THE RELATIONSHIP BETWEEN SELF-VERIFICATION AND EMOTION REGULATION

by

Shaina Glass

A thesis submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Master of Arts in
Psychology

Charlotte

2022

Approved by:

_____

Dr. Doug Markant

_____

Dr. Sara Levens

_____

Dr. Alicia Dahl

ABSTRACT

SHAINA GLASS. The Relationship Between Self-Verification and Emotion Regulation. (Under the direction of DR. DOUG MARKANT)

Self-verification is a form of confirmation bias in which people seek feedback that is consistent with existing self-views, and which is believed to be a factor in the persistence of affective disorders. While prior research shows that cognitive biases toward negative information and the use of maladaptive emotion regulation strategies interact to maintain negative feelings, existing theories have not examined whether self-verification also interacts with emotion regulation strategies to maintain negative self-views. In this study, we aimed to clarify the connections between self-verification and confirmation bias, emotion regulation, and mental health outcomes. The study involved two sessions in which participants were evaluated on their current emotional state by measuring their depression, anxiety, and stress symptoms, their habitual use of emotion regulation strategies, and a social feedback selection task designed to determine their use of self-verification and confirmation bias. Our results support a separation of confirmation bias and self-verification is warranted. Our results also support a relationship between adaptive emotion regulation and self-verification, but not between maladaptive emotion regulation and self-verification. Future work should address the limitations of this study. Investigating these relationships will improve our understanding of the causes of self-verification and how mental health conditions such as depression are maintained through biased feedback-seeking behaviors.

Keywords: self-verification, emotion regulation, emotion regulation strategies, cognitive biases, depression, affective disorders, negative mood

ACKNOWLEDGEMENTS

I would like to acknowledge and thank my advisor, Dr. Doug Markant, for his diligent support and instruction throughout this process. I would also like to thank my committee members, Dr. Sara Levens and Dr. Alicia Dahl for their support and invaluable feedback during this process. I would also like to express my thanks to our undergraduate research assistant, Erin Mclaughlin, for her work in helping us create the materials needed for this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: The Relationship Between Self-Verification and Emotion Regulation

Negative mental states such as depression are challenging to overcome. People suffering from depression tend to have difficulty disengaging from negative thoughts and behaviors. Negative mental states can also be maintained through thoughts and behaviors that affirm self-views (Joorman & Vanderlind, 2014). The motivation to maintain existing self-views is referred to as *self-verification* (Swann et al., 2003), which can lead to behavioral biases towards social environments and feedback that support those self-views. When people selectively seek out or attend to information that reinforces negative beliefs they have about themselves, this can lead to negative mood states, and in more serious cases, the reinforcement of clinical conditions such as depression. While self-verification is a well-studied phenomenon (see Swann et al., 2003; Swann & Buhrmester, 2011; and Swann & Read. 1981 for a review), its connection to cognitive biases and role in negative mental health outcomes is still unclear. One possible role self-verification may play in mental health outcomes is through a relationship with the use of certain emotion regulation strategies, as seen in other cognitive biases. Improperly regulating one's emotions is another way to cause or maintain depression or other negative mental states and has been shown to mediate the relationship between other cognitive biases and mental health outcomes (Joormann & Vanderlind, 2014), suggesting that these strategies may also impact self-verifying behavior. However, little research has been done to examine how different emotion regulation strategies relate to self-verification and how that interaction may impact mental health conditions such as depression.

In this study, we aimed to better understand why people engage in self-verification, particularly when it leads to the maintenance of negative self-beliefs. First, we investigated its relationship to confirmation bias, a broader bias toward seeking confirmatory feedback that is

seen in many domains of decision-making (Klayman, 1995). Second, we aimed to determine whether self-verification is associated with emotion regulation strategies. Finally, we aimed to determine if the relationship between self-verification and emotion regulation contributes to the maintenance of negative mental states. In the following, we review existing theories on self-verification and its relationship to cognitive biases and emotion regulation. We then present an exploratory study aimed at clarifying the causes of self-verification and its implications for mental health.

Self-Verification

Self-verification refers to the preference for information that confirms one's beliefs about the self, whether positive or negative (Chen et al., 2006; Evraire & Dozois, 2011; Swann & Burhmester, 2011). These beliefs can be global self-views such as self-worth and competency, or specific self-views about individual characteristics such as athletic ability and intelligence (Chen et al., 2006; Kwang & Swann, 2010). Self-Verification Theory states that self-beliefs are maintained through both biased information processing and the creation of self-verifying social environments (Swann & Buhrmester, 2011). Most research in this area centers on the process of choosing feedback in the form of an evaluation of personal characteristics or performance on a task (Casbon et al., 2005; Evraire & Dozois, 2011; Giesler et al., 1996; Swann et al., 1992a; Swann et al., 1992b). Self-verification is seen when people prefer to receive self-verifying feedback or rate such feedback as more accurate (Kwang & Swann, 2010).

Prior work indicates that self-verification may play a role in the maintenance of affective disorders such as depression and anxiety. Studies have shown that depressed individuals tend to seek out negative feedback which affirms the negative views they hold about themselves (Casbon et al., 2005; Chen et al., 2006; Evraire & Dozois, 2011; Giesler et al., 1996; Swann et

al., 1992a; Swann et al., 1992b). This can be displayed in multiple ways such as seeking negative feedback from a roommate (Casbon et al., 2005), preferring to interact with someone that provided negative feedback rather than leaving (Swann et al., 1992b), and choosing activities that affirm emotional states such as listening to sad music (Arens & Strangier, 2020). For example, Giesler et al. (1996) investigated whether depressed individuals preferred to receive negative or positive evaluations of their personalities. Participants completed surveys measuring self-esteem, depressive symptoms, and self-beliefs about their personality traits (Self-Attribution Questionnaire; SAQ). They also completed an interview session, after which they were told two graduate students had assessed their personality based on their interview performance. Participants were informed that one assessment reflected positive attributes while the second reflected negative attributes, then rated which of the two assessments they would like to read. The majority of participants with low self-esteem and depressive symptoms chose the negative assessment and rated that feedback as more accurate. This study showed that individuals with symptoms of depression tended to prefer negative, self-verifying evaluations about themselves over positive ones. This bias for negative self-relevant information could be a factor in the maintenance of the negative self-views typically experienced in depression (Giesler et al., 1996; Linehan, 1997).

Why do people seek out self-verifying information, particularly when it is likely to be negative? Swann and Buhrmester (2011) theorized that people value a coherent and stable self-concept more than feeling good about themselves or receiving positive feedback. A coherent self-image is believed to guide people's behaviors and allows them to predict how others will interact with them. For example, self-verifying negative views through social interactions can set expectations for personal limitations and avoiding disappointing others. Self-views are

developed over time and once established, people find ways to maintain them, even if those self-views are negative (Swann & Buhrmester, 2011).

In addition to the desire for a coherent self-concept and predictable interactions with others, people may self-verify to avoid the discomfort or anxiety from feedback that challenges those self-views (Swann & Buhrmester, 2011). When views are challenged, as when negative self-views are challenged through success or positive feedback, this can create anxiety and the feeling of being threatened, as this positivity is surprising or interpreted to be wrong (Swann & Buhrmester, 2011). Thus, receiving negative feedback may be less stressful for individuals with negative self-views. This is consistent with a study by Ayduk et al. (2013) which found that receiving non-verifying feedback (whether positive or negative) produces a stronger physical stress response compared to verifying feedback. This is also consistent with findings reported in a review by Swann and Buhrmester (2011) in which participants reported feeling anxious and concerned when faced with incongruent feedback (Swann & Buhrmester, 2011). However, it is worth noting that in the study by Ayduk and colleagues (2013), stress when receiving incongruent feedback was only seen in implicit physical measures, but participants' explicit ratings demonstrated lower negative affect when receiving positive feedback, even if incongruent with their self-view.

While self-verification might lead to the avoidance of stressful feedback, it may perpetuate disordered self-views, particularly among people in negative mood states or with depressive symptoms (Swann & Buhrmester, 2011). Although the tendency to self-verify negative self-views in depression has been identified, the decision-making process that leads to self-verification remains unclear. In the following, we examine the relationship between self-

verification and other processes, such as cognitive biases and emotion regulation strategies, and how these factors contribute to the maintenance of depression and negative self-views.

Cognitive Biases

Self-verification can be associated with multiple forms of biased information processing, whether performed consciously or unconsciously. To create a social environment that is self-verifying, individuals might selectively interact with people, display identity cues (such as wearing specific clothing), or solicit biased feedback. An example of selective interaction would be an individual with a negative self-view choosing to talk to someone whom they believe also views them negatively. Other forms of self-verification occur through how people seek out or process information. Selective attention involves dedicating more time to self-verifying information, such as spending longer viewing an evaluation that is self-verifying rather than self-discrepant. Selective encoding and retrieval refer to a stronger tendency to recall self-confirming information over disconfirming. Lastly, selective interpretation is when self-discrepant information is devalued and viewed as untrustworthy (Swann & Buhrmester, 2011).

These behaviors are similar to well-known cognitive biases including attention, interpretation, memory, and confirmation biases. Cognitive biases are systematic ways in which the context and framing of information influence individuals' judgments, decision-making, perception, or state of mind (Balzan et al., 2013). Attentional bias is the tendency to direct attention towards specific types of stimuli, such as threats or stimuli with negative emotional meanings. Interpretation bias is the tendency to interpret information in a specific way, for example, interpreting ambiguous information to have a negative meaning. Memory bias is the tendency to draw on autobiographical memories with certain emotional contexts, such as only drawing on memories that carry negative emotional feelings (Joorman & Vanderlind, 2014).

Finally, confirmation bias is the search and selection of information that confirms already held beliefs or feelings; and is typically measured through a deliberate choice between confirming and disconfirming information (Balzan et al., 2013; Klayman, 1995).

Like self-verification, when attuned negatively these cognitive biases are correlated with negative mental health outcomes (Joorman & Vanderlind, 2014). Attentional biases toward sad or threatening stimuli have been found in specific contexts such as maltreatment and depression and have been found to function as a risk factor for maintaining negative mood states (Eizenman et al., 2003; Romens & Pollak, 2021). Interpretation bias has also been studied in populations with depression, anxiety, and anorexia nervosa and is theorized to play a role in the onset and maintenance of these disorders through the misinterpretation of ambiguous situations to be negative (Schoth & Liossi, 2017). Memory bias is thought to help maintain disorders such as depression and anxiety, as when negative memories are more accessible than positive memories (Griffith et al., 2009; Watkins et al., 2009). Confirmation bias has been studied in relation to delusional thinking and fear. For example, individuals that are clinically delusional use biased hypothesis testing strategies, choosing confirmatory evidence, which is theorized to be a mechanism behind the formation and maintenance of delusions (Balzan et al., 2013). Another study found that children chose to learn more threatening information after being shown fear-inducing information about an animal (Balzan et al., 2013; Remmerswaal et al., 2014). These biases have been theorized to create vulnerability for developing and maintaining psychopathology, and in turn, psychopathology could also cause these biases to occur (Eizenman et al., 2003; Remmerswaal et al., 2014).

While self-verification is similar to these broader cognitive biases, a key difference is that self-verifying behaviors are tied to beliefs about the self and may arise from a specific

motivation of having a stable self-view (Swann & Read; 1981, Swann & Burhmester, 2011). As a result, people may have stronger preferences for information that confirms their self-views compared to information that is not relevant to their self-concept, including other social or evaluative feedback about other people. In addition, as compared to general confirmatory biases, self-verification may have a stronger association with negative health outcomes due to its focus on attributes of the self. However, to our knowledge, self-verification has yet to be directly compared to other forms of confirmation bias. It is important to investigate whether people only desire coherent views of the self, or if they equally desire general confirmation of their beliefs, such as beliefs about others. If self-verification is stronger than confirmation bias, it may be easier to understand preferences for negatively valenced information among people with negative self-views. This study aimed to determine if self-verification is part of a broader bias toward seeking confirmatory feedback by comparing people's tendency to self-verify with their tendency to confirm beliefs about others.

Emotion Regulation

Another aim of this study was to determine if self-verification is connected to emotion regulation. Prior studies have shown emotion regulation strategies play a role in the formation and maintenance of mental health conditions (Aldao et al., 2010). It has been proposed that emotion regulation strategies interact with some of the cognitive biases described above to promote a maladaptive cycle that encourages negative mood (Everaert et al., 2017).

Emotion regulation is the process whereby people increase, maintain, or decrease emotional feelings and involves multiple strategies (Joorman & Vanderlind, 2014; Rottenberg & Gross, 2007). Emotion regulation strategies have been commonly categorized as maladaptive and adaptive. Adaptive strategies (acceptance, reappraisal, and problem-solving) are typically

related to positive health outcomes, while maladaptive strategies (rumination, avoidance, and suppression) are often connected to negative health outcomes such as depressive symptoms, anxiety, and stress (Joorman & Vanderlind, 2014; Martin & Dahlen, 2005; Ulfig, 2016). While these categories are not fully distinct as some strategies are used adaptively or maladaptively, we will use this categorization to distinguish between strategies most related to the health outcomes of interest (Martin & Dhalen, 2005). Acceptance is defined as coming to terms with the situation (Martin & Dhalen, 2005). Reappraisal is defined as changing one's interpretation of an event from a negative to a positive perspective (Levine et al., 2012). Problem-solving is defined as attempts to change the situation (Aldoa et al., 2010). Rumination is defined as a constant refocusing on past experiences. Avoidance includes trying not to think about experiences or certain thoughts. Suppression includes the reduction of expressing specific thoughts and emotions (Aldoa et al., 2010).

The interplay between cognitive biases and emotion regulation strategies has been implicated in the onset and maintenance of psychopathology. Cognitive control is used to regulate emotions by manipulating affective representations in working memory (Joormann & Venderlind, 2014), for example through attentional selection, memory retrieval, or interpretation. Attention either functions early in perception (e.g., automatic orientation towards threatening stimuli) or at a later stage of processing (e.g., controlled disengagement or redirection of attention), drawing people to focus on certain stimuli relevant to their emotional state. Similarly, recall of memories with associated emotions can impact current mood states and interpretation is important for comprehending an ambiguous situation and triggering the proper emotional response (Joormann & Venderlind, 2014).

Prior work has shown that individual differences in cognitive biases impact emotion regulation. Memory bias has been related to both adaptive and maladaptive emotion regulation strategies. When suffering from anxiety or depression, memory bias usually leads to strict recall of over-general and mood-congruent memories. These memories tend to be associated with negative affect (Joormann & Venderlind, 2014; Watkins et al., 2009). This aspect of memory bias may act as a mediator between rumination and negative mental health outcomes such as anorexia nervosa (Manuel & Wade, 2013). Interpretation and attention bias may similarly encourage rumination and impair the ability to use reappraisal. Negative interpretation bias results in the automatic interpretation of events and situations negatively and discourages positive reinterpretation (Joorman & Vanderlind, 2014). Studies on attentional biases have shown that while in a negative mood state, attentional bias for negative stimuli increases. This effect was exacerbated for children prone to ruminative tendencies (Romens & Pollak, 2012). In a path analysis of the relationships between attention bias, interpretation bias, emotional regulation, and depression, Everaert et al. (2017) demonstrated that negative attention and interpretation bias encourage the use of maladaptive rumination, which then facilitates depression. Their results also showed that attention and interpretation biases inhibit the use of adaptive emotion regulation strategies such as reappraisal. This study shows that negative cognitive biases both hinder adaptive strategies and promote maladaptive strategies for regulating emotion (Everaert et al., 2017).

In the literature thus far, memory, interpretation, and attention bias have been commonly studied in their connection to maladaptive emotion regulation strategies. Research in this area has not examined the relationship between emotion regulation and confirmation bias and self-verification. This distinction between general cognitive biases to stimuli and biases surrounding

beliefs or self-confirming information could tell us more about the process of self-verification and its relationship to negative mental health outcomes. As other literature suggests, self-verification could be a key step in the process that leads to maladaptive emotion regulation strategies (Arens & Strangier, 2020; Joorman & Vanderlind, 2014). Given that confirmation bias and self-verification are related to psychopathology, it is also important to determine if this bias contributes to depressive symptoms through maladaptive and adaptive strategies, as was shown by Everaert et al. (2017) to be the case for attention and interpretation bias.

Current Study

This exploratory study aimed to determine the role self-verification plays in relation to emotion regulation and depression by investigating the relationship between self-verification and maladaptive and adaptive emotion regulation strategies. In addition, we directly compared the strength of self-verification tendencies to other forms of confirmatory information seeking.

This study used a simulated interview task and questionnaires to measure participants' self-views, affect, and habitual use of emotion regulation strategies. To measure self-verification, participants recorded themselves on video answering a set of typical interview questions (see Procedure). They then rated themselves on their overall performance (weak or strong) and rated their abilities on a set of attributes to assess the beliefs they hold about themselves. In a later session, they then had the opportunity to choose to view feedback that either confirmed or disconfirmed those beliefs. Choosing the confirming self-relevant feedback demonstrates self-verification (for a similar method, see Giesler et al., 1996). To measure confirmation bias, participants watched and evaluated a "peer's" pre-recorded interview responses and completed the same overall (weak vs. strong) and attribute-specific ratings of the peer. Participants had a choice to view feedback that was either consistent or inconsistent with their own beliefs.

Choosing feedback that confirmed the beliefs they hold about the "peer" and their performance demonstrated confirmation bias. This method is similar to that of Remmerswaal et al. (2014) in which children were primed with a belief and then had the opportunity to receive confirming or disconfirming information (Remmerswaal et al., 2014). This allowed us to directly compare participants' choices when feedback is self-relevant versus about another person.

Based on previous literature, three research questions were formed. First, this study aims to determine if self-verification is related to an individual's broader bias toward confirmatory feedback. We hypothesized that the tendency to self-verify will be stronger than the tendency for confirmation bias when selecting feedback about another person. Because self-verification is specific to strongly-held beliefs about the self, we expected the motivation for a stable self-view to be stronger than a general motivation to confirm beliefs.

H1: Participants will have a stronger tendency to exhibit confirmation bias in relation to self-relevant feedback (self-verification) than general confirmation bias to feedback information about others.

Second, this study aims to determine whether self-verification is associated with emotion regulation strategies. We hypothesized that self-verification would relate negatively to the use of acceptance, problem-solving, and reappraisal. These strategies may be associated with less self-verification because habitual use of these strategies may leave individuals to be more open or actively seek out feedback that challenges already held beliefs. Alternatively, consistent self-verifying behavior may lead to less use of these strategies, as self-verification creates fewer opportunities to manage emotions related to inconsistent or surprising feedback (Ayduk et al., 2013; Everaert et al., 2017; North & Swann 2009).

We also hypothesized that self-verification would positively relate to the use of rumination and avoidance. When individuals self-verify, it is likely that they generate feedback that strengthens focus or belief in existing views, thereby encouraging rumination. It is also possible rumination increases focus on existing beliefs, ingraining those views and creating a stronger motivation to maintain them. A positive relationship between self-verification and avoidance may arise from similar motives. Avoidance may lead to the avoidance of disconfirming information as this leads to negative affect when received (Ayduk et al., 2013; Everaert et al., 2017).

H2a: Self-verification of negative information will relate negatively with the use of the emotion regulation strategies of acceptance, problem-solving, and reappraisal.

H2b: Self-verification of negative information will relate positively to rumination and avoidance.

Lastly, this study aimed to examine how the relationship between maladaptive emotion regulation and self-verification contributes to the maintenance of negative mood/depressive states. We hypothesized that self-verification and the use of rumination and avoidance will show an effect on negative mood and depression symptoms. Self-verification has been shown to affect depressive symptoms, and self-verifying behaviors resemble cognitive biases that have been shown to impact emotion regulation and depression symptoms directly and indirectly (Everaert et al., 2017).

H3: Individuals with negative mood/depression are more likely to self-verify negative information and use rumination and avoidance emotion regulation strategies.

CHAPTER 2: Methods

Participants

Participants were undergraduates at UNC Charlotte that were 18+ years of age. Students were recruited through the Department of Psychological Science SONA research pool and via an email announcement. An a priori power analysis was conducted to determine the target sample size, assuming a target power of beta = .8 and a small-to-medium effect size (d = .3). Based on our second hypothesis, the power analyses indicated a requirement of 128 participants. Based on this, we aimed to collect 150 participants in total to account for exclusions during analyses. Data collection was planned to end once the target sample size of 150 complete participants was reached or our time limit for data collection was reached. Comparable studies of self-verification had sample sizes of approximately 100 participants (Giesler et al., 1996; Everaert et al., 2017). Participants that signed up for the study included N = 237. Participant data were removed if they did not complete both sessions (N = 77, N = 74 did not complete session 1, N = 3 completed session 1 but did not complete session 2), or if data pertaining to our primary hypotheses were missing (N = 18). This resulted in N = 142 participants that completed both sessions and were retained for data analysis. Participants were rewarded 2 research credits or $8 in amazon gift cards at the completion of the study. In addition, participants were entered into a random lottery for a $10 monetary incentive if they completed both sessions.

Materials and Measures

Peer Videos

"Peer" videos were recorded before the start of this study. Research assistants recorded two sets of videos answering the same questions that participants are instructed to answer (see Procedure). They followed a script, one written to be representative of a weak performance and

one written to be representative of a strong performance (see **Appendix D**). Every participant was shown one of the two videos.

The purpose of recording these videos was to prime participants' beliefs regarding the video to be either negative or positive. This primed belief then allowed us to evaluate the degree of confirmation bias when participants viewed the peer as a weak vs. strong candidate. Our data support that this manipulation was successful. A Chi-square test indicated a statistically significant difference between weak/strong ratings for the weak and strong videos (χ^2 (1) = 20.43, $p < .001$). Participants in the strong conditions were more likely to rate the video as strong (strong = 68, weak = 2), While participants in the weak condition were more likely to rate the weak video as weak (strong = 47, weak = 27).

Beck Depression Inventory (BDI-II)

As in Everaert et al. (2017), the Beck Depression Inventory-II (BDI-II) self-report scale was used. This scale consists of 21-items and measures depression severity (see **Appendix A**). Each question has four possible answers that identify the intensity of symptoms over a two-week period. A score of 0-19 indicates low symptom severity, with scores greater than 19 indicating clinical significance. A score of 19 or lower will group a participant in our non-depressed group, while higher scores will group them in the depressed group (Beck et al., 1996). This scale has been shown to have good reliability with Cronbach's Alpha measuring from .70 to .89 and has shown validity by distinguishing between clinical and non-clinical populations (García-Batista et al., 2018).

To ensure the safety and well-being of our participants, multiple procedural choices were put into place to respond to responses on the BDI-II that may warrant concern. After the "Suicidal Thoughts and Wishes" question, participants were asked to indicate if they would like

to receive a referral to NinerCare. This question was displayed if the participant selects anything other than “I do not have any thoughts of killing myself”. NinerCare is a program at UNC Charlotte that will provide the student with supportive services. If the participant responds yes, a referral was made on their behalf. Contact information for mental health services and other resources was provided after this question. We also provided this list of resources at the end of every session in a downloadable file. Resources included multiple helplines and campus resources.

Cognitive Emotion Regulation Questionnaire (CERQ)

The Cognitive Emotion Regulation Questionnaire (CERQ) determines which cognitive coping strategies an individual utilizes in general or after a specific negative experience. This questionnaire has 36 items that measure an individual’s tendency to use 9 different cognitive coping strategies. Each subscale consists of 4 items (see, **Appendix A**). Each item is measured on a scale from 1, “(almost) never” to 5, “(almost) always”. A higher score in each subscale indicates higher use of that coping strategy. The CERQ has been correlated with other measures of coping strategies and has shown to show relations to results from personality and psychopathology measures, which demonstrates the tool’s construct validity (Garnefski et al., 2002). The rumination, acceptance, refocus on planning (problem-solving), and positive reappraisal subscales were used for our main analyses. The other 4 subscales were used in exploratory analyses.

Multidimensional Experiential Avoidance Questionnaire (MEAQ)

The Multidimensional Experiential Avoidance Questionnaire (MEAQ) measured avoidance. Participants completed the behavioral avoidance subscale consisting of 11 items on a Likert scale from 1, “strongly disagree”, to 6 “strongly agree” (see **Appendix A**). Scores were

added with higher scores indicating higher use of the avoidance emotion regulation strategy (Gamez et al., 2011). The MEAQ has good convergent validity with other measures of avoidance such as social and stress avoidance. The behavioral avoidance subscale has good internal consistency with Chronbach's alpha of .80 (Lewis & Naugle, 2017).

General Anxiety Disorder-7 (GAD-7) Scale

The General Anxiety Disorder-7 measure (GAD-7) was used to determine the extent of general anxiety disorder. This measure was used as another assessment of negative mood. This measure has 7 items measured on a scale ranging from 0 to 3 (0= "not at all", 3= "nearly every day"; see **Appendix A**). Higher scores indicate higher levels of anxiety. The GAD-7 has been found to have good internal consistency with a Chronbach's alpha of .92 and good test-retest reliability with a score of .83. Validity of this measure has also been shown with its correlation with functional impairment (Spitzer et al., 2006).

Stress Scales

Social Phobia Scale (SPS): The Social Phobia Scale (SPS) was used for exploratory analysis to see if the social concept of online interviewing impacted individuals' self-verifying behavior. This scale consists of 20 items rated on a Likert scale from 0 to 4 (see, **Appendix A**). A rating of 0 represents "Not at All" while a rating of 4 represents "Extremely". Higher scores indicate a higher level of social phobia. The SPS has a high internal consistency with a Chronbach's alpha of .94. This scale also has high test-retest reliability with a correlation coefficient of .93 over a span of 12 weeks (Mattick & Clarke, 1998).

Perceived Stress Scale (PSS): The Perceived Stress Scale (PSS) was used to measure participants' general stress levels. This is another measure of negative mood. This scale consists of 10 items that are rated on a Likert scale from 0, "never", to 4, "very often" (see **Appendix A**).

Higher scores indicate higher levels of stress. The validity of the PSS has been shown through its correlation with behaviors and health outcomes such as smoking, the greater number of colds, and other stress measures (Cohen et al., 1994).

The Positive and Negative Affect Schedule (PANAS): The Positive and Negative Affect Schedule (PANAS) was used to measure shifts in the emotional state before and after the interview task and before and after receiving feedback. This measure consists of 20 items rated on a Likert scale from 1, "Very Slightly or Not at All", to 5, "Extremely". Negative affect and positive affect are each measured with 10 items (see **Appendix A**). Questions for each subscale are summed with higher scores meaning positive or negative affect (Watson et al., 1988). Both subscales have been shown to have good reliability with the positive affect scale having a Chronbach's alpha of .86-.90 and the negative affect a Chronbach's alpha of .84-.87 (Crawford & Henry, 2004).

Rosenberg Self-Esteem Scale (RSS)

The Rosenberg Self-Esteem Scale, as used in Giesler et al. (1996) and Pelham and Swann (1989), is used to measure an individual's feeling of global self-worth. This scale is commonly used in other self-verification studies and was used to help determine the beliefs the participants hold about themselves. This is a 10-item measure with a Likert scale from "strongly agree" to "strongly disagree" (see **Appendix A**). This scale is internally consistent in past studies with a Chronbach's alpha of .82 (Pelham & Swann, 1989; Rosenberg, 1965).

Data Management

Any identifiable information collected from our participants through the university research pool was stored separately from the research data. Research data and identifiable information were stored in password-protected and university-affiliated databases and

equipment. Participant IDs were linked to behavioral data in a master list which was deleted upon completion of the study after incentive distribution. Recorded videos were not used for data analyses and will be destroyed upon completion of the study. Videos were recorded within Qualtrics (using the third-party plugin Pipe; https://addpipe.com) and were stored on a University Dropbox account with access limited to members of the research team.

Procedure

Participants were told they were participating in a study investigating the evaluation of student leadership skills through online interviewing for scholarships. They provided consent within the first session to participate and were debriefed directly after the second and final session. Participation was conducted through an online survey using Qualtrics in two online sessions.

Pilot Testing

Pilot testing was performed to test participant responses to the videos and measurements of self-verification and emotion regulation. Pilot testing ensured the videos evoked the intended beliefs of a strong or weak candidate. Piloting included three sessions instead of two, after pilot testing, the number of sessions was decreased to simplify the task and reduce participant load.

Session 1: Questionnaires and Interview

At the beginning of Session 1, participants continued with the study after giving their consent. Following consent, participants answered the questions from the BDI-II, GAD-7, Social Phobia Scale, Rosenberg Self-Esteem Scale, Perceived Stress Scale, and the CERQ. They also answered demographic questions (see **Appendix A**) and measured their beliefs for the article selection task (see **Appendix A**). They also tested their camera and microphone equipment by recording themselves reciting a given phrase (see **Appendix B**). If their equipment did not work

properly, they were not permitted to continue the study. The order of the questionnaires and interview tasks were randomized to control for ordering effects. Prior to the interview task, participants also completed the PANAS.

Interview responses and self-evaluation. For the interview task participants underwent video recordings of their answers to three common interview questions: "What is your greatest weakness?", "What does being a leader mean to you?", and "Tell me how you think other people would describe you." (see **Appendix B**). Their answers to these questions were unimportant to the goals of the study and were not analyzed. The interview was used solely as a method for participants to develop a belief about their performance and for them to receive fabricated feedback. After answering the interview questions, participants were asked to state if they believe they were a "strong" or "weak" candidate based on their performance. This rating was used for the self-verification assessment. Participants were given two minutes to answer each question verbally.

After recording the videos, participants completed a modified version of the SAQ (see **Appendix B**). The SAQ aided in the deception of this study being about the interview process. Participants were told feedback would be given on the attributes asked about in the questionnaire. The SAQ consists of 10 attributes that are rated 4 times. Two of the attributes (physical attractiveness and luck) were removed as they were not relevant to the framing of the interview task. Two of the attributes were reworded to apply more generally to our participants. "Artistic ability/Musical ability" was changed to "Creativity". "Competency or skill at sports" was changed to "Athletic ability". Participants first rated themselves relative to their peers from the bottom 5% ("poor") to the top 5% ("outstanding"). The number of scoring options was changed from 10 to 5 to simplify the scoring and improve the understandability of the

instructions. Secondly, participants rated how certain they were of their prior ratings from “not at all certain” to “extremely certain”. Thirdly, participants rated how important each trait is to them from “not at all important to me” to “extremely important to me”. Lastly, participants rated how close to their ideal self they were in each trait from “very short of my ideal self” to “very much like my ideal self” (Pelham & Swann, 1989).

Evaluation of peer responses. After completing the self-evaluation, participants watched a “peer’s” interview responses. These videos were prerecorded by a research assistant. One video was scripted to depict a “weak” candidate and the other a “strong” candidate. Participants were randomly assigned to see either the weak or strong video. Only the first and second scales of the SAQ were completed by participants about the viewed videos. They then gave the same “strong” or “weak” candidate ratings for the other “participant”. Upon completion of this task, participants again answered the PANAS.

Belief measurement. The article selection task is a second task to provide an independent measure of confirmation bias without any associations with motives related to self-image or social information processing. This article selection task is a common way of measuring confirmation bias in previous studies on selective exposure (Brannon et al., 2007; Rieger et al., 2021). In this session, participants underwent the belief measure for the article selection task. Participants were shown 12 statements about varying topics and asked to rate their degree of agreement. These 12 statements were displayed in random order. On a 7-point Likert Scale (-3 to 3) they were instructed to state whether they agree or disagree with a stated position about the topic (e.g., “I believe taking the COVID-19 vaccines should be required by a workplace”).

At the end of the first session, participants were debriefed with information about when to complete the next session and provided with mental health resources. Participants were emailed a link to complete the final session within two days. After 24 hours, a reminder email was sent.

Session 2: Feedback Choice and Article Selection

The second session measured participants' tendency toward confirmatory choices in the interview feedback selection and article selection tasks.

Article selection task. Participants examined 24 different article titles presented in random order and rated their desire to read them. The article selection task was then presented in the second session. For each topic, participants were shown two article titles and for each, they rated their desire to read the articles on a scale from 1 (Not at All Desirable) to 9 (Extremely Desirable) (see **Appendix A**). One title of an article supported the position while the other opposed the position that was initially rated in the first session. The order of articles was randomized for each participant. This procedure resembles parts of the procedure in Brannan et al. (2007) and Rieger et al. (2021). News articles were chosen from Google searches of the topics. Articles were picked if their titles represented agreement or disagreement with the topic statement.

Confirmation bias was measured as the preference to read articles that agreed with a participant's prior rating of the topic. For each article (24 total), choices were coded as either 1 (confirming), -1 (disconfirming), or 0 (neutral) based on whether they wanted to read the article that supported or did not support their indicated beliefs. A neutral score was given if participants rated their position on a topic as 0. If a participant agreed with a topic and stated they wanted to read a supporting article, or they did not want to read an "against" article, this was marked as a

confirming choice. If a participant did not agree with a topic and stated they did not want to read a supporting article, or they did want to read an "against" article, this was marked as a confirming choice. If a participant supported a topic, stated they wanted to read an "against" article, or did not want to read a supporting article (and vice versa), this was marked as a disconfirming choice. To get a single measure of confirmation bias tendency, these scores were added to create a continuous variable with higher scores indicating a higher tendency for confirmation bias.

Feedback choice. Participants were informed that the interview responses from Session 1 were examined by two evaluators who provided feedback. In actuality, this feedback was fabricated before the start of the study (see **Appendix C**). In each case, a participant saw that one evaluator rated them as a "weak" candidate while the other rated them as a "strong" candidate. They were then told to choose only one of these ratings to see detailed feedback. Self-verification was indicated by choosing to see detailed feedback from the evaluator that matches how they rated themselves overall. Participants were also asked to rate the accuracy of the detailed feedback on a 5-point scale from 1, "not at all accurate", to 5, "very accurate". Accuracy ratings indicate if participants chose the feedback they already believed to be true, and therefore function as another check of self-verification (Szumowska et al., 2022).

Participants were also allowed to view an evaluator's feedback of their "peer" (the other video that was rated in Session 1). They were given the same options between feedback consistent with a "weak" or "strong" rating and had the same opportunity to view detailed feedback. After selecting an option, they saw ratings on the same attributes they scored on the SAQ (see **Appendix C**). The order of feedback choices for the self and peer was randomized for each participant.

Participants were debriefed at the end of the second session. The debriefing form informed them of the deception and the true purpose of the study. They were told that any feedback or rating they received was fabricated prior to the start of the study and in no way reflects their performance on the interview task or their personal attributes.

CHAPTER 3: Results

Demographics

All analyses were run in Rstudio version 2022.07.1. All participants (N = 142) were 18+ years of age with an average age of *M* = 21.29 years (*SD* = 5.8). The sample was relatively diverse (see **Table 1**). When asked to report their biological sex, 64.08% of participants identified as female, 35.21% identified as male, and 0% identified as intersex.

Hypothesis 1

Our first hypothesis was that participants would have a stronger tendency to exhibit confirmation bias when selecting self-relevant feedback (self-verification) compared to when selecting feedback about others. We coded feedback choices based on whether people chose the "weak" or "strong" evaluation. Confirmatory choices corresponded to those choices in which the selected evaluation matched the participants' overall rating.

A strong majority of participants (106, 75%) rated themselves as a strong candidate overall. Among these participants, 62 selected the weak feedback (58.49%), while 44 selected the self-verifying strong feedback (41.51%). Among the 36 (25%) participants who rated themselves as weak candidates overall, 14 selected the strong feedback (38.89%), while 22 selected the self-verifying weak feedback (61.11%; see **Table 2** and **Figure 1**). A Pearson's Chi-squared test of independence with Yates' continuity correction indicated that there was not a significant relation between self-rating and self-verification behavior (χ^2 (1) = 3.40, p = 0.065).

Participants were also much more likely to rate the peer as a strong candidate overall (115, or 82%). Among participants who gave the peer video a strong rating, 60 selected the weak feedback (52.17%), while 55 selected the confirmatory strong feedback (47.83%). Among the 26 (18%) participants who gave the peer video an initial weak rating, 12 selected the strong

feedback (46.15%), while 14 selected the confirmatory strong feedback (53.85%; see **Table 2**). There was not a significant relation between rating another person as weak or strong and making the confirmatory choice (χ^2 (1) = 0.11, p = 0.736).

An unstructured Generalized Estimating Equation (GEE) using the *gee* R library was used to model the likelihood of making confirmatory choices, with the participant's own evaluation (weak/strong) and the target (self/other) as predictors. Confirmation bias was independently measured via the article selection task (range: –10 to 12; M = 1.75, SD = 3.41) and was included as a covariate in the model to test whether a general confirmatory bias predicted the choice on the feedback selection task. A mixed effects model controlling for repeated measures was run[1]. VIF scores were all below 10, suggesting no collinearity of the variables.

The resulting model (see **Table 3**) does not demonstrate the probability of making a confirmatory choice based on evaluation (b = 0.52, OR = 1.69, robust z = 1.91, p = 0.056), target (b = -0.14, OR = 0.87, robust z = -0.56, p = 0.574), or general tendency toward confirmation bias (b = 0.05, OR = 1.05, robust z = 1.57, p = 0.117). Based on our predictions and the proportions seen in **Table 2**, a second model was tested adding an interaction between the target (self/other) and initial rating to evaluate whether the effect of weak initial ratings is specific to the self-relevant task. This model produced no significant predictors and the interaction was not found (see **Table 3**).

We explored an additional model that included the interaction between the target (self/other) and general confirmation bias to evaluate whether a confirmatory bias would be associated with confirming choices about the self vs. another person. For this model, the target

[1] A Grubbs test was performed to determine the presence of outliers in our confirmation bias variable, this test did suggest the data contained one outlier ($p < 0.05$). However, upon investigation of this data point, it was determined that there was not enough evidence to support removal as it was a viable value.

did not have a statistically significant relationship with making a confirming choice. However, giving a weak rating (b = 0.54, OR = 1.22, robust z = 1.998, p = 0.046), general confirmation bias tendency (b = 0.14, OR = 1.05, robust z = 2.669, p = 0.008), and the interaction (b = -0.16, OR = 1.78, robust z = -2.221, p = 0.026; see **Table 3**) were statistically significant. This model suggests that the chances of making a confirming choice were greater when giving a weak rating. In addition, the model suggests that a general confirmation bias (as assessed on the article selection task) was associated with an increased likelihood of making a confirming choice when it was about the other person, but was unrelated to the likelihood of choosing self-verifying feedback about oneself.

Hypothesis 2

The second hypotheses were that 2a) self-verification of negative information will relate negatively with the use of the emotion regulation strategies of acceptance, problem-solving, and reappraisal and hypothesis, and 2b) self-verification of negative information will relate positively with rumination and avoidance. We tested these hypotheses with a series of 2-way ANOVA tests. Responses on each subscale of interest of the CERQ and the MEAQ avoidance subscale were averaged to obtain composite scores for each emotion regulation strategy. The Shapiro-Wilk's test was used to test for normality and found all the variables, except for avoidance (p > 0.05), were not normally distributed. As ANOVAs are robust to nonnormality and skew and kurtosis for all variables were within expected limits (< 1, > -1), the data were not transformed. The assumption of homogeneity of variance was met by each model according to Bartlett's Test of Homogeneity. To see all ANOVA outcomes, see **Table 4**.

For hypothesis 2a, the relationship between self-verification (the selection of confirmatory feedback on the self-relevant choice) and specific ER strategies (acceptance M =

12.60, *SD* = 3.32; problem-solving *M* = 13.68, *SD* = 3.56; reappraisal *M* = 13.54, *SD* = 3.92) was examined using type II (to account for unbalanced observations) 2-way ANOVAs, with self-verification and self-evaluation (see **Table 2**) as between-subject factors.

Acceptance. There was no statistically significant relationship between acceptance, self-evaluation, and self-verification. The interaction was also non-significant.

Problem solving. Problem-solving had a significant relationship with self-evaluation ($F(1,138) = 4.24$, $p = 0.041$; see **Figure 2**), but not with self-verification or the interaction. Participants who gave themselves a strong overall rating had higher use of problem-solving (*M* = 14.01, *SD* = 3.50) compared to those that rated themselves as weak (*M* = 12.69, *SD* = 3.59).

Reappraisal. Reappraisal had a significant relationship with self-evaluation ($F(1,138) = 8.50$, $p = 0.004$; see **Figure 3**). Participants who rated themselves as strong candidates had a higher tendency to use reappraisal (*M* = 14.01, *SD* = 3.71) than those who rated themselves as weak (*M* = 12.17, *SD* = 4.22). There was also a statistically significant relationship to self-verifying behavior ($F(1,138) = 6.16$, $p = 0.014$) such that those that self-verified had a higher tendency to use reappraisal (*M* = 14.23, *SD* = 4.01) than those that did not self-verify (*M* = 12.95, *SD* = 3.76). There was not a significant interaction.

Rumination and Avoidance. For hypothesis 2b, the relationship between self-verification (the selection of confirmatory feedback on the self-relevant choice) and the ER strategies of rumination (*M* = 12.56, *SD* = 3.67) and avoidance (*M* = 39.26, *SD* = 11.11) was examined using 2-way ANOVAs, with self-verification and self-evaluation as between-subject factors. Neither rumination nor avoidance displayed a significant relationship between the variables, contrary to our hypothesis. The interactions were also non-significant.

Exploratory Analyses

While hypotheses were not formed for the other emotion regulation strategies in the CERQ, we wished to determine if relationships exist that have not been previously explored within the literature. The relationships between self-verification and the remaining ER strategies (catastrophizing $M = 7.97$, $SD = 2.86$; self-blame $M = 11$, $SD = 3.55$; other-blame $M = 7.76$, $SD = 2.37$; positive refocusing, $M = 10.54$, $SD = 3.76$; putting into perspective, $M = 12.81$, $SD = 3.85$) were examined using type II 2-way ANOVAs, with self-verification and self-evaluation as between-subject factors (see **Table 4**). The Shapiro-Wilk's test showed nonnormality of variables but skew and kurtosis for all variables were within expected limits, the data was not manipulated to improve the Shapiro-Wilk's test. Homogeneity of variance was checked using Bartlett's Test of Homogeneity, this assumption was met by each model except for other-blame.

Positive refocusing. Positive refocusing had a significant relationship with self-evaluation ($F(1, 138) = 14.18$, $p < 0.001$) and self-verification ($F(1, 138) = 4.61$, $p = 0.034$; see **Figure 4**). Participants who rated themselves as strong had a higher tendency to use positive refocusing ($M = 11.14$, $SD = 3.74$) than those that rated themselves as weak ($M = 8.78$, $SD = 3.25$). There was also a statistically significant relationship to self-verifying behavior such that those that self-verified had a higher tendency to use positive refocusing ($M = 11.03$, $SD = 3.73$) than those that did not self-verify ($M = 10.12$, $SD = 3.76$).

Putting in perspective. Putting in perspective had a significant relationship with self-verification ($F(1, 138) = 4.08$, $p = 0.045$; see Figure 4) such that those that self-verified had a higher tendency to use positive refocusing ($M = 13.47$, $SD = 3.94$) than those that did not self-verify ($M = 12.24$, $SD = 3.7$).

Catastrophizing, Self-blame, and Other Blame. Catastrophizing and self-blame showed no significant relationship to self-evaluation or self-verification. Because other blame was non-

normal and did not have equal variance, a Welch's ANOVA test was run for that subscale, but there were no significant relationships to self-evaluation or self-verification. None of these strategies had significant interactions between self-evaluation and self-verification.

Hypothesis 3

To test hypothesis 3, that individuals with negative mood/depression are more likely to self-verify negative information and use rumination and avoidance emotion regulation strategies, we explored the relationship between self-verification, emotion regulation, and depression using structural equation modeling. The data consisted of the composite scores from the ER strategies and the depression scale and the binary self-verification behavior variable. The results of this analysis should be interpreted with caution due to the limitations of this study (see **Discussion**). As stated in the previous section, these variables displayed acceptable normality. However, our measure for depressive symptoms was not normal (see **Figure 6**). Using the Mardia test of multivariate normality without the depression scale, this assumption was met and displayed no effect of multivariate outliers. A path analysis was conducted, specification of the initial model included 5 exogenous variables (rumination, avoidance, problem-solving, acceptance, and reappraisal) and 2 endogenous variables (self-verification, depressive symptoms) (see **Figure 7**). We predicted the maladaptive emotion regulation strategies (rumination, avoidance) to covary, and the adaptive emotion regulation strategies (problem-solving, acceptance, and reappraisal) to covary. We did not predict they will covary with each other. This model is overidentified with a $df = 6$. Path analyses were conducted using the *Lavann* 0.6-9 R package. Due to the inclusion of nonnormal and categorical data in the model, diagonally weighted least squares (DWLS) estimation was used (Mandrila, 2010).

The path analysis shows no statistically significant relationships between ER strategies and self-verifying behavior. Self-verification was not significantly related to rumination (b = -0.005, p = 0.725), avoidance (b = 0.008, p = 0.051), acceptance (b = 0.006, p = 0.692), problem-solving (b = -0.023 p = 0.405), or reappraisal (b = 0.035, p = 0.181; see **Table 5**).

Self-verification was not significantly related to depression symptoms (M =11.2, SD = 9.83; b = 1.195, p = 0.635). Rumination was significantly related to depression (b = 1.21, p < 0.001) as predicted. There was also a significant relationship between acceptance and depression (b = 1.174, p < 0.001). Depression was not significantly related to avoidance (b = 0.158, p = 0.101), problem-solving (b = 0.307, p = 0.690), or reappraisal (b = -1.305, p = 0.074; see **Table 5**).

However, fit statistics showed this model was not a good fit. The significant p-value for the chi-square tests suggests a significant difference between the predicted covariance and the covariance of the model (χ^2 (6) = 30.008, p < .001). The RMSEA of .172 [0.114, 0.236] is much higher than the cut-off of 0.08, suggesting high error. The CFI is below 0.9 (CFI = 0.842), which suggests a poor fit. The SRMR is higher than the cutoff of 0.08 (SRMR = 0.099), suggesting a high discrepancy between the observed and model predicted correlation (see **Table 6**). Thus, based on our predicted model, these results do not support our hypotheses that the above emotion regulation strategies would impact both self-verification and depression symptoms.

Exploratory Analyses

Based on the above results for Hypothesis 2 and the path analysis, we decided to explore additional models that included emotion regulation strategies that were shown to be related to self-evaluation and self-verification above. The specification of the model included 5 exogenous variables (rumination, acceptance, reappraisal, positive refocusing, and putting into perspective)

and 2 endogenous variables (self-verification, and global self-esteem; see **Figure 8**). Exogenous variables were included to evaluate the relationship with self-verification or depression symptoms from the prior analyses. We replaced the depression (BDI) score with the Rosenberg Self-esteem measurement as this variable displayed normal distribution with skew and kurtosis within acceptable limits and self-esteem is correlated with depressive symptoms (Spearman's r = -0.74, $p < 0.001$). As we discuss below, symptom severity for depression in people that did not self-verify (M = 10.82, SD = 9.28) was close to symptom severity in people that did self-verify (M = 11.62, SD = 10.47), suggesting that our sample did not include enough variability in depressive symptomology. Based on prior results, it was predicted that rumination and acceptance to covary as they both negatively related to the depression score. We also predict reappraisal, positive refocusing, and putting into perspective to covary. Following the prior path analysis, acceptance and reappraisal covary. This model is overidentified with a df = 5.

As in the previous model, none of the emotion regulation strategies showed a direct effect related to self-verification. Rumination and reappraisal did have statistically significant effects on self-esteem (rumination: b = -0.469, p = 0.038; reappraisal: b =1.047, p = 0.001; see **Table 7**). All covariates were significant ($p < 0.05$). However, model fit indices continued to suggest poor fit (see **Table 8**). Taken together, both models do not support our hypothesis that emotion regulation and self-verification interact to promote negative mood or self-image.

Following the previous model, it was decided to test if self-evaluation has a better relationship with emotion regulation strategies and is a better predictor of depression symptoms. This model mirrored findings from the previous models (see **Table 9**). This model did not show acceptable fit ($\chi 2(5) = 35.87$, $p < 0.001$, CFI = 0.796, RMSEA = 0.214 [0.151, 0.282], SRMR = 0.098).

Lastly, to test whether the emotion regulation strategies fit the classification of maladaptive and adaptive, an Exploratory Factor Analysis (EFA) was conducted using varimax rotation and maximum likelihood for factor extraction. A parallel suggested 2 factors would be appropriate (see **Figure 9**). The results suggest that factor 1, which we refer to as maladaptive strategies, includes rumination, acceptance, avoidance, self-blame, and catastrophizing. Factor 2, which we refer to as adaptive, includes reappraisal, problem-solving, acceptance, positive refocusing, and perspective-taking (see **Table 10**). We then tested these latent factors and their relationship to the observed variables of self-verification and depression symptoms using a structural regression model. The CFA model did not show acceptable model fit (see Table 11 for estimates; $\chi 2(19) = 64.09$, $p < 0.001$, CFI = 0.842, RMSEA = 0.13 [0.096, 0.165], SRMR = 0.093) and suggested crossover of the latent variables. Due to these issues, we did not continue with testing the structural part of the model.

CHAPTER 4: Discussion

This exploratory study aimed to better understand the relationship between self-verification, confirmation bias, emotion regulation, and mental health outcomes. To explore these relationships, participants completed questionnaires assessing their emotion regulation strategies (CERQ, MEAQ), self-views (SAQ, RSS), depressive symptomology (the BDI-II), and other measures related to stress and anxiety (PANAS, SPS, PSS, GAD-7). Participants completed two sessions in which they answered these questionnaires and engaged in a belief measurement and article selection task to measure confirmation bias, and an interview task to measure self-verification.

Hypothesis 1

Our first hypothesis was that people would be more likely to make confirming choices about self-relevant information than about other people. Our results partially support this. As shown in **Figure 1**, for weak ratings there was a stronger tendency to confirm this belief for the self-relevant choice than for the other choice. However, the comparison between self- and other-relevant feedback did not reach significance.

We also found that making a confirmatory choice was more likely when participants gave a negative (weak) rating for both the self and peer video, a result that appeared to be driven by the strong preference to select negative feedback among people who gave themselves a “weak” rating. This would support our initial predictions that self-verification tendencies are higher in those with negative self-views.

In contrast, people with positive self-views (“strong” self-ratings) were less likely to self-verify. This means that participants that rated themselves as strong demonstrated an overall tendency to select the negative (“weak”) feedback. This could be due to an evaluation of the

negative feedback as an opportunity to improve or could demonstrate an overall bias towards negative information. Based on past literature, this could also be due to the perceived credibility of the given feedback. Prior research states that feedback credibility is a driver of self-verification, such that self-verification is less likely to be seen when self-discrepant feedback is believed to be given by a credible source, as self-discrepant feedback is typically seen as less accurate (Szumowska et al., 2022). In this study, we assigned the same credibility to both feedback options, stating both were given by "evaluators". It's not entirely clear whether people expected the feedback to be credible. Participants tended to rate the feedback for the other person as slightly more accurate (other $M = 2.94$, $SD = 0.92$; self $M = 2.38$, $SD = 0.99$). On a whole, self-relevant feedback was rated low on accuracy. It should be noted that in the previous research, higher perceived credibility led to no preference between positive and negative feedback (Szumowska et al., 2022), whereas we saw a preference for negative feedback among people with positive self-ratings. In general, our data is consistent with an overall bias toward negative feedback, regardless of whether the self-rating was weak or strong. This differs from previous studies as the literature suggests that self-verification should be seen in people with positive and negative self-views (Swann et al., 2003). However, we are seeing a general bias towards negative information, going against self-verification theory and self-enhancement theory, which suggests people strive for and have a bias towards positive feedback (Swann et al., 2003). This may suggest that our task was not effective in having participants access their self-views. Swann and colleagues (2003) discuss that self-verification becomes more common when individuals are invested in the situation/feedback. As this was a research study and had no real consequences to participants, it is possible they were not heavily invested in the interview task, reducing the need for self-verification. It may have occurred due to the delay in time between

recording the video and making the feedback choice. While the delay between video recording and receiving feedback was short, their opinion about their performance may not have been salient after multiple days, reducing the strength of their opinion and the impact of disconfirming feedback.

Using a GEE model, we found that an independent measure of confirmation bias (preferences to read articles that were aligned with existing views) was associated with the likelihood of making a confirming choice about peer-relevant feedback. In contrast, scores on the article selection task were unrelated to the probability of making self-verifying choices for self-relevant feedback. This suggests that self-verification may not reflect a general bias toward confirmatory information. This may be due to the emotional response that results from being presented with feedback that conflicts with self-views, which then drives behavior (Swann et al., 2003). Feedback about the other person doesn't have this same effect, as it is unlikely that participants are attached to their opinion about the other video in a way that disconfirming information would elicit a negative response. A person's general tendency toward confirmation bias would then be more likely to drive attention or feedback selection. This suggests that to improve mental health outcomes, targeting information-seeking habits alone may not be adequate. Interventions designed to change negative self-views more directly may be more effective, as self-verification may be driven by a need to maintain a coherent self-view rather than simply confirm existing beliefs.

Hypothesis 2

The analyses for our second hypothesis were aimed at determining whether specific emotion regulation strategies related to the use of self-verification. Specifically, we hypothesized that people that use maladaptive emotion regulation strategies would be likely to self-verify and

that people that use adaptive emotion regulation would be less likely to self-verify. We predicted this as the habitual use of adaptive strategies may require more cognitive control and allow individuals to overcome cognitive biases. Receiving self-discrepant feedback can be seen as threatening to one's self-concept and create anxiety and negative emotions (Swann et al., 2003). We predicted that upon receiving this feedback (e.g., when a person rated themselves as a "strong" candidate and sees that an evaluator gave a "weak" rating), adaptive emotion regulation strategies would be used to reduce this negative response and make the person more willing to make the disconfirming choice.

However, our results do not support these hypotheses. We found that reappraisal (changing an interpretation of an event to be positive), positive refocusing (redirecting thoughts to more positive events), and putting into perspective (reducing the seriousness of an event through comparison to others; Garnefski et al., 2002) had a significant positive relationship with self-verification, such that participants who self-verified had a higher tendency to use these emotion regulation strategies than those that did not self-verify.

Problem-solving, reappraisal, and positive refocusing also demonstrated a statistically significant relationship with self-evaluation. This relationship suggested that those that gave a strong rating had a higher tendency to use these emotion regulation strategies. We did not have a specific hypothesis about this relationship. Logically, people that use adaptive strategies would have a positive self-view and see themselves as a strong candidate, as the use of these strategies tends to correlate with positive mental health outcomes (Joorman & Vanderlind, 2014; Martin & Dahlen, 2005; Ulfig, 2016).

While self-verification is typically seen in people with both positive and negative self-views (Chen et al., 2006; Evraire & Dozois, 2011; Swann & Burhmester, 2011), we predicted

that based on previous studies, using adaptive emotion regulation strategies would make people view disconfirming feedback as a chance to grow and improve (Düsing et al., 2021). Surprisingly, our results suggest the opposite relationship, such that these strategies were more common among people who self-verified. Based on what the literature suggests about self-verification and emotion regulation, we have multiple theories that may explain these results. The use of adaptive strategies may lead individuals to focus on less stressful choices, being the self-confirming one. We especially thought reappraisal would lead to less use of self-verification, as it is meant to allow the participants to take a negative event and interpret it more positively, such as seeing stressful disconfirming information and reinterpreting it more positively. For those with negative self-views, it is possible that receiving negative feedback is still stressful, thus they may have used reappraisal to view the negative feedback more positively, encouraging them to self-verify. However, this goes against prior literature that suggests receiving disconfirming information is more stressful than receiving negative, confirming information as determined using implicit physiological measures (Ayduk, 2013). For those with positive self-views, it may have been that they did not feel the need to use emotion regulation for this task. For positive refocusing, it would seem that participants directed their attention to the less stressful, confirming choice. For putting into perspective, it may have been that they viewed this task as not as important to them, and so chose the self-verifying choice as it is less stressful and they do not feel they need the other feedback. Otherwise, this data may not support the importance of implicit measures of emotion in self-verification as suggested by Ayduk (2013). It could be that subjective, rather than implicit measures of emotion, are better indicators of self-verifying behaviors. While implicit measures demonstrated discrepant feedback to be the most

stressful, subjective measures showed that negative feedback is still upsetting, even when it confirms self-views (Ayduk, 2013).

Overall, while it is unclear what is driving our participants' choice in feedback, our results suggest that adaptive emotion regulation strategies are associated with self-verifying choices of feedback. Participants may have been choosing the confirming choice as they determine there is nothing to be learned from the disconfirming choice. It seems plausible participants reevaluated the situation after seeing the discrepant feedback, potentially viewing the feedback as non-credible. This is different from our prediction that participants would reappraise the feedback, and attempt to view it more positively.

Hypothesis 3

Our third hypothesis was meant to clarify the relationship between emotion regulation, self-verification, and mental health outcomes. Prior literature has demonstrated that emotion regulation impacts depression outcomes (Joorman & Vanderlind, 2014; Martin & Dahlen, 2005; Ulfig, 2016), self-verification relates to depression outcomes (Casbon et al., 2005; Chen et al., 2006; Evraire & Dozois, 2011; Giesler et al., 1996; Swann et al., 1992a; Swann et al., 1992b), and that emotion regulation and cognitive bias impact each other and this too relates to depression outcomes (Everaert et al., 2017). We predicted that in a path analysis, maladaptive emotion regulation would impact self-verification, which in turn would impact depressive symptoms. However, our results did not support this hypothesis. Our path analysis found no statistically significant relationships between emotion regulation and self-verification, or between self-verification and depression. This could be due to the limitations of this study, as most participants had low levels of depression symptoms and higher self-esteem. Low levels of depressive symptomology across all participants could have led to the little difference in

symptom severity between those that self-verified and those that did not that was observed. As we discussed above, adaptive strategies were related to self-verification based on the analyses for Hypothesis 2, suggesting the use of self-verification in this context was not prominent among people that habitually use maladaptive strategies. As predicted, rumination and acceptance did show a statistically significant relationship with depression. Higher rumination scores predicted higher depression scores. Opposite to our predictions, higher levels of acceptance also predicted higher levels of depression, which supports prior notions that acceptance may be used maladaptively (Martin & Dahlen, 2005). However, this model did not show a good fit, so these results should be interpreted with caution.

Based on unexpected results, we decided to run another model based on our significant results. This path model included emotion regulation strategies that were found to significantly relate to self-verification or depression outcomes. Instead of our depressive symptoms variable, which had a non-normal distribution, we replaced this with our self-esteem measure found to correlate with depression. In this model, again no significant relationship was found between emotion regulation and self-verification. Reappraisal and rumination did have statistically significant relationships with self-esteem. Higher use of rumination predicted lower ratings of self-esteem and higher use of reappraisal predicted higher ratings of self-esteem. Again, this model did not have a good overall fit.

Following this model, we decided to determine if self-verification was the issue in the model and replaced it with the feedback choice. While this model largely mirrored previous findings, we did see a significant relationship between positive refocusing and feedback choice. Such that those that used more positive refocusing demonstrated a lower likelihood of choosing the negative feedback option.

Based on our results, we wanted to determine if the use of these emotion regulation strategies can be placed into two latent variables, maladaptive and adaptive, and if these latent factors were better predictors of self-verification. An EFA confirmed our predictions that maladaptive emotion regulation is composed of rumination, avoidance, self-blame, and catastrophizing. Adaptive emotion regulation is composed of reappraisal, problem-solving, acceptance, positive refocusing, and perspective-taking. However, our CFA did not demonstrate a good model fit suggesting that multiple of the measured strategies should be considered as both adaptive and maladaptive. These findings suggest that dividing these strategies into maladaptive and adaptive categories may not reflect the actual use of these strategies, which is in line with some arguments from the field (Martin & Dhalen, 2005). However, as mentioned previously, our sample does demonstrate bias which may be impacting these results. Future work is needed to examine these categories with participants with higher scores of depressive symptoms to adequately determine if the use of these strategies can be broken into these categories in the context of negative mental health.

Limitations and Future Directions

This exploratory study attempted to obtain a better understanding of self-verification behavior and how its use may relate to emotion regulation. Overall, we did not find that emotion regulation and self-verification interact to impact mental health outcomes. Interesting findings included some relation between adaptive strategies and self-verification, and models suggesting it may not be appropriate to divide emotion regulation strategies into adaptive and maladaptive categories. All of our results should be interpreted with caution, as the limitations of this study are believed to have impacted our analyses.

The primary task was a recorded interview, in which participants were instructed to record a video of themselves answering multiple questions. The purpose of this task was to have the participants engage in an activity that they would feel strongly about, and a task in which receiving feedback would be expected. We followed past studies (Giesler et al., 1996; Linehan, 1997) that also used in-person interviews and feedback choices to measure self-verification. Our initial goal was to collect data from students with a range of levels of depressive symptoms to determine if self-verification for negative information is higher in those struggling with depression. However, due to the nature of the task, there was likely substantial sampling bias, as individuals with low self-esteem or depressive symptoms may have been unlikely to record themselves on video. The majority of our participants scored low on the depression scale. While most of our other variables were normally distributed, we did see a trend towards higher self-esteem and higher use of some adaptive emotion regulation strategies. Thus, this bias has implications for the types of emotion regulation strategies used in our sample, individual self-views, and how our participants sought feedback.

Other limitations of this study include other characteristics of the sample. This study's sample consisted solely of students at UNC Charlotte. While this sample was relatively diverse, sampling solely from college students does impact the generalizability of the findings.

Another limitation comes from the design of the study. We measured the habitual use of emotion regulation strategies but did not measure if emotion regulation strategies were used when choosing which feedback option to view. While habitual use of emotion regulation strategies suggests participants will use them when faced with having to choose to read an evaluation, an assumed stressful event, our study did not include direct measures of the perceived stress of the feedback or uses of different ER strategies. We also used a single choice of feedback

to measure self-verification. While this method is commonly used to measure self-verification (Giesler et al., 1996), this may not be an adequate representation of habitual self-verifying behaviors in daily life. A habitual tendency toward self-verification might show a clearer connection between emotion regulation strategies and depressive symptomology (Hypothesis 3).

The design of our feedback could have also biased responses. While choices were made before viewing the detailed feedback, an ordering effect could have occurred. Even though the feedback choice question was randomized on whether the participant saw feedback for themself or the peer video, participants always saw detailed feedback and gave an accuracy rating before getting their second choice. This could have impacted this choice and their perceived accuracy of the second viewed feedback.

Future studies should aim to address these limitations. The primary task of this study, and interview task, should be changed to encourage participation among participants with low self-image (e.g., not including video recording for an online study). Future studies would also benefit from sampling from a clinical population, this would allow researchers to examine self-verification behaviors in a sample of participants with clinical levels of depression. It may also be helpful to develop a task to measure habitual self-verification more representative of the range of biased behaviors that contribute to the maintenance of negative self-views. This could be a task mirroring our confirmation bias task, in which multiple decisions need to be made to get an overall score of self-verification tendencies.

Future studies should also aim to use a mixed methods approach, using both quantitative and qualitative data. This study's design did not allow us to determine what participants felt when they received the feedback, how they decided which feedback choice they wanted to see, and their perceived credibility of each feedback option. This makes it unclear as to whether

negative, versus self-discrepant feedback, was stressful to receive. It also makes it unclear as to whether participants engaged in any emotion regulation strategies to make their choice and if not, it is important to determine what cognitive factors impacted their choice.

Conclusions

This exploratory work has implications for future research and interventions. Results from this study suggest that self-verification does not reflect a general bias toward confirmatory information, suggesting targeting self-views rather than information-seeking habits may be more effective in improving mood. Our results also suggest that reappraisal, positive refocusing, and putting into perspective are associated with self-verification. This has implications for interventions targeting cognitive biases and emotion regulation strategies, but more research is needed to understand this relationship and its outcomes. Lastly, our results suggest categorizing emotion regulation strategies as “adaptive” or “maladaptive” may not be an adequate representation of how these strategies are used in daily life, and researchers should instead address and investigate strategies individually. Future research should continue to investigate the relationships between emotion regulation and biased feedback-seeking while addressing the limitations seen in this study.

References

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical psychology review*, *30*(2), 217-237. https://doi.org/10.1016/j.cpr.2009.11.004

Arens, E. A., & Stangier, U. (2020). Sad as a matter of evidence: The desire for self-verification motivates the pursuit of sadness in clinical depression. *Frontiers in Psychology, 11*. https://doi.org/10.3389/fpsyg.2020.00238

Ayduk, Ö., Gyurak, A., Akinola, M., & Mendes, W. B. (2013). Consistency over flattery: Self-verification processes revealed in implicit and behavioral responses to feedback. *Social Psychological and Personality Science, 4*(5), 538-545. https://doi.org/10.1177/1948550612471827

Balzan, R., Delfabbro, P., Galletly, C., & Woodward, T. (2013). Confirmation biases across the psychosis continuum: The contribution of hypersalient evidence-hypothesis matches. *British Journal of Clinical Psychology, 52*(1), 53-69. https://doi.org/10.1111/bjc.12000

Beck, A. T., Steer, R. A., & Brown, G. (1996). Beck Depression Inventory–II. PsycTESTS. https://doi.org/10.1037/t00742-000

Brannon, L. A., Tagler, M. J., & Eagly, A. H. (2007). The moderating role of attitude strength in selective exposure to information. *Journal of Experimental Social Psychology, 43*(4), 611-617. https://doi.org/10.1016/j.jesp.2006.05.001

Casbon, T. S., Burns, A. B., Bradbury, T. N., & Joiner Jr, T. E. (2005). Receipt of negative feedback is related to increased negative feedback seeking among individuals with depressive symptoms. *Behaviour Research and Therapy, 43*(4), 485-504. https://doi.org/10.1016/j.brat.2004.03.009

Chen, S., English, T., & Peng, K. (2006). Self-verification and contextualized self-views. *Personality and Social Psychology Bulletin, 32*(7), 930-942. https://doi.org/10.1177/0146167206287539

Cohen, S., Kamarck, T., & Mermelstein, R. (1994). Perceived stress scale. *Measuring stress: A guide for health and social scientists, 10*(2), 1-2. https://www.mindgarden.com/documents/PerceivedStressScale.pdf

Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British journal of clinical psychology, 43*(3), 245-265. https://doi.org/10.1348/0144665031752934

Düsing, R., Radtke, E. L., Kuhl, J., Konrad, C., Vandekerckhove, M., & Quirin, M. (2021). Emotion regulation ability compensates for the depression-related negativity bias. *Acta Psychologica, 220,* 1-10. https://doi.org/10.1016/j.actpsy.2021.103414

Eizenman, M., Lawrence, H. Y., Grupp, L., Eizenman, E., Ellenbogen, M., Gemar, M., & Levitan, R. D. (2003). A naturalistic visual scanning approach to assess selective attention in major depressive disorder. *Psychiatry research, 118*(2), 117-128. https://doi.org/10.1016/s0165-1781(03)00068-4

Everaert, J., Grahek, I., Duyck, W., Buelens, J., Van den Bergh, N., & Koster, E. H. (2017). Mapping the interplay among cognitive biases, emotion regulation, and depressive symptoms. *Cognition and Emotion, 31*(4), 726-735. https://doi.org/10.1080/02699931.2016.1144561

Evraire, L. E., & Dozois, D. J. (2011). An integrative model of excessive reassurance seeking and negative feedback seeking in the development and maintenance of depression. *Clinical Psychology Review, 31*(8), 1291-1303. https://doi.org/10.1016/j.cpr.2011.07.014

Gámez, W., Chmielewski, M., Kotov, R., Ruggero, C., & Watson, D. (2011). Development of a measure of experiential avoidance: The Multidimensional Experiential Avoidance Questionnaire. *Psychological assessment, 23*(3), 692. https://renaissance.stonybrookmedicine.edu/sites/default/files/Multidimensional%20Experiential%20Avoidance%20Questionnaire_0.pdf

García-Batista, Z. E., Guerra-Peña, K., Cano-Vindel, A., Herrera-Martínez, S. X., & Medrano, L. A. (2018). Validity and reliability of the Beck Depression Inventory (BDI-II) in general and hospital population of Dominican Republic. *PloS one, 13*(6). https://doi.org/10.1371/journal.pone.0199750

Garnefski, N., Kraaij, V., & Spinhoven, P. (2002). *CERQ: Manual for the use of the Cognitive Emotion Regulation Questionnaire*. Leiderdorp, The Netherlands: DATEC. https://www.universiteitleiden.nl/en/research/research-projects/social-and-behavioural-sciences/cognitive-emotion-regulation-questionnaire-cerq

Giesler, R. B., Josephs, R. A., & Swann Jr, W. B. (1996). Self-verification in clinical depression: The desire for negative evaluation. *Journal of Abnormal Psychology, 105*(3), 358. https://core.ac.uk/reader/22870932?utm_source=linkout

Griffith, J. W., Sumner, J. A., Debeer, E., Raes, F., Hermans, D., Mineka, S., Zinbarg, R. E., & Craske, M. G. (2009). An item response theory/confirmatory factor analysis of the Autobiographical Memory Test. *Memory, 17*(6), 609-623. https://doi.org/10.1080/09658210902939348

Joormann, J., & Vanderlind, W. M. (2014). Emotion regulation in depression: The role of biased cognition and reduced cognitive control. *Clinical Psychological Science, 2*(4), 402-421. https://doi.org/10.1177/2167702614536163

Klayman, J. (1995). Varieties of confirmation bias. *Psychology of learning and motivation* (Vol. 32, pp. 385-418). Academic Press. https://doi.org/10.1016/S0079-7421(08)60315-1

Kwang, T., & Swann Jr, W. B. (2010). Do people embrace praise even when they feel unworthy? A review of critical tests of self-enhancement versus self-verification. *Personality and Social Psychology Review, 14*(3), 263-280. https://doi.org/10.1177/1088868310365876

Linehan, M. M. (1997). Self-verification and drug abusers: Implications for treatment. *Psychological Science, 8*(3), 181-183. https://doi.org/10.1111/j.1467-9280.1997.tb00408.x

Levine, L. J., Schmidt, S., Kang, H. S., & Tinti, C. (2012). Remembering the silver lining: Reappraisal and positive bias in memory for emotion. *Cognition & Emotion, 26*(5), 871-884. https://doi.org/10.1080/02699931.2011.625403

Lewis, M., & Naugle, A. (2017). Measuring experiential avoidance: Evidence toward multidimensional predictors of trauma sequelae. *Behavioral Sciences*, *7*(1), 9. https://doi.org/10.3390/bs7010009

Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress, and anger. *Personality and individual differences, 39*(7), 1249-1260. https://doi.org/10.1016/j.paid.2005.06.004

Mindrila, D. (2010). Maximum likelihood (ML) and diagonally weighted least squares (DWLS) estimation procedures: A comparison of estimation bias with ordinal and multivariate non-normal data. *International Journal of Digital Society, 1*(1), 60-66.

https://infonomics-society.org/wp-content/uploads/ijds/published-papers/volume-1-2010/Maximum-Likelihood-ML-and-Diagonally-Weighted-Least-Squares-DWLS-Estimation-Procedures-A-Comparison-of-Estimation-Bias-with-Ordinal-and-Multivariate-Non-Normal-Data.pdf

Manuel, A., & Wade, T. D. (2013). Emotion regulation in broadly defined anorexia nervosa: Association with negative affective memory bias. *Behaviour research and therapy, 51*(8), 417-424. https://doi.org/10.1016/j.brat.2013.04.005

Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*(4), 455-470. https://doi.org/10.1016/S0005-7967(97)10031-6

North, R. J., & Swann Jr, W. B. (2009). Self-verification 360: Illuminating the light and dark sides. *Self and Identity, 8*(2-3), 131-146. https://doi.org/10.1080/15298860802501516

Pelham, B. W., & Swann, W. B. (1989). From self-conceptions to self-worth: On the sources and structure of global self-esteem. *Journal of personality and social psychology, 57*(4), 672-680. https://doi.org/10.1037//0022-3514.57.4.672

Rieger, A., Draws, T., Theune, M., & Tintarev, N. (2021, August). This Item Might Reinforce Your Opinion: Obfuscation and Labeling of Search Results to Mitigate Confirmation Bias. *In Proceedings of the 32nd ACM Conference on Hypertext and Social Media* (pp. 189-199). https://doi.org/10.1145/3465336.3475101

Rottenberg, J., & Gross, J. J. (2007). Emotion and emotion regulation: A map for psychotherapy researchers. *Clinical Psychology: Science and Practice, 14*(4), 323-328. https://doi.org/10.1111/j.1468-2850.2007.00093.x

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton

University Press. http://www.jstor.org/stable/j.ctt183pjjh

Schoth, D. E., & Liossi, C. (2017). A systematic review of experimental paradigms for exploring biased interpretation of ambiguous information with emotional and neutral associations. *Frontiers in Psychology, 8*, 171. https://doi.org/10.3389/fpsyg.2017.00171

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine, 166*(10), 1092-1097. https://doi.org/10.1001/archinte.166.10.1092

Swann, W., Rentfrow, P., Sellers, J. (2003). Self-verification: The search for coherence. *Handbook of Self and Identity*. 367-383. https://www.researchgate.net/publication/312911687_Self-verifi_cation_The_Search_for_Coherence

Swann Jr, W. B., & Read, S. J. (1981). Self-verification processes: How we sustain our self-conceptions. *Journal of Experimental Social Psychology, 17*(4), 351-372. https://doi.org/10.1016/0022-1031(81)90043-3

Swann, W. B., Wenzlaff, R. M., Krull, D. S., & Pelham, B. W. (1992a). Allure of negative feedback: Self-verification strivings among depressed persons. *Journal of Abnormal Psychology, 101*(2), 293. https://doi.org/10.1037/0021-843x.101.2.293

Swann, W. B., Wenzlaff, R. M., & Tafarodi, R. W. (1992b). Depression and the search for negative evaluations: More evidence of the role of self-verification strivings. *Journal of Abnormal Psychology*, *101*(2), 314–317. https://doi.org/10.1037/0021-843X.101.2.314

Swann, W. B., & Buhrmester, M. D. (2011). Self-verification: The search for coherence. In Leary, M. R., & Tangney, J.P. (Eds.), *Handbook of Self and Identity* (pp. 405-424). The

Guilford Press. https://www.researchgate.net/publication/312911687_Self-verifi_cation_The_Search_for_Coherence

Szumowska, E., Wójcik, N., Szwed, P., & Kruglanski, A. W. (2022). Says Who? Credibility effects in self-verification strivings. *Psychological Science, 33*(5), 699-715. https://doi.org/10.1177/09567976211049439

Remmerswaal, D., Huijding, J., Bouwmeester, S., Brouwer, M., & Muris, P. (2014). Cognitive bias in action: Evidence for a reciprocal relation between confirmation bias and fear in children. *Journal of Behavior Therapy and Experimental Psychiatry*, *45*(1), 26-32. https://doi.org/10.1016/j.jbtep.2013.07.005

Romens, S. E., & Pollak, S. D. (2012). Emotion regulation predicts attention bias in maltreated children at-risk for depression. *Journal of Child Psychology and Psychiatry, 53*(2), 120-127. https://doi.org/10.1111/j.1469-7610.2011.02474.x

Ulfig, C. M. (2016). *The Role of Cognitive Emotion Regulation Strategies, Emotional Expressivity, and Ambivalence Over Emotional Expression on Cognitive Stress Appraisals and Cardiovascular Reactivity During an Acute Interpersonal Stress Recall Task* [Doctoral dissertation, University of Michigan-Dearborn]. Deep Blue. http://hdl.handle.net/2027.42/117281

Watkins, E. R., Baeyens, C. B., & Read, R. (2009). Concreteness training reduces dysphoria: Proof-of-principle for repeated cognitive bias modification in depression. *Journal of Abnormal Psychology*, *118*(1), 55. https://doi.org/10.1037/a0013642

Watson, D., Clark, L. A., & Tellegan, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. https://doi.org/10.1037//0022-3514.54.6.1063

Appendix A: Questionnaires

BDI-II (Beck et al., 1996)

Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. If several statements in the group seem to apply equally well, choose the highest number for that group.

BDI-II_1 Sadness

0: I do not feel sad

1: I feel sad much of the time

2: I am sad all of the time

3: I am so sad or unhappy I can't stand it

BDI-II_2 Pessimism

0: I am not discouraged about my future

1: I feel more discouraged about my future than I used to be

2: I do not expect things to work out for me

3: I feel my future is hopeless and will only get worse

BDI-II_3 Past Failure

0: I do not feel like a failure

1: I have failed more than I should have

2: As I look back, I see a lot of failure

3: I feel I am a total failure as a person

BDI-II_4 Loss of Pleasure

0: I get as much pleasure as I ever did from the things I enjoy

1: I don't enjoy things as much as I used to

2: I get very little pleasure from the things I used to enjoy

3: I can't get any pleasure from the things I used to enjoy

BDI-II_5 Guilty Feelings

0: I don't feel particularly guilty

1: I feel guilty over many things I have done or should have done

2: I feel guilty most of the time

3: I feel guilty all of the time

BDI-II_6 0: Punishment Feeling

0: I don't feel I am being punished

1: I feel I may be punished

2: I expect to be punished

3: I feel I am being punished

BDI-II_7 Self-Dislike

0: I feel the same about myself as ever

1: I have lost confidence in myself

2: I am disappointed in myself

3: I dislike myself

BDI-II_8 Self-Criticalness

0: I don't criticize or blame myself more than usual

1: I am more critical of myself than I used to be

2: I criticize myself for all my faults

3: I blame myself for everything bad that happens

BDI-II_9 Suicidal Thoughts or Wishes

0: I don't have any thoughts of killing myself

1: I have thought of killing myself, but I would not carry them out

2: I would like to kill myself

3: I would kill myself if I had the chance

BDI-II_10 Crying

0: I don't cry anymore than I used to

1: I cry more than I used to

2: I cry over every little thing

3: I feel like crying, but I can't

BDI-II_11 Agitation

0: I am no more restless or wound up than usual

1: I feel more restless or wound up than usual

2: I am so restless or agitated that I have to keep moving or doing something

3: I am so restless or agitated that I have to keep moving or doing something

BDI-II_12 Loss of Interest

0: I have not lost interest in other people or activities

1: I am less interested in other people or thing than before

2: I have lost most of my interest in other people or things

3: It's hard to get interested in anything

BDI-II_13 Indecisiveness

0: I make decisions about as well as ever

1: I find it more difficult to make decisions than usual

2: I have much greater difficulty in making decisions than I used to

3: I have trouble making any decisions

BDI-II_14 Worthlessness

0: I do not feel I am worthless

1: I don't consider myself as worthwhile and useful as I used to

2: I feel more worthless as compared to other people

3: I feel utterly worthless

BDI-II_15 Loss of Energy

0: I have as much energy as ever

1: I have less energy than I used to have

2: I don't have enough energy to do very much

3: I don't have enough energy to do anything

BDI-II_16 Changes in Sleeping Pattern

0: I have not experienced any change in my sleeping pattern

1a: I sleep somewhat more than usual

1b: I sleep somewhat less than usual

2a: I sleep a lot more than usual

2b: I sleep a lot less than usual

3a: I sleep most of the day

3b: I wake up 1-2 hours early and can't get back to sleep

BDI-II_17 Irritability

0: I am no more irritable than usual

1: I am more irritable than usual

2: I am much more irritable than usual

3: I am irritable all the time

BDI-II_18 Changes in Appetite

0: I have not experienced any change in my appetite

1a: My appetite is somewhat less than usual

1b: My appetite is somewhat greater than usual

2a: My appetite is much less than before

2b: My appetite is much greater than usual

3a: I have no appetite at all

3b: I crave food all the time

BDI-II_19 Concentration Difficulty

0: I can concentrate as well as ever

1: I can't concentrate as well as usual

2: It's hard to keep my mind on anything for very long

3: I find I can't concentrate on anything

BDI-II_20 Tiredness or Fatigue

0: I am no more tired or fatigued than usual

1: I get more tired or fatigues more easily than usual

2: I am too tired or fatigued to do a lot of the things I used to do

3: I am too tired or fatigued to do most of the things I used to do

BDI-II_21 Loss of Interest in Sex

0: I have not noticed any recent change in my interest in sex

1: I am less interested in sex than I used to be

2: I am much less interested in sex now

3: I have lost interest in sex completely

CERQ (Garnefski et al., 2002)

Everyone gets confronted with negative or unpleasant experiences and everyone responds to them in their own way. In the following questions, you are asked to indicate how you typically respond when you experience negative or unpleasant events**.** Please read the sentences below and indicate how often you have the following thoughts by choosing the most suitable answer. Completing the questionnaire is about your own views, there is not right or wrong answer.

When I experience negative or unpleasant events:

(Almost) Never Sometimes Regularly Often (Almost) Always

I feel that I am the one to blame for it

I think that I have to accept that this has happened

I often think about how I feel about what I have experienced

I think of nicer things than what i have experienced

I think of what I can do best

I think i can learn something from the situation

I think that it all could have been much worse

I often think that what I have experienced is much worse than what others have experienced

I feel that others are to blame for it

I feel that i am the one who is responsible for what has happened

I think that I have to accept the situation

I am preoccupied with what I think and feel about what I have experienced

I think of pleasant things that have nothing to do with it

I think about how I can best cope with the situation

I think that I can become a stronger person as a result of what has happened

I think that other people go through much worse experiences

I keep thinking about how terrible it is what I have experiences

I feel that others are responsible for what has happened

I think about the mistakes I have made in this matter

I think that i cannot change anything about it

I want to understand why I feel the way I do about what I have experienced

I think of something nice instead of what has happened

I think about how to change the situation

I think that the situation also has its positive sides

I think that it hasn't been too bad compared to other things

I often think that what I have experienced is the worst that can happen to a person

I think about the mistakes others have made in this matter

I think that basically the cause must lie within myself

I think that I must learn to live with it

I dwell upon the feelings the situation has evoked in me

I think about pleasant experiences

I think about a plan of what I can do best

I look for the positive sides to the matter

I tell myself that there are worst things in life

I continually think about how horrible the situation has been

I feel that basically the cause lies with others

MEAQ (Gamez et al., 2011)

Please indicate the extent to which you agree or disagree with each of the following statements

1	2	3	4	5	6
strongly disagree	moderately disagree	slightly disagree	slightly agree	moderately agree	strongly agree

I won't do something if I think it will make me uncomfortable

I avoid activities if there is even a small possibility of getting hurt

I rarely do something if there is a chance that it will upset me

I work hard to avoid situations that might bring up unpleasant thoughts and feelings in me

I prefer to stick to what I am comfortable with, rather than try new activities

If I have any doubts about doing something, I just won't do it

If I am starting to feel trapped, I leave the situation immediately

I go out of my way to avoid uncomfortable situations

If I am in a slightly uncomfortable situation, I try to leave right away

I avoid situations if there is a chance that I'll feel nervous

GAD-7 (Spitzer et al., 2006)

Over the last two weeks, how often have you been bothered by the following problem?

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all

Somewhat difficult

Very difficult

Extremely difficult

SPS (Mattick & Clarke, 1998)

For each item below, indicate the degree to which you feel the statement is characteristic or true for you.

Not at all Slightly Moderately very Extremely

I become anxious if I have to write in front of other people

I become self-conscious when using public toilets

I can suddenly become aware of my own voice and of others listening to me

I get nervous that people are staring at me as I walk down the street

I fear I may blush when I am with others

I feel self-conscious if I have to enter a room where others are already seated

I worry about shaking or trembling when I'm watched by other people

I would get tense if I had to sit facing other people on a bus or train

I get panicky that others might see me to be faint, sick, or ill

I would find it difficult to drink something if in a group of people

It would make me feel self-conscious to eat in front of a stranger at a restaurant

I am worried people will think my behavior is odd

I would get tense if I had to carry a tray across a crowded cafeteria

I worry I'll lose control of myself in front of other people

I worry I might do something to attract the attention of other

When in an elevator I am tense if people look at me

I can feel conspicuous standing in a queue

I get tense when i speak in front of other people

I worry my head will shake or nod in front of others

I feel awkward and tense if I know people are watching me

PSS (Cohen et al., 1994)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by selecting how often you felt or thought a certain way.

0: Never 1: Almost Never 2: Sometimes 3: Fairly Often 4: Very Often

In the last month, how often have you been upset because of something that happened unexpectedly?

In the last month, how often have you felt that you were unable to control the important things in your life?

In the last month, how often have you felt nervous and "stressed"?

In the last month, how often have you felt confident about your ability to handle you personal problems?

In the last month, how often you have felt that things were going your way?

In the last month, how often have you found that you could not cope with all the things that you had to do?

In the last month, how often have you been able to control irritations in your life?

In the last month, how often have you felt that you were on top of things?

In the last month, how often have you been angered because of things that were outside your control?

In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Rosenberg Self-Esteem Scale (Pelham & Swann, 1998)

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

	Strongly Agree	Agree	Disagree	Disagree	Strongly disagree
On the whole, I am satisfied with myself					
At times I think I am no good at all					
I feel that I have a number of good qualities					
I am able to do things as well as most other people					
I feel I do not have much to be proud of					
I certainly feel useless at times					
I feel that I'm a person of worth, at least on an equal plane with others					
I wish I could have more respect for myself					
All in all, I am inclined to feel that I am a failure					
I take a positive attitude toward myself					

PANAS (Watson et al., 1988)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then select the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

1. Interested
2. Distressed
3. Excited

4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic
10. Proud
11. Irritable
12. Alert
13. Ashamed
14. Inspired
15. Nervous
16. Determined
17. Attentive
18. Jittery
19. Active
20. Afraid

Demographics

What is your age in years?

_____

Gender What is your gender identity?

Woman

Man

Transgender

Non-binary/non-conforming

Prefer not to answer

Other _____

Bio sex What is your biological sex?

Female

Male

Intersex

Prefer not to answer

Race Which of the following racial designations best describes you?

Select all that apply.

American Indian or Alaska Native

Asian

Black or African American

Native Hawaiian or Pacific Islander

White

Other, not listed

Ethnicity Which of the following ethnicity designation best describes you?

I am of Hispanic, Latino, or of Spanish origin

I am not of Hispanic, Latino, or of Spanish origin

Prefer not to answer

Article Selection - Belief Measurement (Brannan et al., 2007; Rieger et al., 2021)

You will now complete a set of questions measuring your beliefs about a set of 12 topics. Please rate how strongly you agree with each statement based on the labels below:

-3	-2	-1	0	1	2	3
Strongly Disagree	Disagree	Somewhat disagree	Neutral	Somewhat Agree	Agree	Strongly Agree

1. I believe the COVID-19 vaccine does NOT work
2. I believe taking the COVID-19 vaccines should be required by a workplace
3. I believe colleges should return to in-person classes
4. I believe wearing masks should be mandated
5. I believe a woman should be able to choose whether to have an abortion
6. I believe we need to take any necessary steps to reduce climate change
7. I believe the minimum wage should be increased
8. I believe the U.S. should have universal healthcare
9. I believe cheating on homework is immoral
10. I believe a vegetarian diet is healthy
11. I believe all K-12 schools should have a school uniform
12. I believe standardized testing is a good measure of a student's academic potential

Article Selection - Articles (Brannan et al., 2007; Rieger et al., 2021)

In this section of the survey you'll be asked to evaluate different sources of information. Each of the following questions contains a headline taken from a real news article. For each article, consider how likely you would be to read it if you came across the headline during your daily

life. Please indicate on a scale from 1 to 9 how much you desire to read the article based on the headline.

1. "COVID-19 infection after vaccination and what to do next"
2. "Three CDC Studies Leave Little Doubt: COVID-19 Vaccines Work"
3. "Covid-19 Vaccine Mandates May Alienate Healthcare Workers But Woo Patients"
4. "Fauci: School Covid-19 vaccine mandates are a 'good idea' "
5. "Returning to In-Person Classes is the Right Call"
6. "The university perils of returning to in-person classes "
7. "U.S. schools with mask requirements are seeing fewer outbreaks, the C.D.C. finds."
8. "Whitmer's office: Ban on orders requiring masks for kids unconstitutional"
9. "Texas abortion ban 'something out of a horror movie,' Springfield pro-choice march draws hundreds"
10. "'Nothing Short of Child Sacrifice': Pelosi's Archbishop Says Her Pro-Abortion Bill Is What He'd Expect from a 'Satanist'"
11. "Climate change destroying homes across the Arctic"
12. "Stop blaming the climate for disasters"
13. "In many states, workers still earn only $7.25 an hour. If we want to fix the 'labor shortage,' it should start with raising wages."
14. "Small business owners fear the impact of a significant minimum wage increase"
15. "Pope Francis is right: It’s time for universal health care in America "
16. "Finally, a conservative plan to fix America's broken health care system "
17. "Cheating in Online School? Some Students and Parents Say It’s OK"
18. "The Student Side: The Destructive Self-Hatred of Cheating"

19. "Longevity: A vegetarian diet can reduce disease risk and add nearly 10 years more to life"

20. "Vegans and vegetarians may have higher stroke risk"

21. "Why more American schools are implementing school uniforms"

22. "School uniforms don’t improve child behavior, study finds "

23. "Maybe standardized tests are performing exactly as desired"

24. "Will ending standardized tests improve teaching, learning? "

Appendix B: Interview Task

Equipment Testing

Video Instructions: First we will record a test video using your webcam. Please ensure that you are in a quiet environment and that your face is clearly visible.

Remember: Videos recorded during this study will be stored on a password-protected, University-managed cloud account. Only members of the research team will be able to access any videos recorded during the course of this study.

Test video recording: Position your webcam so that your face is clearly visible in the frame below. When you are ready, press the red record button in the window. Then read aloud the following sentence:

"The quick brown fox jumps over the lazy dog."

Interview Questions

Your performance in the simulated interview will be assessed by two evaluators on our research team.

The evaluators will provide two types of feedback: First, they will make an overall judgment about whether you are a strong candidate or a weak candidate. Second, they will provide detailed ratings on their impressions of your personality and skills based on your responses to the interview questions.

You will have an opportunity to see feedback from an evaluator in the next session.

Your responses to each question will be limited to 60 seconds. Try to use the entire 60 seconds when responding to the question. Responses which are too brief, inappropriate, or unrelated to the question may make you ineligible for the lottery drawing for your participation.

Press the button below when you are ready to begin

Questions:

1. Click on Record Video in the window below, then center your face in the video frame. In 60 seconds, please respond to the following question:

   "Tell me how you think other people would describe you."

   Press the red record button in the window below when you are ready to begin.

2. Click on Record Video in the window below, then center your face in the video frame. In 60 seconds, please respond to the following question:

   "What is your greatest weakness?"

   Press the red record button in the window below when you are ready to begin.

3. Click on Record Video in the window below, then center your face in the video frame. In 60 seconds, please respond to the following question:

   "What does being a leader mean to you?"

   Press the red record button in the window below when you are ready to begin

*Same questions were answered in the videos participants watched

Ratings

Self: When considering your overall ability to attain a new job relative to your peers, do you generally believe you would be a strong candidate or a weak candidate?

Strong candidate

Weak candidate

Other: When considering their overall ability to attain a new job relative to your peers, do you generally believe this person would be a strong candidate or a weak candidate?

Strong candidate

Weak candidate

SAQ Self

This questionnaire has to do with your attitudes about some of your abilities. For the eight items below, you should rate yourself relative to others your own age by using the following scale:

A	B	C	D	E
Poor (bottom 5%)	Weak	Average	Strong	Outstanding (top 5%)

An example of the way the scale works is as follows: If one of the traits was "height," a woman who is among the tallest 5% of her peers would choose "E" (Top 5%) for this question, whereas a woman who is about average height compared to her peers would choose "C".

1. Compared to your peers, how would you evaluate your:

Intellectual/Academic Ability

Social skills/Social Competence

Creativity

Athletic ability

Leadership ability

Common sense

Emotional stability

Discipline

2. Now rate how certain you are of your standing on each of the traits you just rated yourself on:

Not at all certain			Moderately certain			Extremely certain	
A	B	C D		F	G H I		J

Intellectual/Academic ability

Social skills/social competence

Creativity

Athletic ability

Leadership ability

Common sense

Emotional stability

Discipline

3. Now rate how personally important each of these domains is to you:

Not at all important Moderately important Extremely important

A B C D E F G H J

Intellectual/Academic ability

Social skills/social competence

Creativity

Athletic ability

Leadership ability

Common sense

Emotional stability

Discipline

4. Now rate yourself relative to your "ideal" self -- the person you would be if you were exactly the way you would like to be:

A B C D E F G H I

very short Somewhat very much like

of my ideal like/unlike my ideal

my ideal

Intellectual/Academic ability

Social skills/social competence

Creativity

Athletic ability

Leadership ability

Common sense

Emotional stability

Discipline

SAQ Other

Now, you will answer some of the previous questions but for your peer based on their interview videos.

This questionnaire has to do with your attitudes about some of their activities and abilities. For the eight items below, you should rate the candidate relative to others your own age by using the following scale:

Poor Weak Average Strong Outstanding

(bottom 5%) (top 5%)

An example of the way the scale works is as follows: If one of the traits was "height," a woman who is among the tallest 5% of her peers would choose "E" (Top 5%) for this question, whereas a woman who is about average height compared to her peers would choose "C".

1. Compared to your peers, how would you evaluate this candidate's:

Intellectual/Academic Ability

Social skills/Social Competence

Creativity

Athletic ability

Leadership ability

Common sense

Emotional stability

Discipline

2. Now rate how certain you are of their standing on each of the traits you just rated them on:

Not at all certain			Moderately certain		Extremely certain		
A	B	C	D	F	G	H	I	J

Intellectual/Academic ability

Social skills/social competence

Creativity

Athletic ability

Leadership ability

Common sense

Emotional stability

Discipline

Appendix C: Evaluation Choices

Feedback Self

This set of evaluations are for your responses to the interview questions. The evaluators viewed your responses and rated your strengths and weaknesses as a candidate.

They also provided the following overall ratings:

Evaluator AD rated you as a strong candidate overall.

Evaluator LM rated you as a weak candidate overall.

You will now have the opportunity to view detailed feedback from 1 of the 2 evaluators. For which person do you want to see the detailed evaluation?

Evaluator AD Overall rating: Strong

Evaluator LM Overall rating: Weak

Strong detailed feedback:

	A Poor Bottom 5%	B Weak	C Average	D Strong	E Outstanding Top 5%
Intellectual/Academic Ability	○	○	◉	○	○
Social skills/Social Competence	○	○	○	◉	○
Creativity	○	◉	○	○	○
Athletic ability	○	◉	○	○	○
Leadership ability	○	○	○	○	◉
Common sense	○	○	◉	○	○
Emotional stability	○	○	◉	○	○
Discipline	○	○	○	◉	○

Weak detailed feedback:

	A Poor Bottom 5%	B Weak	C Average	D Strong	E Outstanding Top 5%
Intellectual/Academic Ability	○	○	○	◉	○
Social skills/Social Competence	○	◉	○	○	○
Creativity	◉	○	○	○	○
Athletic ability	○	○	◉	○	○
Leadership ability	○	◉	○	○	○
Common sense	○	○	○	◉	○
Emotional stability	○	◉	○	○	○
Discipline	◉	○	○	○	○

Feedback Rating - Self

To what extent do you think this evaluator provided accurate feedback about

your video?

Please respond on the scale from 1 (not at all accurate) to 5 (very accurate).

Feedback Other

This set of evaluations are for your peer's responses to the interview questions which you viewed in the previous session. The evaluators viewed their responses and rated their strengths and weaknesses as a candidate.

They also provided the following overall ratings:

Evaluator CY rated your peer as a strong candidate overall.

Evaluator TN rated your peer as a weak candidate overall.

You will now have the opportunity to view detailed feedback from 1 of the 2 evaluators. For which person do you want to see the detailed evaluation?

Evaluator CY Overall rating: Strong

Evaluator TN Overall rating: Weak

Strong detailed feedback:

	A Poor Bottom 5%	B Weak	C Average	D Strong	E Outstanding Top 5%
Intellectual/Academic Ability	○	○	◉	○	○
Social skills/Social Competence	○	○	○	○	◉
Creativity	○	○	○	◉	○
Athletic ability	○	◉	○	○	○
Leadership ability	○	○	○	◉	○
Common sense	○	○	○	○	◉
Emotional stability	○	○	◉	○	○
Discipline	○	○	○	◉	○

Weak detailed feedback:

	A Poor Bottom 5%	B Weak	C Average	D Strong	E Outstanding Top 5%
Intellectual/Academic Ability	○	○	◉	○	○
Social skills/Social Competence	○	○	○	○	◉
Creativity	◉	○	○	○	○
Athletic ability	○	◉	○	○	○
Leadership ability	○	○	◉	○	○
Common sense	○	○	○	◉	○
Emotional stability	○	○	○	◉	○
Discipline	○	◉	○	○	○

Feedback Rating - Other

To what extent do you think this evaluator provided accurate feedback

about your video?

Please respond on the scale from 1 (not at all accurate) to 5 (very accurate).

Validity Rating

To what extent do you think this interview is a valid method for evaluating candidates?

Please respond on the scale from 1 (not at all valid) to 5 (very valid).

Appendix D: Video Scripts

Strong Video

1.“What is your greatest weakness?”

- I think my greatest weakness is the struggle I have separating the ideas of working hard and working productively. It is easy for me to work all day with minimal breaks. However, while this allows me to check off more from my todo list, I find my work is better when I am rested and focused. Without that, my work suffers.

  A recent example of this that I can give involves a school assignment. I had to write a paper for a class. I would spend all day doing daily schoolwork and then work on the paper. I would spend days back-to-back doing research and writing a few paragraphs. Each time I would go back and read through with what I had written, I was unhappy with my writing. So, I decided to work smarter and not longer. I wrote a list prioritizing my work, and scheduled single days in the week for me to work on the paper. Once I adopted this strategy, I saw my work starting to improve and I was able to get more done during those single days than I would in a week.

  I *pause* I um recognize I have this feeling that I need to work all day, but I have been working on methods to prioritize my time such as making a plan at the beginning of each week deciding what I will work on and when, and for how long.

2. “What does being a leader mean to you?”

- To me, leadership means a few different things. Firstly, leadership means supporting others. Being a good leader involves encouraging others and helping them be more productive. Secondly, being a leader means trusting and respecting those you work with. As a leader, you need to set a precedent and create a safe environment for your peers.

Thirdly, being a leader means understanding people and knowing how and where they work best. You need to put your co-workers in positions where they can be most productive as well as challenged.

For example, *pause* um if I was in a leadership position, I would be sure to check on my fellow team members and ensure they have everything they need. I would be sure to form an open communication with them and work as hard as I can everyday to be a good role model to them. I would also be observant of their weaknesses and strengths and assign them tasks that fit with their skills.

3. "Tell me how you think other people would describe you."

- I think other people would describe me as focused and outgoing. Once I start a task I am able to put my full energy into it to get it done. This allows me to do good work in school and in the lab that I work for. When I want to, I am very efficient at ignoring distractions and finding a work rhythm.

  I also work great in a team and enjoy helping others. I like to encourage collaboration and am always looking for team-building activities to do. I think social interactions and skills are very important in any environment. I show this by making connections everywhere I go and I work on improving them over time.

Weak video

1. "What is your greatest weakness?"

- Umm I would say my greatest weakness is organization. I struggle with keeping track of deadlines and appointments, this sometimes means I have to set my focus on finishing a task close to the deadline. *Few second pause* Um for example, in the lab I work for, I often have to turn in daily reports and weekly reports. My day can often get away from

me and I have to rush at the end of the day or week to complete those reports. I am working on it, learning to do well in these environments take time. I plan on starting making lists of daily tasks, I just hope I don't lose it!.

I have already started this. I, um, have I have created a list on my computer of todos. It has everything that my professors tells me they want me to do today. It also has breaks worked in and everything. I do plan on making this more official, maybe a whiteboard by my desk that is easy to see and change. I do think this is a pretty good way to improve my work and to actually get things done and a good skill to develop.

2. "What does being a leader mean to you?"

- To me, I feel like being a leader means having others to be responsible for. And um what I mean by that is others that I am in charge of will reflect on me as well as who we work for. Being as social as I am, I feel I need to ensure they do good work and guide them in the best direction and they could do the same for me.

  Um I guess if I were to be a leader I would keep a close eye on my coworkers or colleagues to make sure they are getting their work done. I would also be sure to help them when needed. I have never been in a leadership position but I think it would suit me well. I am pretty a people person and good at giving instructions and watching over others. I think being a leader would be good for me and hope to eventually be in a position like that.

3. "Tell me how you think other people would describe you."

- *pause* I think people would describe me as someone who takes initiative and is hard working. I um can't think of specific examples right now *pause* but I can say I complete what is assigned to me, I do prioritize my work as it is important for me.

It’s pretty hard to talk about how others would describe me. Yeah, I think being a hard worker and taking initiative is how most people see me.

Tables

Table 1

Demographics

	n	%
Biological Sex		
Male	50	35.21
Female	91	64.08
Intersex	0	0
Preferred Not to Answer	0	0
Gender Identity		
Woman	90	63.38
Man	48	33.80
Transgender	2	1.41
Non-Binary/ Non-Conforming	2	1.41
Other	0	0
Prefer not to Answer	0	0
Race		
American Indian	0	0

	Or Alaskan Native		
	Asian	39	27.46
	Black or African American	26	18.31
	Native Hawaiin or Pacific Islander	0	0
	White	64	45.07
	Other	5	3.52
	Multiple Racial Identities	8	5.63
Ethnicity			
	Hispanic, Latino, or of Spanish origin	11	7.75
	Not Hispanic, Latino, or of Spanish origin	127	89.44
	Prefer Not to Answer	4	2.82

Table 2

Rating and Feedback Choice Proportions

	Self-Relevant Feedback		Other-Relevant Feedback	
	Weak	Strong	Weak	Strong
Rating				
Strong	62 (58.49%)	44 (41.51%)	60 (52.17%)	55 (47.83%)
Weak	22 (61.11%)	14 (38.89%)	14 (53.85%)	12 (46.15%)

Note. The columns represents participants choice of feedback in the second session. The rows represent participants initial rating of the self and peer videos. Numbers represent total number of participants. Proportions represent percentages out of the participants in that row and feedback type.

Table 3

GEE Estimates

Model 1		Estimate	Robust se	P	OR
Confirm					
	Target (self/other)	-0.14	0.244	0.574	0.87
	Rating choice (weak)	0.52	0.273	0.056	1.69
	Confirmation Bias tendency	0.05	0.034	0.117	1.05
Model 2					
Confirm					
	Target (self/other)	-0.26	0.295	0.378	0.77
	Rating choice (weak)	0.20	0.433	0.641	1.22

	Confirmation Bias tendency	0.05	0.034	0.120	0.1.05
	Interaction: target * rating	0.58	0.638	0.366	1.78
Model 3					
Confirm					
	Target (self/other)	0.15	0.279	0.600	0.77
	Rating choice (weak)	0.54	0.271	0.046*	1.22
	Confirmation Bias tendency	0.14	0.051	0.008*	1.05
	Interaction: Target * Confirmation Bias	-0.16	0.073	0.026*	1.78

Table 4

Anovas

Emotion regulation strategy		ss	df	F-value	P-value
Reappraisal					
	Self-evaluation (weak/strong)	121.34	1	8.5019	0.004*
	SV Behavior	87.95	1	6.16	0.014*
	Interaction	14.45	1	1.01	0.316
Acceptance					
	Self-evaluation (weak/strong)	8.28	1	0.75	0.389
	SV Behavior	6.62	1	0.60	0.441
	Interaction	0.40	1	0.04	0.851

Problem Solving					
	Self-evaluation (weak/strong)	53.00	1	4.24	0.041*
	SV Behavior	10.87	1	0.87	0.353
	Interaction	4.04	1	0.32	0.571
Rumination					
	Self-evaluation (weak/strong)	20.26	1	1.50	0.223
	SV Behavior	2.05	1	0.15	0.698
	Interaction	3.28	1	0.24	0.623
Avoidance					
	Self-evaluation (weak/strong)	142.9	1	1.18	0.280
	SV Behavior	373.10	1	3.07	0.082

	Interaction	6.2	1	0.05	0.821
Catastrophizing					
	Self-evaluation (weak/strong)	2.88	1	0.35	0.555
	SV Behavior	0.00	1	0.0005	0.982
	Interaction	12.04	1	1.46	0.228
Self-blame					
	Self-evaluation (weak/strong)	47.41	1	3.81	0.053
	SV Behavior	3.89	1	0.31	0.577
	Interaction	5.41	1	0.44	0.511
Positive Refocusing					

	Self-evaluation (weak/strong)	178.94	1	14.18	0.0002*
	SV Behavior	58.17	1	4.61	0.034*
	Interaction	41.15	1	3.26	0.073
Putting into Perspective					
	Self-evaluation (weak/strong)	9.39	1	0.64	0.426
	SV Behavior	59.96	1	4.08	0.045*
	Interaction	0.95	1	0.06	0.800
Other-Blame					
	Total	-	3	1.67	0.185

Note. Statistically significant p-values are represented by *. The interaction is between self-evaluation and self-verifying behavior. Other-blame required a Welch's ANOVA test.

Table 5

Path Analysis Model 1 Estimates

Regressions:					
		Estimate	Std. Err	z-value	P
Self-verification Behavior					
	Rumination	-0.005	0.013	-0.351	0.725
	Avoidance	0.008	0.004	1.950	0.051
	Reappraisal	0.035	0.026	1.338	0.181
	Acceptance	0.006	0.014	0.396	0.692
	Problem-Solving	-0.023	0.028	-0.833	0.405
Depression Symptoms					
	Self-verification	1.195	2.528	0.473	0.636
	Rumination	1.210	0.286	4.236	< 0.001*
	Avoidance	0.158	0.097	1.639	0.101
	Reappraisal	-1.305	0.732	-1.784	0.074
	Acceptance	1.174	0.331	3.546	< 0.001*

	Problem-Solving	0.307	0.771	0.398	0.690
Covariances:					
Rumination					
	Avoidance	10.004	3.738	2.677	0.007*
Reappraisal					
	Acceptance	2.346	1.072	2.189	0.029*
	Problem-solving	9.075	1.345	6.745	< 0.001*
Acceptance					
	Problem-solving	1.638	1.064	1.539	0.124

Note. Statistical significant p-values are represented with a *.

Table 6

Path Analysis Model 1 - Fit Statistics

Chi-Square	df	p	RMSEA	RMSEA lower	RMSEA upper	CFI	SRMR
30.008	6	0.000	0.172	0.114	0.236	0.842	0.099

Note. RMSEA should be below 0.08, CFI should be greater than 0.9, SRMR should be less than 0.08, and the chi-square p-value should be greater than 0.05.

Table 7

Path Analysis Model 2 Estimates

Regressions:

		Estimate	Std. Err	z-value	P
Self-verification Behavior					
	Rumination	0.00	0.017	0.223	0.824
	Acceptance	0.008	0.019	0.400	0.689
	Reappraisal	0.011	0.017	0.633	0.527
	Positive Refocusing	0.009	0.014	0.631	0.528
	Perspective Taking	0.014	0.014	1.003	0.316
Self-Esteem					
	Self-verification	-0.425	1.385	-0.307	0.759
	Rumination	-0.469	0.226	-2.074	0.038*
	Acceptance	-0.486	0.296	-1.641	0.101
	Reappraisal	1.047	0.312	3.349	0.001*

	Positive Refocusing	0.059	0.246	0.240	0.811
	Perspective Taking	-0.424	0.241	-1.759	0.078
Covariances:					
Rumination					
	Acceptance	5.686	1.134	5.014	< 0.001*
Reappraisal					
	Acceptance	2.355	1.036	2.177	0.030*
	Positive Refocusing	5.434	1.452	3.744	< 0.001*
	Perspective Taking	6.217	1.274	4.881	< 0.001*
Positive Refocusing					
	Perspective Taking	3.125	1.432	2.182	0.029*

Note. Statistically significant p-values are represented with a *.

Table 8

Path Analysis Model 2 - Fit Statistics

Chi-Square	df	p	RMSEA	RMSEA lower	RMSEA upper	CFI	SRMR
36.371	5	< 0.001	0.211	0.150	0.278	0.810	0.096

Note. RMSEA should be below 0.08, CFI should be greater than 0.9, SRMR should be less than 0.08, and the chi-square p-value should be greater than 0.05.

Table 9

Path Analysis Model 3 Estimates

Regressions:

		Estimate	Std. Err	z-value	P
Self-Feedback Choice					
	Rumination	0.002	0.017	0.113	0.910
	Acceptance	-0.006	0.020	-0.328	0.743
	Reappraisal	0.005	0.018	0.270	0.787
	Positive Refocusing	-0.030	0.014	-2.098	0.036*
	Perspective Taking	-0.007	0.015	-0.475	0.635
Depression Symptoms					
	Self-feedback Choice	1.370	2.246	0.610	0.542
	Rumination	1.033	0.372	2.780	0.005*
	Acceptance	0.700	0.459	1.523	0.128

	Reappraisal	-1.201	0.466	-2.576	0.010*
	Positive Refocusing	-0.042	0.384	-0.109	0.913
	Perspective Taking	0.529	0.351	1.507	0.132
Covariances:					
Rumination					
	Acceptance	5.630	1.180	4.772	< 0.001*
Reappraisal					
	Acceptance	2.346	1.072	2.819	0.029*
	Positive Refocusing	4.982	1.448	3.440	0.001*
	Perspective Taking	5.942	1.281	4.639	< 0.001*
Positive Refocusing					
	Perspective Taking	3.091	1.460	2.117	0.034*

Note. Statistically significant p-values are represented with a *.

Table 10

EFA Factor Loadings

Loadings:	Factor	
	Factor 1	Factor 2
Rumination	0.844	-
Reappraisal	-	0.964
Problem-Solving	-	0.681
Acceptance	0.519	0.319
Avoidance	0.310	-
Self-Blame	0.755	-
Positive Refocusing	-	0.387
Perspective Taking	-	0.490
Other Blame	-	-
Catastrophizing	0.540	-

Note. Factor loadings greater than 0.3 are considered significant.

Table 11

CFA Estimates

Latent Factors:					
		Estimate	Std. Err	z-value	P
Maladaptive Strategies					
	Rumination	1	-	-	-
	Self-Blame	0.835	0.130	6.440	< 0.001*
	Catastrophizing	0.497	0.090	5.525	< 0.001*
	Avoidance	1.043	0.333	3.132	0.002
Adaptive Strategies					
	Reappraisal	1	-	-	-
	Problem Solving	0.744	0.115	6.453	< 0.001*
	Positive Refocusing	0.501	0.104	4.812	< 0.001*
	Perspective Taking	0.464	0.106	4.398	< 0.001*
Covariances:					

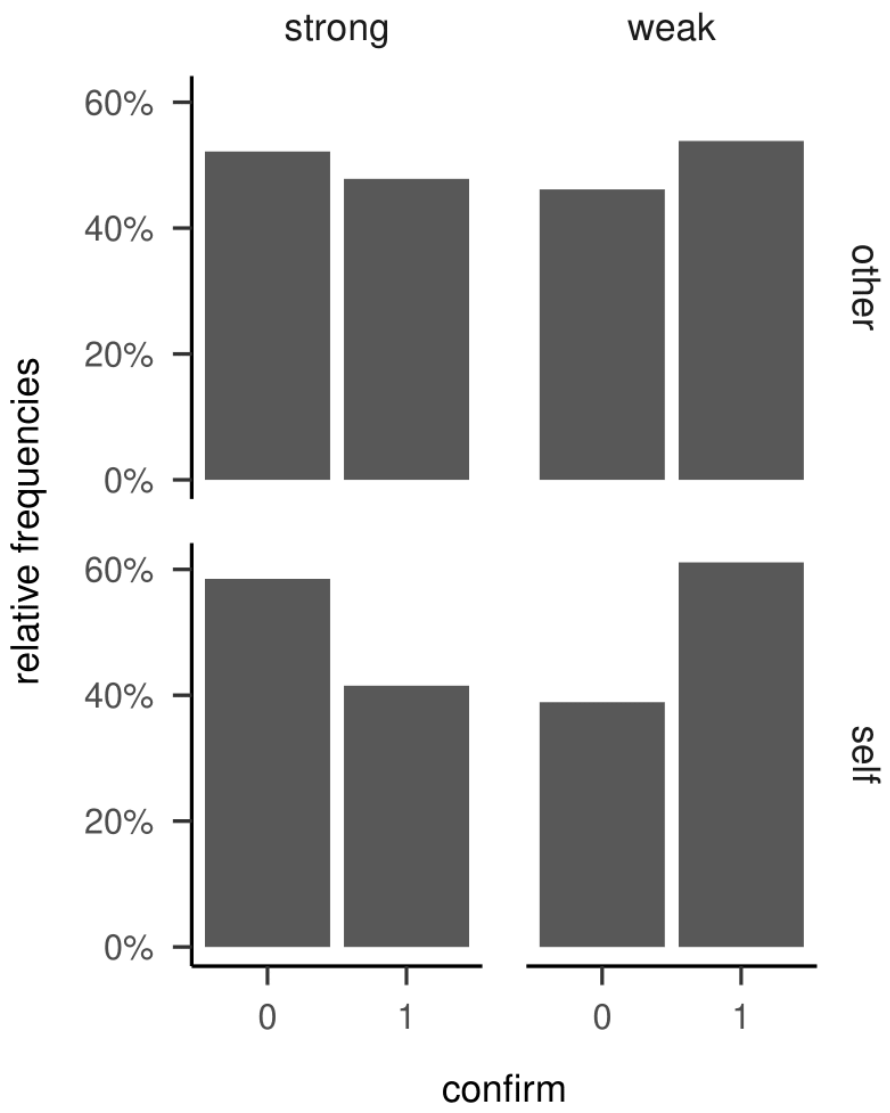
Maladaptive Strategies					
	Adaptive Strategies	-0.917	1.104	-0.830	0.406

Note. Statistically significant p-values are represented with a *. Model fit indices and modification indices do not support this model. Acceptance was left out of this model as it was a complex variable. Other-blame was left out of this model as the EFA demonstrated it does not load on either of these factors.

Figures

Figure 1

Percentages of Confirming Choices



Note. 0 represents a non confirming choice, 1 represents a confirming choice

Figure 2

Problem-solving ANOVA results - Hypothesis 2

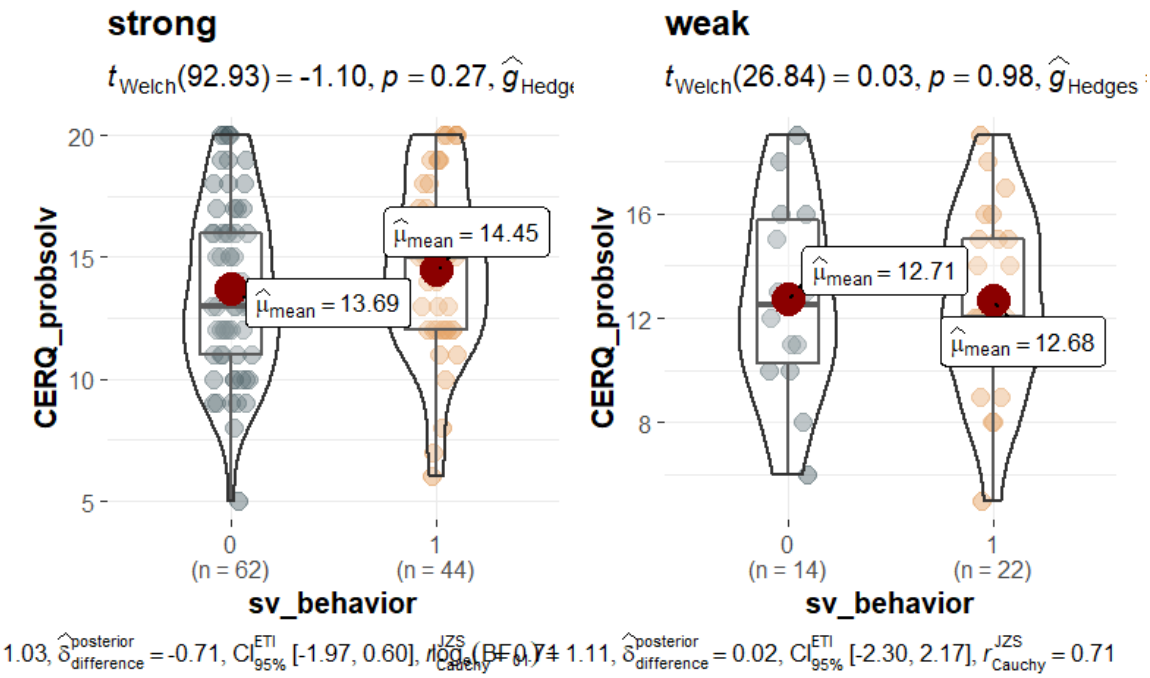


Figure 3

Reappraisal ANOVA results - Hypothesis 2

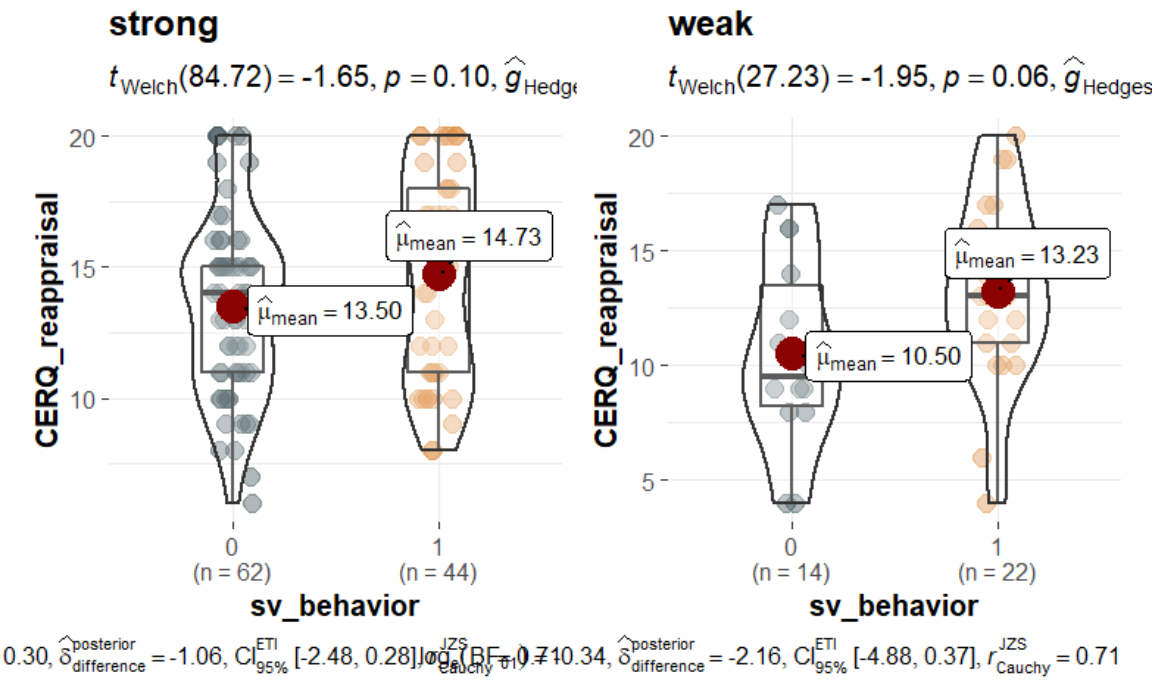


Figure 4

Positive Refocusing ANOVA results - Hypothesis 2

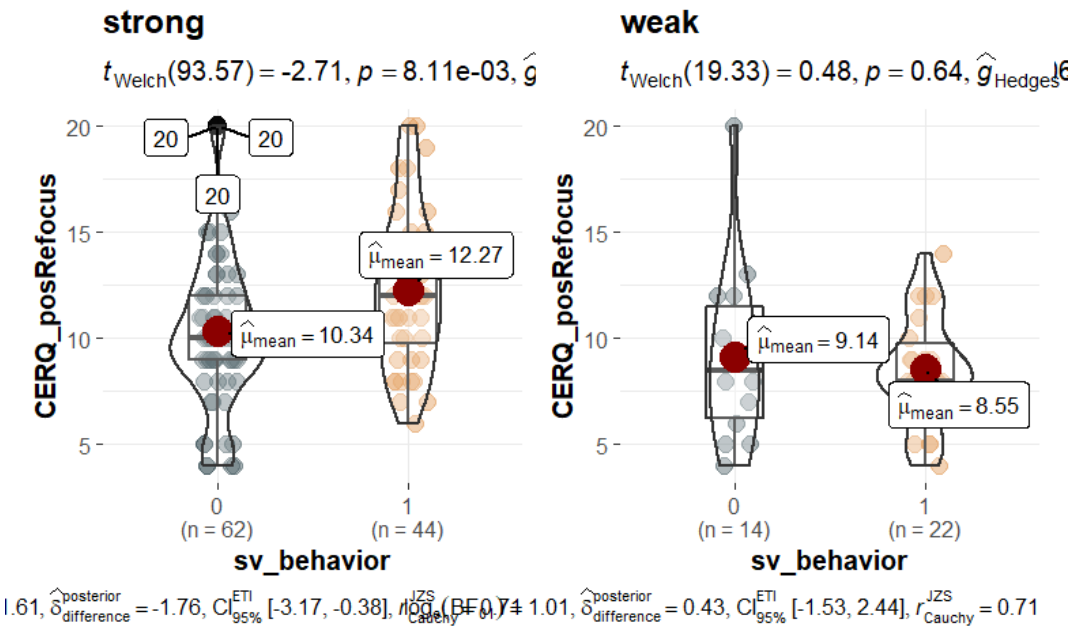


Figure 5

Perspective Taking ANOVA results - Hypothesis 2

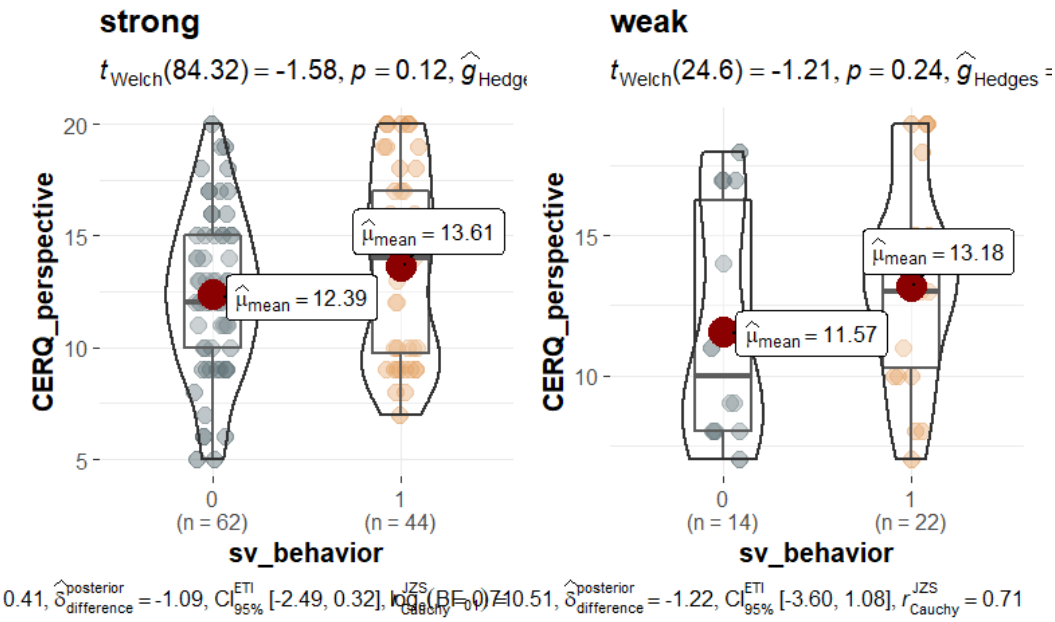
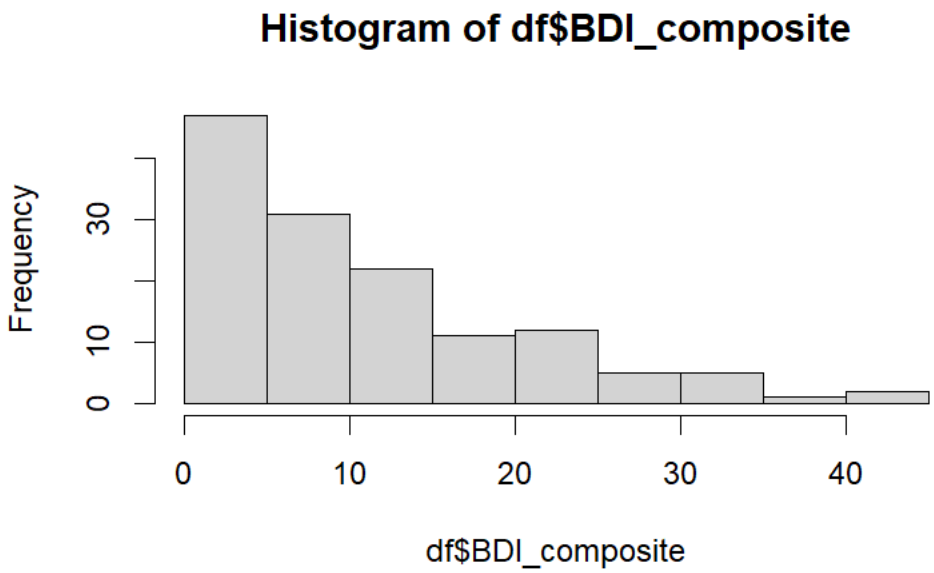


Figure 6

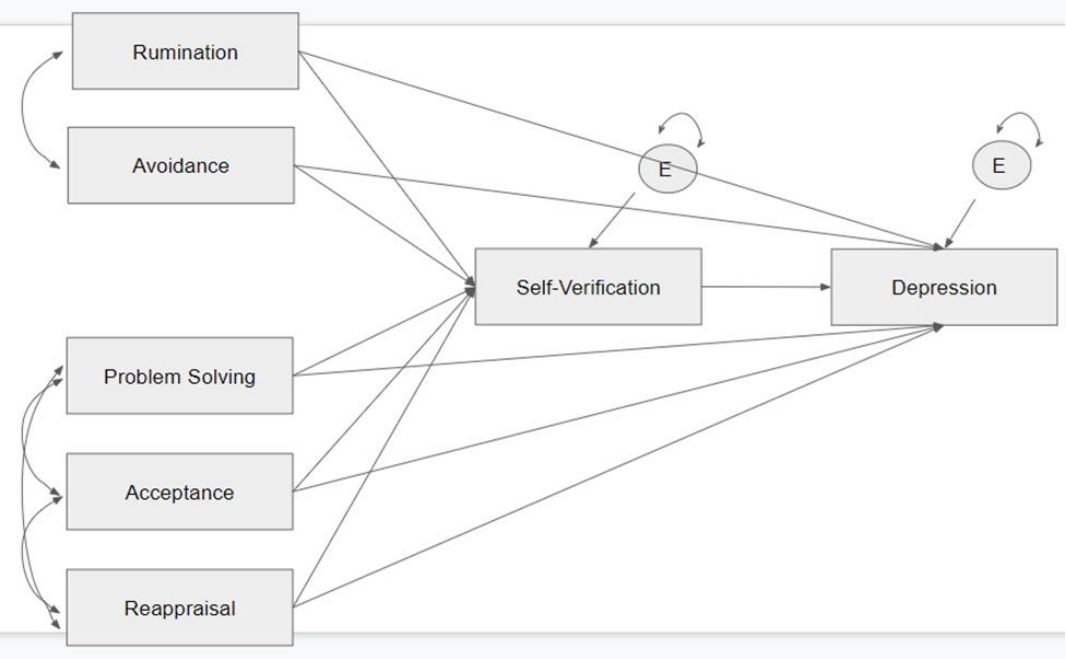
BDI-II Histogram



Note. BDI-composite is our measure of depression symptoms.

Figure 7

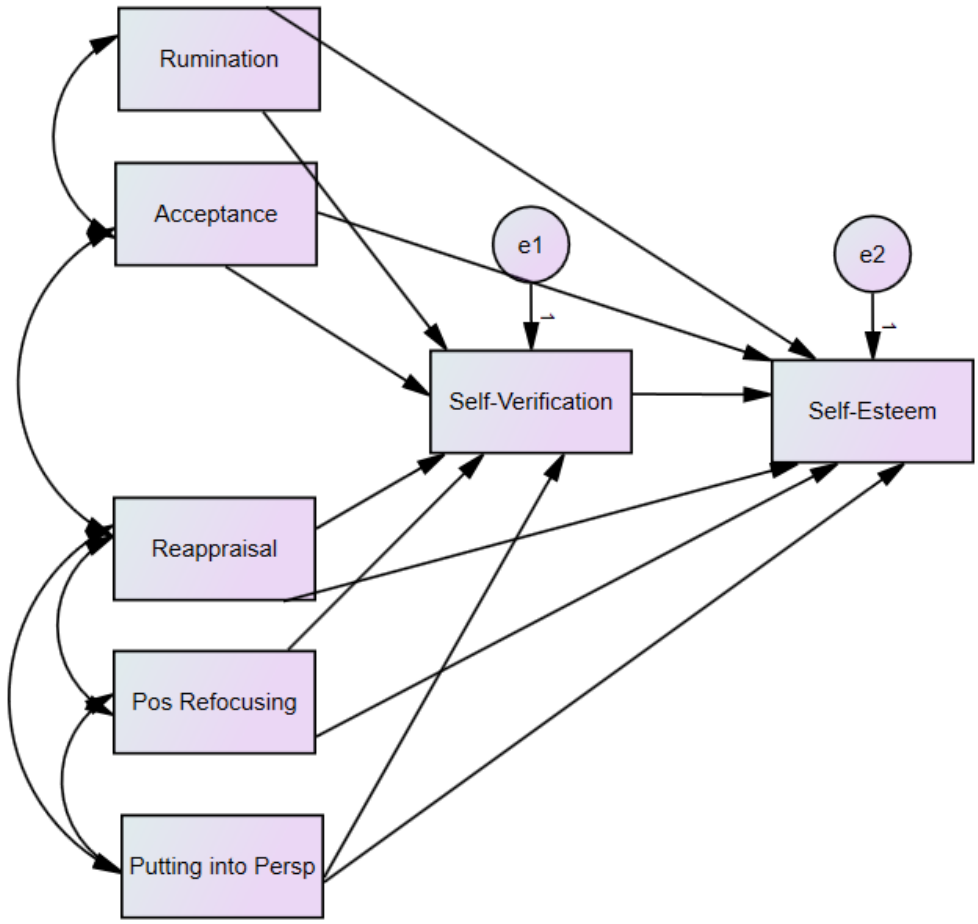
Path Model - Hypothesis 3



Note. This is our original model based on previous studies.

Figure 8

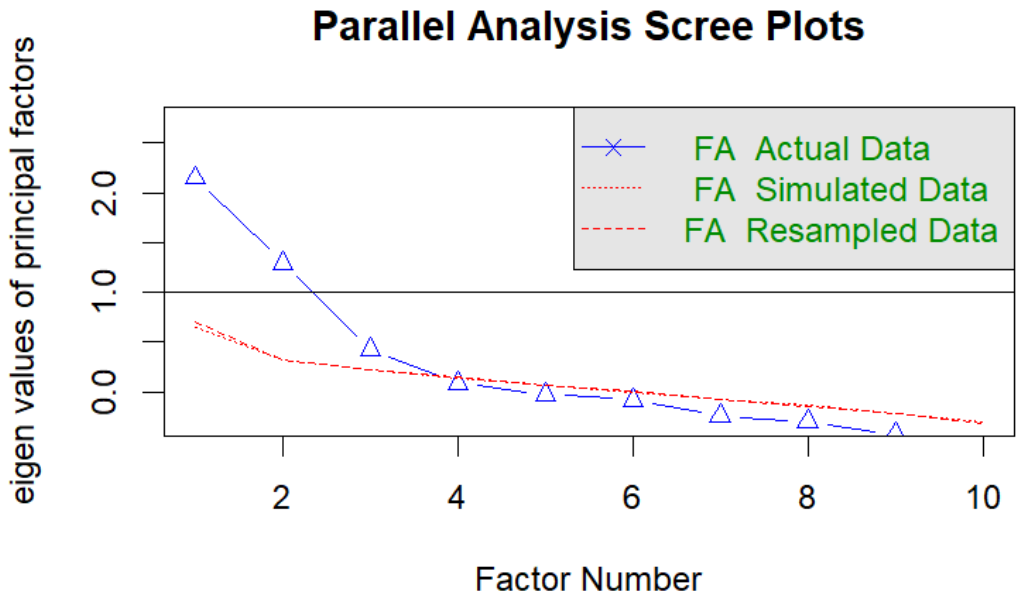
Path Model 2 - Hypothesis 3



Note. This is our second path model based on the results of previous analyses.

Figure 9

EFA Scree Plot



Note. This parallel analysis scree plot suggests the presence of 2 or 3 factors.