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Effects of Positive Distortion Instructions on the Factor Structure of Socially Desirable Responding Scales

Corina Mendoza

University of Texas at El Paso, cmendoza9@miners.utep.edu

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EFFECTS OF POSITIVE DISTORTION INSTRUCTIONS ON THE
FACTOR STRUCTURE OF SOCIALLY DESIRABLE
RESPONDING SCALES

CORINA MENDOZA

Department of Psychology

APPROVED:

James M. Wood, Ph.D., Chair

Stephen W. Johnson, Ph.D.

Daniel N. Jones, Ph.D.

John Wiebe, Ph.D.

Benjamin C. Flores, Ph.D.
Dean of the Graduate School

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Corina Mendoza

2013

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FACTOR STRUCTURE OF SOCIALLY DESIRABLE
RESPONDING SCALES

by

CORINA MENDOZA, B.A.

THESIS

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Abstract

Socially desirable responding (SDR) is the manifestation of an individual's desire to represent him or herself in a positive light on a self-report questionnaire. Two distinct types of questionnaire scales are commonly used to identify individuals who have engaged in SDR: Impression Management (IM) and Self-Deceptive Enhancement (SDE) scales. In the present study, 653 undergraduate students completed four IM scales, three SDE scales, and two brief questionnaires measuring the Big Five personality factors. Participants were randomly assigned to either a Control condition, in which they were instructed to complete the questionnaires according to standard instructions, or a Positive Distortion (PD) condition, in which they were instructed to respond to the questionnaires by creating a good impression of themselves. The study had two aims. First, it examined whether the factor structure and interpretive meaning of IM and SDE scales were the same in the PD condition as in the Control condition. Second, the study examined the validity and other psychometric properties of the Rare Virtue (HOI-RV) scale of the History Opinion Inventory - Revised (HOI-R; Fiedler, et al., 1997). The HOI-RV scale is an IM scale, derived from the Marlowe-Crowne Social Desirability scale (MCSD), that was used by the United States Air Force in the 1990s. Regarding the first aim of the study, it was found that the factor structure of IM and SDE scales was strikingly different under Control and PD conditions. Specifically, in the Control condition the IM scales loaded on a different factor from the SDE scales, whereas in the PD condition the IM and SDE scales both loaded on the same factor. This finding strongly suggests that the underlying meaning of IM and SDE scales is different among individuals who are positively distorting than among individuals who are not. Regarding the second aim of the study, evidence was found supporting the internal reliability and concurrent validity of the HOI-RV as a measure of IM.

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Effects of Positive Distortion Instructions on the Factor Structure of Socially Desirable Responding Scales

Holden and Passey (2009, p. 441) have described social desirability as "the tendency for people to present themselves in a generally favorable fashion." Crowne and Marlowe (1960) have proposed that social desirability reflects an individual's need to gain approval by presenting oneself to others in a socially acceptable manner, whether or not this presentation is in fact an accurate representation of oneself. Socially desirable responding (SDR) is the way that social desirability is manifested on self-report questionnaires. Specifically, SDR on a questionnaire occurs when an individual inaccurately claims to have socially acceptable characteristics (i.e., behaviors, attitudes, or traits), or inaccurately denies having socially unacceptable characteristics (Edwards, 1953; 1959; 1966). In the 1950s and 1960s, Edwards (1953; 1966) presented extensive evidence that social desirability has a strong, pervasive, and general influence on the way that people respond to self-report questionnaires. Since then, researchers have worked to understand the mechanics of SDR (Holden & Passey, 2009).

Paulhus (1984) proposed that SDR can be conceptualized as two distinct processes: impression management and self-deceptive enhancement. Impression management (IM) is a process through which individuals purposefully and consciously manage information about themselves so that they may be viewed more favorably by others (Carlson, Carlson & Ferguson, 2011). Self-deceptive enhancement (SDE) is defined as an unconscious, positively biased self-description (Lindeman & Verkasalo, 1995). The biggest difference between IM and SDE is that IM involves the deliberate creation of an overly positive self-description that can be projected to other people, whereas SDE involves an overly positive self-description that is sincerely believed to be accurate (Lindeman & Verkasalo, 1995; Paulhus, 1984).

Both SDE and IM scales have been created to detect SDR in self-report questionnaires. One of the oldest and most prominent SDE scales is the Edwards Social Desirability scale (ESD; Edwards, 1953); others are the Responding Desirably on Attitudes and Opinions scale (RD-16; Schuessler, Hittle

& Cardascia, 1978) and the SDE subscale of the Balanced Inventory of Desirable Responding -7 (BIDR; Paulhus, 1998). These measures consist of items that have been shown to receive either very high social desirability ratings or very low social desirability ratings by groups of ordinary individuals (i.e., usually samples of American college students).

One of the best-known IM scales is the Lie Scale of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940). In the most recent version of the MMPI, the MMPI-II Restructured Form (MMPI-II-RF; Ben-Porath & Tellegen, 2008), the Lie Scale has been renamed as the Uncommon Virtue scale. This revised name highlights the idea that SDR involves the endorsement of virtues, or traits that are not common in the general population. Other well-known IM scales are the Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960), and the IM subscale of the BIDR (Paulhus, 1998).

The items of IM scales typically describe behaviors and attitudes that are (a) socially desirable but uncommon ("I never experience any negative emotion"¹) or (b) socially undesirable but common ("I brush my teeth after every meal"). These items are also sometimes referred to as "Rare Virtue" (RV) items. Individuals who consistently answer IM/RV items in a socially desirable way (claiming to possess unusual good qualities or denying common faults) are thought to be lying or deliberately creating false impressions of themselves (Paulhus, 1984; Paulhus, 1985).

Impression Management can occur in any instance in which an individual would like to appear in a favorable manner for a perceived reward. Examples of these are: job interviews, acceptance into a training program, individuals involved in legal proceedings, prisoners seeking a transfer, counseling clients who wish to appear in good psychological health and military recruits (Baer, Wetter & Berry, 1992; Thunholm, 2001). IM/RV scales are intended to be able to identify individuals who are intentionally misrepresenting themselves on a self-report measure.

¹Sample items are meant to give the nature of Impression Management/Rare Virtue items. These items are not from any copyright protected scales.

Are IM and SDE Scales Useful?

Impression Management and SDE scales have been included in clinical and employment-related tests since at least the 1940s, when the MMPI Lie scale was introduced (Greene, 2011). Two justifications are commonly given why such scales are, or might be useful. The first and more common justification is that SDR scales can identify patients, job applicants, and other individuals who have tried to give an unrealistically positive picture of themselves on a questionnaire. A high score on these scales can serve as a red flag that a respondent's answers to the questionnaire are untrustworthy, because they reflect SDR rather than honest responding. The test results can then be disregarded as invalid, or they may be retained but treated cautiously.

A second less frequent justification for using IM/RV and SDE scales is that they might help adjust for the effects of SDR on questionnaire responding. If a test respondent scores high on an SDR scale, then some of his scores on other substantive scales might be adjusted up or down to remove the distorting effect of SDR and improve the scores' validity. The "K-corrected" scores of the MMPI involved such adjustments (Ben-Porath, 2012). Specifically scores on some of the MMPI clinical scales were routinely adjusted upward (in a more pathological direction) for patients who scored high on the K scale, which was a measure of SDR.

Although these justifications have frequently been offered for IM/RV and SDE scales, some assessment experts have questioned whether IM/RV and SDE scales are truly useful in the ways described (McCrae & Costa, 1983; Ones, Viswesvaran, & Reiss, 1996). For instance McCrae & Costa (1983) argued that correlations with SDR scales should be substantively interpreted rather than dismissed as lying or defensiveness. These authors conducted a study in which participants and their spouses rated the participant on a series of scales: the Neuroticism-Extraversion-Openness Inventory, Marlowe-Crowne Social Desirability scale and the Lie Scale from the Eysenck Personality Inventory. McCrae and Costa found that the ratings by the spouse on these three measures positively and

significantly correlated with the participant's self-ratings, $r = .25$ to $.61$. When the authors corrected for SDR scores the correlations decreased; meaning, that adjusting for SDR scores reduced the validity of the self-report. Since it was found that correcting for social desirability did not improve relations with an external criterion, the researchers recommended that SDR scales be interpreted as trait content, based on their correlations with other established traits, rather than trait-neutral correction variables.

Ellingson, Sackett & Hough (1999) were interested in the ways in which response distortion impacted self-report personality measures. They conducted a study in which they evaluated the practice of using SDR corrections in a sample of military personnel who were particularly motivated to respond in a socially desirable manner. Participants were asked to answer a series of questionnaires honestly or under faking good instructions. Under the fake good instructions, the participants were instructed to describe themselves in a way that would ensure they were selected to join the Army.

Ellingson et al. (1999) found that correcting for SDR produced more accurate score estimates for the group, but not for individual scores. That is, when the mean scale scores for the faking good group were corrected for SDR, these mean scores became closer to the mean scale scores of the honest group. However, adjusting scores for individual participants in a similar way did not produce more accurate results; meaning when individual scores were adjusted to correct for SDR, scores did not approximate the honest group mean. These findings led Ellingson et al. to conclude that SDR corrections are ineffective. This means, that if an individual were to respond to items on a measure in a socially desirable manner, correcting it for SDR would still not produce an unbiased score.

It has been established that when asked to do so, individuals can distort their responses on a self-report measure in either a positive or negative direction (Hough, Eaton, Dunnette, Kamp & McCloy, 1990). A complication that arises with self-report measures and distortion is the concern that validity is affected by distorted responding. Hough et al. (1990) conducted a review of studies to test whether SDR has an impact on the validity of self-report measures of personality. The results of this review suggested

that intentional distortion on self-report measures had little effect on the measures' validity. Specifically, the criterion validity of self-report scales when participants were instructed to distort their responses was similar to the criterion validity of the same scales when participants were instructed to respond honestly.

Personality and Socially Desirable Responding

The relationship of SDR to personality factors has also been examined by researchers. Results reported by Pauls and Crost (2004) and by Stöber, Dette, and Musch (2002) have shown that this relationship changes, depending on whether participants are responding to personality questionnaires under normal conditions or under Positive Distortion (PD) instructions. Under normal conditions, the Big Five personality dimensions that are related to SDE are Extraversion, Openness, Conscientiousness and Emotional Stability (i.e., the converse of Neuroticism). Similarly, under normal conditions IM/RV relates to Conscientiousness, Emotional Stability, and Agreeableness. However, under PD instructions, neither SDE nor IM are significantly correlated with the Big Five personality domains (Pauls & Crost, 2004).

The relationship between SDE, IM/RV and the Big Five personality traits has led to questions about the role of SDE and IM/RV. Ones, Viswesvaran and Reiss (1996) conducted a meta-analytic review of studies that looked at the predictive validity of Big Five personality traits as a function of SDR. The researchers questioned what role SDR played in predicting personality outcomes (i.e. job performance, school success, counterproductive behaviors). Socially Desirable Responding could possibly function as a predictor, suppressor or mediator variable for outcome variables such as job performance. Ones, et al. (1996), found that SDR did not predict, suppress or mediate the validity of personality scales as predictors of task performance or job performance. However, it was found that SDR reflects individual differences in the Big Five personality domains. That is, although SDR does not

play a direct role in outcome variables, it still reflects personality traits and differences among individuals who engage in SDR and those who do not.

A meta-analysis by McGrath, Mitchell, Kim and Hough (2010) focused on studies that examined whether SDR affects the validity of substantive measures of psychopathology and personality. The authors identified studies of general personality, emotional disturbance, work-setting, disability and forensic assessments. Out of 41 studies examined in this meta-analysis, fourteen studies included the Marlowe-Crowne Social Desirability Scale (MCSD), a measure of IM/RV; two studies included the Edwards Social Desirability Scale (ESD), a measure of SDE; six studies included the Balanced Inventory of Desirable Responding (BIDR), which is a measure of both IM/RV and SDE. The authors were unable to find evidence that SDR acted as either a suppressor or mediator of validity in these studies. The results provided evidence against the notion that the validity of self-report questionnaires is commonly undermined by biased responding. The authors' final conclusion was that there is insufficient evidence to justify the use of bias indicators in applied settings to detect SDR.

Lanyon and Wershba (2013) conducted a similar study to that of McGrath et al. (2010) in which they aimed to identify the effects of underreporting response bias through suppression and moderation. Their research examined three mental health groups, each defined by a different trait: discomfort, alienation, and social nonconformity. Lanyon and Wershba hypothesized that underreporting or "defensiveness bias" as measured by an SDR scale would lead to the suppression and moderation of validity and the reduction of accuracy on the three mental health traits (discomfort, alienation, social nonconformity). The author's hypotheses were supported by their data. They found that highly disordered individuals had a tendency to underreport traits (high defensiveness) affecting the ability to accurately assess that individual; and there was a presence of suppression in all three categories, as well as moderation in both discomfort and alienation. The authors concluded that response bias measures can be useful for instances when underreporting is likely to occur in psychological assessment.

Purpose One of the Present Study: Structure of SDR among Individuals Who Are and Are Not Instructed to Engage in SDR

This study aims to explore a theoretical issue regarding SDR that apparently has never been examined by previous researchers: What is the factor structure of SDR among individuals who are deliberately trying to engage in SDR, which is to say, among individuals who are positively distorting their self-description? In the 1950s and 1960s, Wiggins factor analyzed responses of students who had completed several personality and SDR scales (a) in response to standard instructions and (b) without any incentive to make a favorable impression. Wiggins (1959; 1964) found that what are now called SDE scales loaded on one factor (which he called "alpha") whereas what are now called IM/RV scales generally loaded on another factor (which he called "gamma"). This finding, that SDE scales fall on a separate factor than IM/RV scales, provided a basis for later theorizing by Paulhus (1991) regarding the different interpretation of SDE and IM/RV scales.

However, correlational results presented by Wiggins (1959, p. 424) suggest that SDE and IM/RV scales may correlate very highly with each other when individuals are deliberately trying to make a good impression on a self-report questionnaire, under what is called "Positive Distortion" (PD) conditions. If SDE and IM/RV scales correlate highly under PD conditions, then this finding suggests that SDE and IM/RV scales probably load on the same factor and both measure the same construct (i.e. impression management) among individuals who are trying to make a good impression. That is SDE and IM/RV scale may not really be distinguishable or different from each other under such conditions.

Wiggins (1959) examined only SDE and IM/RV scales from the MMPI. Furthermore, his sample was small and therefore he only computed correlations among scales rather than factor analyzing them. The present study will follow up on his results with different SDE and IM/RV scales in a larger sample that is large enough to allow factor analyses. Two large samples of participants will be administered personality and SDR scales. The first sample will serve as controls and complete the

scales under standard instructions and without any incentive to engage in SDR. The second sample will complete the scales under instructions to engage in positive distortion (similar to "Faking Good") and will be offered an incentive for SDR. It is predicted that in the Control sample, SDE scales will load on one factor (i.e., "alpha") and IM/RV scales will load on a second factor ("gamma"), as reported by Wiggins (1964). However, it is predicted that in the PD sample, SDE and IM/RV scales will all load on a single factor, thus providing evidence that SDE and IM/RV scales are both measuring the same construct (i.e., IM) among individuals who are deliberately engaging in SDR.

Purpose Two of the Present Study: Effects of SDR on the Predictive Validity of History Opinion Inventory - Revised Risk Scores among Air Force Trainees

As already indicated, several reviews have concluded that there is little or no evidence that SDR scales moderate the validity of self-report questionnaires (e.g., Ones et al., 1996; McGrath et al., 2010). However, relatively few studies have focused on the narrower sub-issue of whether IM/RV scales (as opposed to SDE scales) may have a moderating effect on questionnaire validity. The largest study to examine this issue is an unpublished research project by Wood and Garb (2012), currently underway, that examines whether the predictive validity of the History Opinion Inventory - Revised (HOI-R) among United States Air Force (USAF) trainees is moderated by the HOI-R Rare Virtues (HOI-RV) scale. The present section briefly describes Wood and Garb's research project, and explains its connection with the present study.

The HOI-R is a 70-item self-report questionnaire developed by the USAF in the early 1990s to identify recruits who were likely to separate early from the USAF due to psychological or conduct problems (Fiedler, et al., 1997; Garb, Wood & Fiedler, 2011). The HOI-R includes nine clinical scales whose scores are hypothesized to be correlated with success in the military: (1) Health Concerns, (2) School Success, (3) Composure, (4) Antisocial Tendencies, (5) Family Support, (6) Introversion, (7) Parental Conflict, (8) Immaturity, and (9) Emotional Instability. The HOI-R also includes a

"Carelessness" scale to detect careless responding, and an "Interpersonal Agreeableness" scale that has been the focus of the research project by Wood and Garb (2012).

The name of the HOI-R Interpersonal Agreeableness scale is somewhat misleading, because the scale does not measure the Big Five personality factor known as "Agreeableness." Rather, it was designed as a measure of SDR, and 6 of its 7 items were borrowed (with minor modifications) from the Marlowe-Crowne Social Desirability scale (MCSD), which as already noted, is a widely used IM/RV scale. To avoid confusion and maintain conceptual clarity, the HOI-R Interpersonal Agreeableness scale will be referred to in the remainder of this thesis as the HOI-R Rare Virtue (HOI-RV) scale.

Although the HOI-RV scale was created for the purpose of identifying recruits who may have been misrepresenting themselves on the HOI-R, it does not appear to have actually been used operationally for this purpose. That is, although the HOI-R (including the RV scale) was administered to more than 100,000 USAF trainees during the 1990s, scores on the RV scale were apparently disregarded and do not seem to have been used in making clinical or administrative decisions about trainees. However, Wood and Garb (2012) have recently begun to retrospectively analyze archival data to examine whether the HOI-RV scale might have been useful for improving HOI-R validity if it had been used for the prediction of behavioral and mental health problems among USAF trainees in the 1990s. Results from the present study may have two potential benefits for this larger project by Wood and Garb. First, if the HOI-RV scale is found to improve predictive validity of the HOI-R, then similar IM/RV scales might be included in screening tools used by the USAF in the future. Second, the findings from the Wood and Garb study may contribute to the ongoing debate among assessment psychologists regarding the potential value of using SDR measures in employment and clinical settings.

A preliminary finding from the Wood and Garb (2012) project illustrates how it may shed light on important issues. Using data from a 1994 sample of 32,299 trainees, these researchers developed a 29-item actuarial scale, the HOI-R Risk Score, to estimate the probability that a trainee would be

prematurely separated/discharged from the USAF before completing his or her full four-year enlistment period. In a cross-validation sample of 163,979 enlistees from 1995-1999, the HOI-R Risk Score was found to correlate positively with Early Separation from the USAF, $r = .185$, $p < .001$, thus confirming the score's (modest) predictive validity.

In response to ideas proposed by McGrath et al. (2010), Wood and Garb (2012) set out to explore whether the predictive validity of the HOI-R Risk Score was moderated by scores on the HOI-RV scale, which can range from 0 to 7. Wood and Garb hypothesized that (a) enlistees with RV scores of 0 and 1 would exhibit a low level of SDR, so that (b) their Risk Scores reflected relatively accurate responding to the HOI-R, and therefore (c) the validity of these enlistees' Risk Scores should be relatively high ($r > .190$) compared to validity of Risk Scores for other enlistees.

Conversely, Wood and Garb hypothesized that (d) enlistees with RV scores of 6 and 7 exhibit a high level of SDR, so that (e) their Risk Scores would reflect relatively uninformative, socially desirable responding to the HOI-R, and therefore (f) the validity of these enlistees' Risk Scores should be relatively low compared to other enlistees. By similar reasoning, Wood and Garb hypothesized that (g) the Risk Scores of enlistees with RV scores in the middle range (RV = 2 through 5) should show validity intermediate between what was observed in the low and high SDR groups.

Figure 1 presents these hypotheses in graphic form. Each line represents a subsample of all enlistees in the 1995-1999 samples who shared the same RV score. Thus one line (in dark blue) represents all enlistees with RV = 0 or 1, another line (in light blue) represents all enlistees with RV = 2 or 3, and so on. Each line shows the hypothesized relationship between (a) HOI-R Risk Scores (i.e., predicted probability of Early Separation), and (b) Probability of Early Separation, within its relevant subsample (see Figure 1).

As can be seen in Figure 1, the hypothesized line for the subsample of enlistees with an RV score of 0 or 1 shows a relatively strong relationship between Risk Scores and Probability of Early Separation.

Because the enlistees in this group are not engaging in IM, their self-reports on the HOI-R should allow an accurate prediction of how likely these enlistees are to leave the USAF due to conduct or psychological problems. In contrast, the hypothesized line for the subsample of enlistees with RV = 6 or 7 shows no relationship between Risk Scores and Probability of Early Separation. That is, because the enlistees in this group are engaging in a high level of IM, their self-reports on the HOI-R should be virtually useless for predicting whether they will have problems in the USAF. Finally, the hypothesized lines for the two remaining subsamples (with RV = 2 or 3, or RV = 4 or 5) indicate that the HOI-R Risk scores have some predictive power in these subsamples, although the predictive power is somewhat decreased by the presence of some SDR.

Figure 2 is similar to Figure 1, except that it represents the actual results that Wood and Garb (2012) found when they used HOI-R Risk Scores to predict probability of Early Separation in the cross-validation sample of enlistees from 1995-1999. Each line in Figure 2 represents a subsample of all enlistees in the 1995-1999 samples who shared the same RV score. However, whereas each line in Figure 1 represented a combination of two RV scores (for example RV = 0 or 1), each line in Figure 2 represents only a single RV score (for example, RV = 0). Thus one line (in dark blue) in Figure 2 represents all enlistees with RV = 0, another line (in light blue) represents all enlistees with RV = 4, and so on. Each line in Figure 2 shows the actual observed relationship between (a) HOI-R Risk Scores and (b) Probability of Early Separation, within its relevant subsample (see Figure 2).

As can be seen in Figure 2, the hypothesis portrayed in Figure 1 -- that the predictive power of Risk Scores would be higher in the low SDR subsamples (RV = 0 or 1) than in the high SDR subsamples (RV = 6 or 7) -- was not confirmed by the data of Wood and Garb (2012). Instead, as Figure 2 shows, the predictive power of HOI Risk scores was approximately the same regardless of Risk Scores. A follow-up logistic multiple regression with (a) Risk Scores, RV Scores, and their interaction as predictors, and (b) Probability of Early Separation as the criterion, confirmed the impression given by

Figure 2: There was not a significant interaction between Risk Scores and RV scores in the prediction of Early Separation. This failure to find a significant interaction provides further support for the conclusion of McGrath et al. (2010) and other researchers that SDR scales do not moderate the relationship between self-report scales and behavioral criterion.

Although the work by Wood and Garb (2012) is interesting, the meaning of their findings remains tentative because the psychometric properties of the HOI-RV scale are mainly unknown. For example, although the scale was designed as a measure of SDR, no study has ever examined its validity for that purpose. The second purpose of the present study, therefore, is to compile basic psychometric information about the HOI-RV scale that may provide a logical foundation for understanding and interpreting the findings of Wood and Garb. More specifically, the second purpose of the present study is to collect basic psychometric information on the HOI-RV scale, including its (a) distributional qualities (b) concurrent validity (correlation with other IM measures) and (c) predictive/construct validity (i.e. the ability to discriminate between individuals who are Faking Good and individuals who are not Faking Good). Once this basic psychometric information is available, it can be used to illuminate the findings of Wood and Garb.

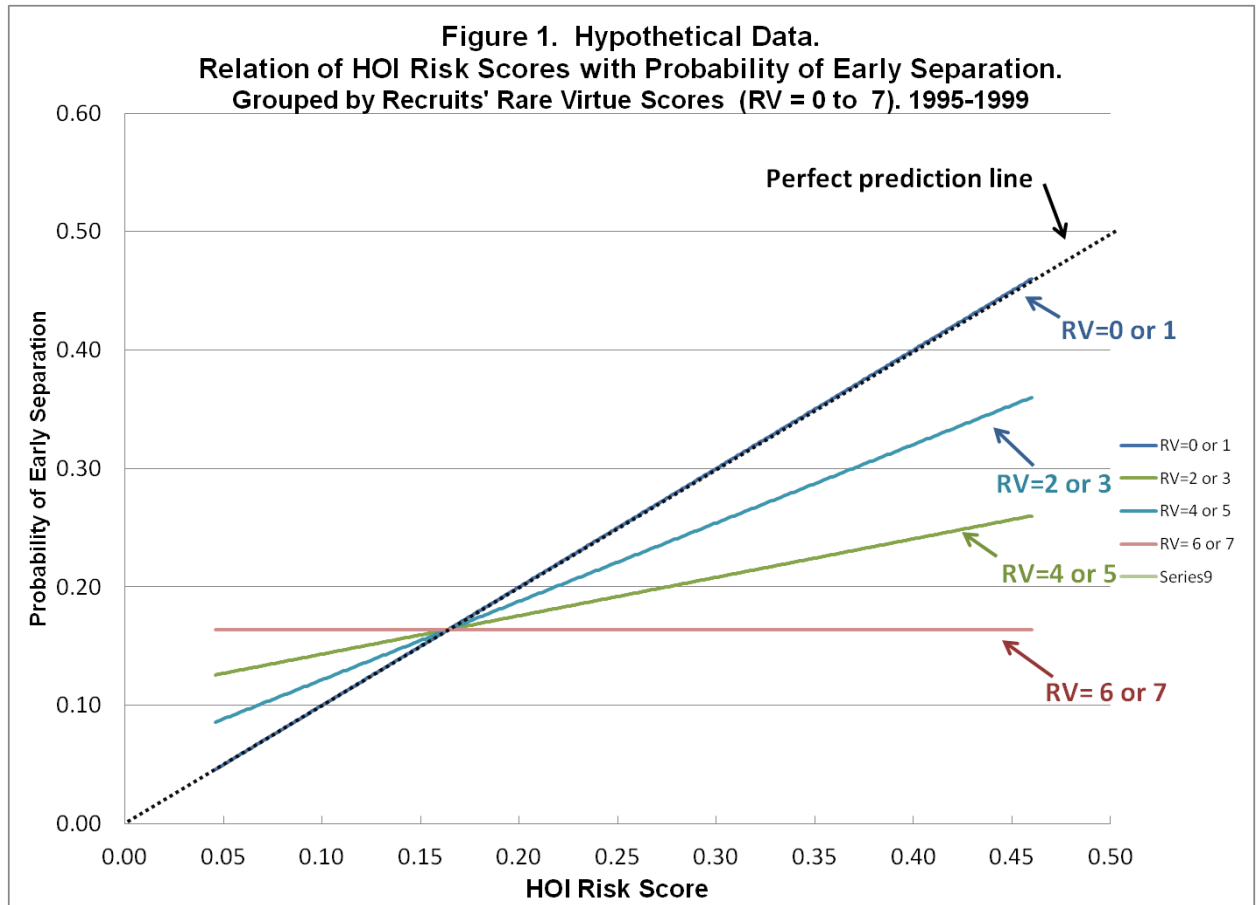


Figure 1: Hypothetical Data: Relation of HOI Risk Scores with Probability of Early Separation. Grouped by Recruits's Rare Virtue Scores

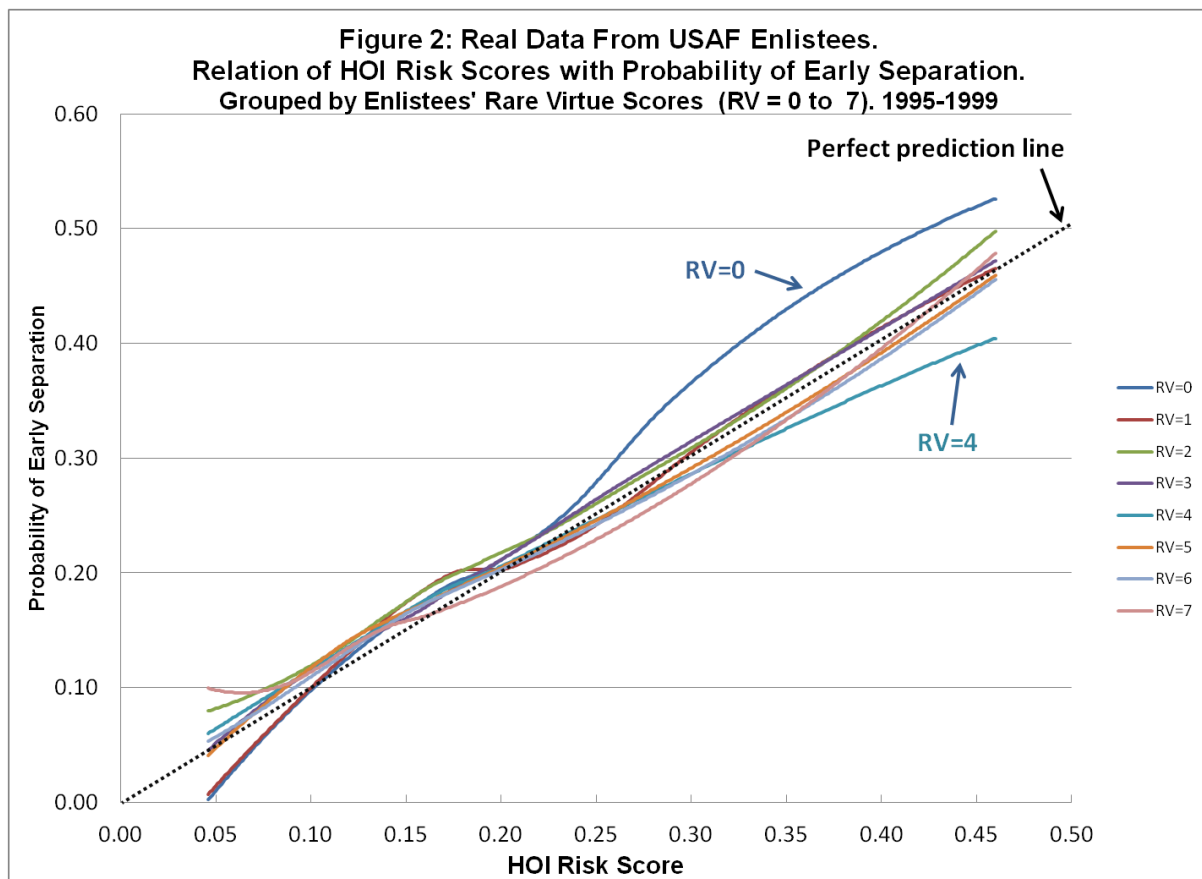


Figure 2: Real Data from USAF Enlistees: Relation of HOI Risk Scores with Probability of Early Separation. Grouped by Enlistee's Rare Virtue Scores.

Methods

Participants

Seven hundred and fifty-three undergraduate students from Introduction to Psychology classes and other classes at the University of Texas at El Paso participated in this study. Data from 653 participants were analyzed. One hundred of the 753 participants were excluded from data analyses due to various exclusion criteria, which will be discussed further in the next section. Three hundred and twenty-two of the remaining 653 participants were included in the Control condition and 331 of the 653 participants were included in the PD condition. The mean age of participants was 21.21 years, $SD = 4.96$, with 65% being females and 87.7% identifying as Hispanic.

Exclusion Criteria

A set of criteria was put in place in order to screen out data from individuals who responded carelessly on the questionnaire packet. There are five carelessness items already built into the HOI-R, and the following four additional items were created to measure carelessness: "I have never bought anything in a store"; "I am more than 15 years old"; "I have more than 20 brothers and sisters who are younger than me"; "I get hungry if I go for more than 24 hours without eating." One of these four items was added to the end of the Marlowe-Crowne Social Desirability, MMPI-2-Lie, Edwards Social Desirability, and Responding Desirable on Attitudes and Opinions-16 scales respectively. If a participant missed two or more of the carelessness items within the HOI-R, their data were excluded from the analyses. Also, if a participant missed two or more of the carelessness items located through the rest of the measures, participants' data were excluded from the analyses.

Two hundred and eighty-two (84.4%) participants in the Control condition missed zero carelessness items, 45 (13.5%) missed one, six (1.8%) missed two, and one (0.3%) participant missed three carelessness items. Two hundred and eighty-five (80.5%) participants in the PD condition missed zero carelessness items, 51 (14.4%) missed one, 11 (3.1%) participants missed two, and seven (1.9%)

participants missed three or more carelessness items. No participants in either condition missed more than four carelessness items.

Participants were also excluded from analysis if they were under 18 years of age, or if they took less than ten minutes, or greater than 300 minutes (five hours) to complete the entire questionnaire. Fifty-five participants in the Control condition and 45 participants in the PD condition were excluded from analyses based on these exclusion criteria.

Materials

The following measures were administered to all participants. First, participants were administered the History Opinion Inventory-Revised (HOI-R; Fiedler, et al., 1997), including a social desirability measure: the HOI-RV. Second, participants were administered three additional IM/RV scales: the Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960), the Lie Scale of the MMPI-2 (LS; Hathaway & McKinley, 1951; Ben-Porath & Tellegen, 2008), and the IM subscale of the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1998). Third, participants were administered three SDE scales: the Edwards Social Desirability Scale (ESD; Edwards, 1953), the SDE subscale of the BIDR (Paulhus, 1998), and the Responding Desirably on Attitudes and Opinions 16 (RD-16; Schuessler, Hittle & Cardascia, 1979). Finally, participants were administered two brief measures of the Big Five personality factors, the Big Five Inventory-10, (BFI-10+1; Rammstedt & John, 2007) and the Mini-Interpersonal Personality Item Pool (IPIP-20; Donnellan, Oswald, Baird & Lucas, 2006). Each of these measures will be discussed individually in the following paragraphs.

History Opinion Inventory-Revised

The History Opinion Inventory-Revised (HOI-R; Fiedler, et al., 1997; also see Garb et al., 2011) is a self-report questionnaire designed to predict early attrition from the United States Air Force (USAF) due to behavioral or conduct problems. Developed between 1990 and 1992 the HOI-R was used operationally from 1994 until 2000 as the primary mental health screening instrument of the USAF and

was administered to all new enlisted recruits as they began basic training. This measure has been demonstrated to have modest predictive validity for identifying recruits who are likely to separate early from the USAF (Garb et al, 2011). The HOI-R consists of 70 true-false items that are scored on ten scales measuring the following constructs: Health Concerns, School Success, Composure, Antisocial Tendencies, Family Support, Introversion, Parental Conflict, Immaturity, Emotional Instability, and Interpersonal Agreeableness. The 7-item Interpersonal Agreeableness scale of the HOI-R, which in the present study is called the HOI-RV, was created using modified items from the Marlowe-Crowne Social Desirability scale, and was intended to identify recruits who have responded to the HOI-R in a socially desirable rather than a truthful manner (Fiedler et al., 1997; Garb et al., 2011; Klonsky, Oltmanns, Turkheimer & Fiedler; 2000). The HOI-RV is the first of four rare virtue (RV) scales included in the present study. Impression Management, also known as Rare Virtue, scales are intended to measure an individual's attempts at appearing morally and socially favorable. These items are described as desirable but uncommon traits or behaviors (Paulhus, 1998).

Marlowe-Crowne Social Desirability Scale

The Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960; Crowne, & Marlowe, 1964) is a self-report questionnaire that is intended to measure socially desirable responding (SDR). Specifically, it is the type of SDR measure known as an impression management or rare virtue scale, and is therefore the second IM/RV measure included in the present study. The MCSD generally shows only moderate to low correlations with measures of SDE, such as the Edwards Social Desirability scale, ($r = .35$), and tends to show higher correlations with scales that measure IM or "approval motivation" (Crowne & Marlowe, 1960; Paulhus, 1991). The 33 true-false items of the MCSD focus on ordinary behaviors, both personal and interpersonal. Each item either describes a trait that is desirable but uncommon, or undesirable but common. Higher scores are said to indicate a higher need for approval.

Minnesota Multiphasic Personality Inventory 2: Lie Scale

The Lie (L) Scale of the MMPI-2-RF, which is the most recent version of the MMPI, is referred to as the Uncommon Virtue scale (Ben-Porath & Tellegen, 2008). It was designed to identify individuals who were purposefully trying to appear socially desirable while taking the MMPI-2. The L-scale is one of several validity scales on the MMPI-2 and has been established as being a valid and reliable measure. It has been shown to have an average effect size (d) ranging from 0.95 to 1.19 in its ability to detect SDR (Baer, Wetter & Berry, 1992; Baer, Wetter & Berry, 1995; Bear & Miller, 2002). This scale consists of 15 true-false items that describe attitudes and practices that are undesirable but common. For all items in this scale, a “false” response is scored as an indication of SDR. The L-scale has shown high correlations with the Marlowe-Crowne, ($r = .54$), indicating that this scale is more a measure of IM than SDE (Hathaway & McKinley, 1951; Crowne & Marlowe, 1960; Paulhus, 1991).

Edwards Social Desirability Scale

The Edwards Social Desirability Scale (ESD) was developed by taking 37 items from the MMPI that were unanimously rated by judges as having exceptionally high or exceptionally low social desirability. The main difference between this social desirability scale and the three previously mentioned (i.e., HOI-RV, MCSD, and MMPI-2-L scale) is that the ESD scale belongs to the family of SDE scales, rather than to the family of IM/RV scales. According to Paulhus (1991), IM scales involve deliberately exaggerating one's virtues, or minimizing one's faults, in order to make oneself look better to a real or an imagined judge; whereas, SDE scales involve the tendency to self-attribute socially desirable traits in order to maintain a positive evaluation of oneself (see also Edwards, 1953; Edwards, 1959; Edwards, 1966). Edwards Social Desirability has been shown to have an effect size ranging from 0.65 to 1.22, indicating that it is able to identify individuals who are responding in a socially desirable manner (Baer, Wetter & Berry, 1992; Bear & Miller, 2002). This scale has internal consistency of $\alpha =$

.83, a test-retest reliability of about .67, and strong convergent validity by correlating with other SDR scales (Paulhus, 1991). The ESD scale is the first SDE measure included in the present study.

Balanced Inventory of Desirable Responding

The Paulhus Deception Scale, Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1998), is a self-report questionnaire that consists of two scales that measure SDR. The 40 items on the BIDR are to be rated on a five-point Likert type scale ranging from “Not True” to “Very True.” Twenty of the items reflect IM, while the other 20 reflect SDE. Together these two relatively uncorrelated questionnaires, ($r = .20$), capture the two dimensions of SDR and the divergent validity between these two subscales (Paulhus, 2002). The total BIDR scale has strong, positive correlation with the MCSD scale, ($r = .73$) and with ESD scale, ($r = .64$), showing concurrent validity as a measure of SDR (Paulhus, 1991; Paulhus, 1998, Paulhus, 2002). Internal reliability for the SDE subscale in the general population yields a Cronbach $\alpha = .75$ and $\alpha = .84$ for the IM subscale, revealing satisfactory to excellent reliability (Paulhus, 1998). Internal consistency for the IM subscale of the BIDR is $\alpha = .68$ and $\alpha = .75$ for the SDE subscale (Paulhus, 1991). The IM scale of the BIDR scale is the fourth IM/RV measure included in the present study. The SDE scale of the BIDR is the second SDE measure included in the present study.

Responding Desirably on Attitudes and Opinions 16

The Responding Desirably on Attitudes and Opinions Scale (RD-16; Schuessler, Hittle & Cardascia, 1979) was designed to detect SDR on attitude and opinion surveys. Respondents are asked to either agree or disagree to the 16 statements; higher scores indicate more SDR. The 16 statements are aimed at measuring the following traits with two questions each: dejection, social estrangement, social opportunism, trust, social contentment, anomie, expedience, and self-determination. This measure of SDR has an internal consistency alpha of $r = .64$. Paulhus (1991) reports that the RD-16 correlates poorly with measures of IM ($r = -.18$), but correlates much higher with measures of SDE ($r = .55$).

Thus, Paulhus concludes that the RD-16 is a measure of SDE. It is the third SDE measure included in the present study.

Big Five Inventory - 10 (+1)

The Big Five Personality Inventory (BFI; John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008) is a widely used personality measure designed to assess the five dimensions of normal personality: neuroticism, extraversion, openness, agreeableness, and conscientiousness. The 44-item measure consist of statements that the respondent rates on a five point scale from “strongly agree” to “strongly disagree” based on the degree he or she identifies with the item. The brief form of the BFI, the BFI-10, consists of two items for each of the five personality factors (Rammstedt & John, 2007). Internal reliability for the two-item scales of the BFI-10 is lower than the reliability for the corresponding full-length BFI scales. Most notably, the reliability of the two-item Agreeableness scale of the BFI-10 is $\alpha = .43$, whereas the reliability of the full-length BFI scale is $\alpha = .77$ (Rammstedt & John, 2007; Thalmayer, Saucier & Eigenhuis, 2011). Rammstedt and John (2007) recommend adding a third agreeableness question to increase reliability and validity of this subscale.

The Mini-Interpersonal Personality Item Pool

The Mini- Interpersonal Personality Item Pool (IPIP-20; Donnellan, Oswald, Baird & Lucas, 2006) is a shortened 20 item version of the original 50 item Interpersonal Personality Item Pool scale which is a measure of the Big Five personality factors. It was designed to assess neuroticism, extraversion, agreeableness, conscientiousness and openness, which here is labeled intellect/imagination. The measure consist of statements that the respondent rates on a five point scale from “very accurate” to “very inaccurate” based on the degree he or she identifies with the item. The measure contains four items per personality factor with internal consistencies at or above $\alpha = .60$, as well as test-retest reliabilities comparable to its parent measure.

Procedure

The experiment took place online. Participants carried out the study online using the SONA and Qualtrics systems, which the Psychology Department and the university subscribe to so that UTEP researchers can gather survey and questionnaire data online. Participants were escorted to a link that briefed them about the study and then given a separate link to the questionnaire packet. Each packet included an Informed Consent form (see Appendix A) and a demographics questionnaire (see Appendix B). They were then randomly assigned to one of two conditions. Three hundred and twenty-two participants were randomly assigned to the Control condition and asked to complete the measures anonymously according to the standard instructions for the instruments. Specifically, participants in this condition were given the following instructions before completing any questionnaires:

Please complete the questions on this questionnaire truthfully. Read each statement carefully and decide how well it describes you. (i.e., If the statement is true or mostly true for you, circle 'T' on your answer sheet. If the statement is false or mostly false for you, circle the 'F' on your answer sheet). Note that some questions may appear more than one time, please answer ALL items. As a reward, each of you will be entered into a drawing for \$50 in addition to the class credit you will receive for participating in this study.

Three hundred and thirty-one participants were assigned to the PD condition and asked to complete the measures according to instructions that encourage them to create an unrealistically positive impression. The instructions also offered participants a monetary incentive for distorting their responses in a positive direction. Specifically, participants in this condition were given the following instructions before completing any questionnaires:

Please complete the questions on this questionnaire as if you are trying to create a very good impression. As a motivation to you, your name will be entered in a drawing for \$50 if you successfully create a very good impression. Imagine that you are applying for a very desirable job and that all applicants must answer this questionnaire. The person who appears the most well-adjusted on the questionnaire will get the job. Therefore you must try to hide any psychological, emotional, or behavioral weaknesses and any signs of emotional distress. However, you must also be careful, because the questionnaire contains some questions that are designed to catch you if you try to give a false picture of yourself. So when you fill out the questionnaire, you must not only try to look psychologically and emotionally healthy, but you must also give the impression that you are answering the questions truthfully. That is, you must seem to be answering the

questions truthfully, even though in fact you may be answering some questions untruthfully. Note that some questions may appear more than one time, please answer ALL items.

Participants were to follow these instructions while completing the three IM scales: HOI-R, the MCSD, and the MMPI-2 Lie scale. Similarly, the same instructions carried over to the SDE scales: the ESD Scale, the BIDR, and the RD-16. Lastly, each participant completed a brief measure of the Big Five Inventory, BFI-10+1 and the IPIP-20, following either the standard instructions, or the PD instructions. Once all questionnaires were completed, participants were thanked and debriefed (see Appendix C).

Results

Basic Descriptive Statistics and Internal Reliability of all IM/RV, SDE, and Big Five Scales

Basic descriptive statistics (means and standard deviations) are provided in Table 1 for the IM/RV and SDE measures, the five BFI-10+1 and IPIP-20 scales, and the HOI-R subscales. Internal reliability statistics (coefficient alpha and inter-item correlations) for all HOI-R subscales, IM/RV and SDE measures, and for the five BFI-10+1 and IPIP-20 scales, under both the Control and PD conditions, are reported in Tables 2 and 3.

Hunsley and Mash (2008) have suggested the following standards for evaluating the internal validity of psychological scales: coefficient alpha values between .70-.79 are labeled as adequate internal consistency; values between .80-.89 are labeled as good internal consistency; and values greater than .90 are considered excellent internal consistency. As can be seen in Tables 2 and 3, in the Control condition (a) only two of the four RV scales (MCSD and the IM subscale of the BIDR) had internal reliability that was adequate or better, (b) only one of the three SDE scales (ESD) had reliability that was adequate or better, and (c) only one of the ten Big Five scales (the Extraversion subscale of the IPIP) had reliability that was adequate or better. Under the PD condition (a) all four of the IM/RV scales (MCSD, the IM subscale of the BIDR, the HOI-RV and the L scale) had internal reliability that was adequate or better, (b) two of the three SDE scales (ESD and the SDE subscale of the BIDR) had reliability that was adequate or better, and (c) only one of the ten Big Five scales (the Extraversion subscale of the IPIP) had reliability that was adequate or better. Mean, minimum and maximum inter-item correlations are also reported in Table 2.

Correlations of IM/RV and SDE scales With Each Other

Correlations among the IM/RV and SDE scales are reported in Table 4. As expected, the HOI-RV scale strongly and positively correlated with its parent scale, the MCSD, in both the Control condition ($r = .692, p < .01$) and in the PD condition, $r = .748, p < .01$). The HOI-RV was also

significantly and positively correlated with the other two IM/RV scales included in the study. Specifically, it significantly correlated with the L-scale (Control condition, $r = .354$, $p < .01$; PD condition, $r = .539$, $p < .01$) and the IM subscale of the BIDR (Control condition, $r = .482$, $p < .01$; PD condition, $r = .639$, $p < .01$). The HOI-RV scale also significantly correlated with the three SDE scales in the study, (ESD, the SDE subscale of the BIDR and the RD-16), although its correlations with the SDE scales was consistently lower than its correlations with the IM/RV scales (see Table 4).

The general pattern of intercorrelations among the SDE and IM/RV scales in the Control condition matched hypotheses based upon prior research: (a) the IM/RV scales exhibited moderate-to-strong correlations among themselves (Mean $r = .542$; Range = .354 to .692); (b) the SDE scales exhibited moderate-to strong correlations among themselves (Mean $r = .554$; Range = .466 to .600); (c) the correlation of IM/RV scales with SDE scales was generally significant but substantially smaller (Mean $r = .309$; Range = .165 to .467) than the correlations within each of these two groups of scales.

The general pattern of intercorrelations among the SDE and IM/RV scales in the PD condition was slightly different than the pattern just described for the Control condition. Specifically (a) the correlations among the IM/RV scales were higher than in the Control condition (Mean $r = .704$; Range = .539 to .801); (b) the correlations amongst the SDE scales were also somewhat higher than in the Control condition (Mean $r = .634$; Range = .541 to .708); (c) the correlation of IM/RV scales with SDE scales were substantially higher than in the Control condition (Mean $r = .505$; Range = .331 to .671), but still not as large as the correlations of IM/RV scales among themselves, or as the correlations of SDE scales among themselves.

Correlations of the Big Five Scales with Each Other and with IM/RV and SDE scales

Table 5 includes the intercorrelations for all the IM/RV and SDE scales, the Big Five personality scales of the BFI and IPIP-20, and the ten HOI-R subscales. As can be seen from this table, under the PD condition there were far more significant correlations than under the Control condition. Forty-eight

percent of the correlations were larger than .30 in the PD condition, compared with 20% of the correlations in the Control condition. The correlations among the Big Five personality scales were nearly twice as high in the PD condition (Mean $r = .297$; Range = .033 to .639) than in the Control condition (Mean $r = .167$; Range = .004 to .676). Furthermore, the correlations of IM/RV and SDE scales with the Big Five scales was higher in the PD condition (Mean $r = .364$; Range = .039 to .673) than in the Control condition (Mean $r = .210$; Range = .004 to .575 in the Control condition).

Exploratory Factor Analysis of the IM/RV, SDE, and Big Five Scales

Exploratory factor analyses of the IM/RV, SDE and Big Five scales were conducted for each of the two conditions. Parallel Analysis (PA; Patil, Surendra, Sanjay & Donovan, 2007) and screeplots were used to determine how many factors should be retained. In the Control condition, the first ten eigenvalues were as follows: 4.881, 2.105, 1.635, 1.278, 1.050, .972, .761, .700, .658, and .567. Both PA and the screeplot of a principal components analysis (PCA) indicated that five factors should be retained. Table 6 shows the five-factor solution for the Control condition, using principal axis extraction and Oblimin rotation.

As can be seen in Table 6, the first factor in the Control condition was defined by the IM/RV scales, and therefore was named "Rare Virtues (RV)." The second factor in the Control condition had high loadings on the SDE scales, as well as the two Big Five Neuroticism scales in the opposite direction; this factor was named "Self-Deceptive Enhancement and Neuroticism (SDE+N)." The third factor was defined by the Big Five Conscientiousness and Agreeableness scales and was labeled "Conscientiousness and Agreeableness (C+A);" and the fourth and fifth factors were defined by the two Big Five Extraversion and Openness/Intellect scales respectively and were labeled "Extraversion (E)" and "Openness (O)." Table 7 presents the intercorrelations of these five factors in the Control condition.

Similar analyses were carried out for the PD condition. The first ten eigenvalues of a PCA were as follows: 7.549, 1.822, 1.279, .944, .807, .791, .568, .538, .456 and .393. Parallel Analysis and the

screeplot of a PCA indicated that three factors should be retained in the factor analysis for the PD condition. As seen in Table 8, factor one was defined by the seven SDR scales as well as the two Big Five Neuroticism and Conscientiousness scales and was therefore named “Socially Desirable Responding, Neuroticism, and Conscientiousness (SDR+C/N).” The second factor was named “Extraversion (E),” as it was defined by the two Big Five Extraversion scales. Factor three was defined by the two Big Five Openness/Intellect scales and the IPIP-20 Agreeableness scale; it was named “Openness/Intellect (O).” Table 9 presents the intercorrelations of these three factors in the PD condition.

Analysis of Variance for IM/RV and SDE Measures, the BFI-10 and IPIP-20, and the HOI-R subscales

A series of ANOVAs were performed to compare the Control and PD conditions on each of the IM/RV and SDE measures, as reported in Table 10. There was a significant difference on all measures at $p < .01$, such that individuals in the PD condition had significantly higher means on all IM/RV and SDE scales compared to the Control condition (Mean $d = .474$; Range of $d = .239$ to $.739$). This means that the experimental manipulation was effective and that participants in the PD condition answered all SDR measures in a more socially desirable manner than participants in the Control condition. Effect sizes were larger for the IM scales (Mean $d = .568$; Range = $.410$ to $.739$) than for the SD scales (Mean $d = .348$; Range = $.239$ to $.429$).

Similar ANOVAs were performed to compare the two conditions on each of the Big Five personality traits (see Table 11). There was a significant difference ($p < .01$) on most measures. Specifically, individuals in the PD condition had significantly lower scores on both Neuroticism scales ($d = -.653$ for BFI-N and $-.392$ for IPIP-N) and significantly higher scores on both Conscientiousness scales ($d = .608$ for BFI-C and $.437$ for IPIP-C) and Agreeableness scales ($d = .340$ for BFI-A and $.233$ for IPIP-A). In addition, the PD group scored significantly higher on the IPIP Extraversion scale ($d =$

.222) but not the BFI-10 Extraversion scale ($d = .115$). Similarly, the PD group scored significantly higher on the IPIP Intelligence scale ($d = .323$) but not the BFI-10 Openness scale ($d = .120$).

As these results show, the participants in the PD condition were generally more likely than participants in the Control condition to endorse socially acceptable characteristics (i.e., conscientiousness and agreeableness), and were less willing to endorse a socially unacceptable characteristic (i.e. neuroticism). The largest differences between groups were found for Neuroticism and Conscientiousness, indicating that these two traits were seen as either very socially desirable (Conscientiousness) or undesirable (Neuroticism).

Another ANOVA was performed to compare the Control and PD conditions on all of the HOI-R subscales (see Table 12). There was a significant difference on all measures at $p < .05$ with the exception of the HOI-R subscale, Health Concerns ($d = .057$). Individuals in the PD condition had significantly higher means than individuals in the Control condition on Composure ($d = .440$), School Success ($d = .382$), Family Support ($d = .211$) and Emotional Stability ($d = .158$) compared to those in the Control condition. Participants in the PD condition had significantly lower means on Parental Conflict ($d = -.333$), Antisocial Tendencies ($d = -.328$), Immaturity ($d = -.265$), and Introversion ($d = -.155$). Once again, participants in the PD condition were less willing to endorse socially unacceptable traits (i.e. Antisocial Tendencies, Introversion, Parental Conflict, Immaturity), and more willing to endorse socially acceptable, or positive traits (i.e. School Success, Composure, Family Support, Emotional Stability). The largest differences between groups were found for Composure, School Success, Parental Conflict and Antisocial Tendencies.

Exploratory Analyses by Gender

Several analyses were computed after these initial results in order to identify whether there were any gender differences with regards to the IM/RV and SDE measures. Exploratory factor analyses of the IM/RV, SDE and Big Five scales were conducted for males and females in each of the two

conditions. Parallel Analysis (PA; Patil, Surendra, Sanjay & Donovan, 2007) and screeplots were used to determine how many factors should be retained. Both PA and the screeplot of a principal components analysis (PCA) indicated that three factors should be retained in all four factor analyses. Specifically, the first seven eigenvalues for males in the Control condition were: 5.565, 1.928, 1.401, 1.283, 1.134, .972, .782; the first seven eigenvalues for females in the Control condition were: 4.694, 2.243, 1.630, 1.307, 1.127, .954, .712; the first seven eigenvalues for males in the PD condition were: 7.602, 1.748, 1.417, 1.057, .829, .777, .650; and the first seven eigenvalues for females in the PD condition were: 7.722, 1.820, 1.326, .863, .802, .741, .565. Tables 13 through 16 show the three factor solutions using principal axis extraction and Oblimin rotation for the 110 male participants in the Control condition, the 212 female participants in the Control condition, the 118 male participants in the PD condition, and 213 female participants in the PD condition respectively.

A (2 x 2) ANOVA was performed to compare the mean scores on all IM/RV and SDE measures on participant sex and experimental condition (standard instructions versus PD instructions). Results are reported in Tables 17 and 18. There was a significant main effect of experimental condition on all measures at $p < .05$, such that individuals in the PD condition had significantly higher means on all IM/RV and SDE scales compared to the Control condition (Mean $d = .488$; Range of $d = .210$ to $.661$). This means that both male and female participants answered in a more socially desirable manner in the PD condition compared to participants in the control condition. There was a significant main effect of gender for the HOI-RV, the ESD, and the IM subscale of the BIDR at $p < .01$, and no significant interaction of gender and experimental condition. The between-condition effect sizes (standard instructions versus PD instructions) were only slightly larger for male participants (Mean $d = .499$; Range = $.282$ to $.661$) than for female participants (Mean $d = .477$; Range = $.210$ to $.614$).

Discussion

Three findings of the present study are particularly notable. First, consistent with prediction, the present study found that the factor structure of IM/RV and SDE scales was much different among participants who deliberately engaged in PD than among Control Participants who completed questionnaires according to standard instructions. This finding strongly suggests that the underlying meaning of IM/RV and SDE scales is different among individuals who are positively distorting than among individuals who are not.

Second, the present study found that the factor structure of some but not all Big Five personality variables was different among participants who engaged in PD than among Control Participants. This finding suggests that the underlying meaning of some Big Five personality factors is different among individuals who are positively distorting than among individuals who are not. Third, the findings of the present study indicate that the HOI-RV scale has fair internal reliability and moderate concurrent validity as a measure of the construct commonly called Impression Management. Each of these three findings is discussed in detail in the following sections.

The Effect of PD on the Factor Structure and Meaning of SDR Scales

Prior factor analyses of SDR scales have found that SDE scales generally load on a factor sometimes designated as "alpha," whereas RV scales load on a separate factor sometimes designated as "gamma" (Wiggins, 1964; Paulhus, 1984; Pauls & Crost, 2003; Holden & Passey, 2009). As hypothesized, the exploratory factor analysis from the present study's Control condition yielded these same two factors (see Table 6). Also replicating prior studies, Neuroticism scales in the Control condition showed substantial negative loadings on the alpha factor defined by SDE scales (Pauls & Crost, 2003).

Based on correlations reported by Wiggins (1959, p. 424), it was hypothesized that a different factor structure would be found in the PD condition in the present study. Specifically, it was

hypothesized that SDE and IM/RV scales would both load on the same factor in the PD condition. The present results supported this hypothesis: Under the PD condition, both IM/RV and SDE measures loaded on the same factor (see Table 8).

These results indicate that although IM/RV and SDE scales measure *different* constructs when individuals are unmotivated to dissimulate, these scales measure *only one* construct when individuals are motivated to positively distort. What is the nature of this construct, represented by the first factor of the factor analytic solution in the PD condition? Is it IM or SDE? Two findings of the present study support the view that this construct is IM.

First, the present study found that scores on all three SDE scales were significantly higher in the PD condition than in the Control condition (Mean $d = .348$). That is, these SDE scales all behaved the way that IM/RV scales are theorized to behave, by elevating *in response to situational incentives to positively distort*. According to theory, SDE scales are not generally expected to behave this way because they supposedly measure a relatively stable characteristic of the individual (i.e. a tendency to engage in self-deceptive, overly positive evaluations of the self). Thus, in the present study, at least in the PD condition, the SDE scales seemed to behave more like IM than SDE scales. Similar findings have been reported in prior research on the MMPI and MMPI-2. Some MMPI and MMPI-2 scales measure SDE and load primarily on the alpha factor. These include the K-scale, the L+K scale, the Positive Malinger (Mp) scale, and the Wiggins Social Desirability scale. In several meta-analyses it was found that individuals who were instructed to engaged in faking-good behavior scored substantially higher (over one standard deviation) on these MMPI SDE scales compared with individuals who completed the MMPI under standard instructions (Baer, Wetter & Berry, 1992; Baer, Wetter & Berry, 1995; Baer & Miller, 2002). In other words, these MMPI SDE scales behaves like IM scales, changing in response to PD instructions, just as the SDE scales in the present study did.

A second finding of the present study is also relevant: Not only IM and SDE scales, but also Neuroticism and Conscientiousness scales had high loadings on the first factor that emerged in the factor analysis of the PD condition. The implications of this finding are discussed further in the next section.

The Effect of PD on the Factor Structure and Meaning of Big Five Scales

The present study found that the factor structure of Big Five scales changed when participants attempted to positively distort. The first change involved measures of Neuroticism. In the Control condition of the present study, as in prior studies (e.g., Wiggins, 1959), Neuroticism scales loaded strongly and negatively on the same factor as SDE scales, but not on the factor defined by IM/RV scales (see Table 6). In the PD condition, however, the neuroticism, SDE, and IM/RV scales all loaded highly on the same factor, which we have tentatively labeled as "Impression Management" (see Table 8).

A second change between the two conditions involved the Conscientiousness scales. In the Control condition, these scales loaded on the same factor as Agreeableness scales, but not on the RV and SDE+N factors. In the PD condition, however, Conscientiousness scales loaded on the same "IM" factor as did the so-called IM/RV, SDE, and Neuroticism scales.

In summary, when individuals attempted to positively distort, then IM/RV, SDE, Neuroticism, and Conscientiousness scales all exhibited substantial loadings on the same underlying factor and apparently reflected the same underlying construct. These same scales (IM/RV, SDE, Neuroticism and Conscientiousness) were also the ones that exhibited the largest change in mean scores between the Control and PD conditions. Prall (2012) has called this change in scores "Positive Distortion Shift" (PD-Shift). The fact that the scales with the largest PD-Shift also loaded on the first factor strongly suggests that this factor was composed of scores sensitive to attempted PD, i.e. Impression Management.

Thus, the present findings suggest that although IM/RV, SDE, Neuroticism and Conscientiousness scales may measure quite different constructs when individuals are not attempting to feign, these same scales all function as IM/RV measures among individuals who are attempting to

positively distort. Previous research found that personality traits that correlate with IM/RV or SDE scales under Control conditions had no relationship under PD instructions (Pauls & Crost, 2004). However, the results in this study emphasize that under the PD condition Conscientiousness, Neuroticism, and perhaps Agreeableness are significantly related to IM/RV and SDE scales and reflect the same traits that are measured by SDR scales.

Psychometric Properties of the HOI-RV scale

A secondary purpose of the present study was to examine the psychometric properties of the HOI-RV subscale of the HOI-R and to explore its validity as a measure of IM. First, norms for this subscale were calculated based on the present college sample (see Table 10). Specifically, the mean of the HOI-RV was found to be 4.406 ($SD = 1.793$) under standard instructions and 5.145 ($SD = 1.811$) when participants were instructed to positively distort.

Second, the internal reliability of the HOI-RV subscale as measured by coefficient alpha was found to be .640 under standard instructions (see Table 2), which was approximately comparable to the internal reliability of the three other IM/RV scales in the present study: .784 for the MCSD, .702 for the BIDR-IM scale, and .543 for the MMPI-2-L scale. Under PD instructions (see Table 2) the internal reliability of the HOI-RV was found to be .712, which was somewhat lower than the internal reliability of the three other IM/RV scales: .887 for the MCSD, .884 for the BIDR-IM scale, and .768 for the MMPI-2-L scale. According to guidelines suggested by Hunsley and Mash (2008) the HOI-RV had an “adequate” internal consistency compared to MCSD and BIDR-IM scales’ “good” internal consistency.

The internal reliability of the HOI-RV subscale was also examined using inter-item correlations. The mean inter-item correlation of HOI-RV items under standard instructions was .199, which was higher than the figures reported for the other IM/RV scales: .118 for the Marlowe-Crowne Social Desirability Scale, .126 for the BIDR-IM scale, and .117 for the MMPI-2-L scale (see Table 2). In the PD condition, the mean inter-item correlation of HOI-RV items was .254, which was higher than the

figures reported for the other IM/RV scales: .187 for the MCSD scale, .245 for the BIDR-IM scale, and .184 for the MMPI-2-L scale (see Table 2). These findings indicate that the items of the HOI-RV exhibited substantial inter-item correlations. However, because the scale is relatively short, its internal reliability as measured by coefficient alpha (.640) was not better than the reliability of the other IM/RV scales.

Next, the concurrent validity of the HOI-RV was analyzed by computing its correlation with other IM/RV measures (see Table 4). Most items of the HOI-RV were modeled on the items of the MCSD, with slight modifications. As predicted, these two scales were substantially correlated, $r = .692$, when participants were given standard instructions. In addition, the HOI-RV correlated $r = .482$ with the BIDR-IM scale, and it correlated $r = .354$ with the L-scale. In the PD group, the HOI-RV correlated $r = .748$ with the MCSD, $r = .639$ with the BIDR-IM scale, and $r = .539$ with the L-scale.

Validity was also examined by comparing mean HOI-RV scores in the Control and PD conditions. As can be seen in Table 10, the effect size for the difference between these groups was $d = .410$. Corresponding effect sizes were $d = .739$ for the MCSD, $d = .556$ for the BIDR-IM scale, and $d = .567$ for the L-scale. As can be seen, the HOI-RV scale exhibited moderate power to detect intentional positive distorting, but was not as sensitive as the other, well-validated IM/RV scales.

The effect of PD on other HOI-R scales was also examined (see Table 12). When participants were asked to create a good impression in the PD condition, there was a significant difference on all measures, compared to the Control condition, with the exception of the HOI-R subscale, health concerns. Individuals in the PD condition had significantly higher means on School Success, Composure, Family Support and Emotional Stability compared to those in the Control condition, and significantly lower means on Antisocial Tendencies, Introversion, Parental Conflict and Immaturity. These results indicate that participants in the PD condition were less willing to endorse socially unacceptable traits (i.e. Antisocial Tendencies, Introversion, Parental Conflict, Immaturity), and more

willing to endorse socially acceptable, or positive traits (i.e. School Success, Composure, Family Support, Emotional Stability).

Practical Implications

The results of the present study may have useful implications for the counseling and psychological assessment fields. It has been made clear that individuals engaging in IM are intent on making themselves appear as well adjusted, or as favorable as possible. There are various reasons an individual may wish to appear favorable to another individual: job interviews, acceptance into a training program, individuals involved in legal proceedings, prisoners seeking a transfer, counseling clients who wish to appear in good psychological health, a military recruit, or as in this study, a monetary reward (Baer, Wetter & Berry, 1992; Thunholm, 2001). This study and others similar to it show that it is possible to discriminate between a group of individuals who are engaging in intentional SDR and a group of individuals who are not deliberately attempting to positively distort.

Self-assessment measures were designed to accurately identify a particular attribute in the test take with the intentions of relating this attribute to meaningful future behaviors (Ziegler, MacCann & Roberts, 2012). However, the question remains whether such measures contribute to more valid assessment in clinical or employment settings when there is IM involved. Past research suggests that the use of SDR measures may not lead to better validity at the individual level. Various studies have failed to show that SDR measures increase predictive validity for job performance and work relationships in civilian or military settings (Carlson, Carlson & Ferguson, 2011; Ellingson, Sackett & Hough, 1999; McCrae & Costa, 1983; Ones, Viswesvaran & Reiss, 1996). Considering that SDR measures appear to have limited usefulness for improving validity, there may be no real benefit in identifying an individual who engages in IM for his or her own personal gain.

Limitations and Future Directions

The present study had several limitations. First, the majority of participants in this study were young, Hispanic undergraduate students. It is difficult to know if there are any cultural or language difference that may have affected the correlations among the scales. Future research may try to replicate these findings with a more diverse population to ensure that these findings are not culturally based. Another limitation of this study is the small sample of SDR measures that were used. Some of the measures that were used were related to one another (the HOI-RV's parent scale is the MCSD); both ESD scale and the Lie Scale use items from the MMPI which is used to identify psychopathology in individuals, which could account for a relationship with Neuroticism. The RD-16 did not relate well with many of the measures (although being identified by Paulhus as a measure of SDR, 1991), indicating that if more measures of SDR were included, perhaps a different factor pattern might emerge. Future research may include a larger array of SDR measures to identify what type of factor patterns occur. Lastly, future research should aim to identify whether SDR scales can improve validity under faking good, faking bad and normal conditions. Identifying any area in which SDR measures improve validity would support their future usefulness in personality, employment and clinical assessment.

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Table 1: Means and Standard Deviations for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures, Big Five personality scales, and History Opinion Inventory (HOI-R) subscales for both Control and Positive Distortion conditions.

	Control <i>M (SD)</i>	PD <i>M (SD)</i>
HOI-RV	4.406 (1.793)	5.145 (1.811)
MCSD	17.053 (5.412)	21.580 (6.925)
LS	3.573 (2.128)	5.081 (3.103)
ESD	24.407 (6.249)	26.918 (7.048)
RD-16	12.706 (2.354)	13.272 (2.376)
BIDR-SDE	64.044 (8.956)	68.187 (10.297)
BIDR-IM	59.158 (10.266)	65.994 (14.027)
BFI-E	6.506 (1.802)	6.716 (1.866)
BFI-A	11.839 (2.138)	12.574 (2.180)
BFI-N	5.795 (2.047)	4.397 (2.229)
BFI-C	6.783 (1.679)	7.825 (1.746)
BFI-O	7.059 (1.654)	7.260 (1.705)
IPIP-E	12.910 (3.994)	13.764 (3.685)
IPIP-A	14.944 (2.806)	15.622 (3.001)
IPIP-N	11.404 (3.244)	10.094 (3.431)
IPIP-C	13.699 (2.990)	15.085 (3.341)
IPIP-I	14.814 (2.905)	15.792 (3.025)
H-HC	2.86 (1.544)	2.946 (1.474)
H-SS	4.678 (1.658)	5.317 (1.686)

H-C	2.454 (1.392)	3.104 (1.557)
H-AT	1.838 (0.980)	1.517 (0.979)
H-FS	7.974 (2.780)	8.562 (2.783)
H-W	2.889 (1.953)	2.601 (1.762)
H-CP	2.522 (1.517)	2.015 (1.525)
H-I	2.141 (1.124)	1.83 (1.224)
H-ES	5.085 (1.552)	5.333 (1.596)

Note: History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); Big Five Inventory - Extraversion (BFI-E); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Neuroticism (BFI-N); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); History Opinion Inventory - Health Concerns (H-H); History Opinion Inventory - School Success (H-SS); History Opinion Inventory - Composure (H-C); History Opinion Inventory - Antisocial Tendencies (H-A); History Opinion Inventory - Family Support (H-FS); History Opinion Inventory - Withdrawn/Introversion (H-W); History Opinion Inventory - Conflict with Parents (H-CP); History Opinion Inventory - Immaturity (H-I); History Opinion Inventory - Emotional Stability (H-ES).

Table 2: Coefficient Alpha and Inter-Item Correlations for History Opinion Inventory (HOI-R) subscales, Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures, and the Big Five personality scales for both Control and Positive Distortion conditions.

	Control				Positive Distortion			
	Inter-Item Correlation				Inter-Item Correlation			
	alpha	Mean	Min.	Max.	alpha	Mean	Min.	Max.
H-H	.631	.256	.128	.371	.599	.232	.138	.308
H-SS	.614	.181	.019	.409	.683	.232	.020	.417
H-C	.499	.164	.081	.306	.669	.286	.165	.427
H-A	.206	.079	.009	.245	.349	.113	.013	.234
H-FS	.822	.313	.089	.607	.844	.342	.151	.491
H-W	.639	.183	.051	.576	.565	.146	.033	.551
H-CP	.605	.235	.113	.310	.646	.270	.148	.349
H-I	.286	.089	.011	.186	.446	.138	.025	.312
H-ES	.547	.161	.002	.531	.624	.203	.055	.452
HOI-RV	.640	.199	.054	.397	.712	.254	.104	.521
MCSD	.784	.118	.002	.329	.887	.187	.001	.480
LS	.543	.117	.001	.340	.768	.184	.001	.495
ESD	.835	.137	.000	.524	.890	.181	.001	.542
RD-16	.632	.110	.000	.502	.683	.132	.001	.468
BIDR-SDE	.663	.105	.001	.365	.728	.148	.002	.433
BIDR-IM	.702	.126	.002	.430	.844	.245	.066	.541
BFI-E	.397	.252	---	---	.387	.248	---	---
BFI-A	.479	.250	.156	.326	.547	.310	.223	.433
BFI-N	.395	.247	---	---	.552	.387	---	---
BFI-C	.202	.120	---	---	.242	.160	---	---

BFI-O	-.138	-.070	---	---	-.080	-.042	---	---
IPIP-E	.769	.458	.387	.533	.719	.391	.331	.511
IPIP-A	.562	.247	.176	.304	.679	.352	.280	.434
IPIP-N	.473	.221	.039	.563	.561	.265	.005	.657
IPIP-C	.506	.204	.174	.252	.659	.331	.244	.424
IPIP-I	.581	.258	.115	.434	.660	.330	.149	.510

Note: History Opinion Inventory - Health Concerns (H-H); History Opinion Inventory - School Success (H-SS); History Opinion Inventory - Composure (H-C); History Opinion Inventory - Antisocial Tendencies (H-A); History Opinion Inventory - Family Support (H-FS); History Opinion Inventory - Withdrawn/Introversion (H-W); History Opinion Inventory - Conflict with Parents (H-CP); History Opinion Inventory - Immaturity (H-I); History Opinion Inventory - Emotional Stability (H-ES); History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); Big Five Inventory - Extraversion (BFI-E); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Neuroticism (BFI-N); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I).

Table 3: Coefficient Alpha for Impression Management/Rare Virtue Measures (IM/RV), Self-Deceptive Enhancement Measures (SDE), and the Big Five Personality scales for both Control and Positive Distortion Conditions arranged by the quality of reliability.
(Good and adequate reliabilities are in bold font).

Scale Type	Control	Positive Distortion
RV		
MCSD	.784	.887
BIDR-IM	.702	.844
HOI-RV	.640	.712
LS	.543	.768
SDE		
ESD	.835	.890
BIDR-SDE	.663	.728
RD-16	.632	.683
BFI-10+1		
BFI-A	.479	.547
BFI-E	.397	.387
BFI-N	.395	.552
BFI-C	.202	.242
BFI-O	-.138	-.080
IPIP-20		
IPIP-E	.769	.719
IPIP-I	.581	.660
IPIP-A	.562	.679

IPIP-C	.506	.659
IPIP-N	.473	.561

Note: Marlowe-Crowne Social Desirability scale (MCSD); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); History Opinion Inventory - Rare Virtue scale (HOI-RV); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Responding Desirably on Opinions and Attitudes scale (RD-16); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Extraversion (BFI-E); Big Five Inventory - Neuroticism (BFI-N); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N).

Table 4: Correlations of Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) scales. Correlations for Control Condition are Below Diagonal, and Correlations for Positive Distortion Condition are Above Diagonal.

	HOI-RV	MCSD	LS	ESD	RD-16	BIDR SDE	BIDR IM
HOI-RV	---	.748**	.539**	.358**	.331**	.415**	.639**
MCSD	.692**	---	.767**	.664**	.542**	.671**	.801**
LS	.354**	.609**	---	.530**	.399**	.565**	.729**
ESD	.165**	.467**	.296**	---	.708**	.652**	.580**
RD-16	.216**	.383**	.199**	.597**	---	.541**	.487**
BIDR-SDE	.210**	.388**	.278**	.600**	.466**	---	.615**
BIDR-IM	.482**	.592**	.524**	.321**	.309**	.378**	---

**P < .01 (two-tailed)

Note: History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM).

Table 5: Intercorrelations of Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement scales (SDE), the History Opinion Inventory (HOI-R) subscales, and the Big Five Inventory (BFI) and Mini-IPIP (IPIP-20) scales. Correlations for Control Condition are Below Diagonal, and Correlations for Positive Distortion Condition are Above Diagonal.

	H-H	H-SS	H-C	HA	H-FS	H-W	H-CP	H-I	H-ES
H-H	---	.058	.009	-.015	.001	-.107	-.012	-.087	.020
H-SS	.060	---	.346**	-.403**	.423**	-.082	-.321**	-.335**	.440**
H-C	-.001	.147**	---	-.259**	.432**	-.250**	-.347**	-.523**	.459**
H-A	.047	-.147**	-.022	---	-.288**	-.104	.187**	.340**	-.315**
H-FS	.086	.215**	.370**	-.161**	---	-.183**	-.425**	-.364**	.420**
H-W	-.106	-.130*	-.147**	-.203**	-.249**	---	.154**	.175**	-.261**
H-CP	-.039	-.183**	-.173**	-.028	-.425**	.057	---	.327**	-.419**
H-I	-.080	-.079	-.454**	-.045	-.170**	.063	.183**	---	-.455**
H-ES	.075	.259**	.390**	-.050	.372**	-.184**	-.188**	-.234**	---
HOI-RV	-.075	.255**	.249**	-.163**	.211**	.012	-.117*	-.086	.228**
MCSD	.080	.310**	.446**	-.175**	.341**	-.067	-.193**	-.259**	.366**
LS	-.001	.136*	.262**	-.084	.120*	.089	-.097	-.141*	.132*
ESD	.168**	.237**	.521**	.028	.311**	-.247**	-.210**	-.428**	.541**
RD-16	.084	.295**	.343**	-.105	.297**	-.180**	-.154**	-.272**	.484**
BIDR-SDE	.061	.151**	.448**	.109	.270**	-.257**	-.185**	-.291**	.403**
BIDR-IM	.057	.235**	.208**	-.139*	.162**	.085	-.078	-.129*	.200**
BFI-E	.039	.061	.167**	.167**	.139*	-.571**	-.021	-.028	.144**
BFI-A	.047	.068	.205**	-.092	.246**	-.046	-.185**	-.183**	.266**
BFI-C	.172**	.184**	.225**	.011	.075	-.022	-.051	-.208**	.237**
BFI-N	.015	-.031	-.492**	-.066	-.210**	.160**	.125*	.411**	-.341**

BFI-O	-.027	.056	-.119*	-.100	-.070	-.018	.055	-.011	-.113
IPIP-E	.074	.017	.145**	.161**	.093	-.622**	-.017	-.043	.107
IPIP-A	.050	.054	-.028	-.084	.071	-.081	.011	-.039	.119*
IPIP-C	.168**	.235**	.216**	-.027	.153**	-.075	-.071	-.248**	.254**
IPIP-N	-.013	-.093	-.472**	.112*	-.167**	.007	.200**	.450**	-.449**
IPIP-O	.032	.111*	.064	.038	-.012	.078	-.094	-.146**	.026

Table 5 continued

	HOI-RV	MCSD	LS	ESD	RD-16	BIDR-SDE	BIDR-IM
H-H	.017	.071	-.018	.089	.110*	.107	.041
H-SS	.398**	.508**	.314**	.438**	.431**	.382**	.421**
H-C	.419**	.593**	.505**	.593**	.441**	.527**	.511**
H-A	-.409**	-.484**	-.382**	-.283**	-.207**	-.252**	-.456**
H-FS	.392**	.498**	.392**	.530**	.424**	.376**	.430**
H-W	-.087	-.191**	-.052	-.313**	-.155**	-.242**	-.075
H-CP	-.270**	-.394**	-.301**	-.440**	-.355**	-.299**	-.370**
H-I	-.398**	-.540**	-.438**	-.544**	-.456**	-.421**	-.494**
H-ES	.345**	.483**	.362**	.637**	.515**	.438**	.406**
HOI-RV	---	.748**	.539**	.358**	.331**	.415**	.639**
MCSD	.692**	---	.767**	.664**	.542**	.671**	.801**
LS	.354**	.609**	---	.530**	.399**	.565**	.729**
ESD	.165**	.467**	.296**	---	.708**	.652**	.580**
RD-16	.216**	.383**	.199**	.597**	---	.541**	.487**
BIDR-SDE	.210**	.388**	.278**	.600**	.466**	---	.615**
BIDR-IM	.482**	.592**	.524**	.321**	.309**	.378**	---
BFI-E	-.008	.089	-.011	.289**	.208**	.221**	-.016
BFI-A	.320**	.415**	.201**	.358**	.275**	.392**	.319**
BFI-C	.183**	.337**	.152**	.462**	.349**	.378**	.316**
BFI-N	-.145**	-.280**	-.199**	-.575**	-.247**	-.463**	-.166**
BFI-O	-.045	-.006	-.054	-.057	.007	-.026	.080
IPIP-E	-.076	-.004	-.074	.240**	.201**	.265**	-.110*
IPIP-A	.165**	.187**	.069	.145**	.185**	.148**	.168**
IPIP-C	.209**	.386**	.239**	.368**	.331**	.402**	.380**
IPIP-N	-.078	-.246**	-.165**	-.564**	-.407**	-.360**	-.189**
IPIP-O	-.007	.063	.019	.133*	.149**	.185**	.153**

Table 5 continued

	BFI-E	BFI-A	BFI-C	BFI-N	BFI-O	IPIP-E	IPIP-A	IPIP-C	IPIP-N	IPIP-I
H-H	.073	.051	.220**	-.086	.036	.081	.010	.114*	-.057	.080
H-SS	.071	.313**	.375**	-.234**	.147**	.159**	.163**	.376**	-.299**	.240**
H-C	.161**	.364**	.392**	-.528**	.167**	.246**	.145**	.365**	-.580**	.185**
H-A	.058	-.296**	-.282**	.121*	-.038	.051	-.197**	-.322**	.266**	-.112*
H-FS	.045	.285**	.275**	-.292**	.088	.061	.145**	.284**	-.389**	.180**
H-W	-.493**	-.051	-.122*	.247**	-.061	-.538**	-.046	-.087	.223**	-.026
H-CP	-.045	-.238**	-.295**	.296**	-.112*	-.104	-.156**	-.287**	.354**	-.185**
H-I	-.121*	-.318**	-.433**	.403**	-.162**	-.209**	-.178**	-.312**	.513**	-.234**
H-ES	.196**	.287**	.411**	-.440**	.130*	.320**	.193**	.339**	-.544**	.187**
HOI-RV	-.039	.417**	.356**	-.224**	.102	.048	.254**	.427**	-.349**	.156**
MCSD	.137*	.534**	.559**	-.459**	.192**	.226**	.350**	.571**	-.562**	.297**
LS	.066	.481**	.485**	-.419**	.150**	.130*	.273**	.498**	-.480**	.265**
ESD	.242**	.417**	.591**	-.629**	.196**	.389**	.283**	.512**	-.673**	.341**
RD-16	.158**	.434**	.494**	-.467**	.191**	.327**	.229**	.459**	-.547**	.301**
BIDR-SDE	.227**	.458**	.545**	-.524**	.284**	.350**	.280**	.560**	-.555**	.344**
BIDR-IM	.054	.557**	.544**	-.430**	.295**	.157**	.394**	.609**	-.562**	.349**
BFI-E	---	.068	.173**	-.305**	.148**	.587**	.107	.033	-.231**	.116*
BFI-A	.096	---	.456**	-.279**	.223**	.216**	.484**	.500**	-.398**	.297**
BFI-C	.088	.320**	---	-.417**	.227**	.275**	.238**	.579**	-.453**	.280**
BFI-N	-.244**	-.273**	-.182**	---	-.215**	-.352**	-.184**	-.313**	.639**	-.327**
BFI-O	.066	.086	.046	.044	---	.247**	.239**	.212**	-.226**	.405**

IPIP-E	.676**	.107	.081	-.209**	.034	---	.295**	.209**	-.293**	.215**
IPIP-A	.153**	.306**	.115*	-.029	.156**	.222**	---	.288**	-.266**	.335**
IPIP-C	.050	.350**	.419**	-.248**	.068	.077	.240**	---	-.375**	.274**
IPIP-N	-.022	-.277**	-.161**	.513**	.061	-.004	-.021	-.220**	---	-.331**
IPIP-O	.060	.131*	.096	-.101	.347**	.096	.183**	.147**	-.072	---

*P < .05 (one-tailed)

**P < .01 (one-tailed)

Note: History Opinion Inventory - Health Concerns (H-H); History Opinion Inventory - School Success (H-S); History Opinion Inventory - Composure (H-C); History Opinion Inventory - Antisocial Tendencies (H-A); History Opinion Inventory - Family Support (H-FS); History Opinion Inventory - Withdrawn/Introversion (H-W); History Opinion Inventory - Conflict with Parents (H-CP); History Opinion Inventory - Immaturity (H-I); History Opinion Inventory - Emotional Stability (H-ES); History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); Big Five Inventory - Extraversion (BFI-E); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Neuroticism (BFI-N); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I).

Table 6: Principal Axis Factor Analysis with Oblimin Rotation for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures and Big Five personality scales. Participants in Control Condition Only (Loadings Greater than .45 are in Bold Print).

	Factors				
	RV	SDE+N	C+A	E	O
MCSD	-.896	-.052	.046	.074	-.034
HOI-RV	-.695	.129	.063	-.007	-.046
LS	-.657	-.095	-.103	-.010	-.015
BIDR-IM	-.616	-.023	.155	-.173	.142
IPIP-N	-.042	.730	.060	.122	-.023
ESD	-.079	-.702	.238	.142	.028
BFI-N	.082	.653	.056	-.123	.037
BIDR-SDE	-.107	-.418	.310	.120	.029
RD-16	-.059	-.342	.315	.090	.072
IPIP-C	-.074	-.049	.606	-.089	.012
BFI-C	.021	-.105	.606	-.031	-.034
BFI-A	-.104	-.071	.497	.062	-.038
IPIP-A	-.064	.164	.318	.158	.157
IPIP-E	.138	-.003	.046	.886	.000
BFI-E	-.044	-.044	-.066	.756	-.002
IPIP-I	-.024	-.130	-.094	.024	.709
BFI-O	.044	.092	.038	-.031	.533

Note: Impression Management/Rare Virtue (RV); Self-Deceptive Enhancement and Neuroticism (SDE+N); Conscientiousness and Agreeableness (C+A); Extraversion (E); Openness/Intellect (O); Marlowe-Crowne Social Desirability scale (MCSD); History Opinion Inventory - Rare Virtue scale

(HOI-RV); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Edwards Social Desirability scale (ESD); Big Five Inventory - Neuroticism (BFI-N); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Responding Desirably on Opinions and Attitudes scale (RD-16); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Agreeableness (BFI-A); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Big Five Inventory - Extraversion (BFI-E); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); Big Five Inventory - Openness (BFI-O).

Table 7: Intercorrelations of the Five Factors for the Control Group from the Principal Axis Factor

Analysis with Oblimin Rotation.

	RV	SDE+N	C+A	E	O
RV	---				
SDE+N	.302	---			
C+A	-.506	-.347	---		
E	-.007	-.160	.218	---	
O	-.076	.048	.284	.151	---

Note: Impression Management/Rare Virtue (RV); Self-Deceptive Enhancement and Neuroticism (SDE+N); Conscientiousness and Agreeableness (C+A); Extraversion (E); Openness/Intellect (O).

Table 8: Principal Axis Factor Analysis with Oblimin Rotation for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures and Big Five personality scales. Participants in Positive Distortion Condition Only (Loadings Greater than .45 are in Bold Print).

	Factors		
	SDR+C/N	E	O
MCSD	.946	.107	-.002
BIDR-IM	.825	.201	.178
LS	.800	.129	.018
ESD	.750	-.432	-.145
HOI-RV	.692	.286	.046
BIDR-SDE	.654	-.223	.107
IPIP-C	.608	.037	.157
IPIP-N	-.589	.347	-.028
RD-16	.575	-.324	-.005
BFI-C	.568	-.167	.102
BFI-A	.482	.101	.367
BFI-N	-.478	.473	.015
IPIP-E	-.013	-.605	.299
BFI-E	-.042	-.550	.132
IPIP-A	.096	.050	.589
BFI-O	-.036	-.084	.535
IPIP-I	.080	-.098	.499

Note: Socially Desirable Responding scales plus Conscientiousness and Neuroticism (SDR+C/N); Extraversion (E); Openness/Intellect (O); Marlowe-Crowne Social Desirability scale (MCSD); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); Minnesota

Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); History Opinion Inventory - Rare Virtue scale (HOI-RV); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Responding Desirably on Opinions and Attitudes scale (RD-16); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Neuroticism (BFI-N); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Big Five Inventory - Extraversion (BFI-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I).

Table 9: Intercorrelations of the Three Factors for the Positive Distortion Group from the Principal Axis

Factor Analysis with Oblimin Rotation.

	SDR+C/N	E	O
SDR+C/N	---		
E	-.227	---	
A+O	.494	-.246	---

Note: Socially Desirable Responding scales plus Conscientiousness and Neuroticism (SDR+C/N); Extraversion (E); Openness/Intellect (O).

Table 10: Oneway ANOVA Comparing Control and Positive Distortion Conditions on Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) scales.

	Control	PD				
	<i>M (SD)</i>	<i>M (SD)</i>	F-Value	df	P-Value	Effect Size
HOI-RV	4.406 (1.793)	5.145 (1.811)	27.036	642	.000	.410
MCSD	17.053 (5.412)	21.580 (6.925)	81.419	617	.000	.739
LS	3.573 (2.128)	5.081 (3.103)	50.773	634	.000	.567
ESD	24.407 (6.249)	26.918 (7.048)	21.843	616	.000	.377
RD-16	12.706 (2.354)	13.272 (2.376)	9.110	635	.003	.239
BIDR-SDE	64.044 (8.956)	68.187 (10.297)	30.041	652	.000	.429
BIDR-IM	59.158 (10.266)	65.994 (14.027)	50.270	652	.000	.556

Note: History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (B-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (B-IM); Positive Distortion Condition (PD).

Table 11: Oneway ANOVA Comparing Control and Positive Distortion Conditions on the Big Five Inventory (BFI-10+1) and Mini-Interpersonal Personality Item Pool (IPIP-20) Personality Traits.

	Control	PD				
	<i>M (SD)</i>	<i>M (SD)</i>	F-Value	df	P-Value	Effect Size
BFI-E	6.506 (1.802)	6.716 (1.866)	2.134	652	.145	.115
BFI-A	11.839 (2.138)	12.574 (2.180)	18.423	652	.000	.340
BFI-N	5.795 (2.047)	4.397 (2.229)	26.206	652	.000	-.653
BFI-C	6.783 (1.679)	7.825 (1.746)	60.402	652	.000	.608
BFI-O	7.059 (1.654)	7.260 (1.705)	2.327	652	.127	.120
IPIP-E	12.910 (3.994)	13.764 (3.685)	8.078	652	.005	.222
IPIP-A	14.944 (2.806)	15.622 (3.001)	8.884	652	.003	.233
IPIP-N	11.404 (3.244)	10.094 (3.431)	25.114	652	.000	-.392
IPIP-C	13.699 (2.990)	15.085 (3.341)	31.139	652	.000	.437
IPIP-I	14.814 (2.905)	15.792 (3.025)	17.734	652	.000	.323

Note: Big Five Inventory - Extraversion (BFI-E); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Neuroticism (BFI-N); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); Positive Distortion Condition (PD).

Table 12: Oneway ANOVA Comparing Control and Positive Distortion Conditions on the History Opinion Inventory (HOI-R) subscales.

	Control	PD				
	<i>M (SD)</i>	<i>M (SD)</i>	F-Value	df	P-Value	Effect Size
HC	2.86 (1.544)	2.946 (1.474)	.527	651	.468	.057
SS	4.678 (1.658)	5.317 (1.686)	23.525	644	.000	.382
C	2.454 (1.392)	3.104 (1.557)	31.042	642	.000	.440
AT	1.838 (0.980)	1.517 (0.979)	17.480	649	.000	-.328
FS	7.974 (2.780)	8.562 (2.783)	7.038	635	.008	.211
W	2.889 (1.953)	2.601 (1.762)	3.885	643	.049	-.155
CP	2.522 (1.517)	2.015 (1.525)	17.968	647	.000	-.333
I	2.141 (1.124)	1.83 (1.224)	11.325	643	.001	-.265
ES	5.085 (1.552)	5.333 (1.596)	3.999	643	.046	.158

Note: History Opinion Inventory - Health Concerns (HC); History Opinion Inventory - School Success (SS); History Opinion Inventory - Composure (C); History Opinion Inventory - Antisocial Tendencies (AT); History Opinion Inventory - Family Support (FS); History Opinion Inventory - Withdrawn/Introversion (W); History Opinion Inventory - Conflict with Parents (CP); History Opinion Inventory - Immaturity (I); History Opinion Inventory - Emotional Stability (ES); Positive Distortion Condition (PD).

Table 13: Principal Axis Factor Analysis with Oblimin Rotation for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures and Big Five personality scales. Male Participants in the Control Condition Only (Loadings Greater than .45 are in Bold Print).

	Factors		
	RV	SDE+N	E
MCSD	.832	-.075	.024
BIDR-IM	.828	.025	-.144
HOI-RV	.766	.178	.043
LS	.614	-.136	-.192
BFI-A	.460	-.229	.180
BFI-C	.396	-.130	.146
IPIP-C	.385	-.187	.127
IPIP-N	.066	.837	.267
ESD	.216	-.724	.027
RD-16	.090	-.564	.136
BIDR-SDE	.326	-.461	.121
BFI- N	-.206	.398	.005
IPIP-I	-.039	-.244	.072
IPIP-A	.089	-.209	.196
IPIP-E	-.153	-.140	.910
BFI-E	.119	.019	.689
BFI-O	-.013	.028	.225

Analyses were based on the 110 male participants in the Control Condition.

Note: Rare Virtue (RV); Self-Deceptive Enhancement and Neuroticism (SDE+N); Extraversion (E); Marlowe-Crowne Social Desirability scale (MCSD); Balanced Inventory of Desirably Responding -

Impression Management subscale (BIDR-IM); History Opinion Inventory - Rare Virtue scale (HOI-RV); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Big Five Inventory - Agreeableness (BFI-A); Big Five Inventory - Conscientiousness (BFI-C); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Big Five Inventory - Neuroticism (BFI-N); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Big Five Inventory - Extraversion (BFI-E); Big Five Inventory - Openness (BFI-O).

Table 14: Principal Axis Factor Analysis with Oblimin Rotation for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures and Big Five personality scales. Female Participants in the Control Condition Only (Loadings Greater than .45 are in Bold Print).

	Factors		
	RV	SDE+N	E
MCSD	-.764	.211	.085
BIDR-IM	-.695	.120	-.018
HOI-RV	-.634	.022	-.007
LS	-.527	.079	.018
IPIP-C	-.385	.288	.101
ESD	-.049	.885	.070
IPIP-N	.013	-.699	.231
BFI-N	-.031	-.669	.020
BIDR-SDE	-.149	.588	.143
RD-16	-.124	.569	.060
BFI-C	-.217	.391	.095
BFI- A	-.241	.291	.147
IPIP-E	.485	.212	.732
BFI-E	.355	.234	.592
IPIP-A	-.169	-.019	.376
IPIP-I	-.069	.005	.288
BFI-O	-.085	-.135	.195

Analyses were based on the 212 female participants in the Control Condition.

Note: Rare Virtue (RV); Self-Deceptive Enhancement and Neuroticism (SDE+N); Extraversion (E); Marlowe-Crowne Social Desirability scale (MCSD); Balanced Inventory of Desirably Responding -

Impression Management subscale (BIDR-IM); History Opinion Inventory - Rare Virtue scale (HOI-RV); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Edwards Social Desirability scale (ESD); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Big Five Inventory - Neuroticism (BFI-N); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Responding Desirably on Opinions and Attitudes scale (RD-16); Big Five Inventory - Conscientiousness (BFI-C); Big Five Inventory - Agreeableness (BFI-A); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Big Five Inventory - Extraversion (BFI-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); Big Five Inventory - Openness (BFI-O).

Table 15: Principal Axis Factor Analysis with Oblimin Rotation for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures and Big Five personality scales. Male Participants in the Positive Distortion Condition Only (Loadings Greater than .45 are in Bold Print).

	Factors		
	RV	SDE+N	E
HOI-RV	.789	-.032	-.007
MCSD	.780	.270	.034
BIDR-IM	.695	.312	.026
LS	.615	.292	-.045
BFI-A	.510	.279	.121
ESD	.055	.907	-.032
RD-16	.030	.774	-.010
IPIP-N	-.180	-.705	.041
BFI-N	.122	-.687	-.095
BFI-C	.110	.558	.172
BIDR-SDE	.322	.530	.123
IPIP-C	.384	.408	.140
IPIP-E	-.268	.168	.832
BFI-E	-.148	.148	.472
IPIP-A	.374	-.112	.462
BFI-O	.192	.008	.414
IPIP-I	.212	-.031	.359

Analyses were based on the 118 male participants in the Positive Distortion Condition.

Note: Rare Virtue (RV); Self-Deceptive Enhancement and Neuroticism (SDE+N); Extraversion (E); History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Big Five Inventory - Agreeableness (BFI-A); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Big Five Inventory - Neuroticism (BFI-N); Big Five Inventory - Conscientiousness (BFI-C); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Big Five Inventory - Extraversion (BFI-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Big Five Inventory - Openness (BFI-O); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I).

Table 16: Principal Axis Factor Analysis with Oblimin Rotation for Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) measures and Big Five personality scales. Female Participants in the Positive Distortion Condition Only (Loadings Greater than .45 are in Bold Print).

	Factors		
	SDR+C/N	E	A+O
MCSD	1.003	-.025	-.120
LS	.818	-.120	.001
BIDR-IM	.813	-.204	-.198
HOI-RV	.752	-.165	-.068
ESD	.734	.307	-.040
BIDR-SDE	.671	.237	.072
BFI-C	.615	.108	.074
IPIP-C	.607	-.068	.133
IPIP-N	-.555	-.257	-.169
RD-16	.551	.292	.051
BFI-N	-.513	-.355	-.091
IPIP-E	.047	.742	.127
BFI-E	-.035	.723	-.008
IPIP-A	.057	-.046	.609
IPIP-I	.087	.039	.581
BFI-O	-.096	.047	.576
BFI-A	.400	-.073	.420

Analyses were based on the 213 female participants in the Positive Distortion Condition.

Note: Socially Desirable Responding scales plus Conscientiousness and Neuroticism (SDR+C/N); Extraversion (E); Agreeableness and Openness/Intellect (A+O); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Balanced Inventory of Desirably Responding - Impression Management subscale (BIDR-IM); History Opinion Inventory - Rare Virtue scale (HOI-RV); Edwards Social Desirability scale (ESD); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (BIDR-SDE); Big Five Inventory - Conscientiousness (BFI-C); Mini-Interpersonal Personality Item Pool - Conscientiousness (IPIP-C); Mini-Interpersonal Personality Item Pool - Neuroticism (IPIP-N); Responding Desirably on Opinions and Attitudes scale (RD-16); Big Five Inventory - Neuroticism (BFI-N); Mini-Interpersonal Personality Item Pool - Extraversion (IPIP-E); Big Five Inventory - Extraversion (BFI-E); Mini-Interpersonal Personality Item Pool - Agreeableness (IPIP-A); Mini-Interpersonal Personality Item Pool - Intellect/Intelligence (IPIP-I); Big Five Inventory - Openness (BFI-O); Big Five Inventory - Agreeableness (BFI-A).

Table 17: 2 x 2 ANOVA Comparing Participant Sex and Condition on Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) scales.

		MS	df	F-value	P-Value	Effect Size
Condition	HOI-RV	79.757	1	24.518	.000	.042
	MCSD	2611.185	1	67.086	.000	.108
	LS	327.559	1	44.882	.000	.075
	ESD	958.826	1	22.176	.000	.039
	RD-16	45.360	1	8.210	.004	.015
	B-SDE	2785.119	1	29.544	.000	.051
	B-IM	6741.618	1	44.022	.000	.074
Sex	HOI-RV	35.749	1	10.990	.001	.019
	MCSD	68.082	1	1.749	.187	.003
	LS	.493	1	.067	.795	.000
	ESD	390.836	1	9.039	.003	.016
	RD-16	10.843	1	1.962	.162	.004
	B-SDE	79.831	1	.847	.358	.002
	B-IM	1049.916	1	6.856	.009	.012
Interaction	HOI-RV	3.108	1	.955	.329	.002
	MCSD	22.710	1	.583	.445	.001
	LS	.261	1	.036	.850	.000
	ESD	26.892	1	.622	.431	.001
	RD-16	2.326	1	.41	.517	.001
	B-SDE	6.993	1	.074	.785	.000
	B-IM	.340	1	.002	.962	.000
Error	HOI-RV	3.253	553			
	MCSD	38.923	553			

LS	7.298	553
ESD	43.238	553
RD-16	5.525	553
B-SDE	94.270	553
B-IM	153.141	553

Note: History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (B-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (B-IM); Positive Distortion Condition (PD).

Table 18: Means and Standard Deviations of Impression Management/Rare Virtue (IM/RV) and Self-Deceptive Enhancement (SDE) scales. By Experimental Condition and Gender.

Scale	Males		Females	
	Control <i>M (SD)</i>	PD <i>M (SD)</i>	Control <i>M (SD)</i>	PD <i>M (SD)</i>
HOI-RV	4.0957 (1.855)	4.731 (2.035)	4.469 (1.809)	5.417 (1.620)
MCSD	16.809 (5.458)	20.914 (6.874)	17.117 (5.403)	22.067 (6.968)
LS	3.553 (2.041)	5.202 (3.194)	3.536 (2.160)	5.094 (3.142)
ESD	25.192 (5.995)	28.394 (6.395)	23.899 (6.190)	26.183 (7.299)
RD-16	12.489 (2.626)	13.221 (2.569)	12.916 (2.149)	13.378 (2.258)
BIDR-SDE	64.138 (7.772)	69.048 (11.031)	63.581 (9.294)	68.022 (10.195)
BIDR-IM	57.011 (10.429)	64.337 (14.589)	59.933 (9.919)	67.156 (14.011)

Note: History Opinion Inventory - Rare Virtue scale (HOI-RV); Marlowe-Crowne Social Desirability scale (MCSD); Minnesota Multiphasic Personality Inventory - Lie Scale (LS); Edwards Social Desirability scale (ESD); Responding Desirably on Opinions and Attitudes scale (RD-16); Balanced Inventory of Desirable Responding - Self-Deceptive Enhancement subscale (B-SDE); Balanced Inventory of Desirably Responding - Impression Management subscale (B-IM); Positive Distortion Condition (PD).

Appendix A: Consent Form

University of Texas at El Paso (UTEP) Institutional Review Board Informed Consent Form for Research Involving Human Subjects

Protocol Title: Social Desirable Responding
Principal Investigator: Corina Mendoza
UTEP: Psychology Department

Introduction

You are being asked to take part voluntarily in the research project. Before agreeing to take part in this research study, it is important that you read the consent form, and ask the study researcher or the study staff to explain any words or information that you do not understand clearly.

You have been asked to take part in a research study that will investigate the pattern of personality traits and attitudes in a University setting. Approximately, 600 participants will be enrolling in this study at UTEP. You are being asked to be in the study because you are a current UTEP student and are 18 years or older. If you decide to enroll in this study, your involvement will last about an hour.

What is involved in the study?

If you agree to take part in this study, the survey will contain questions about personality traits, behaviors, attitudes and basic demographic information.

What are the risks and discomforts of the study?

There are no known risks associated with this research. Furthermore, the confidentiality of your responses will be protected. However, if you feel uncomfortable for any reason you may discontinue your participation in this study.

What will happen if I am injured in this study?

The University of Texas at El Paso and its affiliates do not offer to pay for or cover the cost of medical treatment for research related illness or injury. No funds have been set aside to pay or reimburse you in the event of such injury or illness. You will not give up any of your legal rights by signing this consent form. You should report any such injury to Corina Mendoza who can be reached at cmendoza9@miners.utep.edu and to the UTEP Institutional Review Board (IRB) at (915-747-8841) or irb.orsp@utep.edu.

Are there benefits to taking part in this study?

If you are taking this survey after accessing Sona Systems, you will be given experimental course credit or extra credit as determined by your professor.

What other options are there?

You have the option not to take part in this study. There will be no penalties involved if you choose not to take part in this study.

Who is paying for this study?

No funding for this study is provided.

What are my costs?
There are no direct costs.

Will I be paid to participate in this study?
You will not be paid for taking part in this research study. However, if you are recruited through Sona systems or a course, you will receive 1 experiment credit or extra credit as determined by your professor for your participation in this study. You will also be entered into a drawing for a chance to win \$50.

What if I want to withdraw, or am asked to withdraw from this study?
Taking part in this study is voluntary. You have the right to choose not to take part in this study. If you do not take part in the study, there will be no penalty. If you choose to take part, you have the right to stop at any time.

Who do I call if I have questions or problems?
You may ask any questions you have now. If you have questions later, you may contact Corina Mendoza at cmendoza9@miners.utep.edu.
If you have questions or concerns about your participation as a research subject, please contact the UTEP Institutional Review Board (IRB) at (915-747-8841) or irb.orsp@utep.edu.

What about confidentiality?
This survey is confidential and at no time will your individual responses be shared or given to anyone.

Mandatory reporting
If information is revealed about child abuse or neglect, or potentially dangerous future behaviors to others, the law requires that this information be reported to the proper authorities.

Authorization Statement
I have read each page of this paper about the study. I know that being in this study is voluntary and I choose to be in this study. I know I can stop participating in this study without penalty. I can request a copy of this consent form now, and can get information about the results of the study at a later time if I choose to do so.

Participant email: _____
Participant Name: _____ Date: _____
Participant Signature: _____ Time: _____

Appendix B: Demographics

Today's Date: _____

How old are you? _____

Sex: _____ Male _____ Female

What is your highest level of education?

_____ Less than High School

_____ High School or equivalent

_____ Some College

_____ Vocational School/Associate's Degree

_____ College Graduate (e.g., B.A., B.S.)

_____ Some Post-Graduate training

I am:

_____ Single (never married)

_____ Married

_____ Divorced

_____ Widow/Widower

_____ Separated

_____ Living with someone

Please indicate the ethnic group(s) to which you belong:

_____ Hispanic _____ Anglo

_____ African American _____ Native American

_____ Asian American

_____ Other (please specify) _____

Appendix C: Debriefing Form

Thank you for taking the time to participate in this study. The purpose of this study is to learn more about response styles on personality measures by assessing students' self-ratings and social desirability. Using students' responses, we are trying to understand the relationship between response patterns on scales that are intended to measure Social Desirable Responding -- the act of trying to make a good impression on personality questionnaires.

The information you have provided will remain confidential and all results are published anonymously as combined group data.

Please try not to share information about the study with your fellow students. This study relies on individuals answering items based on their opinions and point of view. In order for the study to do what it is intended to, it is best for the participant to not know about it beforehand.

As a result of your participation in this study, your name has been entered into a drawing that will be held at the study's end for a chance to win \$50. If you wish to opt out of this drawing, please send an email to Corina Mendoza at cmendoza9@miners.utep.edu indicating this and the experimenter will honor your request.

If you have any questions or concerns about this study, please contact either Corina Mendoza at cmendoza9@miners.utep.edu or Dr. James Wood at jawood@utep.edu.

Curriculum Vita

Corina Mendoza participated in an intensive summer research internship at the University of Maryland, College Park where she worked under Dr. Jack Blanchard in 2008. At the end of this internship she presented her research findings on “The Effects of Family and Social Environment on Schizophrenia-Spectrum Symptoms: A Three Year Follow-Up of Socially Anhedonic Individuals” at a campus conference event. Following this internship Ms. Mendoza was accepted to be a Howard Hughes Medical Institute – Undergraduate Research Scholar. It was during this time that she began conducting research under Dr. Michael Marks. In the summer of 2009, Ms. Mendoza presented her preliminary research findings at a campus conference event. During the fall of 2009, Ms. Mendoza completed her honors thesis, “The Sexual Double Standard toward Homosexual Populations: Evaluations of Promiscuous Homosexual Men and Women” under the guidance of Dr. Marks. Ms. Mendoza joined the National Society of Collegiate Scholars, and was a member/treasurer for the New Mexico State University chapter of Psi Chi, the National Honors Society for Psychology. Corina Mendoza graduated with High Honors from New Mexico State University in May 2010 with her Baccalaureate degree in Psychology, with a minor in Counseling and Educational Psychology. In the course of her time at the University of Texas at El Paso, Ms. Mendoza has maintained her high grade standing while working as a statistics teaching assistant for three years, and conducting research under Dr. James Wood.

Permanent address: 1600 Resler #807

El Paso, TX, 79911

This thesis was typed by Corina Mendoza.