness predicting the distance participants sat from the experimenter ( $t=1.480$ ,  $p = .142$ , See Figure 8a, 8b). However, since this 3-way interaction term was not significant, I examined the 2-way interactions of condition by gender, gender by agreeableness, and agreeableness by condition. There was a significant interaction between gender and condition predicting distance ( $t=1.989$ ,  $p = 0.049$ , see Figure 5), but not between condition and agreeableness ( $t=-.459$ ,  $p = .647$ ) or gender by agreeableness ( $t = 1.122$ ,  $p = .264$ ). The interaction between gender and condition predicting distance shows that male participants sit further away from the experimenter in the ego threat condition than in the control condition (See Figure 5).

There was not a significant three-way interaction among gender, condition, and neuroticism, predicting the distance participants sat from the experimenter ( $t=1.305$ ,  $p = .195$ ). Moreover, there were not significant two-way interactions between condition and neuroticism ( $t=1.048$ ,  $p = .297$ ) or neuroticism and gender ( $t=-.760$ ,  $p = 0.449$ ).

*Trust Inventory.* There was not a significant three-way interaction among gender, agreeableness, and condition predicting trust inventory scores ( $t=-.341$ ,  $p = .734$ ) or among gender, neuroticism, and condition predicting trust inventory scores ( $t = .125$ ,  $p = .901$ ). There were no significant interactions between condition and agreeableness ( $t = .038$ ,  $p = .970$ ), condition and neuroticism ( $t = .228$ ,  $p = .820$ ), gender and neuroticism ( $t = .482$ ,  $p = .631$ ), or gender and agreeableness ( $t = -1.344$ ,  $p = .174$ ).

*Experimenter Evaluation.* There was a significant interaction among gender, agreeableness, and condition predicting experimenter evaluation ( $t=2.319$ ,  $p = .022$ , See Figure 9a, 9b). Thus, the interaction between agreeableness and condition was different for females than for males. Simple 2-way interaction effects showed that there was a

significant two-way interaction between condition and agreeableness in males ( $t=3.328$ ,  $p = .002$ ) but not in females ( $t= -.188$ ,  $p = .852$ ). Male participants high in agreeableness rate the experimenter more negatively in the ego threat condition than in the control condition. Female participants, on the other hand, tend to rate the experimenter more negatively if they are low in agreeableness regardless of their experimental condition.

There was not a significant 3-way interaction among gender, condition, and agreeableness predicting liking evaluation of the experimenter ( $t=.540$ ,  $p = .590$ ) nor was there a significant two-way interaction between condition and gender ( $t = 1.238$ ,  $p = .218$ ), condition and agreeableness ( $t = 1.006$ ,  $p = .316$ ), or agreeableness and gender ( $t=.398$ ,  $p = .691$ ). However, there was a significant three-way interaction among gender, agreeableness, and condition predicting paranoia experimenter evaluation ( $t=2.947$ ,  $p = .004$ , See Figure 10a, 10b). Similar to total experimenter evaluation, there was a significant simple two-way interaction between condition and agreeableness predicting paranoia experimental evaluation in males ( $t = 3.620$ ,  $p = .002$ ) but not in females ( $t = -.937$ ,  $p = .352$ ). Male participants high in agreeableness rated the experimenter more negatively in the ego threat condition than in the control condition. However, female participants tended to rate the experimenter negatively if they were low in agreeableness and positively if they were high in agreeableness regardless of their experimental condition. There was not a significant three-way-interaction among gender, condition, and neuroticism predicting experimenter evaluation ( $t=.561$ ,  $p = .569$ ). There was not a significant three-way interaction among gender, condition, and neuroticism predicting liking experimenter evaluation ( $t=.202$ ,  $p = .840$ ) nor was there a significant three-way

interaction among gender, condition, and neuroticism predicting paranoia experimenter evaluation ( $t = .663$ ,  $p = .509$ ).

*SPQ-S*. There was a significant three-way interaction between condition, agreeableness, and gender predicting SPQ-S scores when SPQ-S scores were square root transformed ( $t=2.064$ ,  $p = .041$ , see Figure 11a, 11b). This means that the interaction between condition and agreeableness was different in males than it was in females. Simple 2-way interaction effects show that there was a significant two-way interaction between agreeableness and condition in females ( $t = 1.962$ ,  $p = .05$ ) but not in males ( $t=.896$ ,  $p = .374$ ). On average, female participants tended to be around the mean on their paranoia scores in the control condition regardless of their level of agreeableness. In the ego threat condition, however, they scored higher on the SPQ-S if they were low in agreeableness than if they were high in agreeableness.

## Discussion

The purpose of the current study was to examine if ego threat increases paranoia as measured by both behavioral and questionnaire measures, whether this increase in paranoia was mediated by state self-esteem, and whether the personality traits of neuroticism and agreeableness moderate the increase in paranoia. It was hypothesized that people would sit further away from an experimenter, evaluate the experimenter more negatively, trust a stranger in a video less, and score higher on a questionnaire measure of paranoia after a perceived ego threat. In addition, it was hypothesized that this effect would be mediated by state self-esteem and not by mood. These hypotheses received some support from the data. The multivariate analysis with all four measures of paranoia as dependent variables was not significant, which suggests that the ego threat did not increase paranoia. However, ego threat increased the distance participants sat from the experimenter and SPQ-S scores in males. This suggests that ego threat did increase paranoia. The ego threat was associated with decreased levels of performance state self-esteem. Performance state self-esteem mediated the effect of ego threat on the increase in paranoia on only one of the outcome measures.

The hypothesis in the current study was that an ego threat would decrease self-esteem, which would cause an increase in paranoia. In order for this to be true, ego threat must first decrease state self-esteem (Baron & Kenny, 1996). Manipulation checks revealed that the ego threat did indeed decrease levels of performance state self-esteem. However, this decrease in state self-esteem was specific to performance-based self-esteem because it did not decrease social or appearance state self-esteem. In addition, the ego threat did not decrease scores on the implicit association test or the Rosenberg

Self-Esteem Scale. While implicit attitudes have been shown to vary in different situations, it is unclear if an explicit ego-threat can decrease implicit self-esteem (Dijksterhuis, 2004; Lowry & Hardin, 2001). Moreover, the Rosenberg Self-Esteem Scale measures trait self-esteem, that presumably would not be affected by situations.

As mentioned previously, the first goal of the current study was to show that ego threat can cause an increase in paranoia. The findings provided mixed support for this hypothesis. Specifically, responses to one question, “The experimenter was watching me through the window in the cubicle,” were higher in the ego threat than the control condition. This is similar to the results of Fenigstein and Venable (1992), who found that participants who were made to feel self-conscious were more likely to think they were being watched behind a two-way mirror. In addition, the SPQ-S, distance measure, and experimenter evaluation all provide some support that participants in the ego threat condition have higher levels of paranoia. However, these effects are qualified by two-way or three-way interactions. For example, it seems that ego threat increases SPQ-S scores and the distance participants sat from the experimenter more in males than in females. While it would be tempting to argue that the absence of a clear main effect of ego threat on paranoia means that ego threat does not increase paranoia, this argument is not appropriate in the regression framework. Ego threat does increase paranoia, but only in specific people. For example, the 2-way interactions between condition and gender provide support that ego threat increases paranoia in males, but not in females. The results show that ego threat increases paranoia in males as measured by the distance participants sat from the experimenter and self-report feelings of paranoia.

The impact of ego threat on paranoia was stronger in males than in females (i.e., males were more effected by the ego threat than were females). It should be noted that the experimenter was male. Male participants may have felt less comfortable sitting closer to another male than females felt about sitting close to an opposite sex experimenter. In general females sat closer to the experimenter than male, which is consistent with previous research suggesting that male-female dyads maintain less interpersonal distance than do male-male dyads (Uzell & Horne, 2006). However, both groups tended to sit closer to the experimenter in the control condition than in the ego threat condition.

One explanation for why males tended to have more paranoia in response to the ego threat may be that performance self-esteem is generally more important to males than to females. Researchers have suggested that males and females differ in how much they value autonomy vs. sociotropy (Mcbride, Bacchiochi, & Bagby, 2005). Sociotropy is related to the need for interpersonal attachments, while autonomy is related to the need for individualism. Beck (1983) suggested that varying levels of these traits may play a role in the etiology of depression and that this role may be different in men than in women. Similarly, this could be true for paranoia. In the current study, the intelligence ego threat may have threatened participants' need for individualism or achievement more than participants' need for social inclusion or interpersonal attachments. If males are more sensitive to this type of threat, then this may explain why this specific ego threat caused larger effects in males than in females. Moreover, women's self-esteem may not be as contingent on performance-type goals. Women may have more diverse contingencies for self-esteem that aren't as affected by a specific ego-threat.

A related explanation for the difference in males and females is that research has shown that subclinical schizophrenia spectrum traits are more common in males than in females (Chmielewski, Fernandes, Yee, & Miller, 1995). Paranoia is often considered to be a schizophrenia spectrum trait. If paranoia increases after an ego threat, it makes sense that this increase would be higher in a population that generally has higher levels of the trait. In the current study, males had higher levels of paranoia as measured by the SPQ-S. However, this was not a significant effect. In previous research at the same university, men have been shown to have higher levels of paranoia than women on the SPQ-S (Cicero & Kerns, in preparation).

A second goal of the current study was to show that self-esteem mediated the relation between ego threat and paranoia. This also received mixed support from the data. Participants in the ego threat condition were more likely to believe that they were being watched through the window in the cubicle than were participants in the control condition. There was a trend for this effect to be mediated by performance state self-esteem. As mentioned previously, this item on the experimenter evaluation was similar to the behavioral measure on another paranoia analogue study (Fenigstein & Venable, 1992). However, none of the other effects appeared to be mediated by self-esteem. One possible explanation is that the ego threat decreased only performance state self-esteem and not social state self-esteem or appearance state self-esteem. Since paranoia is usually thought to be associated with social behaviors, drops in performance state self-esteem may not have been as potent a mediator of the increase in paranoia. Another possibility is that self-esteem mediated the effect of ego threat on paranoia, but that the measure of state self-esteem failed to measure the decrease in self-esteem. The state self-esteem

scale has subscales for performance, social, and appearance self-esteem. It is possible that there is another aspect of self-esteem that is orthogonal to these three subscales that is mediating the effect.

Given that paranoia is associated with increased negative affect, it seemed plausible that mood could cause the increase in paranoia. Previous research suggests that negative mood is not increased by ego threats, and that even when negative mood is marginally increased, it does not mediate the relations between ego threat and behavior (e.g., Dewall & Baumeister, 2006; Gardner et al., 2000). In the current study, there was a non-significant association between ego threat and mood. There is a trend that people in the ego threat condition had lower levels of sadness and hostility, but this was not statistically significant. Thus, it does not appear that the effect of ego threat on paranoia was mediated by mood either.

The third goal of the current study was to examine if neuroticism and/or agreeableness moderated the relation between ego threat and paranoia. There was a significant three-way interaction between agreeableness, condition, and gender predicting SPQ-S scores. Like the distance variable, the interaction between agreeableness and condition was different for males than it was for females. There was not a significant interaction in males, but there was in females. Females low in agreeableness scored higher on the SPQ-S in the ego threat condition than females high in SPQ-S, but their level of agreeableness did not influence their SPQ-S scores in the control condition.

In addition to main effects of ego threat on condition, it was hypothesized that agreeableness and neuroticism would moderate the effects of condition on paranoia. Specifically, it was hypothesized that participants with low facets of agreeableness or

high facets of neuroticism would have more paranoid responses to the ego threat than people high in agreeableness or low in neuroticism. There were significant three-way interactions among condition, gender, and agreeableness predicting distance, SPQ-S scores, and Experimenter Evaluation scores. These results can be interpreted that agreeableness and ego threat interacted differently in males than they did in females. Neuroticism did not moderate the relations between condition and paranoia or the interaction between condition and gender on paranoia. These results provide some evidence that the relation between ego threat and condition is moderated by trait levels of agreeableness.

The other outcome variable, experimenter evaluation, was also associated with a three-way agreeableness, gender, and condition interaction. There was a significant two-way interaction between agreeableness and condition in males, but not in females. Male participants high in agreeableness rated the experimenter more negatively in the ego threat condition than in the control condition. Moreover, this same effect was found for the paranoia experimenter evaluation, but not for the liking experimenter evaluation. This suggests that what is really driving this interaction is the paranoid feelings towards the experimenter rather than the liking of the experimenter. Male participants who are high in agreeableness react to the ego threat with paranoid feelings about the experimenter but not with dislike feelings. Thus, this provides some support that in this subsample of people ego threat is specific to causing paranoia. Moreover, it shows that paranoia is more closely related to extreme mistrust as opposed to extreme dislike.

Another interesting point is that neuroticism failed to moderate the relation between ego threat and paranoia in both males and females. Conversely, agreeableness

moderated the relation between ego threat and paranoia in males. Previous research has suggested that both neuroticism and agreeableness are associated with paranoia, particularly paranoid personality disorder (Lynam & Widiger, 2001; Trull et al., 2001). However, a recent study showed that paranoia was more strongly associated with neuroticism than agreeableness (Cicero & Kerns, in preparation). One explanation is that people high in neuroticism report high levels of paranoia regardless of condition. This is reflected in the significant main effect for neuroticism on paranoia. High neuroticism may be sufficient to cause paranoia. An ego threat may not increase paranoia in people who already have high levels of neuroticism. On the other hand, low agreeableness may not be sufficient to cause paranoia. The addition of an ego threat to people already low in agreeableness may be necessary to cause an increase in paranoia.

#### Implications

The findings of the current study have implications for cognitive models of delusions, particularly paranoia. Paranoia has been often conceptualized as related to self-esteem (Bentall, Kaney & Dewey, 1991; Bentall, Kinderman, & Kaney, 1994; Kinderman & Bentall, 1996). Until this study, however, researchers have not empirically tested whether paranoia can arise in response to threats to the self. Instead, researchers have attempted to test predictions born out of the theory that ego threat causes paranoia. For example, researchers have predicted that paranoia is associated with a high explicit self-esteem/low implicit self-esteem discrepancy or by an exaggerated self-serving bias (e.g., Bentall, Kinderman, & Kaney, 1994; Lyon, Kaney, & Bentall, 1994). However, paranoia researchers have omitted this important step of testing whether paranoia can actually arise as from a decrease in self-esteem. Thus, previous research on these

hypotheses has produced null or mixed effects. For example, recent research suggests that low implicit and low explicit self-esteem are associated with paranoia (Cicero & Kerns, in preparation), persecutory delusions (Moritz, Werner, & von Collanni, 2006), and schizophrenia (McKay, Langdon, & Coltheart, 2007). In addition, research has shown that paranoia is not associated with an exaggerated self-serving attributional style (e.g., Humphreys & Barrowclough, 2006; Martin & Penn, 2001; Mezulis et al., 2004). The major contribution of the current study is that it provides some support to the hypothesis that decreasing self-esteem can actually increase paranoia.

#### Limitations and Future Directions

One major problem with the current study was its small sample size and uneven distribution of males and females. The majority of the participants in the control condition were male, while the majority of the participants in the ego threat condition were female. This may have affected the results, particularly the interactions including gender. In addition, the small sample size may have resulted in a study that was underpowered. Moreover, the current study relied on state self-esteem scores as manipulation checks. This may be problematic especially since there was a difference in outcome between men and women. Future research should include a manipulation check that asks participants directly how they feel they performed on the task (Kernis et al., 2005)

Paranoia is often conceptualized as a function of social interactions. People with paranoia are generally suspicious of other people's intentions or actions. The current study used an intellectual ego threat as opposed to a social ego threat. This type of ego threat was chosen because it has been shown to decrease state self-esteem and increase

defensive behaviors in previous research (Park & Crooker, 2005; Stucke & Sporer, 2002). However, participants in the ego threat condition had lower levels of performance state self-esteem, but not social state self-esteem. This may explain why self-esteem failed to mediate the relation between condition and the paranoia measures. Future research should examine if the findings of this study are stronger if the ego threat is related to social functioning instead of intellectual functioning. For example, the ego threat could involve being excluded from an activity (Buckley, Winkel, & Leary, 2004) or telling participants that they have the personality of someone who will be alone later in life (Baumeister, Twenge, & Nuss, 2002). This type of ego threat may target social state self-esteem in particular and may lead to increased levels of paranoia. Similarly, the ego threat did not affect levels of implicit self-esteem. Previous research suggests that implicit attitudes can fluctuate based on salient features in the environment (Lowry & Hardin, 2001). Moreover, research has shown that implicit self-esteem can be temporarily changed based on a classical conditioning paradigm (Dijksterhuis, 2004) or with the use of primes (Kernis, Abend, Goldman, Shira, Paradise, & Hampton, 2005). Future research could examine if temporarily decreasing implicit self-esteem in addition to explicit self-esteem could increase paranoia.

In addition, one reason the intellectual ego threat was chosen is that the participants of the study were college students. College students may be particularly prone to intellectual ego threat because their intellectual capacities are often central to their identities as students. It is unclear from the current study if these results can be generalized from the college students to the general population. Moreover, it is unclear if ego threat could also cause more severe forms of paranoia such as persecutory delusions.

Future research should employ similar methods with community samples or patients with schizophrenia to determine if ego threat can induce more severe symptomology.

The dependent variables in the current study can also be evaluated for how well they measured paranoia. The SPQ-S, experimenter evaluation, and distance measure all were related to the ego threat in some capacity. The trust inventory was the only dependent variable that was not associated with condition in any manner. The trust inventory was designed to measure normal variations in trust for a friend or a stranger (Dunn & Schweitzer, 2005; Johnson-George & Swap, 1982). It was chosen for the current study because it was shown to fluctuate in response to mood manipulations. If paranoia is extreme levels of mistrust, it may have not been picked up by this measure. Moreover, there may be fundamental differences between normal mistrust and paranoia. For example, on the trust inventory, participants answered whether they would trust the person to drop off an important letter at the post office. A person low in normal levels of trust may believe the person would forget, while a paranoid individual may believe that the person would purposely not mail the letter in order to harm him or her. The former example may be at very different point on a continuum between trust and paranoia than the latter example. The latter may have been off the scale of the trust inventory. Moreover, paranoia is often associated with unrealistic or impossible beliefs that may have not been measured by this scale.

Another problem with the trust inventory may have been that there was not enough variability. One way of comparing the variability of scales is the coefficient of variation. The coefficient of variation for this measure was .11, while it was .32 for the experimenter evaluation, and greater than 1 for the SPQ-S. The coefficient of variability

is a ratio of the standard deviation to the mean and provides a means of comparing variability across measures with different scales. The mean on the trust inventory was 3.84 out of five, with a standard deviation of .44. People tended to trust the person in the video and there were low levels of variability in comparison to the other measures in the study. A relatively low coefficient of variability makes it difficult to detect individual differences in scores. From this, I can conclude that the trust inventory was a poor measure of paranoia in the current study. Future studies could modify the trust inventory to include higher levels of mistrust and paranoia.

The current study focused on paranoia. However, manipulating self-esteem could also be used to study other facets of schizotypy. For example, previous research has shown that another facet of schizotypy, referential thinking, is associated with increased levels of implicit and explicit self-esteem (Cicero & Kerns, in preparation). Future research could determine if positive feedback increases level of referential thinking. This would provide support for a more inclusive model of delusions that extends beyond paranoia.

Researchers have hypothesized that other traits, in addition to paranoia, are the result of defensive reactions to threats to the self. For example, narcissism has often been linked to defensive responses to ego threat (e.g., Jordan et al., 2005; McAllister, Baker, Mannes, Stewart, & Sutherland, 2002). Future research should address what factors lead some individuals to experience narcissism in the face of an ego threat, while others experience paranoia. These factors may be specific to the ego threat (e.g., social or intellectual), related to specific aspects of the individuals (e.g., five factor model personality, pretest self-esteem levels), or a combination of both. Future research should

address this question by measuring these constructs and allowing participants to respond in several different ways.

### Conclusion

The current study provided some support that ego threat increases paranoia on both behavioral and questionnaire measures and that the increase in paranoia is mediated by state self-esteem. In addition, it provided support for the hypothesis that people with low agreeableness are more likely to react to ego threat with paranoia than are people with high agreeableness. Paranoia may also differ in males and females. The important implication of this study is that it showed that paranoia can result from an ego threat by testing this theory directly. However, there were some problems with the study that could be improved upon in order to get more conclusive results in the future.

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Table 1: Effect sizes (r) for internal attributions for positive and negative events comparing people with paranoia with normal people.

Study	n	Sample	Measure	Paranoid vs. Normal (Positive)	Paranoid vs. Normal (Negative)
Bentall et al. (1999)	60	Persecutory Delusions vs. Normal Controls	# of Attributions	-.09	.10
			CAVE	-.03	.08
Lee et al. (2004)	24	Persecutory Delusions vs. Normal Controls	CAVE (dataset 1)	-.43	-.04
			CAVE (dataset 2)	-.37	.50
Sharp et al. (1997)	55	Persecutory Delusions vs. Non-Persecutory Delusions	ASQ	.15	-.80
Lyon et al. (1994)	42	Persecutory Delusions vs. Normal Controls	ASQ	.09	.50
			PIT	-.56	-.62
Fear et al (1996)	49	Delusional Disorder vs.	ASQ	.16	-.41

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		Normal Controls			
Kinderman & Bentall (1997)	60	Persecutory Delusions vs. Normal Controls	IPSAQ	.32	-.14
Martin & Penn (2002)	46	Persecutory Delusions vs. Non-Persecutory Delusions	IPSAQ (Subject Rating)	-.31	-.13
			IPSAQ (Judge Rating)	.23	.22
Randall et al. (2003)	50	Persecutory Delusions vs. Normal Controls	IPSAQ (Subject Rating)	-.37	-.08
			IPSAQ (Judge Rating)	-.29	-.20
<b>Average Effect Size Weighted by Sample Size</b>				<b>-.08</b>	<b>-.15</b>

Table 2: Means, Standard Deviations and Cronbach's Alpha values for all the scales used in the study.

Measure	Mean	SD	Alpha
<b>Paranoia Measures</b>			
Distance	56.74	10.74	NA
Distance (square root)	7.50	0.68	NA
SPS-S	1.85	1.89	0.727
Experimenter Evaluation Total	2.03	0.64	0.533
Experimenter Evaluation-Paranoia	6.68	2.62	0.499
Experimenter Evaluation-Liking	5.52	2.37	0.515
Trust Inventory	3.84	0.44	0.716
<b>Self-Esteem Measures</b>			
State Self-Esteem Scale	2.85	0.39	0.885
SSE-Performance	2.99	0.47	0.846
SSE-Social	2.68	0.48	0.786
SSE-Appearance	2.89	0.52	0.820
Rosenberg Self-Esteem Scale	1.82	0.49	0.716
Implicit Self-Esteem	.10	0.09	0.840
<b>Personality Measures</b>			
Extroversion	3.51	0.68	0.920
Agreeableness	4.00	0.50	0.869
Conscientiousness	3.38	0.68	0.903

Neuroticism	3.24	0.74	0.927
Openness to Experience	3.67	0.47	0.814
<b>Neuroticism Facets</b>			
Trait Anxiety	2.90	0.78	0.804
Trait Hostility	2.48	0.79	0.898
Trait Depression	1.96	0.76	0.915
Trait Self-Consciousness	2.73	0.53	0.763
Trait Vulnerability	2.53	0.66	0.815
<b>Agreeableness Facets</b>			
Trait Trust	3.70	0.75	0.893
Trait Compliance	3.57	0.63	0.746
Trait Tendermindedness	3.62	0.63	0.756
Trait Altruism	4.12	0.49	0.765
<b>Mood Measures</b>			
State Anger	1.30	0.54	0.578
State Sadness	1.25	0.52	0.815
State Anxiety	1.62	0.64	0.768

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Table 3: Rotated factor loadings for experimenter evaluation.

	Liking Factor	Paranoia Factor
1) The experimenter was friendly. (R)	<b>.841</b>	-.076
2) The experimenter was hostile.	<b>.472</b>	.148
3) The experimenter was analyzing my actions.	-.048	<b>.804</b>
4) The experimenter was influencing my performance.	.329	<b>.592</b>
5) The experimenter was trustworthy. (R)	<b>.797</b>	.099
6) The experimenter was watching me through the window in the cubicle.	.045	<b>.678</b>

Table 4: Self-esteem scores by condition.

	Ego threat		Control		t-test
	M	SD	M	SD	
State Self-Esteem Score	2.81	0.38	2.91	0.40	1.44
Performance	2.91	0.48	3.12	0.43	2.53**
Social	2.66	0.48	2.71	0.48	0.49
Appearance	2.88	0.50	2.91	0.56	0.34
Rosenberg (R)	1.80	0.47	1.83	0.51	0.32
IAT	0.10	0.10	0.10	0.08	0.31

Note: Performance=the performance subscale of the State Self-Esteem Scale, Social= the social subscale of the State Self-Esteem Scale, Appearance=the Appearance Subscale of the State Self-Esteem Scale, Rosenberg = the Rosenberg Self-Esteem Scale, IAT= The self-esteem Implicit Association Test, \* $p < .10$ , \*\* $p < .05$ , (R) = reverse coded.

Table 5: Mood by Condition

	Ego threat		Control		t-test
	M	SD	M	SD	
Anger	1.39	0.68	1.24	0.43	1.54
Sadness	1.21	0.44	1.31	0.62	0.95
Anxiety	1.66	0.70	1.56	0.54	-0.85

Table 6: Pearson Correlation Coefficients for the paranoia and personality measures

Scale	1	2	3	4	5	6	7	8
1. SPQ-S	-							
2. Trust Inventory	-.12	-						
3. Distance	.05	.05	-					
4. EE-T	.10	-.10	.05	-				
5. EE-P	.16*	.01	.05	.81*	-			
6. EE-L	-.02	-.17*	.04	.72*	.18*	-		
7. Neuroticism	.49*	-.03	-.04	.11	.17*	.01	-	
8. Agreeableness	-.20*	.11	-.11	-.09	-.10	-.04	.10	-

\* $<.05$ , SPQ-S=Schizotypal Personality Questionnaire Suspiciousness subscale, EE-

T=Experimenter Evaluation Total, EE-P =Experimenter Evaluation-Paranoia, EE-

L=Experimenter Evaluation-Liking, SPQ-S and Distance Scores are square root transformed

Table 7: Mean paranoia scores by condition.

Variable	Ego threat		Control		t-test
	M	SD	M	SD	
Distance	57.44	11.92	55.62	8.55	-0.911
SPQ-S	1.93	2.02	1.71	1.69	-0.641
Trust Inventory	3.84	0.43	3.83	0.44	-0.101
Experimenter					
Evaluation	2.04	0.68	2.02	0.59	-0.227

Note: Distance= the distance the participant sat from the experimenter during the debriefing,

SPQ-S=Schizotypal Personality Questionnaire, Suspiciousness Subscale, \* $p < .10$ , \*\* $p < .05$ ,

\*\*\* $p < .01$

Table 8: Regression predicting Distance from condition, Gender, and the Gender X Condition interaction.

Predictor Variable	Unstandardized B	Standardized B	t	p-value
Intercept	7.42 (0.14)		52.90	<.001
Condition	-0.11 (0.16)	-0.09	-0.66	0.51
Gender	0.02 (0.18)	0.02	0.13	0.90
Condition X Gender	0.53 (0.24)	0.34	2.24	0.03

Table 9: Experimenter Evaluation by condition.

	Ego threat		Control		t-test
	M	SD	M	SD	
The experimenter was friendly (R)	1.81	0.87	1.96	0.97	0.87
The experimenter was hostile	1.57	1.29	1.46	0.97	-0.53
The experimenter was analyzing my actions	2.88	1.22	3.02	1.44	0.58
The experimenter was influencing my performance	1.56	0.99	1.63	0.98	0.36
The experimenter was trustworthy (R)	2.03	1.25	2.27	1.20	1.07
The experimenter was watching me through the window in the cubicle	2.41	1.49	1.77	1.10	-2.57
Paranoid Evaluation	6.85	2.72	6.42	2.46	-0.90
Liking Evaluation	5.41	2.52	5.69	2.11	0.63

\* $p < .10$ , \*\* $p < .05$ , (R) = reverse coded.

Table 10: Mean paranoia scores by Gender

Variable	Female n=68		Male N=54		t-test
	M	SD	M	SD	
Distance	54.87	9.21	59.04	12.06	-2.22**
SPQ-S	1.71	1.81	2.02	2.00	-0.91
Trust Inventory	3.82	0.46	3.86	0.41	-0.46
Experimenter					
Evaluation-Total	2.03	0.64	2.04	0.66	-0.13

Note: Distance= the distance the participant sat from the experimenter during the debriefing,  
 SPQ-S=Schizotypal Personality Questionnaire, Suspiciousness Subscale, \*p<.10, \*\*p<.05,

\*\*\*p<.01

## Figure Captions

*Figure 1.* Relations among paranoia, referential thinking, narcissism, negative schizotypy, and peculiarity with self-serving attributional bias score. The latent variables are correlated with each other, and the errors of the manifest variable are correlated. Bold numbers and straight lines represent significance at  $p < .05$ . Dashed lines represent non-significant associations.

*Figure 2.* Relations among paranoia, referential thinking, narcissism, negative schizotypy, and peculiarity with implicit self-esteem. Ellipses represent latent variables: rectangles represent observed variables. Implicit Self-Esteem = The Self-Esteem Implicit Association Test. The latent variables are correlated with each other, and the errors of the manifest variable are correlated. Bold numbers and straight lines represent significance at  $p < .05$ . Dashed lines represent non-significant associations.

*Figure 3.* Relations among paranoia, referential thinking, narcissism, negative schizotypy, and peculiarity with explicit self-esteem. Ellipses represent latent variables: rectangles represent observed variables. Explicit Self-Esteem = The Rosenberg Self-Esteem Scale. The latent variables are correlated with each other, and the errors of the manifest variable are correlated. Bold numbers and straight lines represent significance at  $p < .05$ . Dashed lines represent non-significant associations.

*Figure 4.* Relations among paranoia, referential thinking, narcissism, negative schizotypy, and peculiarity with self-consciousness. Public Self-Consciousness = The Public Self-Consciousness Subscale of the Self-Consciousness Scale; Private Self-Consciousness = The Private Self-Consciousness Subscale of the Self-Consciousness Scale. The latent variables are correlated with

each other, and the errors of the manifest variable are correlated. Bold numbers and straight lines represent significance at  $p < .05$ . Dashed lines represent non-significant associations.

Figure 5: Distance by Gender and Condition

Figure 6: SPQ-S by Gender and Condition

Figure 7: Mediation of Ego Threat on “The experimenter was watching me through the window in the cubicle” by Performance Self-Esteem.

Figure 8a: Distance by condition and agreeableness in males

Figure 8b: Distance by condition and agreeableness in females.

Figure 9a: Experimenter Evaluation by condition and agreeableness in males

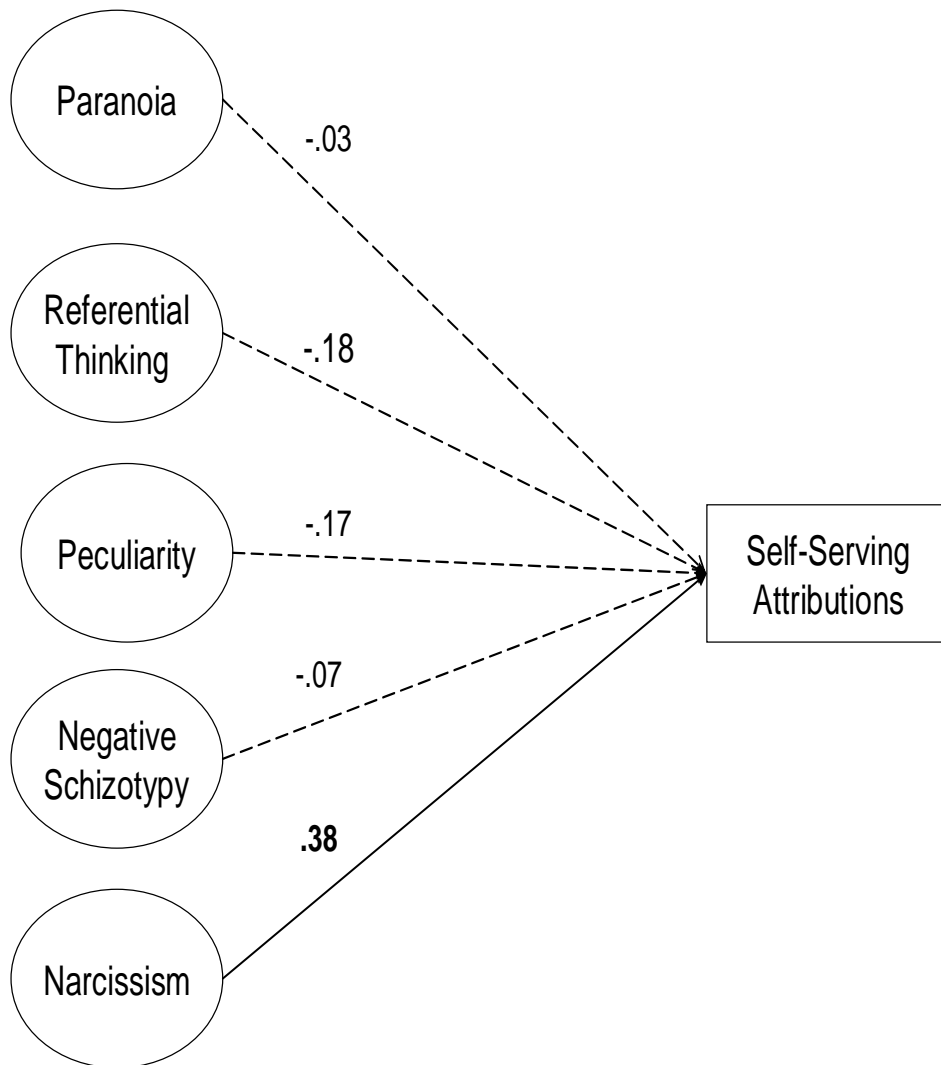
Figure 9b: Experimenter Evaluation by condition and agreeableness in females

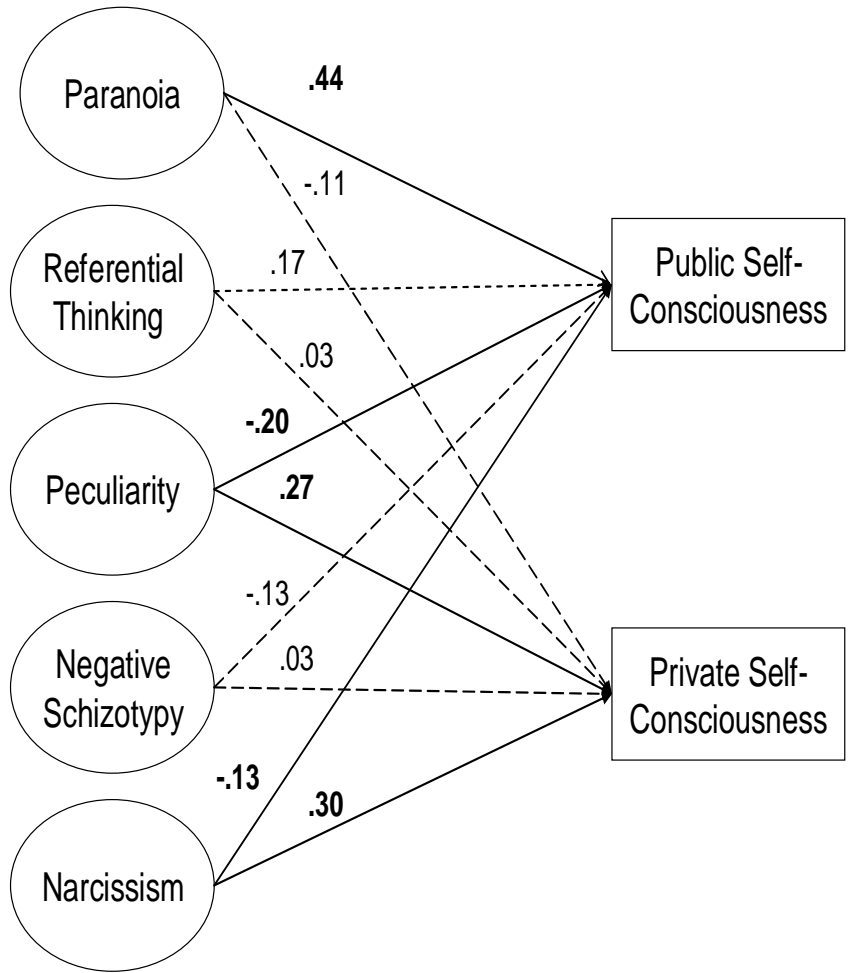
Figure 10a: Paranoia Experimenter Evaluation by condition and agreeableness in males

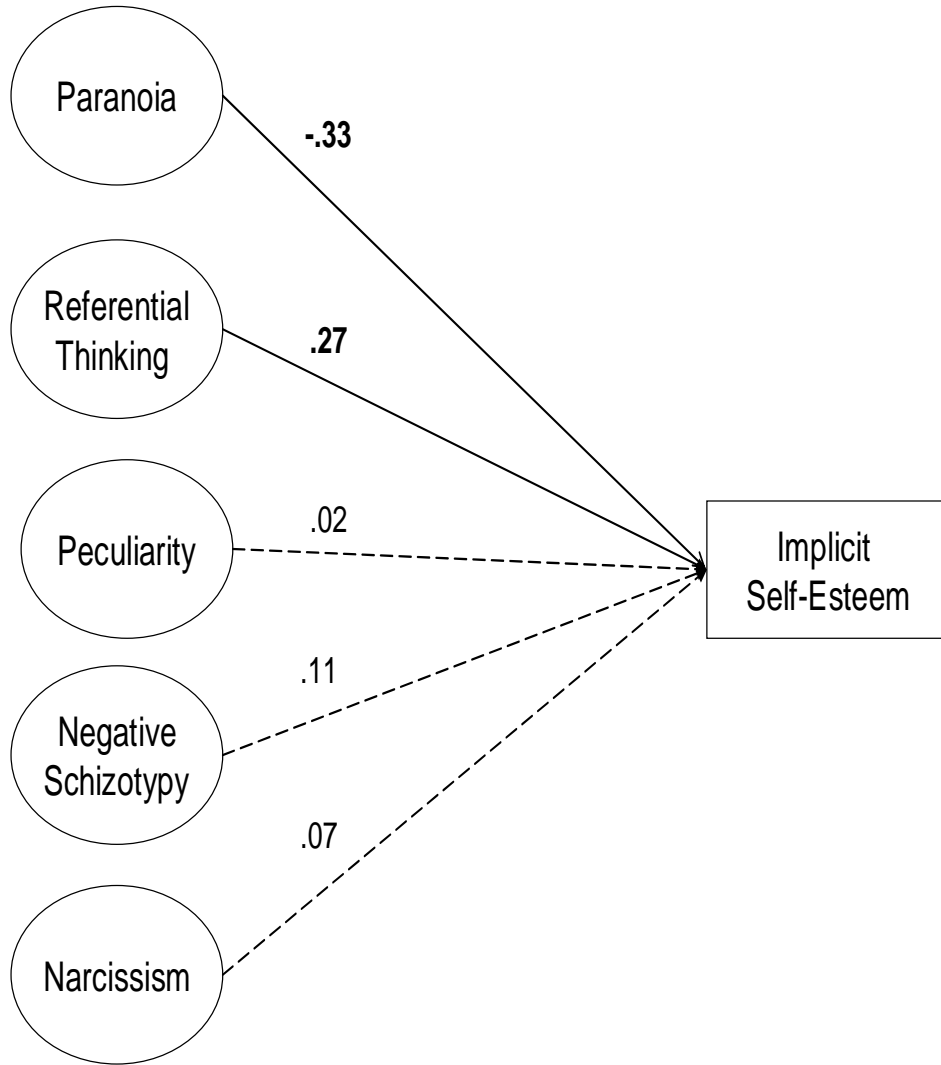
Figure 10b: Paranoia Experimenter Evaluation by condition and agreeableness in females

Figure 11a: SPQ-S by condition and agreeableness in males

Figure 12b: SPQ-S by condition and agreeableness in females.







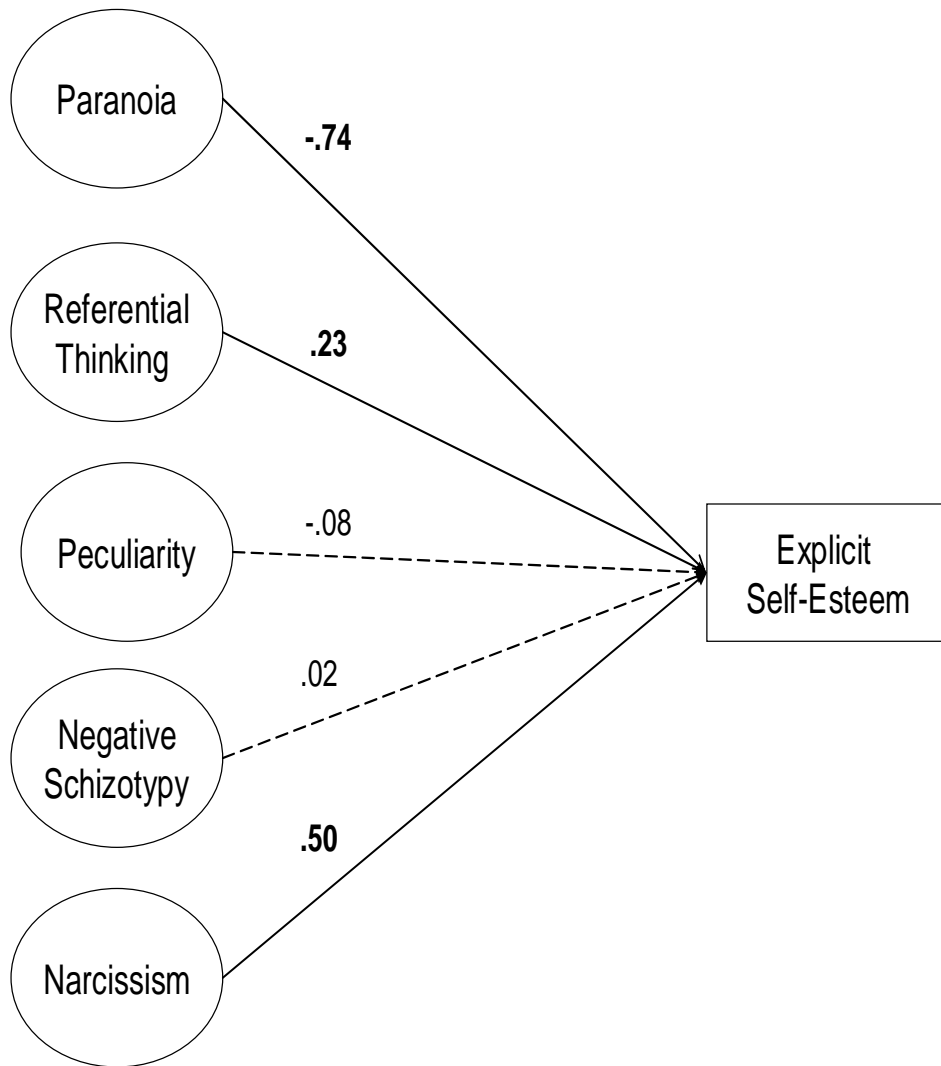


Figure 5: Distance by Gender and Condition

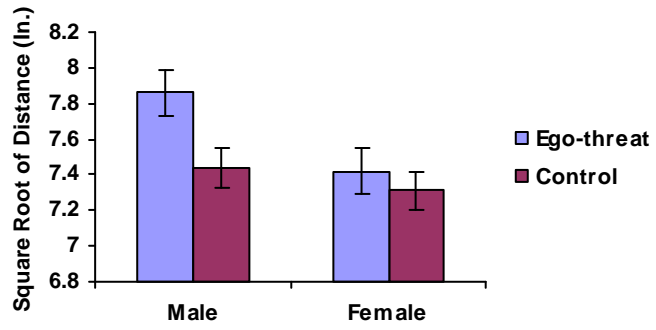


Figure 6: SPQ-S by Gender and Condition

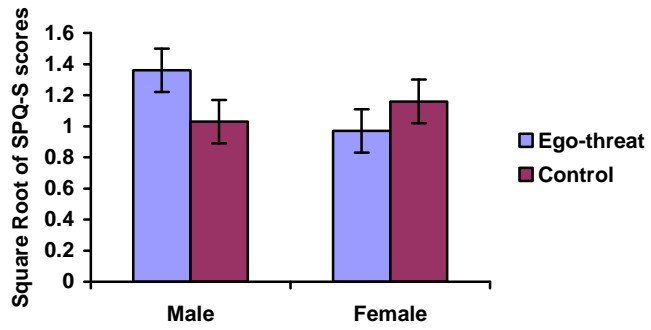


Figure 7: Mediation of Ego Threat on “The experimenter was watching me through the window in the cubicle” by Performance Self-Esteem.

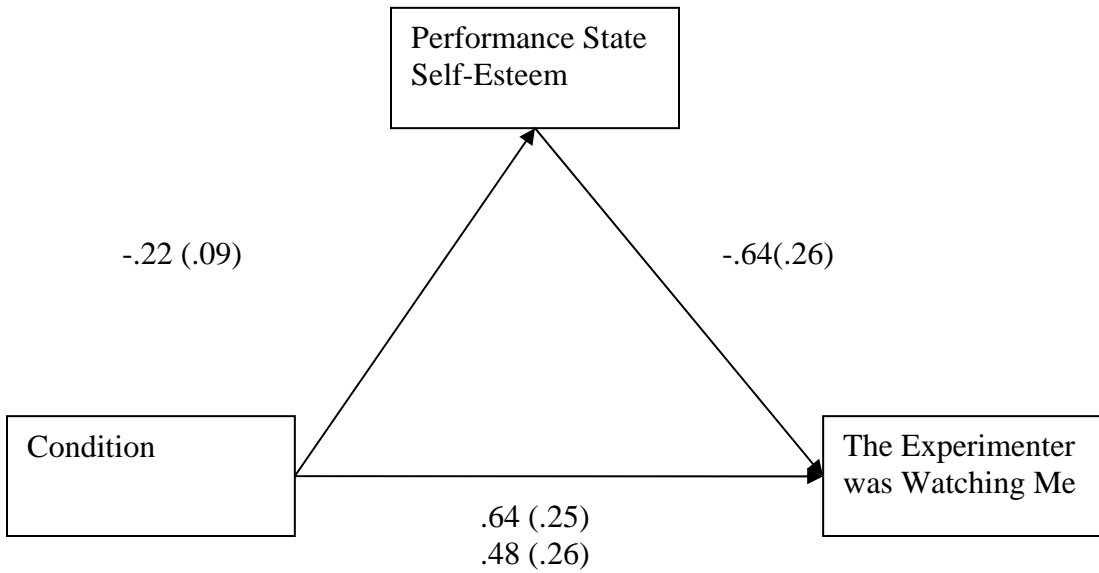


Figure 8a: Distance by condition and agreeableness in males

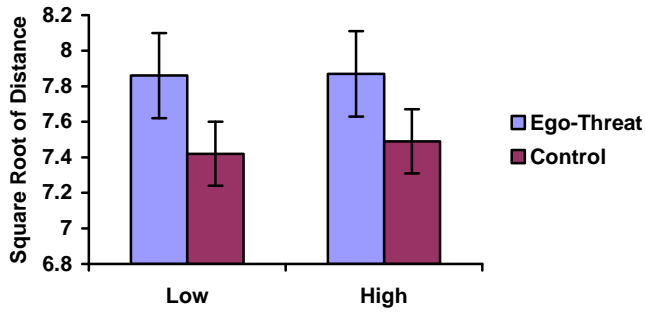


Figure 8b: Distance by condition and agreeableness in females.

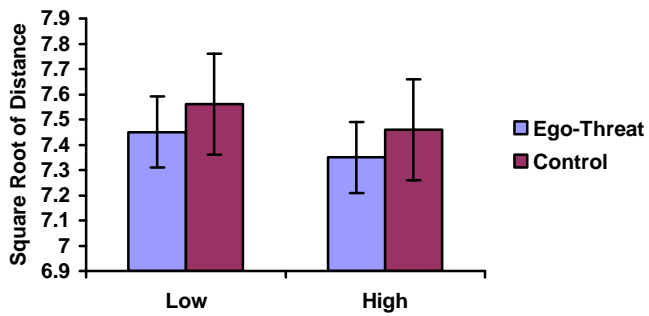


Figure 9a: Experimenter Evaluation by condition and agreeableness in males

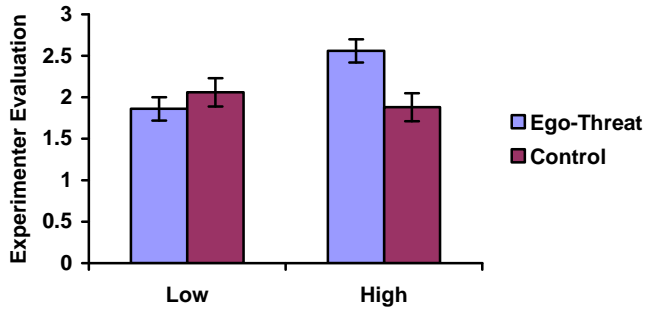


Figure 9b: Experimenter Evaluation by condition and agreeableness in females.

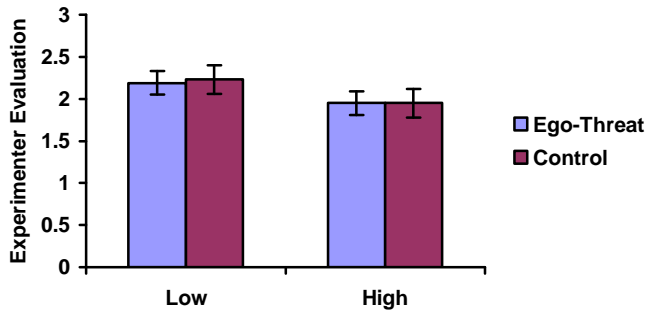


Figure 10a: Paranoia Experimenter Evaluation by condition and agreeableness in males

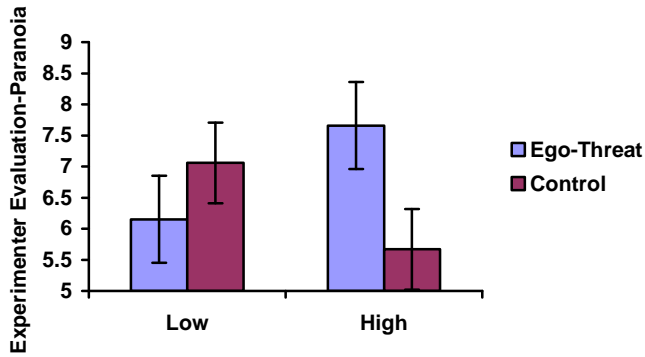


Figure 10b: Paranoia Experimenter Evaluation by condition and agreeableness in females.

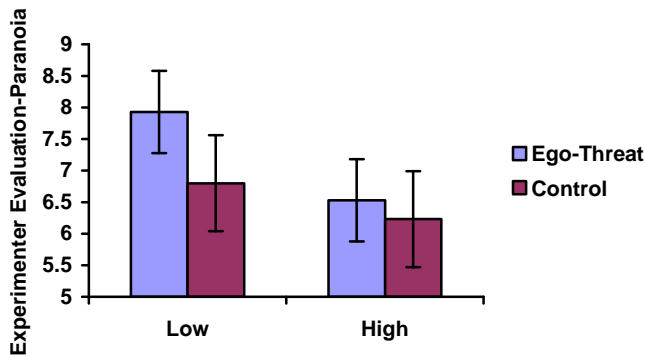


Figure 11a: SPQ-S by condition and agreeableness in males

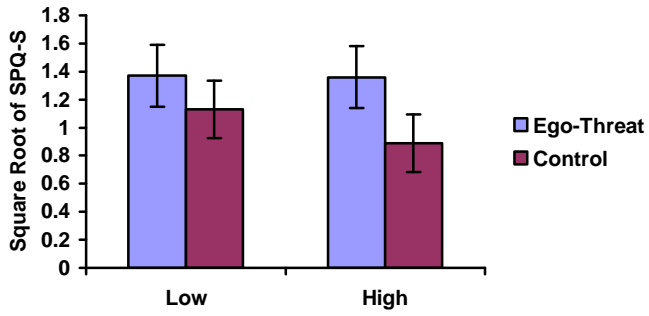
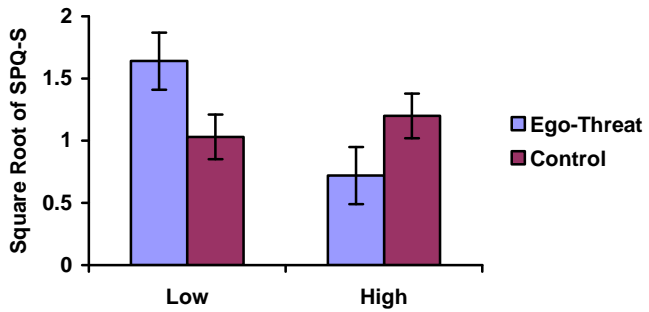


Figure 11b: SPQ-S by condition and agreeableness in females.



Appendix A: Correlation Tables

Table A1

Pearson Correlation Coefficients for all scales used in the study for the ego threat condition

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SPQ-S	-														
2. Trust Inventory	-.06	-													
3. Distance	.15	.04	-												
4. EE	.16	-.15	.03	-											
5. PEE	.27*	-.07	-.11	.80*	-										
6. LEE	-.04	-.16*	.16	.76*	.21	-									
7. RSES	-.52*	.04	.01	-.15	-.19	-.04	-								
8. IAT	.06	-.06	.08	-.07	.06	-.17	.02	-							
9. SSE	-.57*	-.01	-.01	-.19	-.19	-.09	.81	-.11	-						
10. SSE-P	-.33*	-.11	.03	-.24*	-.32*	-.04	.65*	-.05	.75*	-					
11. SSE-S	-.65*	.03	-.15	-.09	-.09	-.04	.69*	-.20	.85*	.45*	-				
12. SSE-A	-.39*	.08	.09	-.10	-.02	-.14	-.62*	-.01	.82*	.408	.59*	-			

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
13. State Anger	.14	-.20	.02	.03	.09	-.06	-.24*	.26*	-.24*	-.24*	-.26*	-.06	-		
14. State Sadness	.26*	-.04	.01	.16	.27*	-.03	.36*	.19	-.38*	-.41*	-.30*	-.22*	.57*	-	
15. State Anxiety	.23*	-.09	.18	.12	.27*	-.11	.02	.22	-.14	-.16	-.09	-.06	.28	.45*	-
16. Neuroticism	.46*	-.02	.04	.26	.32*	.07	.40*	.14	-.56*	-.39*	-.51*	-.46*	.32*	.27*	.32*
17. Agreeableness	-.33*	.09	-.15	-.02	-.06	.03	-.22	.17	.18	.09	.19	.15	.07	-.07	-.18
18. Extroversion	-.22	.05	.02	.18	.10	.17	.27*	.06	.23*	-.01	.31*	.27*	.18	.04	-.07
19. Conscientious	-.28*	.11	.14	-.14	-.17	-.04	.33*	.01	.37*	.35*	.27*	.26	-.20	-.29*	-.03
20. Openness	-.20	-.18	.22	-.10	-.22	.08	.30*	-.02	.39*	.58*	.13	.25	.01	-.25*	-.28*
21. Trait Anxiety	.41*	-.08	-.01	.19	.25*	.04	-.37*	.14	-.52*	-.32*	-.54*	-.43*	.21	.15	.25*
22. Trait Hostility	.46*	-.06	.17	.28*	.33*	.10	-.42*	.04	-.51*	-.40*	-.46*	-.37*	.23*	.25*	.29*
23. Depression	.61*	-.02	.06	.27*	.27*	.15	-.76*	.09	-.76*	-.51*	-.74*	-.57*	.30*	.30*	.14
24. Self-Con	.38*	.13	-.04	-.18	-.05	-.19	-.39*	.05	-.44*	-.20	-.51*	-.36*	-.08	.06	.05
25. Vulnerability	.41*	-.01	.01	.20	.26*	.04	-.57*	.09	-.68*	-.57*	-.57*	-.48*	.29*	.24*	.23*
26. Trust	-.52*	.10	-.05	-.02	-.05	.02	.36*	.17	.35*	.19	.34*	.31*	-.19	-.15	-.15

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Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
27. Compliance	-.30*	.10	-.20	-.11	-.11	-.05	.22	-.02	.24*	.13	.25*	.15	-.29*	-.33*	-.20
28. Tendermind	-.18	.12	-.08	-.11	-.10	-.07	.09	.13	.06	.09	.03	.04	.03	-.07	-.11
29. Altruism	-.29*	.08	-.04	-.15	-.15	-.08	.20	.20	.21	.10	.21	.19	.05	-.06	-.09

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Scale	16	17	18	19	20	21	22	23	24	25	26	27	28	29
16. Neuroticism	-													
17. Agreeableness	-.06	-												
18. Extroversion	-.15	.55*	-											
19. Conscientious	-.20	.25	-.01	-										
20. Openness	-.25*	.26*	.13	.27	-									
21. Trait Anxiety	.88*	-.05	-.32*	-.10	-.22	-								
22. Trait Hostility	.85*	-.30*	-.12	-.38*	-.30*	.67*	-							
23. Depression	.69*	-.13	-.24*	-.17	-.20	.63*	.56*	-						
24. Self-Con	.32*	-.32*	-.74*	-.05	-.26*	.46*	.23*	.37*	-					
25. Vulnerability	.80	-.14	-.14	-.35*	-.35*	.73*	.70*	.68*	.36*	-				
26. Trust	-.42*	.45*	.25*	.23	.09	-.33*	-.45*	-.38*	-.26*	-.39*	-			
27. Compliance	-.29*	.42*	-.03	.57*	.07	-.11	-.52*	-.20	.09	-.36*	-.38*	-		
28. Tendermind	.12	.68*	.27*	.02	.26*	.06	-.06	-.01	-.09	.03	.22	.26*	-	
29. Altruism	.09	.85*	.40*	.24*	.22	-.06	-.32*	-.15	-.25*	-.18	.35*	.44	.63*	-

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Table A2

Pearson correlation coefficients for all the scales used in the study for the control condition.

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SPQ-S	-														
2. Trust Inventory	-.05	-													
3. Distance	-.17	.20	-												
4. EE	-.03	-.07	.12	-											
5. PEE	.13	.01	-.14	.81*	-										
6. LEE	-.21	-.13	-.04	.73	.18	-									
7. RSES	-.37*	.18	.13	-.08	-.08	-.04	-								
8. IAT	-.28*	.01	-.19	.11	.08	.09	.14	-							
9. SSE	-.38*	.15	.15	-.22	-.23	-.11	.82*	.14	-						
10. SSE-P	-.16	.07	.26	-.35*	-.35*	-.19	.61*	-.01	.69*	-					
11. SSE-S	-.56*	-.04	.20	-.16	-.16	-.08	.60*	.32*	.82*	.37*	-				
12. SSE-A	-.07	.29*	-.08	-.01	-.05	.03	.68*	.02	.74	.31	.40	-			

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Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
13. State Anger	.48*	.05	.05	.15	.23	-.02	-.43*	-.17	-.52*	-.43*	-.45*	-.24	-		
14. State Sadness	.53*	.10	-.08	.18	.25	.01	-.40*	-.30*	-.46*	-.46*	-.47*	-.11	.87*	-	
15. State Anxiety	.17	.10	.15	.10	.12	.03	-.11	-.22	-.06	-.15	-.04	.01	.32*	.36*	-
16. Neuroticism	.43*	.03	-.18	.17	.25	-.02	-.44	-.22	-.48*	-.31*	-.53*	-.31*	.48*	.47*	.19
17. Agreeableness	-.36*	.10	-.06	-.32*	-.29*	-.19	.41*	.22	.35*	.24*	.27	.21	-.47*	-.49*	-.10
18. Extroversion	-.36*	.14	-.10	-.23	-.21	-.13	.44	.23	.29	.16	.29*	.15	-.17	-.22	.02
19. Conscientious	-.04	.21	.02	-.26	-.22	-.17	.44*	.10	.42*	.34*	.29*	.28	-.41*	-.36*	.01
20. Openness	-.10	.01	.26	-.29*	-.20	-.26*	.14	.09	.30	.46*	.20	-.02	-.07	-.14	-.03
21. Trait Anxiety	.35*	-.07	-.11	.16	.26	-.04	-.37*	-.20	-.32*	-.23	-.38	-.20	.23	.14	.18
22. Trait Hostility	.29*	-.09	-.10	.13	.21	-.02	-.28	-.17	-.29*	-.16	-.31*	-.23	.52*	.51	.21
23. Depression	.61*	-.02	.06	.27*	.27*	.15	-.76*	.09	-.76*	-.51*	-.74*	-.57*	.30*	.30*	.14
24. Self-Con	.35*	-.13	-.02	.24	.19	.18	-.43*	-.32*	-.43*	-.28	-.49*	-.21	.22	.26	.23
25. Vulnerability	.33*	-.04	-.18	.24	.24	.11	-.54*	-.22	-.54*	-.45*	-.50*	-.33*	.49*	.45*	.29
26. Trust	-.48	.25	.06	-.12	-.11	-.06	.21	.10	.13	.26	.09	.02	-.18	-.21	-.20

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Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
27. Compliance	-.18	.14	.20	-.22	-.21	-.11	.23	-.07	.35*	.22	.26	.31*	-.47*	-.41*	-.19
28. Tendermind	-.46*	.02	.08	-.19	-.20	-.08	.24	.24	.30*	.22	.42*	-.08	-.47*	-.52*	.02
29. Altruism	-.33*	.12	-.09	-.27	-.20	-.21	.35*	.32*	.39*	.23	.40*	.16	-.44*	-.46*	-.07

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Scale	16	17	18	19	20	21	22	23	24	25	26	27	28	29
16. Neuroticism	-													
17. Agreeableness	-.34*	-												
18. Extroversion	-.20	.57*	-											
19. Conscientious	-.09	.26	.15	-										
20. Openness	-.03	.37*	.18	.20	-									
21. Trait Anxiety	.76*	-.22	-.29*	-.16	-.07	-								
22. Trait Hostility	.85*	-.40*	-.12	-.09*	.04	.55*	-							
23. Depression	.68*	-.46*	-.39*	-.21	.08	.42*	.48*	-						
24. Self-Con	.35*	-.39*	-.69*	-.20	-.38*	.49*	.24*	.34*	-					
25. Vulnerability	.73*	-.30*	-.27	-.24	-.23	.63*	.54*	.57*	.62*	-				
26. Trust	-.36*	.43*	.20	-.11	-.07	-.24	-.37*	-.34*	-.12	-.20	-			
27. Compliance	-.56*	.38*	.04	.08	-.08	-.26	-.65*	-.50*	-.04	-.31	.37*	-		
28. Tendermind	-.39*	.72*	.31*	.14	.18	-.21	-.46*	-.40*	-.29*	-.28*	.46*	.37*	-	
29. Altruism	-.25	.85*	.50*	.27	.34*	-.16	-.28	-.39*	-.49*	-.32*	.35*	.33*	.73*	-

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Appendix B: Measures

## Rosenberg Self-Esteem Scale

	Strongly Agree	Agree	Disagree	Strongly Disagree
1) On the whole, I am satisfied with myself.	SA	A	D	SD
2) At times I think I am not good at all.	SA	A	D	SD
3) I feel that I have a number of good qualities.	SA	A	D	SD
4) I am able to do things as well as most other people.	SA	A	D	SD
5) I feel I do not have much to be proud of.	SA	A	D	SD
6) I certainly feel useless at times.	SA	A	D	SD
7) I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8) I wish I could have more respect for myself.	SA	A	D	SD
9) All in all, I am inclined to feel that I am a failure	SA	A	D	SD
10) I take a positive attitude toward myself.	SA	A	D	SD

Experimenter Evaluation

	Strongly Agree	5	4	3	2	Strongly Disagree
1) The experimenter was friendly.						
2) The experimenter was hostile.						
3) The experimenter was analyzing my actions.						
4) The experimenter was influencing my performance.						
5) The experimenter was trustworthy.						
6) The experimenter was watching me through the window in the cubicle.						

## State Self-Esteem Scale

	Strongly Agree	Agree	Disagree	Strongly Disagree
1) I feel confident about my abilities.	SA	A	D	SD
2) I am worried about whether I am regarded as a success or a failure.	SA	A	D	SD
3) I am satisfied with the way my body looks right now.	SA	A	D	SD
4) I feel frustrated or rattled about my performance.	SA	A	D	SD
5) I feel that I am having trouble understanding things that I read.	SA	A	D	SD
6) I feel that others respect and admire me.	SA	A	D	SD
7) I am dissatisfied with my weight.	SA	A	D	SD
8) I feel self-conscious.	SA	A	D	SD
9) I feel as smart as others.	SA	A	D	SD
10) I feel displeased with myself.	SA	A	D	SD
11) I feel good about myself.	SA	A	D	SD
12) I am pleased with my appearance right now.	SA	A	D	SD
13) I am worried about what other people think of me.	SA	A	D	SD
14) I feel confident that I understand things.	SA	A	D	SD
15) I feel inferior to others at this moment.	SA	A	D	SD
16) I feel unattractive.	SA	A	D	SD
17) I feel concerned about the impression I am making.	SA	A	D	SD
18) I feel that I have less scholastic ability right now than others.	SA	A	D	SD
19) I feel like I'm not doing well.	SA	A	D	SD
20) I am worried about looking foolish.	SA	A	D	SD

Mood Rating Scale: Adapted from the Positive and Negative Affect Schedule (PANAS)

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely
____nervous				_____ angry
____anxious				_____ mad
____worried				_____ irritated
____gloomy				_____ sad
____upset				

## International Personality Item Pool (IPIP)

On this page, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then fill in the bubble that corresponds to the number on the scale.

**Response Options**

- 1: Very Inaccurate  
 2: Moderately Inaccurate  
 3: Neither Inaccurate nor Accurate  
 4: Moderately Accurate  
 5: Very Accurate

	1	2	3	4	5
1. Am the life of the party.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Insult people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Am always prepared.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Get stressed out easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Have a rich vocabulary.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Often feel uncomfortable around others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Am interested in people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Leave my belongings around.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Am relaxed most of the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Have difficulty understanding abstract ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Feel comfortable around people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Am not interested in other people's problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Pay attention to details.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Worry about things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Have a vivid imagination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Keep in the background.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Sympathize with others' feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Make a mess of things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Seldom feel blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Am not interested in abstract ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Start conversations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Feel little concern for others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Get chores done right away.	0	0	0	0	0
24. Am easily disturbed.	0	0	0	0	0
25. Have excellent ideas.	0	0	0	0	0
26. Have little to say.	0	0	0	0	0
27. Have a soft heart.	0	0	0	0	0
28. Often forget to put things back in their proper place.	0	0	0	0	0
29. Am not easily bothered by things.	0	0	0	0	0
30. Do not have a good imagination.	0	0	0	0	0
31. Talk to a lot of different people at parties.	0	0	0	0	0
32. Am not really interested in others.	0	0	0	0	0
33. Like order.	0	0	0	0	0
34. Get upset easily.	0	0	0	0	0
35. Am quick to understand things.	0	0	0	0	0
36. Don't like to draw attention to myself.	0	0	0	0	0
37. Take time out for others.	0	0	0	0	0
38. Shirk my duties.	0	0	0	0	0
39. Rarely get irritated.	0	0	0	0	0
40. Try to avoid complex people.	0	0	0	0	0
41. Don't mind being the center of attention.	0	0	0	0	0
42. Am hard to get to know.	0	0	0	0	0
43. Follow a schedule.	0	0	0	0	0
44. Change my mood a lot.	0	0	0	0	0
45. Use difficult words.	0	0	0	0	0
46. Am quiet around strangers.	0	0	0	0	0
47. Feel others' emotions.	0	0	0	0	0
48. Neglect my duties.	0	0	0	0	0
49. Seldom get mad.	0	0	0	0	0
50. Have difficulty imagining things.	0	0	0	0	0
51. Make friends easily.	0	0	0	0	0
52. Am indifferent to the feelings of others.	0	0	0	0	0
53. Am exacting in my work.	0	0	0	0	0
54. Have frequent mood swings.	0	0	0	0	0
55. Spend time reflecting on things.	0	0	0	0	0
56. Find it difficult to approach others.	0	0	0	0	0
57. Make people feel at ease.	0	0	0	0	0
58. Waste my time.	0	0	0	0	0
59. Get irritated easily.	0	0	0	0	0
60. Avoid difficult reading material.	0	0	0	0	0
61. Take charge.	0	0	0	0	0
62. Inquire about others' well-being.	0	0	0	0	0
63. Do things according to a plan.	0	0	0	0	0
64. Often feel blue.	0	0	0	0	0
65. Am full of ideas.	0	0	0	0	0
66. Don't talk a lot.	0	0	0	0	0
67. Know how to comfort others.	0	0	0	0	0

68. Do things in a half-way manner.	0	0	0	0	0
69. Get angry easily.	0	0	0	0	0
70. Will not probe deeply into a subject.	0	0	0	0	0
71. Know how to captivate people.	0	0	0	0	0
72. Love children.	0	0	0	0	0
73. Continue until everything is perfect.	0	0	0	0	0
74. Panic easily.	0	0	0	0	0
75. Carry the conversation to a higher level.	0	0	0	0	0
76. Bottle up my feelings.	0	0	0	0	0
77. Am on good terms with nearly everyone.	0	0	0	0	0
78. Find it difficult to get down to work.	0	0	0	0	0
79. Feel threatened easily.	0	0	0	0	0
80. Catch on to things quickly.	0	0	0	0	0
81. Feel at ease with people.	0	0	0	0	0
82. Have a good word for everyone.	0	0	0	0	0
83. Make plans and stick to them.	0	0	0	0	0
84. Get overwhelmed by emotions.	0	0	0	0	0
85. Can handle a lot of information.	0	0	0	0	0
86. Am a very private person.	0	0	0	0	0
87. Show my gratitude.	0	0	0	0	0
88. Leave a mess in my room.	0	0	0	0	0
89. Take offense easily.	0	0	0	0	0
90. Am good at many things.	0	0	0	0	0
91. Wait for others to lead the way.	0	0	0	0	0
92. Think of others first.	0	0	0	0	0
93. Love order and regularity.	0	0	0	0	0
94. Get caught up in my problems.	0	0	0	0	0
95. Love to read challenging material.	0	0	0	0	0
96. Am skilled in handling social situations.	0	0	0	0	0
97. Love to help others.	0	0	0	0	0
98. Like to tidy up.	0	0	0	0	0
99. Grumble about things.	0	0	0	0	0
one hundred. Love to think up new ways of doing things.	0	0	0	0	0

IPIP Facet Subscales

ANXIETY (Alpha = .83)

- + keyed Worry about things.  
Fear for the worst.  
Am afraid of many things.  
Get stressed out easily.  
Get caught up in my problems.
  
- keyed Am not easily bothered by things.  
Am relaxed most of the time.  
Am not easily disturbed by events.  
Don't worry about things that have already happened.  
Adapt easily to new situations.

Hostility (.88)

- + keyed Get angry easily.  
Get irritated easily.  
Get upset easily.  
Am often in a bad mood.  
Lose my temper.
  
- keyed Rarely get irritated.  
Seldom get mad.  
Am not easily annoyed.  
Keep my cool.  
Rarely complain.

DEPRESSION (.88)

- + keyed Often feel blue.  
Dislike myself.  
Am often down in the dumps.  
Have a low opinion of myself.  
Have frequent mood swings.  
Feel desperate.  
Feel that my life lacks direction.
  
- keyed Seldom feel blue.  
Feel comfortable with myself.  
Am very pleased with myself.

SELF-CONSCIOUSNESS (.80)

- + keyed Am easily intimidated.  
Am afraid that I will do the wrong thing.  
Find it difficult to approach others.  
Am afraid to draw attention to myself.  
Only feel comfortable with friends.  
Stumble over my words.
- keyed Am not embarrassed easily.  
Am comfortable in unfamiliar situations.  
Am not bothered by difficult social situations.  
Am able to stand up for myself.

VULNERABILITY (.82)

- + keyed Panic easily.  
Become overwhelmed by events.  
Feel that I'm unable to deal with things.  
Can't make up my mind.  
Get overwhelmed by emotions.
- keyed Remain calm under pressure.  
Can handle complex problems.  
Know how to cope.  
Readily overcome setbacks.  
Am calm even in tense situations.

TRUST (.82)

- + keyed Trust others.  
Believe that others have good intentions.  
Trust what people say.  
Believe that people are basically moral.  
Believe in human goodness.  
Think that all will be well.
- keyed Distrust people.  
Suspect hidden motives in others.  
Am wary of others.  
Believe that people are essentially evil.

ALTRUISM (.77)

- + keyed    Make people feel welcome.  
              Anticipate the needs of others.  
              Love to help others.  
              Am concerned about others.  
              Have a good word for everyone.
  
- keyed    Look down on others.  
              Am indifferent to the feelings of others.  
              Make people feel uncomfortable.  
              Turn my back on others.  
              Take no time for others.

COMPLIANCE (.73)

- + keyed    Am easy to satisfy.  
              Can't stand confrontations.  
              Hate to seem pushy.
  
- keyed    Have a sharp tongue.  
              Contradict others.  
              Love a good fight.  
              Yell at people.  
              Insult people.  
              Get back at others.  
              Hold a grudge.

TENDERMINDEDNESS (.75)

- + keyed    Sympathize with the homeless.  
              Feel sympathy for those who are worse off than myself.  
              Value cooperation over competition.  
              Suffer from others' sorrows.
  
- keyed    Am not interested in other people's problems.  
              Tend to dislike soft-hearted people.  
              Believe in an eye for an eye.  
              Try not to think about the needy.  
              Believe people should fend for themselves.  
              Can't stand weak people.

Trust Inventory

- 1) I would give \_\_\_\_\_ an important letter to mail after s/he mentions that s/he is stopping by the post office today.
- 2) If \_\_\_\_\_ promised to copy a presentation for me, s/he would follow through.
- 3) If \_\_\_\_\_ and I decided to meet for coffee, I would be certain s/he would be there.
- 4) I would expect \_\_\_\_\_ to tell me the truth if I asked him/her for feedback on an idea related to my job.
- 5) If \_\_\_\_\_ was late to a meeting, I would guess there was a good reason for the delay.
- 6) \_\_\_\_\_ would never intentionally misrepresent my point of view to others.
- 7) I would expect \_\_\_\_\_ to pay me back if I loaned him/her \$one hundred.
- 8) If \_\_\_\_\_ laughed unexpectedly at something I did or said, I would know s/he was being unkind.
- 9) If \_\_\_\_\_ gave me a compliment on my haircut, I would believe s/he meant what was said.
- 10) If \_\_\_\_\_ borrowed something of value and returned it broken, s/he would offer to pay for the repairs.

Schizotypal Personality Questionnaire, Suspiciousness Subscale

Instructions: Please answer either yes or no to the following statements by circling “Y” for yes or “N” for no. Answer how you are feeling RIGHT NOW.

- 1) I am sure I am being talked about behind my back.
- 2) Do you feel that other people have it in for you?
- 3) Do you get concerned that friends or co-workers are not really loyal or trustworthy?
- 4) I have to be on my guard even with friends.
- 5) Do you pick out hidden threats or put-downs from what people say or do?
- 6) Have you found that it is best not to let other people know too much about you?
- 7) I feel that others have it in for me.
- 8) Do you have to keep an eye out to stop people from taking advantage of you?

Appendix C: Additional Analyses

Table C1: Mean rank of self-esteem scores by condition

	Ego threat		Control		t-test
	M	SD	M	SD	
State Self-Esteem Score	56.05	34.24	67.40	34.63	1.76*
Performance	54.81	35.05	70.75	32.23	2.51**
Social	60.73	34.56	62.68	36.35	0.30
Appearance	60.85	34.76	63.79	36.63	0.45
Rosenberg (R)	61.51	34.64	61.48	36.60	-0.01
IAT	62.34	36.29	61.46	34.99	-0.30

Note: Scores represent the mean rank-ordered self-esteem scores. Higher scores represent higher self-esteem. Performance=the performance subscale of the State Self-Esteem Scale, Social= the social subscale of the State Self-Esteem Scale, Appearance=the Appearance Subscale of the State Self-Esteem Scale, Rosenberg = the Rosenberg Self-Esteem Scale, IAT= The self-esteem Implicit Association Test, \* $p < .10$ , \*\* $p < .05$ , (R) = reverse coded.

Table C2: Mean rank within gender of self-esteem scores by condition

	Ego threat		Control		t-test
	M	SD	M	SD	
State Self-Esteem Score	29.13	18.34	33.39	16.97	1.28
Performance	28.80	18.66	34.46	15.85	1.72*
Social	31.28	18.90	31.58	17.34	0.09
Appearance	31.86	18.63	31.18	18.63	-0.20
Rosenberg (R)	32.27	18.05	29.79	18.31	-0.74
IAT	32.31	19.47	30.48	16.75	-0.54

Note: Scores represent the mean rank within gender of self-esteem. Higher scores represent higher self-esteem. Performance=the performance subscale of the State Self-Esteem Scale, Social= the social subscale of the State Self-Esteem Scale, Appearance=the Appearance Subscale of the State Self-Esteem Scale, Rosenberg = the Rosenberg Self-Esteem Scale, IAT= The self-esteem Implicit Association Test, \* $p < .10$ , \*\* $p < .05$ , (R) = reverse coded.

Table C3: Rank of Mood by Condition

	Ego threat		Control		t-test
	M	SD	M	SD	
Anger	58.21	29.69	66.75	31.74	1.50
Sadness	60.09	28.03	63.75	29.91	0.68
Anxiety	62.23	36.98	60.34	30.27	-0.29

Note: Scores represent the mean rank of mood scores. Higher scores indicate greater degrees of that mood.

Table C4: Rank within gender of mood by condition

	Ego threat		Control		t-test
	M	SD	M	SD	
Anger	30.87	15.83	32.25	15.84	0.47
Sadness	31.32	15.27	31.53	14.99	0.08
Anxiety	32.30	19.35	29.97	15.32	-0.70

Note: Scores represent the mean rank of mood scores within gender. Higher scores indicate greater degrees of that mood.

Table C5: Mean of rank of paranoia scores by condition.

Variable	Ego threat		Control		t-test
	M	SD	M	SD	
Distance	62.23	36.04	59.06	33.78	-0.48
SPQ-S	62.37	36.62	61.43	32.01	-0.15
Trust Inventory	61.79	34.23	62.33	37.73	0.08
Experimenter					
Evaluation	61.76	36.72	62.38	33.95	0.09

Note: Scores represent the mean rank of paranoia scores. Higher scores represent higher levels of paranoia. Distance= the distance the participant sat from the experimenter during the debriefing, SPQ-S=Schizotypal Personality Questionnaire, Suspiciousness Subscale, \* $p < .10$ , \*\* $p < .05$ , \*\*\* $p < .01$

Table C6: Mean of gender rank of paranoia scores by condition.

Variable	Ego threat		Control		t-test
	M	SD	M	SD	
Distance	32.44	18.21	28.99	17.97	-1.02
SPQ-S	32.57	18.67	30.07	16.73	-0.75
Trust Inventory	32.27	18.18	30.54	18.68	-0.50
Experimenter					
Evaluation	32.16	19.05	30.71	17.32	-0.43

Note: Scores represent the mean rank of paranoia scores within gender. Higher scores represent higher levels of paranoia. Distance= the distance the participant sat from the experimenter during the debriefing, SPQ-S=Schizotypal Personality Questionnaire, Suspiciousness Subscale, \* $p < .10$ , \*\* $p < .05$ , \*\*\* $p < .01$

Table C7: Rank of experimenter evaluation scores by condition.

	Ego threat		Control		t-test
	M	SD	M	SD	
The experimenter was friendly (R)	60.20	32.39	64.80	35.17	0.74
The experimenter was hostile	61.87	27.78	62.20	27.16	0.06
The experimenter was analyzing my actions	60.84	33.14	63.80	37.29	0.46
The experimenter was influencing my performance	60.91	29.27	63.71	30.27	0.51
The experimenter was trustworthy (R)	58.45	34.36	67.54	32.87	1.46
The experimenter was watching me through the window in the cubicle	67.55	34.83	53.32	29.63	-2.34**
Paranoid Evaluation	64.03	35.68	58.83	35.04	1.15
Liking Evaluation	59.10	35.24	66.53	34.68	-0.79

Note: Scores represent the mean rank of experimenter evaluation scores. Higher scores indicate greater dislike/mistrust of the experimenter. \* $p < .10$ , \*\* $p < .05$ , (R) = reverse coded.

Table C8: Rank within gender of experimenter evaluation by condition.

	Ego threat		Control		t-test
	M	SD	M	SD	
The experimenter was friendly (R)	31.27	16.71	32.10	18.27	0.26
The experimenter was hostile	32.53	14.22	30.13	13.63	-0.93
The experimenter was analyzing my actions	31.56	17.34	31.65	18.91	0.03
The experimenter was influencing my performance	32.15	15.11	30.72	14.88	-0.52
The experimenter was trustworthy (R)	30.16	17.97	33.83	16.79	1.13
The experimenter was watching me through the window in the cubicle	34.43	18.50	27.17	14.29	-2.31**
Paranoid Evaluation	33.12	18.76	29.21	17.42	-1.16
Liking Evaluation	30.70	18.49	32.99	17.58	0.68

Note: Scores represent the mean rank of experimenter evaluation scores within gender.

Higher scores indicate greater dislike/mistrust of the experimenter. \* $p < .10$ , \*\* $p < .05$ , (R)

= reverse coded.

Figure C1: Predicting the rank score of "The experimenter was influencing my performance" from condition, neuroticism, and the condition by neuroticism interaction.

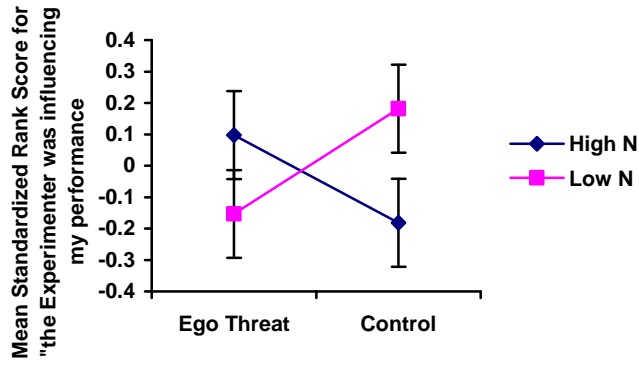


Figure C2: Predicting the rank score within gender of "The experimenter was influencing my performance" from Condition, Neuroticism, and the condition neuroticism interaction

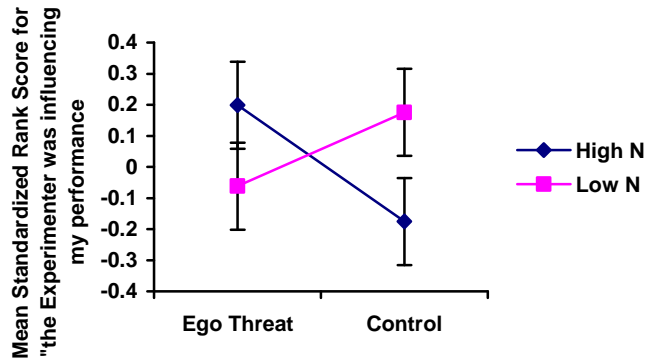


Figure C3: Rank ordered distance within gender by condition, neuroticism, and the condition by neuroticism interaction.

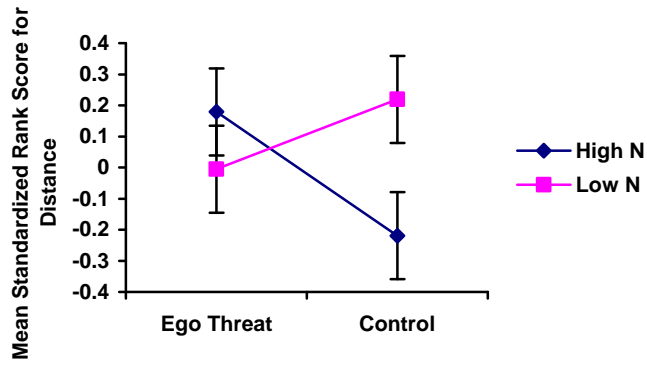


Figure C4: Rank order SPQ-S scores within gender for neuroticism, condition, and the neuroticism by condition interaction.

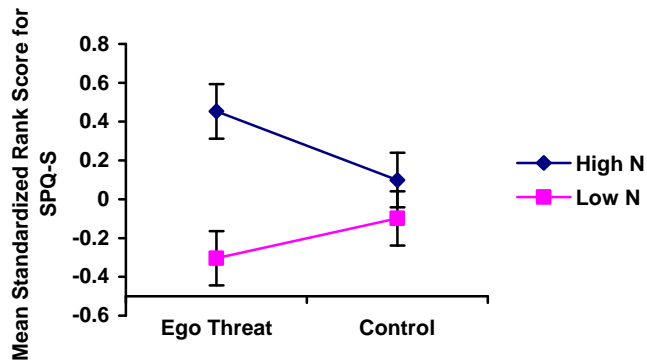


Figure C5a: Rank of experimenter evaluation scores by agreeableness, condition, and the agreeableness by condition interaction for males.

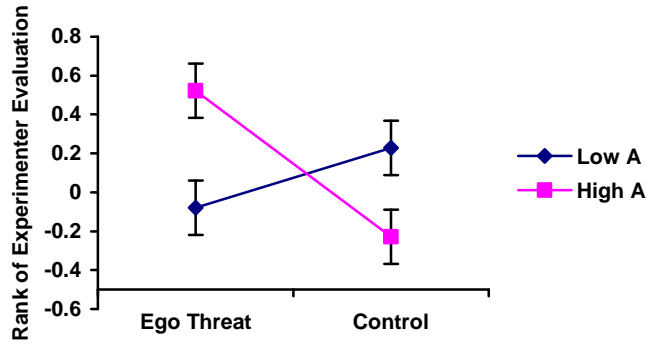


Figure C5b: Rank of experimenter evaluation scores by agreeableness, condition, and the agreeableness by condition interaction for females.

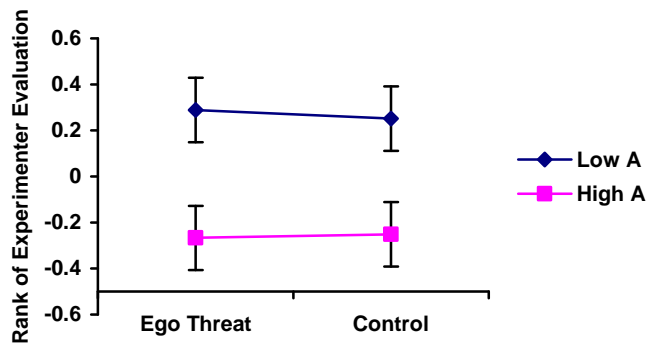


Figure C6a: Rank of experimenter evaluation score within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

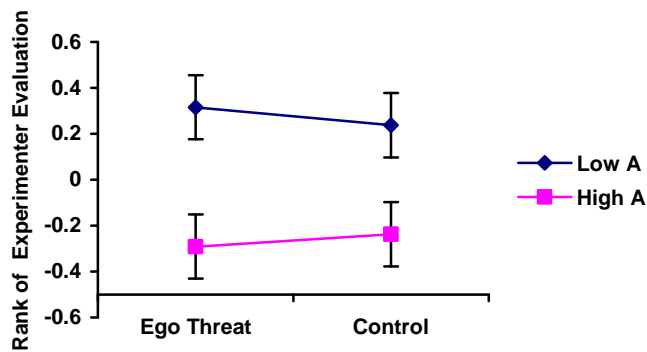


Figure C6b: Rank of experimenter evaluation score within gender by agreeableness, condition, and the agreeableness by condition interaction in females.

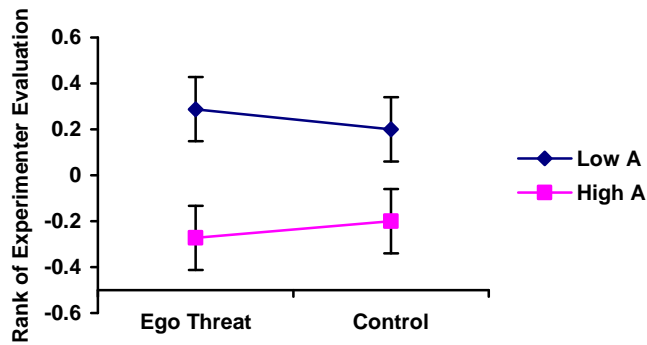


Figure C7a: Rank of paranoia experimenter evaluation by agreeableness, condition, and the agreeableness by condition interaction in males.

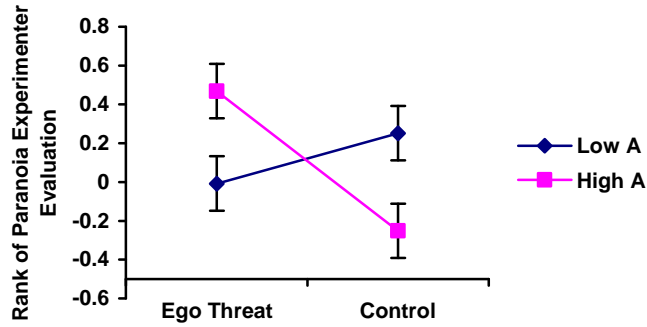


Figure C7b: Rank of paranoia experimenter evaluation by agreeableness, condition, and the agreeableness by condition interaction in females.

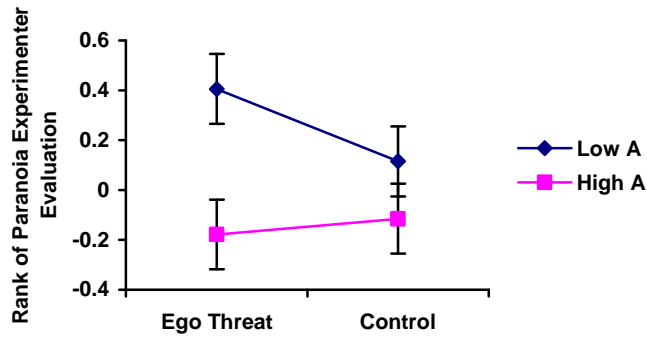


Figure C8a: Rank of “The experimenter was watching me through the window in the cubicle” by agreeableness, condition, and the agreeableness by condition interaction in males.

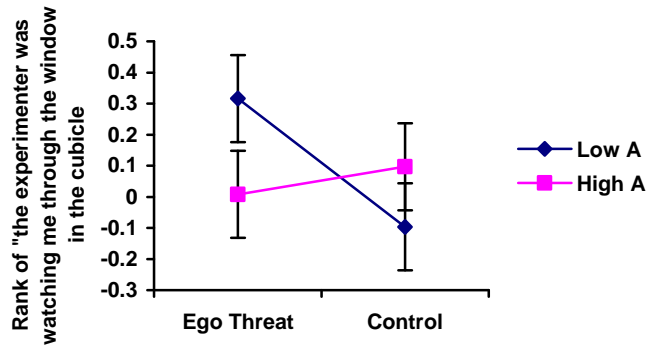


Figure C8b: Rank of “The experimenter was watching me through the window in the cubicle” by agreeableness, condition, and the agreeableness by condition interaction in females.

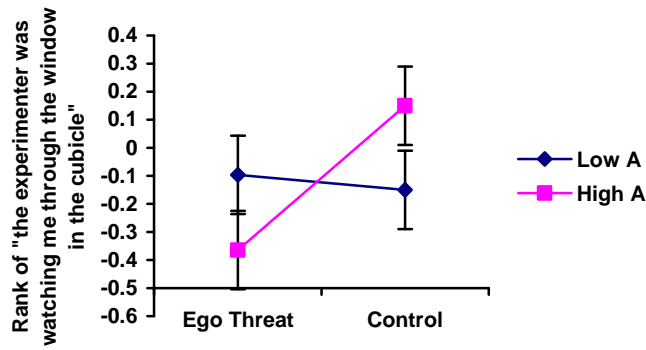


Figure C9a: Rank of “the experimenter was watching me through the window in the cubicle” score within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

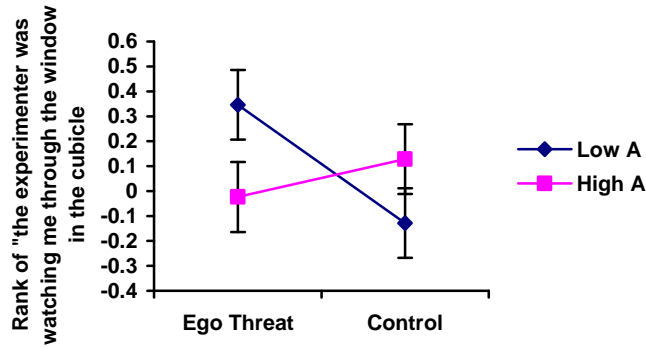


Figure C9b: Rank of “the experimenter was watching me through the window in the cubicle” score within gender by agreeableness, condition, and the agreeableness by condition interaction in females.

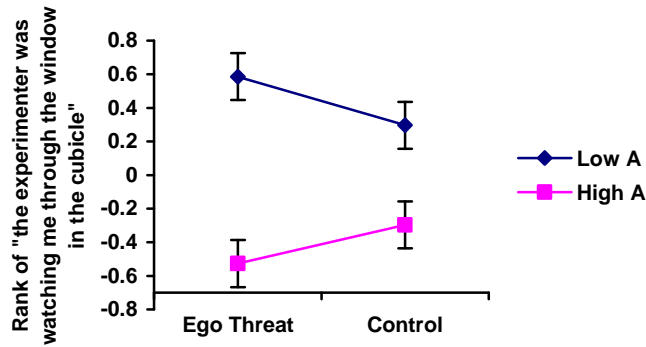
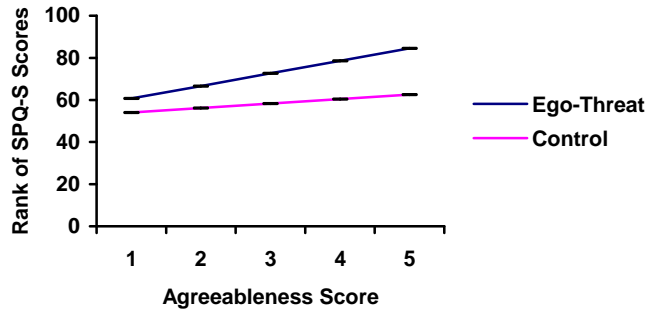


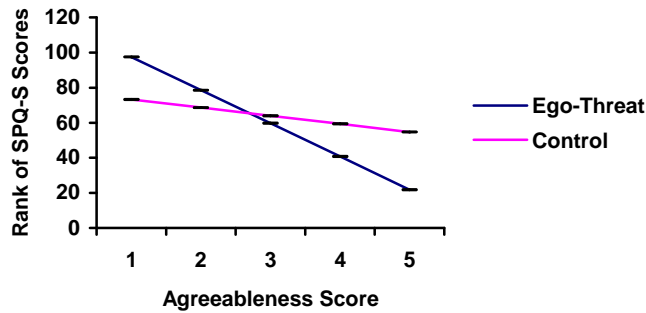
Figure C10: Rank of SPQ-S scores by agreeableness, condition, and the agreeableness by condition interaction in males.



Note: Rank ordered agreeableness scores are divided into 5-groups based on scores.

Higher group numbers represent higher agreeableness.

Figure C10b: Rank of SPQ-S scores by agreeableness, condition, and the agreeableness by condition interaction in females.



Note: Rank ordered agreeableness scores are divided into 5-groups based on scores.

Higher group numbers represent higher agreeableness.

Figure C10c: Rank of SPQ-S scores by agreeableness, condition, and the agreeableness by condition interaction.

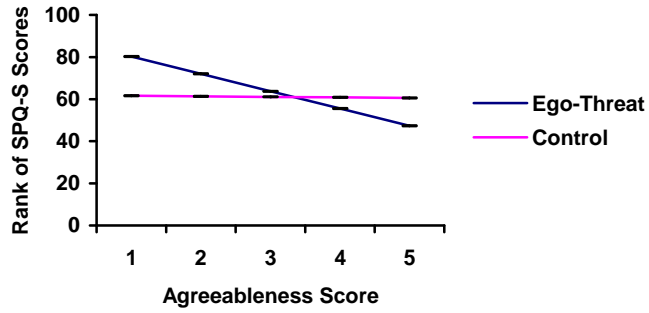


Figure C11a: Rank of SPQ-S scores within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

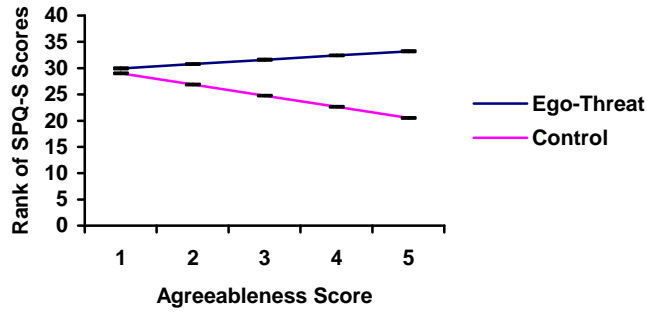


Figure C11b: Rank of SPQ-S scores within gender by agreeableness, condition, and the agreeableness by condition interaction in females.

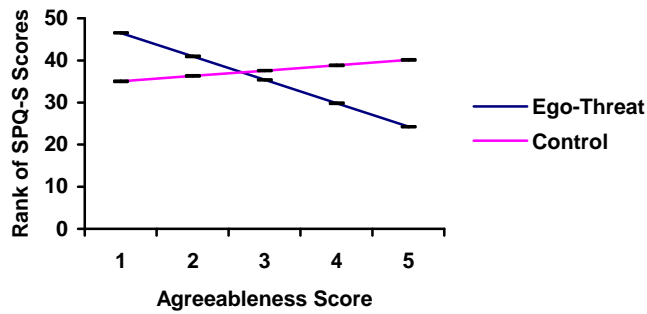


Figure C12a: Rank of paranoia experimenter evaluation scores by agreeableness, condition, and the agreeableness condition interaction in males.

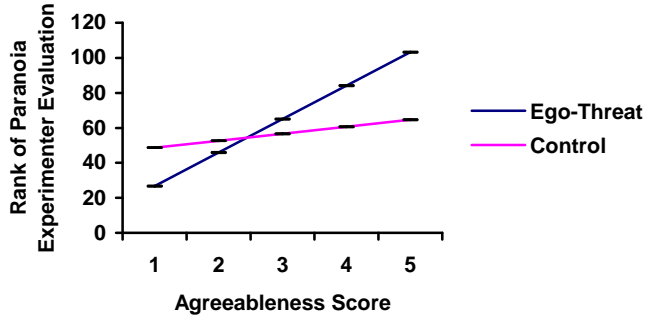


Figure C12b: Rank of paranoia experimenter evaluation scores by agreeableness, condition, and the agreeableness condition interaction in females.

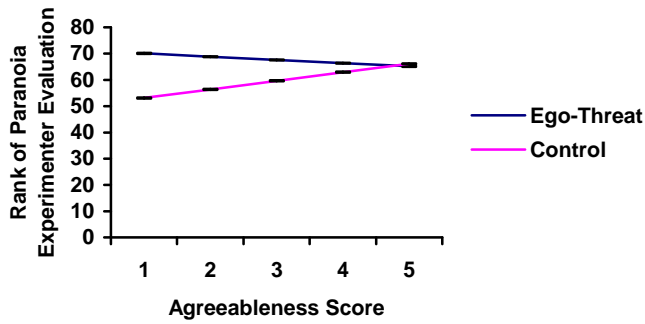


Figure C13a: Rank of paranoia experimenter evaluation scores within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

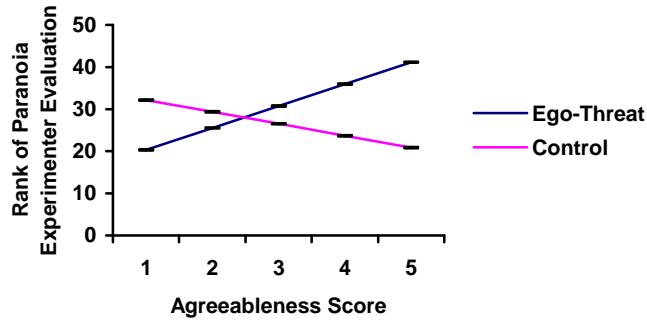


Figure C13b: Rank of paranoia experimenter evaluation scores within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

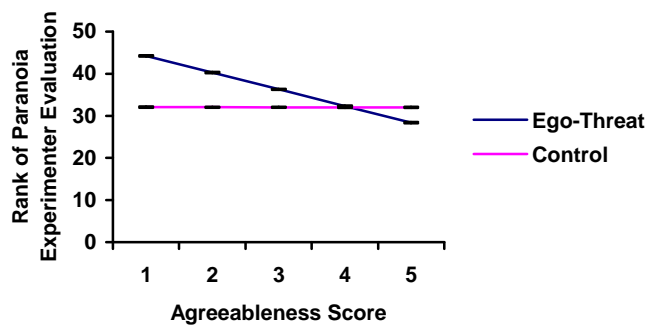


Figure C14a: Rank of “the experimenter was watching me through the window in the cubicle” scores by agreeableness, condition, and the agreeableness by condition interaction in males.

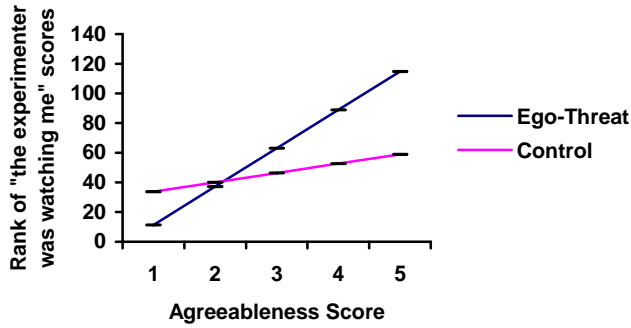


Figure C14b: Rank of “the experimenter was watching me through the window in the cubicle” scores by agreeableness, condition, and the agreeableness by condition interaction in females.

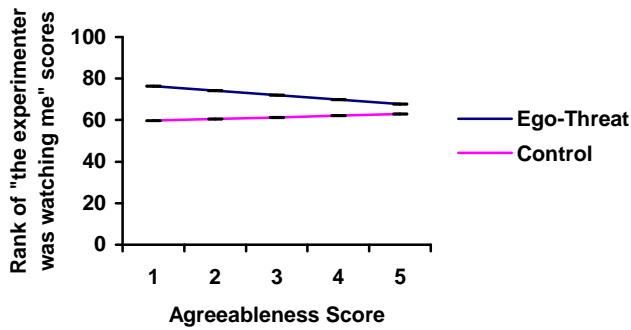


Figure C15a: Rank of “the experimenter was watching me through the window in the cubicle” scores within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

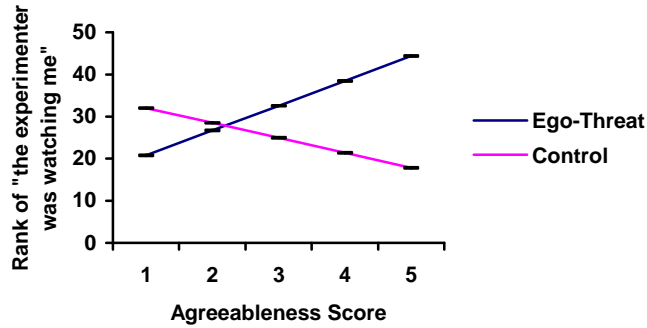


Figure C15b: Rank of “the experimenter was watching me through the window in the cubicle” scores within gender by agreeableness, condition, and the agreeableness by condition interaction in females.

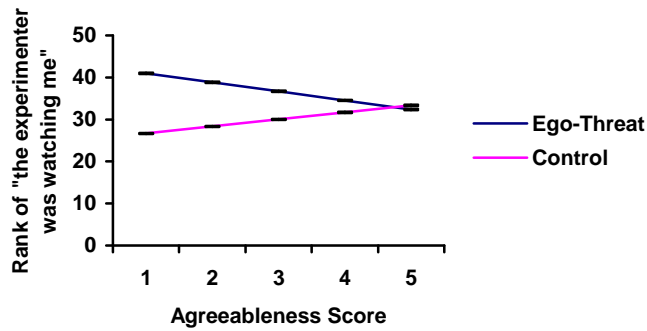


Figure C16a: Rank of experimenter evaluation scores within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

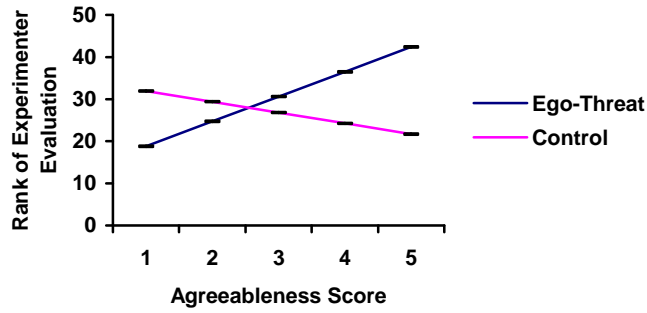


Figure C16b: Rank of experimenter evaluation scores within gender by agreeableness, condition, and the agreeableness by condition interaction in males.

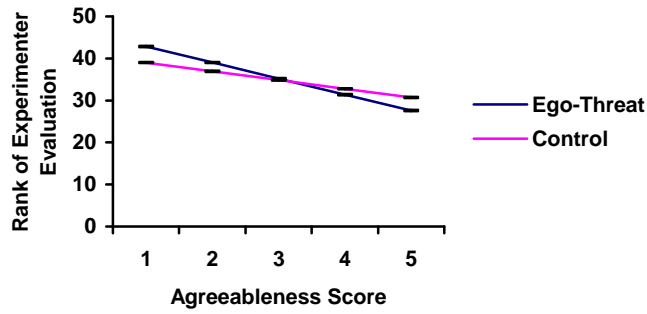


Figure C17: Rank of “the experimenter was influencing my performance” scores by neuroticism, condition, and the neuroticism by condition interaction.

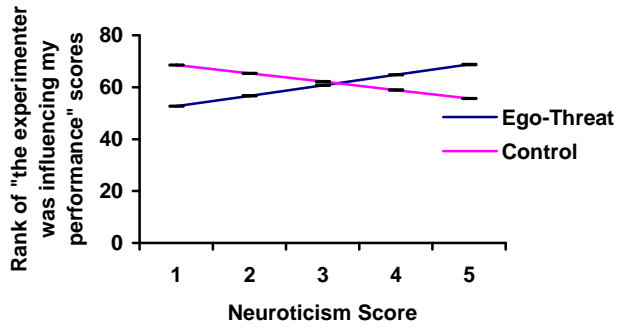


Figure C18: Rank of distance within gender by neuroticism, condition, and the neuroticism by condition interaction.

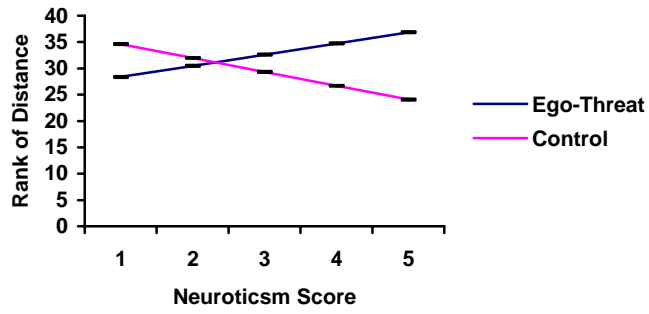


Figure C19: Rank of SPQ-S within gender by neuroticism, condition, and the neuroticism by condition interaction.

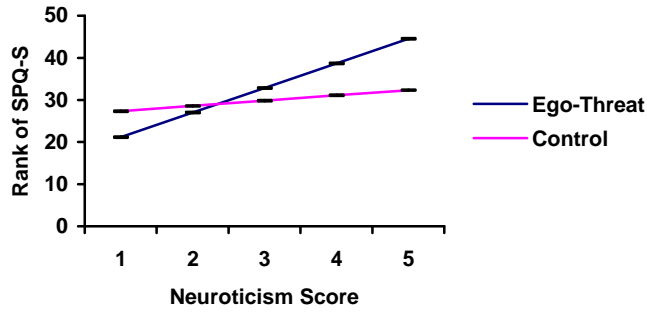


Figure C20: Rank “the experimenter was influencing my performance” within gender by neuroticism, condition, and the neuroticism by condition interaction.

