DO AUTONOMOUS INDIVIDUALS STRIVE FOR SELF POSITIVITY?
A TEST OF THE UNIVERSALITY OF SELF-ENHANCEMENT

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ABSTRACT

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The present research explored the self-enhancement strategies autonomous individuals use and tried to determine which strategies are best for psychological well-being. We examined whether autonomous individuals self-enhance through seeking out positive information about the self, rather than avoiding negative information. The former was hypothesized to be positively associated with well-being while the latter was not. Previous research suggests that individuals high in autonomy and low in controlledness do not self-enhance; however, recent work suggests that self-enhancement is a universal human motivation. In Study 1, to examine patterns of self-enhancement at varying levels of autonomy and controlledness, participants (N = 175) completed the Self-Enhancement and Self-Protection Strategies scale (SSS; Hepper, Gramzow, & Sedikides, 2010) and the General Causality Orientation Scale (GCOS; Deci & Ryan, 1985a). Results suggested autonomy predicted engaging in approach—but not avoidance—oriented self-enhancement strategies, while controlledness was associated
with both approach and avoidance oriented strategies. In Study 2, to examine patterns of self-enhancement, autonomy, and well-being, 378 participants completed baseline measures of autonomy, self-enhancement, and well-being at Time 1. At Time 2, participants \( N = 105 \) completed impossible mazes, were given false negative feedback, engaged in a self-enhancement coping strategy either congruent or incongruent with their level of autonomy, and finally completed the same battery of well-being measures as in Time 1. Results suggest there is no support for the hypothesis; while controlling for controlledness and Time 1 well-being, there was no effect of self-enhancement strategy on well-being nor did the effect of self-enhancement strategy on well-being vary by one’s level of autonomy or self-enhancement strategy.
Dedicated to my loving and supportive parents:

Barbara and Timothy Lynch
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INTRODUCTION

Research suggests that the desire to feel positively about the self, and the need to feel in charge of one’s own life, behaviors, and decisions are each, independent, universal human motivations (e.g., Alicke & Sedikides, 2009; Chirkov, Ryan, Kim, & Kaplan, 2003; Ryan & Deci, 2000b). People are motivated to have and maintain positive self-views (i.e., self-enhancement motivation), and they maintain these positive self-views in several ways, including seeking out positive information about the self and through avoiding negative information about the self. One way in which the universal motivation to feel in charge of one’s life (i.e., autonomy) can be achieved is through making decisions and behaving consistently with one’s beliefs and values. A common way to self-enhance is to deflect or avoid negative information about the self; however, recent research found that individuals high in autonomy (e.g., those who are able to satisfy their need for autonomy) do not engage in this type of self-enhancement. Given the pervasiveness of self-enhancement motivation, what other strategies are autonomous individuals using to maintain positive self-views?

The present research seeks to explore the self-enhancement strategies of autonomous individuals by examining whether these individuals self-enhance by seeking out positive information about the self, rather than avoiding negative information. If support is found for this prediction it will provide further evidence for the universality of self-enhancement as a means of maintaining positive self-views. Determining how
autonomous people self-enhance will clarify distinctions between the self-enhancement strategies (i.e., seeking out positive information vs. avoiding negative information) and help to identify who engages in each strategy. Moreover, people generally feel better when they self-enhance (e.g., O’Mara, Gaertner, Sedikides, Zhou, & Liu, 2012; Taylor, Lerner, Sherman, Sage, & McDowell, 2003b); therefore, this research leads to a better understanding of strategies that contribute to psychological wellbeing and perhaps boost psychological well-being for autonomous individuals.

**Self-Enhancement**

The desire to see the self positively is a prevalent and dominant motivation, and is associated with psychological well-being. For example, research finds that the motive to maintain a positive self-concept and using self-enhancement as the mechanism to do so, exists cross culturally, regardless of whether the population is considered individualistic or collectivistic (e.g., O’Mara et al., 2012; Sedikides, Gaertner, & Toguchi, 2003).

Individuals engage in a wide range of self-enhancing behaviors in an effort to have and maintain a positive self-concept such as recalling flattering self-relevant information, believing themselves to be better than average (Alicke, 1985; Guenther & Alicke, 2010) and attributing favorable outcomes to the self (e.g., Campbell & Sedikides, 1999; for reviews of self-enhancement see Alicke & Sedikides, 2009; Sedikides & Strube, 1997). Although debated in the literature (e.g., Colvin, Block, & Funder, 1995; Leary, Bednarski, Hammon, & Duncan, 1997; Robins & Beer, 2001; Taylor & Brown, 1988), a great deal of research has established the association between self-enhancement and positive outcomes. For example, Gramzow and Willard (2006) found that students high in dispositional self-enhancement were more likely to overestimate their current GPAs (a
measure of a current performance goal) than students with low dispositional self-enhancement. Furthermore, dispositional self-enhancement was associated with an increase in GPA at the end of the semester. Interestingly, dispositional self-enhancement was not associated with past academic performances, such as SAT scores. Results suggested the remembering of past selves is related to reconstructive memory bias, while exaggeration of current selves is related to motivational self-enhancement. Therefore, students were able to maintain a positive view of the self even though the exaggeration undermined the accuracy of their reporting. Additionally, trait self-enhancement is associated with social support benefits such as increased prosocial behavior and larger social networks (Goorin & Bonanno, 2009) for individuals who experienced a highly traumatic event (survivors of September 11th terrorist attack). Many positive outcomes are associated with self-enhancement; yet, arguably the largest portion of self-enhancement research focuses on its association with psychological well-being.

**Self-enhancement and well-being.** Research suggests that self-enhancement is positively associated with both psychological and physical well-being across the lifespan. Self-enhancement has psychological benefits (e.g., Taylor et al., 2003b), particularly in situations that are relatively positive (e.g., problems at work; O’Mara, McNulty, & Karney, 2011), or uncontrollable (e.g., Alicke & Sedikides, 2009). Self-enhancement helps people to effectively cope with their surroundings, raises self-esteem, and protects the self from a threatened ego (Campbell & Sedikides, 1999; Sedikides & Strube, 1997). Additionally, self-enhancement has been shown to be a protective factor against stress (Taylor, Lerner, Sherman, Sage, & McDowell, 2003a). For older adults, self-enhancing in regards to levels of physical activity (believing they were more physically active than
their peers) was associated with greater past and present life satisfaction (Bailis, Chipperfield, Perry, Newall, & Haynes, 2008).

An additional debate regarding self-enhancement is whether the tendency to self-enhance in order to maintain a positive self-concept is culturally relative or universal. Researchers have addressed this question by examining the association between self-enhancement and psychological well-being cross-culturally; if universal, self-enhancement should have the same association with well-being across cultures. Studies of Chinese and Japanese individuals found that self-enhancement positively predicts psychological well-being when individuals self-enhance in ways consistent with their cultural values (Cai, Sedikides, Gaertner, Wang, Carvallo, Xu…Jackson, 2011; Sedikides et al., 2003). For example, in a Taiwanese sample, self-enhancement was negatively associated with depression when individuals self-enhanced on personally meaningful attributes (Gaertner, Sedikides, & Chang, 2008). Self-enhancement has also been found to be positively associated with self-esteem for both individualists (i.e., Israeli) and collectivists (i.e., Singaporean-Chinese, Japanese, and Israeli born Ethiopians; Kurman, 2003). People who self-enhance (in both U.S. and Chinese samples) are happier than those who self-efface (think critically of the self), and self-enhancing leads to increased psychological well-being over time (O’Mara et al., 2012).

**Self-enhancement strategies.** Self-enhancement can be pursued using cognitive or behavioral strategies that either increase the positive in one’s self view, or minimize the negative (for a review see Hepper, Gramzow, & Sedikides, 2010). Recent research has identified four primary methods that people use to self-enhance: Three of these methods involve increasing positive feelings about the self (approach oriented self-
enhancement) and one is characterized by minimizing the negative information (avoidance oriented self-enhancement; Hepper et al., 2010).

**Approach oriented self-enhancement.** Approach oriented self-enhancement is characterized by seeking out positive information about the self, such as by viewing one’s self as more positive than one’s peers (e.g., Guenther & Alicke, 2010; O’Mara et al., 2012). Hepper and colleagues (2010) label their first approach oriented strategy *positivity embracement*. An example of an individual who uses this strategy is one who is able to take full advantage of future successes (e.g., by seeking out positive feedback and taking advantage of it). The second approach oriented strategy is *favorable construals* and this is when an individual maintains positive world views and optimism (e.g., expecting that one’s future is going to be better than one’s peers). The final approach oriented strategy described by Hepper et al. (2010) is *self-affirming reflections*. At its most basic, self-affirming reflections are characterized by reminding the self of past success in the face of threat (e.g., when afraid of failing a test, reminding the self of past good grades).

**Avoidance oriented self-enhancement.** Avoidance oriented self-enhancement is characterized by protecting the self through minimizing the negative information available in one’s self concept. Examples of avoidance oriented self-enhancement include viewing one’s problems as less severe than they really are (e.g., O’Mara et al., 2011), or blaming external factors for one’s failures (i.e., the self-serving bias; Campbell & Sedikides, 1999; Knee & Zuckerman, 1996). Arguably the most common avoidance self-enhancement strategy is the self-serving bias (SSB), wherein individuals take credit for positive feedback and blame external factors (e.g., a partner or task) for negative feedback. Accordingly, Hepper and colleagues’ (2010) final strategy is labeled
defensiveness and it is an avoidance strategy focused on protecting the self by minimizing negative information.

**Self-Determination Theory**

Deci and Ryan’s self-determination theory (SDT; 1985b) proposes that people have three basic psychological needs: competence, relatedness and autonomy. Competence is a feeling of understanding of, and mastery for, your environment (Deci & Vansteenkiste, 2004), and relatedness is the need to connect with others. Autonomy refers to the feeling that one is responsible for one’s life, and that one’s choices and behaviors are consistent with one’s beliefs and values, i.e., to be one’s own agent (Deci & Ryan, 2000; Ryan & Deci, 2000b). Self-determination theory not only poses that all humans have these needs, but also supports the idea that there is a universal human motivation to fulfill these needs.

Self-determination theory is a multifaceted and complex theory that attempts to explain the motives that drive individuals’ behaviors as they meet their psychological needs. This motivation can be either intrinsic (e.g., based on personal ideas and values, and includes behaviors that are inherently interesting or behaviors that are engaged in for experiential enjoyment) or extrinsic (e.g. motivated by external factors like bribes, peer pressure, the opinions of others; Ryan & Deci, 2000a, 2000b). Extrinsic motivation occurs on a spectrum with those behaviors closest to one's ideals being the most internalized and the closest to intrinsic motivation. Autonomy, in particular, is characterized by the intrinsic motivation toward acting in accordance with one’s personal values.
Autonomy. Autonomy is defined as feeling in charge of one’s own life: that one’s choices and behaviors are self-made and are consistent with one’s beliefs and values (Deci & Ryan, 2000; Ryan & Deci, 2000b). Extensive research has examined autonomous individuals (e.g., those individuals who are satisfying their need for autonomy) and their behaviors. The intrinsic motivation of autonomous individuals indicates that their behaviors are driven by individual choice, goals, values, interest etc. (Ryan & Deci, 2000b). Moreover, self-determination theory posits that everyone is motivated to achieve high autonomy. As one of three basic psychological needs, people always need autonomy, but external (e.g., grades) or internal (e.g., putting pressure on the self) factors can get in the way of their ability to achieve it (Deci & Ryan, 2008). True autonomy is achieved when people are able to maintain congruence between their behaviors, beliefs, and values.

Given that autonomous individuals make decisions congruent with their beliefs, it would be easy to assume that autonomy is the same as independence; however, self-determination theorists characterize these concepts as unique (Deci & Vansteenkiste, 2004). Autonomous people can make decisions dependent on others; what makes the decision autonomous is that it is consistent with their values and that the choice still comes with a sense of eagerness. Researchers examined whether or not autonomy is a universal motivation by measuring the extent to which participants internalized certain behaviors (the extent to which they incorporated their values into their behaviors, according to SDT the more internalized a behavior the more autonomous it is; Chirkov et al., 2003). Using participants from the U.S., Turkey, Russia, and South Korea, results
showed that autonomous individuals could be found in all of these regions; therefore, further differentiating autonomy from individualism or independence.

Often contrasted with autonomy is a concept that SDT has labeled controlledness. Despite the seemingly contradictory nature of these two concepts, it is possible for an individual to have different levels of autonomy and controlledness as they are distinct and independent constructs. An individual who is high in controlledness is one who is concerned with others’ views when making decisions, and allows their behaviors to be guided by other people or the potential of a tangible reward (i.e., grades or bribes) as opposed to their own beliefs or values (Ryan & Deci, 2000a). Controlled individuals feel they do not have a choice when it comes to their own behaviors, they place the demands of their surroundings before their own, they tend to be externally driven, and ego-involved (e.g., interested in expanding the self-concept while also protecting it from threat; Deci & Ryan, 1985b; Hodgins, 2008). Additionally, controlled choices lead to greater ego depletion than autonomous choices (Moller, Deci, & Ryan, 2006).

Furthermore, in the context of relationships, the controlled orientation is associated with more denial (Knee, Patrick, Vietor, Nanayakkara, & Neighbors, 2002). While individuals strive for autonomy, it is possible to have levels of both autonomy and controlledness as they are independent constructs. The self-determined individuals are a unique group of people who are highly autonomous and have low levels of controlledness (e.g., Knee & Zuckerman, 1996, 1998).

**Autonomy and psychological well-being.** Satisfying the need for autonomy is associated with greater psychological well-being both directly (e.g., Deci & Ryan, 2008; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000) and indirectly (e.g., through secure
attachment; La Guardia, Ryan, Couchman, & Deci, 2000) Moreover, the positive association between autonomy and psychological well-being exists cross-culturally (Chirkov et al., 2003), suggesting that autonomy is adaptive regardless of whether the culture is characterized as individualistic or collectivistic. Additionally, Sheldon and Elliot (1998) found that autonomously pursued goals were positively associated with goal attainment and that this relation was in part mediated by sustained effort. Autonomy has also been linked to the pursuit of learning-oriented goals, high confidence, and equal motivation in the face of failure and success (Koestner & Zuckerman, 1994). Autonomous individuals pursue goals that are related to things they love to do and things that are meaningful to them (e.g., activities, relationships; Bauer & McAdams, 2004). Setting such personally meaningful goals also leads to greater positivity and psychological well-being over time (Deci & Vansteenkiste, 2004).

In addition to greater global well-being, autonomy is also associated with well-being on the day-to-day level. People high in autonomy report having more good days, more instances of positivity within each day, and generally greater psychological well-being (Reis et al., 2000; Sheldon, Ryan, & Reis, 1996). Additionally, Koestner and Losier (1996) found a positive association between autonomy and instances of positive daily events, as well as enjoyable peer interactions.

Furthermore, people perform better and are more satisfied in a variety of life’s domains when their need for autonomy is supported by important others (known as autonomy support; for a review see Deci & Ryan, 2008). One unique study examined measures of autonomy, autonomy support, and weight-loss (Williams, Grow, Freedman, Ryan, & Deci, 1996). The study found that both levels of autonomy and autonomy
support predicted the reasons why people stayed in the weight-loss program, as well as weight loss during the program, and weight loss maintenance at a 23-month follow-up. Self-determination theory posits that autonomy is something all individuals should be motivated to achieve, in part because of its association with such positive outcomes (e.g., Deci & Ryan, 2008).

**Self-Enhancement and Autonomy**

In addition to being important and dominant, the need to feel positively (expressed through self-enhancement) and satisfying the need for autonomy share a common consequence—positive psychological well-being—yet, only a few studies have empirically examined the relation between self-enhancement and autonomy. Knee and Zuckerman (1996) explored the relation between levels of autonomy and controlledness and self-serving attributions. Controlledness was included in the analyses for two reasons: First, previous research found that controlled individuals felt the need to prove and defend themselves (Deci & Ryan, 1987, as cited by Knee & Zuckerman, 1996). Second, Knee and Zuckerman (1996) were interested in testing a synergistic model of autonomy and controlledness (the idea that there is something unique about those individuals high in autonomy and low in controlledness). Results of this study (Knee & Zuckerman, 1996) suggested that autonomy and controlledness function synergistically to predict avoidant self-enhancement: Individuals high in autonomy and low in controlledness are significantly less likely to engage in the self-serving bias. These individuals are less likely to take credit for success after receiving positive feedback and less likely to make defensive attributions after receiving negative feedback. The researchers suggested that self-determined individuals are less ego-involved, take more to
have a threatened ego, and are generally more growth oriented with a focus on interest and learning. It is because of these characteristics that researchers believe that this group did not show a strong tendency to engage in the self-serving bias.

Given that the initial findings supported a synergistic model of autonomy and controlledness, Knee and Zuckerman (1998) continued to examine the uniqueness of self-determined individuals (i.e., high autonomy, low controlledness) in the context of other defensive processes. They found that individuals high in autonomy and low in controlledness are not only less likely to engage in defensive self-enhancement (Knee & Zuckerman, 1996), but also less likely to engage in defensive coping (e.g., denial, self-handicapping, behavioral disengagement; Knee & Zuckerman, 1998). Autonomy was found to have a small positive association with less defensive coping strategies and a controlled orientation was related to more defensive coping strategies. Furthermore, autonomous and controlled orientations were able to reliably predict defensiveness in the future; specifically, self-determined individuals were less defensive over time than all other groups. Taken together, Knee and Zuckerman’s work (1996, 1998) provides evidence that self-determined individuals are less likely to exhibit a range of defensive behaviors.

Previous research suggests autonomy is inversely related to self-enhancement; however, this finding is limited to defensive, or avoidant forms of self-enhancement (i.e., the self-serving bias; Knee & Zuckerman, 1996). Given that highly autonomous individuals feel responsible for their lives and decisions, avoiding responsibility for a poor performance would be inconsistent with their autonomous nature; these individuals do not need to put others down or avoid negative information to feel good about who they
are. Therefore, a lack of evidence for self-enhancement, defined as a defensive or avoidant process, among highly autonomous individuals makes both theoretical and practical sense. Although Knee and Zuckerman’s work (1996) provides important insight about the association between self-enhancement and autonomy, their findings cannot fully explain the association.

**Different Strokes for Different Folks**

Knee and Zuckerman’s (1996) work suggests that the manner in which self-enhancement is defined may play a role in its association with autonomy. The self-serving bias (SSB) is a very common operationalization of self-enhancement (Campbell & Sedikides, 1999; Knee & Zuckerman, 1996; Sedikides, Campbell, Reeder, & Elliot, 1998); however, the SSB employs avoidant, self-protective strategies of self-enhancement, and may be fundamentally different from approach oriented forms of self-enhancement, such as optimism or reminding the self of past successes.

Hepper et al. (2010) developed the Self-Enhancement and Self-Protection Strategies Scale (based on previous cognitive and behavioral measures) to identify both approach and avoidance oriented strategies of self-enhancement. Sixty items relating to self-enhancement and self-protection were developed and subjected to an exploratory factor analysis; researchers found 40 of the items significantly loaded onto four distinct subscales. Three are approach oriented: positivity embracement (taking full advantage of future success), favorable construals (positive world views and optimism), and self-affirming reflections (reactions to threat). The fourth scale was avoidance oriented: defensiveness and it is characterized by concerns for protection (e.g., cognitively
belittling negative feedback and through behaviors such as self-handicapping or attributing failures to factors outside of the self; Hepper et al., 2010).

In light of the different modes of self-enhancement posed by Hepper and colleagues (2010), in order to understand self-enhancement as a response to the motivation to maintain positive self-regard, it is important to examine individual and contextual differences that predict the use of each strategy. After exploratory factor analyses, researchers tested the four factor model by investigating the relations between the four subscales and regulatory focus (comparable to approach versus avoidance), self-esteem, and narcissism (Hepper et al., 2010, Study 2). Results showed that positivity embracement, favorable construals, and self-affirmation were positively related to promotion focus (confirming their status as approach oriented strategies), defensiveness (and to a lesser extent positivity embracement) were positively associated with a prevention focus. Defensiveness was labeled an avoidance oriented strategy because of its strong positive association with prevention; however, positivity embracement was more strongly associated with promotion and thus maintained its approach oriented status. Self-esteem correlated positively with everything except defensiveness, and narcissism correlated positively with all four strategies. Confirmatory factor analysis supported the findings that positivity embracement, favorable construals, self-affirming reflections and defensiveness are four distinct strategies. Given this new outlook on self-enhancement strategies there is now a way to reevaluate if (and how) the self-determined individual self-enhances.
The Present Research

With new strategies of self-enhancement recently empirically identified and defined (Hepper et al., 2010), it is important to reexamine the association between autonomy and self-enhancement in order to understand if (and how) individuals high in autonomy self-enhance. Knee and Zuckerman (1996) were not able to fully address this question due to the focus on an avoidant strategy of self-enhancement in their measure. The present research seeks to examine (a) whether individuals high in autonomy engage in approach oriented forms of self-enhancement, and (b) whether satisfying the need for positive self-regard (through self-enhancing) using a method that is congruent with one’s degree of autonomy is positively associated with psychological well-being.

Autonomy is related to a number of factors that account for the prediction that avoidant self-enhancement strategies are inconsistent with autonomy. Research supports the idea that self-determined individuals are intrinsically motivated (e.g., Ryan & Deci, 2000b) and have an internal locus of causality (Ryan & Connell, 1989). Therefore, avoidance oriented self-enhancement strategies would be incongruent with high autonomy because the intrinsic motivation driving autonomous individuals is more about growth and exploration (Ryan & Deci, 2000b), and not necessarily about avoiding negative self-relevant information. Approach oriented self-enhancement strategies have the potential to be congruent with autonomy; although reminding oneself of past success is enhancing, it may promote growth toward future successes and goals (e.g., Willard & Gramzow, 2009). Accordingly, Knee and Zuckerman’s (1996) findings are not necessarily surprising. Furthermore, given Hepper and colleagues’ (2010) Self-Enhancement and Self-Protection Strategies scale and the fact that self-enhancement is a
universal strategy toward positive self-regard, autonomous individuals are likely to engage in approach oriented strategies in order to self-enhance.

The goal of Study 1 was to determine if and how autonomous individuals self-enhance. We hypothesized that autonomous individuals would engage in approach (but not avoidant) self-enhancement strategies to maintain a positive self-concept. In Study 2, we used the findings of Study 1 to determine which self-enhancement strategies were congruent with autonomy. We hypothesized that individuals would experience greatest psychological well-being when asked to use a self-enhancement strategy congruent with their autonomy.
STUDY 1

The purpose of Study 1 was to examine the patterns of self-enhancement for individuals low and high in autonomy and controlledness. The primary interest of this research was to identify the pattern of self-enhancement strategies based on one’s level of autonomy. However, based on Knee and Zuckerman’s (1996, 1998) findings, individual levels of controlledness were also assessed in order to examine whether the interaction between autonomy and controlledness was predictive of a particular strategy of self-enhancement. Controlledness was included in order to test Knee and Zuckerman’s (1996, 1998) synergistic model—if we found a significant interaction we hypothesized that those high in autonomy and low in controlledness would be the least likely to behave defensively, consistent with Knee and Zuckerman (1996, 1998). The association between the autonomy by controlledness interaction with approach oriented self-enhancement has previously not been examined; thus, we expected a significant interaction between autonomy and controlledness to predict defensiveness, but made no predictions regarding the interaction’s influence on the three approach oriented strategies. It was hypothesized that autonomy would be negatively associated with the avoidance oriented strategy defensiveness (in accordance with previous findings related to this area). It was also hypothesized that autonomy would be positively associated with approach oriented strategies such as positivity embracement, favorable construals, and self-affirming reflections. No specific predictions about the main effect of controlledness were made.
because research has shown that controlled individuals do self-enhance (Knee & Zuckerman, 1996) and there is no theoretical reason to believe that they will choose one strategy over another.

Method

Participants

One-hundred and seventy five participants (84 women, 89 men, 1 did not specify) with a mean age of 18.95 (SD = .89) from a medium sized, mid-western, Catholic university self-selected to participate through the online “SONA experimental management system”. All participants received partial course credit in their introduction to psychology course for participating.

Procedure

All participants completed measures of self-enhancement and self-determination online through the “SONA experimental management system.”

Measures

Autonomy and controlledness. In order to assess levels of autonomy and controlledness, participants completed the revised long form of the General Causality Orientations Scale (GCOS; Deci & Ryan, 1985a; see Appendix A). The original GCOS consists of 12 vignettes and 36 items that are primarily achievement oriented. The scale has shown to be reliable ($\alpha =0.75$; Deci & Ryan, 2011) and has been used in a number of studies. The long form of the GCOS was created by Ryan in an unpublished manuscript and consists of 17 vignettes and 51-items, the additional vignettes and items add an interpersonal component (as cited in Hodgins, Koestner, & Duncan, 1996; this also
appears to be the first instance the long form was used). The GCOS (original and the later revised long form) have been used to assess autonomy and controlledness in regards to weight loss (Williams et al., 1996), personality factors (e.g., Koestner & Losier, 1996; Olesen, Thomsen, Schnieber, & Tønnesvang, 2010) and in studies examining self-enhancement (e.g., Knee & Zuckerman, 1996).

When using the scale, participants are given 17 vignettes and after each vignette they answer three questions about how likely it is that they would respond to the situation in a given way on a 7-point likert scale ranging from 1 (very unlikely) to 7 (very likely). For each vignette, one question assesses an autonomous reaction, one is controlled, and one is impersonal (i.e., amotivated; corresponding to the three subscales). Scores are summed for each subscale with higher scores indicating more of that orientation. A sample vignette and the corresponding three questions are:

You have been offered a new position in a company where you have worked for some time. The first question that is likely to come to mind is:

a.) What if I can’t live up to the new responsibility? (Impersonal)
b.) Will I make more at this position? (Control)
c.) I wonder if the new work will be interesting? (Autonomy)

Internal consistencies for the three subscales ranged from $\alpha = 0.74$ to $\alpha = 0.89$ which are higher than those reported by Deci and Ryan ($\alpha = 0.69$ to $\alpha = 0.74$; 1985a; averaging $\alpha = 0.75$; Deci & Ryan, 2011).

**Self-enhancement.** To measure self-enhancement strategies, Hepper and colleagues’ (2010) short form of the Self-Enhancement and Self-Protection Strategies Scale was used (see Appendix B). The short-form has 20-items, five items for each subscale. The short form was created by compiling the five items with the highest factor loadings on each construct into four subscales. The first of the four subscales is
defensiveness (e.g., “Studying very little for a test, or going out the night before an exam or appraisal at work, so that if you do poorly, it would not mean you are incompetent”) and is a measure of avoidance oriented self-enhancement, the other three subscales: positivity embracement (e.g., “When you achieve success or really good grades, thinking it was due to your ability”), favorable construals (e.g., “Thinking of yourself as generally possessing positive personality traits or abilities to a greater extent than most people”), and self-affirming reflections (e.g., “Remembering hardships that you had to overcome in order to be really successful”) measure approach oriented self-enhancement strategies. Participants are presented with 20 statements and have to mark on a 6-point likert scale how characteristic or typical of them each statement is, ranging from 1 (not at all characteristic of me) to 6 (very characteristic of me). Each subscale is treated independently and the five items per subscale are averaged so that each participant has four self-enhancement scores, one per strategy. Internal consistencies for the four subscales ranged from $\alpha = 0.59$ to $\alpha = 0.71$ consistent with Hepper, Sedikides, and Cai (alphas ranging from .61-.69; 2011).

**Results**

In order to test the associations between autonomy, controlledness, and self-enhancement strategy, a multi-level model regressed self-enhancement onto a factorial crossing of autonomy, controlledness, and self-enhancement strategy (subscale). Autonomy and controlledness were mean-centered, and subscale was dummy-coded. The three-way interaction (autonomy X controlledness X subscale) was not significant, $F(3,171) = 0.57, p = 0.64$. Inconsistent with Knee and Zuckerman (1996, 1998), the interaction between autonomy orientation and controlled orientation was also non-
significant, $F(1,171) = 1.05, p = 0.31$. Therefore, we were unable to find support for the synergistic model of autonomy and controlledness posed by Knee and Zuckerman (1996, 1998); in our study there does not seem to be something unique about those individuals high in autonomy and low controlledness. The two-way interaction between autonomy and subscale was significant, $F(3,171) = 23.18, p < 0.0001$, as was the interaction between controlledness and subscale, $F(3,171) = 6.21, p = 0.0005$.

To decompose the autonomy X subscale interaction, four additional analyses were conducted. For each analysis, a self-enhancement subscale was coded as the reference group, and the main effect of autonomy was examined (all Study 1 betas are unstandardized). Consistent with predictions, autonomy was significantly and negatively associated with the avoidance oriented strategy of defensiveness, ($B = -0.12, SE = 0.02$), $F(1,171) = 28.79, p < 0.0001$; individuals with higher levels of autonomy were less likely to engage in a defensive strategy to self-enhance. Additionally, autonomy was positively associated with the approach oriented strategies of positivity embracement and self-affirming reflections, ($B = 0.08, SE = 0.02$), $F(1,171) = 18.28, p < 0.0001$ and ($B = 0.10, SE = 0.02$), $F(1, 171) = 20.92, p <0.0001$, respectively. The final approach oriented strategy, favorable construals, was not significantly associated with autonomy, ($B = 0.01, SE = 0.02$), $F(1,171) = 0.16, p = 0.69$.

Although we did not make specific hypotheses regarding controlledness, the controlledness X subscale interaction was decomposed using the same approach as the autonomy X subscale interaction. The results indicate that, in general, controlledness is positively associated with approach and avoidant self-enhancement: Controlledness significantly interacted with the avoidant subscale defensiveness, ($B = 0.13, SE = 0.03$),
$F(1,171) = 18.88, p < 0.0001$; individuals with high levels of controlledness were likely to engage in defensiveness as a means of self-enhancement. Additionally, controlledness interacted significantly with the positivity embracement subscale, $(B = 0.07, SE = 0.02)$, $F(1,171) = 9.67, p = 0.0022$; individuals high in controlledness are likely to engage in positivity embracement as a self-enhancement strategy. The favorable construals subscale also significantly interacted with controlledness, $(B = 0.14, SE = 0.03)$, $F(1,171) = 27.19, p < 0.0001$; therefore, individuals high in controlledness tend to use this strategy to self-enhance. The approach oriented strategy of self-affirming reflections did not interact with controlledness to predict self-enhancement, $(B = 0.02, SE = 0.03)$, $F(1,171) = 0.27, p = 0.60$.

**Discussion**

The present study contributed to the debate over the universality of self-enhancement by identifying self-enhancement strategies used by autonomous individuals. Our results suggest that engaging in self-enhancement as a means of maintaining positive regard is a process used by individuals of varying levels of autonomy and not just those individuals low in autonomy (e.g., Knee & Zuckerman, 1996). Specifically, autonomy was positively associated with approach oriented self-enhancement strategies (positivity embracement and self-affirmation), and—consistent with Knee and Zuckerman’s (1996) findings—negatively associated with avoidance oriented self-enhancement strategies. Additionally, controlledness was positively associated with both approach oriented (favorable construals and positivity embracement) and avoidance oriented (defensiveness) self-enhancement strategies.
Another important contribution of the present study is that it adds to findings that people self-enhance in ways that are consistent with their self-concepts. Strategic and tactical self-enhancement occurs cross-culturally (e.g., feeling positively for being modest, Cai et al. 2011), and within culture (e.g., Sedikides & Strube, 1995, 1997). In support of the Self-Concept Enhancing Tactician (SCENT) model (Sedikides & Strube, 1995, 1997), we identified strategies of self-enhancement that are consistent with the self-concept of autonomous individuals. The SCENT model posits that self-knowledge allows individuals to use a variety of strategies in the service of self-enhancement. That is, individuals are indirect, or subtler in their approach to self-enhancement and do it in ways in keeping with what is most important to their self-concepts. While some might argue that self-affirmation, for example, is not self-enhancement, the SCENT model would say that as long as self-affirmation is being used to maintain a positive sense of self, it is self-enhancement.

The present findings are also inconsistent with Knee and Zuckerman’s (1996, 1998) synergistic model of autonomy and controlledness. Although Knee and Zuckerman (1996) proposed that there was something unique about those individuals high in autonomy and low in controlledness and how they self-enhanced, it is possible that Knee and Zuckerman were able to see an interaction because of their analysis approach. In their earlier paper, Knee and Zuckerman (1996) used a median split to determine high and low levels of autonomy and controlledness before conducting an ANOVA. In their later work, Knee and Zuckerman (1998) used a regression for their initial analyses, and a median split to determine high and low levels of autonomy and controlledness when contrast coding to test their synergistic model. A median split forces individuals into
categories, and ignores the potential variability within each group. Treating autonomy and controlledness as continuous variables allows for small variations in scores to be accounted for in the analysis. Therefore, in the present study, autonomy and controlledness were treated and analyzed as continuous variables.

The goal of Study 2 was to examine the effect of engaging in different strategies of self-enhancement along with varying levels of autonomy on psychological well-being. In Study 1, no specific hypotheses regarding controlledness were generated; controlledness was included only to test for an interaction between controlledness and autonomy (to attempt to replicate Knee & Zuckerman, 1996, 1998). Since the results of Study 1 did not find evidence for an interaction between the two constructs, Study 2 focuses only on autonomy. Controlledness was measured in Study 2 so that it could be controlled for during the analyses. The primary goal of Study 2 was to test whether self-enhancing in a way congruent with one’s level of autonomy (as determined by Study 1) is more beneficial (in regards to psychological well-being) than using an incongruent strategy.
In support of hypotheses, Study 1 found approach oriented self-enhancement to be congruent (positively associated) with autonomy and an avoidance oriented strategy to be incongruent (inversely related). Therefore, Study 2 examined the effects of self-enhancement on psychological well-being when individuals were asked to self-enhance using a strategy that was either congruent (positively related) or incongruent (negatively related) with their levels of autonomy. Specifically, Study 2 addressed whether individuals have greater levels of psychological well-being when they use a self-enhancement strategy congruent with their level of autonomy (e.g., high levels of autonomy and a self-affirming, approach oriented strategy; controlling for controlledness). When forced to use a self-enhancement strategy incongruent with one’s level of autonomy (e.g., high levels of autonomy and a defensive, avoidance oriented strategy; controlling for controlledness), well-being was not expected to increase as much as when individuals use a congruent strategy.

**Method**

**Participants**

Three-hundred and seventy-eight participants (206 men, 169 women, 3 did not specify; mean age = 18.75, SD = 0.88) self-selected to complete Time 1 online measures. One-hundred and five of those participants (54 men and 51 women) chose to complete
the Time 2 lab portion. All participants were recruited from a medium sized, midwestern, Catholic university via the online “SONA experimental management system.” All participants received partial course credit in their introductory psychology course.

Procedure

At Time 1, participants completed measures of autonomy, self-enhancement strategy, and psychological well-being online, through the “SONA experimental management system.” At Time 2, approximately two weeks later, participants came into the lab one at a time and were presented with an ego threat in the form of false, negative performance feedback on a maze task. The purpose of the ego-threat was to maximize the likelihood that participants would seek out self-enhancement to maintain or reestablish a positive sense of self (e.g. Campbell & Sedikides, 1999; Sedikides & Strube, 1997).

Upon their arrival, participants were told that the researchers were investigating “the relation between personality and behavioral style while working on cognitive tasks” (Knee & Zuckerman, 1996, p. 79). Next, participants were given 45 seconds each to complete three “skill-based” mazes (see Appendix C), with the following instructions:

We have found that how quickly a maze is solved is based on looking ahead to foresee whether a particular path will lead to success. So, to solve a maze quickly you must have the ability to foresee the outcome of potential paths and you must put this ability to work. If you have the skill, and you apply it, you will perform well. If you don’t have the skill or you fail to apply it, you will perform poorly. Of course, as with all skill tasks, you may do better or worse compared to other people. (Knee & Zuckerman, 1996, p. 80).

In reality, all participants were given three impossible mazes, one at a time (found on http://www.mazes.org.uk/difficult-mazes.htm, rendered impossible and edited using Knee & Zuckerman’s [1996] instructions—adding and removing blockades). After completing the mazes, participants were told that they fell into the 45th, 39th, and 43rd
percentile relative to other participants (identical percentiles to those used in Knee & Zuckerman, 1996). Up until this point, participants completed a procedure nearly identical to Knee and Zuckerman (1996), with two exceptions: First, all participants were told that the maze task was skill based, increasing the likelihood that participants would be motivated to self-enhance. Second, again to optimize the need to self-enhance, all participants were given false, negative feedback on their task performance that served as a threat to their self-concept (for review, see Campbell & Sedikides, 1999).

Participants were then randomly assigned to one of three conditions: approach oriented self-enhancement, avoidance oriented self-enhancement, or a control condition. In the approach oriented self-enhancement condition, participants engaged in self-enhancement using self-affirming reflections, or an approach strategy based on Hepper and colleagues’ (2010) distinctions. This strategy served as a self-enhancement style that is congruent (positively associated) with autonomy. In the avoidance oriented self-enhancement condition, participants were asked to self-enhance using defensiveness. This strategy served as a self-enhancement style that is incongruent (negatively associated) with autonomy. In the control condition, participants did not engage in a self-enhancement task; instead, participants were asked to list everything they had eaten in their last three meals (a control task used in previous self-affirmation work; for a review see McQueen & Klein, 2006).

Participants in the approach and avoidance conditions were told that in the face of negative feedback many people feel that coping strategies can be helpful. The self-enhancement manipulation was introduced by offering “coping strategies” as described by a particular self-enhancement strategy. The wording of the coping strategies was
based on the items from the short form of the Self-Enhancement and Self-Protection Strategies Scale (Hepper et al., 2010). For example, those in the approach (self-affirming) condition were told:

Sometimes when one does poorly at something he or she finds it helpful to remember past experiences in which one performed well. For example, remembering a time when you were successful, or able to overcome a hardship in order to become truly successful, or thinking of how you have grown and improved as a person over time. Additionally, when coping with a stressful situation people often find it helpful to remember their values and the things that really matter to them, including friends and loved ones, or thinking of how things could have been much worse. Please take a moment to remember and list three examples of past experiences where you have been successful or performed well in some way.

Those in the avoidance (defensive) condition were told:

Sometimes when one does poorly at something he or she finds it helpful to remember that often times it is not the fault of the individual, but instead poor performance is due to factors outside of the individual’s control. It could be due to bad luck, a poorly designed task or questions, inaccurate feedback, or the fact that other areas of one’s life are just more important. Please take a moment to list three external reasons why you may have performed poorly at this task.

Those in the control condition were not offered any self-enhancement strategies as a means of coping with threatening feedback, and instead were asked to list everything they ate in their last three meals.

From there, participants were told that the experimenter was going to set up the next cognitive task and in the meantime the participants were asked to complete measures of well-being (counter-balanced). After completing the well-being measures, participants were debriefed and the experiment was complete.

**Measures**

**Autonomy and controlledness.** Autonomy, was assessed at Time 1 only, as it is a stable trait, using the long form GCOS (Deci & Ryan, 1985a; as in Study 1; see
Appendix A). The GCOS also assesses controlledness which we treated as a control variable in the regression model. For ease of use and interpretation the subscales were averaged instead of summed; internal consistencies for autonomy ($\alpha = 0.89$) and controlledness ($\alpha = 0.75$) were reliable and consistent with Study 1.

**Self-enhancement.** Additionally, as in Study 1, the Self-Enhancement and Self-Protection Strategies Scale was used (Hepper et al., 2010; see Appendix B), at Time 1 only, to assess the strategies of self-enhancement that participants naturally use. Cronbach’s alphas across the four subscales ranged from 0.61 to 0.71, consistent with Study 1.

**Psychological Well-being.** Five measures were used to assess psychological well-being. Three measure positive well-being: Satisfaction with Life Scale, Subjective Well-Being Scale and Subjective Vitality Scale. The last two measures, Perceived Stress Scale and the Center for Epidemiological Studies Depression Scale, assess negative indicators of well-being. By assessing both positive and negative indicators of psychological well-being, we would be able to see if certain self-enhancement strategies affected one type of well-being over the other. Additionally, the Satisfaction with Life Scale is more stable, whereas the other four are state-oriented, that way we could assess broad and specific changes in well-being.

**Life satisfaction.** The 5-item Satisfaction with Life Scale (SWLS; Pavot & Diener, 1993; see Appendix D) was used at both Times 1 and 2. This measure was used to assess global life satisfaction and is not domain specific (e.g., “In most ways my life is close to my ideal”). Studies have shown the SWLS to be reliable (e.g., Gaertner et al., 2008; O’Mara et al., 2012; for a review see Pavot & Diener, 1993). When using the scale,
participants indicate their agreement with five statements on a likert scale ranging from 1 (definitely disagree) to 5 (definitely agree). Normally, all five items are summed to give the participant an overall satisfaction score. For the sake of simplicity and interpretation, we averaged the five items. The scale was reliable at both Time 1 ($\alpha = 0.81$) and Time 2 ($\alpha = 0.75$).

**Subjective well-being.** To assess subjective well-being, the 12-item Subjective Well-Being Scale (SWB; Sevastos, Smith, & Cordery, 1992; see Appendix E) was used at both Times 1 and 2. The SWB is widely used to assess affective well-being and mental health, and is reliable (e.g., Gaertner et al., 2008; O’Mara et al., 2012). Participants indicate how often in the last week they have felt each characteristic (e.g., “calm,” “tense,” “enthusiastic,” etc.) on a likert scale ranging from 1 (never) to 6 (always). Six items are reverse coded so that high scores correspond to higher well-being, and then all twelve items are averaged to get a well-being score. Internal consistencies were high at both Time 1 ($\alpha = 0.81$) and Time 2 ($\alpha = 0.85$)

**Vitality.** To measure vitality, the Subjective Vitality Scale (SVS; Ryan & Frederick, 1997; see Appendix F) was used at both Times 1 and 2. The original 7-item scale has been shortened to six items, which Bostic, Rubio, and Hood (2000) found to be a more reliable measure of the vitality construct (e.g., feeling alive) and well-being. The state level version (used in this study) asks participants to indicate how true each statement is in regards to how they are feeling right now (e.g., “At this moment, I feel alive and vital.”) on a 1 (not at all true) to 7 (very true) likert scale. Higher scores correspond to higher vitality and all six items are averaged to get a single vitality score.
The subjective vitality measure was highly reliable at both Time 1 ($\alpha = 0.87$) and Time 2 ($\alpha = 0.92$).

**Depression.** To assess participants’ levels of depression the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977; see Appendix G) was used at both Times 1 and 2. The CES-D is a 20-item scale commonly used in the general (non-clinical) population and has shown good reliability in previous studies investigating self-enhancement (e.g., Zuckerman & O’Loughlin, 2006). The scale presents 20 statements about the ways participants might feel or behave (e.g., *I am bothered by things that usually don’t bother me*), and then they are asked to indicate the extent to which they agree with the items *right now* on a four point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Five items are reverse scored so that higher scores indicate higher levels of depression and then all twenty items are averaged into a depression score. For our analyses, we reverse scored the mean so that higher scores would indicate higher well-being (e.g., lower depression). The CES-D was reliable at both Time 1 ($\alpha = 0.91$) and Time 2 ($\alpha = 0.90$).

**Stress.** The Perceived Stress Scale (PSS; Cohen, Kamarck, & Merzelstein, 1983; see Appendix H) was designed to assess the extent to which individuals view situations as stressful and was used at both Times 1 and 2. This 14-item measure has been shown to be a reliable measure of stress (e.g., Gaertner et al, 2008; O’Mara et al., 2012). Each item asks the participant to indicate how often in the last week they have felt or behaved in a certain way (e.g., “*been upset because of something that happened unexpectedly?*”) on a Likert scale, ranging from 1 (*never*) to 5 (*always*). Certain items are reverse coded so that
higher scores indicate lower levels of perceived stress (e.g., higher psychological well-being). Time 1 and Time 2 reliabilities were high, $\alpha = 0.85$ and 0.82, respectively.

**Affect.** Additionally, the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988; see Appendix I) was used to assess mood, at Time 1, in an effort to control for this state later. The PANAS is a 20-item measure comprised of two, 10-item subscales; one for positive affect and one for negative affect. Studies have found the PANAS to be a reliable measure of well-being (e.g., Robins & Beer, 2001). Participants are asked to indicate the extent to which they generally feel a certain way (e.g., “interested,” “inspired,” “nervous,” etc.) on a 1 (very slightly or not at all) to 5 (extremely) likert scale. For each subscale the 10 items are summed to get one score for positive affect and one score for negative affect. Internal consistencies were high for both positive ($\alpha = 0.88$) and negative ($\alpha = 0.88$) affect.

**Results**

The first goal of Study 2 was to replicate the findings of Study 1. In order to replicate Study 1, the same analyses were used: a multi-level model regressed self-enhancement onto a factorial crossing of autonomy, controlledness, and self-enhancement strategy (subscale of the Self-Enhancement and Self-Protection Strategies Scale). Autonomy and controlledness were mean-centered, and subscale was dummy-coded. The interaction between, autonomy and subscale, $F(3, 334) = 64.68, p < 0.0001$, and the interaction between controlledness and subscale, $F(3, 334) = 10.01, p < 0.0001$, were both significant. However, unlike in Study 1, these interactions were qualified by the significant three-way interaction (autonomy X controlledness X subscale), $F(3, 334) = 2.95, p = 0.03$. 
In order to decompose the three-way interaction, the two-way interaction between autonomy and controlledness was examined in each dummy-coded subscale of self-enhancement. When the avoidance oriented strategy, defensiveness, was the reference group the interaction between autonomy and controlledness was significant, $F(1, 334) = 4.98, p = 0.03$. In order to decompose this interaction, we examined the effect of autonomy on defensiveness at high and low levels of controlledness. Controlledness was re-centered one standard deviation above and below the mean (all betas in the current analyses are unstandardized). At high levels of controlledness, there was a significant effect of autonomy, ($B = -0.41$, SE = 0.08) $F(1, 334) = 25.36, p < 0.0001$, such that at high levels of controlledness, as autonomy increases, defensive self-enhancement decreases. There was also a significant effect of autonomy at low levels of controlledness, ($B = -0.63$, SE = 0.07) $F(1, 334) = 81.93, p < 0.0001$, such that at low levels of controlledness, as autonomy increases, defensive self-enhancement decreases.

Although our results suggest that the interaction of autonomy and controlledness predicts defensiveness, the significant three-way interaction reveals the pattern is stronger for individuals low in controlledness relative to those high in controlledness (at high levels of autonomy). Overall, the results were consistent with Study 1 in that autonomy negatively predicts defensive self-enhancement. Further decomposition of the significant three-way interaction revealed that the interaction between autonomy and controlledness was not significant for the other three self-enhancement strategies: self-affirming reflections, $F(1, 334) = 0.21, p = 0.65$; favorable contstruals, $F(1, 334) = 1.15, p = 0.28$; positivity embracement, $F(1, 334) = 0.74, p = 0.39$. We were thus able to find support for Knee and
Zuckerman’s (1996, 1998) synergistic model only in regard to defensive self-

Next, the autonomy X subscale and controlledness X subscale interactions were examined. To decompose the autonomy X subscale interaction, three additional analyses were conducted. For each analysis, one of the remaining three self-enhancement strategies was coded as the reference group, and the main effect of autonomy was examined. Consistent with the prediction that autonomous individuals tend to use approach oriented self-enhancement, and consistent with Study 1, autonomy was positively associated with self-affirming reflections, \( B = 0.47, SE = 0.05, F(1, 334) = 81.08, p < 0.0001 \), and positivity embracement, \( B = 0.25, SE = 0.05, F(1, 334) = 23.86, p < 0.0001 \). As in Study 1, favorable construals was not significantly associated with autonomy, \( B = -0.05, SE = 0.05, F(1, 334) = 0.69, p = 0.41 \). Additionally, autonomy was negatively associated with defensiveness, \( B = -0.52, SE = 0.06, F(1, 334) = 84.23, p < 0.001 \); however, this effect is qualified by the aforementioned interaction. Our results suggest that autonomous individuals tend to engage in approach oriented self-enhancement strategies (with the exception of favorable construals) and not avoidant oriented strategies.

The controlledness X subscale interaction was decomposed using the same approach as the autonomy X subscale interaction in hopes of replicating Study 1 findings. The results indicate that controlledness is positively associated with both approach and avoidant self-enhancement. Consistent with Study 1, control was positively associated with the approach oriented strategies favorable construals, \( B = 0.44, SE = 0.08, F(1, 334) = 31.35, p < 0.0001 \), and positivity embracement, \( B = 0.31, SE = 0.07, F(1, 334) = 84.23, p < 0.001 \); however, this effect is qualified by the aforementioned interaction. Our results suggest that autonomous individuals tend to engage in approach oriented self-enhancement strategies (with the exception of favorable construals) and not avoidant oriented strategies.
17.21, \( p < 0.0001 \). Also consistent with Study 1, controlledness was not associated with self-affirming reflections as a self-enhancement strategy, \((B = 0.09, SE = 0.07), F(1, 334) = 1.34, p = 0.25\). Moreover, controlledness was positively associated with defensiveness, \((B = 0.64, SE = 0.08), F(1, 334) = 60.87, p < 0.0001\); however, this association is qualified by the three way interaction between autonomy, controlledness, and subscale.

The specific Study 2 hypothesis was that self-enhancing in a way congruent with one’s level of autonomy would be best for one’s well-being when compared to an incongruent strategy or no strategy at all. People high in autonomy should experience greatest psychological well-being when self-enhancing using self-affirmation (relative to defensiveness or no strategy) and those low in autonomy should experience positive psychological well-being in both self-enhancement conditions. In order to test this hypothesis, a multi-level model regressed well-being onto a factorial crossing of autonomy, condition (e.g., self-enhancement strategy), and well-being scale. The overall regression model controlled for controlledness and Time 1 well-being. Autonomy and controlledness were mean-centered, scale was dummy-coded and standardized across time (all subsequently reported betas are standardized). The autonomy by condition interaction was not significant, \(F(2, 95) = 2.20, p = 0.12\), nor was the main effect of condition, \(F(2, 95) = 1.05, p = 0.35\) or autonomy, \((\beta = 0.27, SE = 0.16), F(1,95) = 1.14, p = 0.29\). In fact, results indicated that the only significant effects were the main effect of scale, \(F(4, 95) = 11.56, p < 0.0001\), the main effect of and the main effect of Time 1 well-being, \((\beta = 0.42, SE = 0.04), F(1, 95) = 115.72, p < 0.0001\). The main effect of
controlledness also approached significance, ($\beta = -0.20, \ SE = 0.11), F(1, 95) = 3.57, p = 0.06$. \(^1\)

**Discussion**

Consistent with Study 1, Study 2 contributed to the debate over the universality of self-enhancement by identifying self-enhancement strategies used by autonomous individuals. Autonomy was positively associated with approach oriented forms of self-enhancement and negatively associated with the avoidant strategy. Controlledness was positively associated with both approach and avoidant strategies of self-enhancement. The pattern of the Study 1 results was almost identical to the results of the first set of Study 2 analyses, with one exception: We found a three way interaction between autonomy, controlledness, and self-enhancement subscale in Study 2, such that the autonomy by controlledness interaction significantly predicted defensive self-enhancement. For individuals high in autonomy, high control more strongly predicts defensive self-enhancement than low control.

In addition to being consistent with the findings from Study 1, the initial Study 2 analyses are also consistent with Knee and Zuckerman’s (1996) findings. Not only was autonomy negatively associated with defensiveness, but the synergistic model of autonomy and controlledness was found (only) in the defensive self-enhancement strategy. It is possible that the larger sample size in Study 2 ($N = 338$) relative to Study 1...

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\(^1\) Pattern of results was similar when controlling for Time 1 affect; the main effect of controlledness that was approaching significance disappeared, ($\beta = -0.17, \ SE = 0.11), F(1, 93) = 2.44, p = 0.12; additional main effects of Time 1 positive affect, ($\beta = 0.02, \ SE = 0.01), F(1, 93) = 6.78, p = 0.01, and Time 1 negative affect, ($\beta = -0.02, \ SE = 0.01), F(1, 93) = 5.16, p = 0.03.$
(N = 175) can account for our ability to detect the interaction in Study 2 and not in Study 1. Additionally, Knee and Zuckerman (1996, 1998) tested their synergistic model in the context of defensive self-enhancement strategies (e.g., the self-serving bias, self-handcapping) and did not test the model examining approach oriented self-enhancement. It is noteworthy that our results extended those of Knee and Zuckerman (1996, 1998) by supporting the notion of a synergistic model for autonomy and controlledness in the context of the defensive self-enhancement strategy but not in regard to the approach oriented strategies.

Unfortunately, our Study 2 hypothesis regarding the moderating role of self-enhancement strategy (e.g., condition) on autonomy in predicting well-being was not supported. Specifically, consistent with Study 1 findings, we had predicted that when individuals high in autonomy self-enhanced using the approach oriented strategy self-affirmation it would be best for their psychological well-being relative to the other two groups (e.g., defensiveness and control). There was no support, however, for the autonomy X condition interaction nor was there a significant effect of condition or autonomy. The lack of effects suggests our manipulation may have been poor since there was no difference in participants’ self-reported psychological well-being across the three groups nor were any higher order effects present.
The universality of self-enhancement has been a highly debated notion in recent literature (e.g., Alicke & Sedikides, 2009; Heine, Lehman, Markus, & Kitayama, 1999; O’Mara et al., 2012; Sedikides et al., 2003). Extensive research, however, finds that self-enhancement is a prevalent and dominant method of self-evaluation (e.g., Sedikides, 1993) and that it is positively associated with psychological well-being (e.g. Alicke & Sedikides, 2009; Bailis et al., 2008; Campbell & Sedikides, 1999; O’Mara et al., 2011; O’Mara et al., 2012; Sedikides & Strube, 1997; Taylor et al., 2003a, 2003b).

Furthermore, the association between self-enhancement and psychological well-being has been supported cross-culturally, and is expressed strategically, or on dimensions that are culturally important (e.g., Cai et al., 2011; O’Mara et al., 2012). Although there is support that self-enhancement is a universal motivation across cultures, little research has investigated the strategic expression of self-enhancement based on individual differences within cultures (see Hepper et al, 2010). The current research contributes to the self-enhancement literature, by providing additional support for the universality of self-enhancement through identifying self-enhancement strategies used by autonomous individuals and attempts to make a causal link to psychological well-being.

The present research further contributes to the literature by investigating individual differences in the expression of many self-enhancement strategies. Very little
research exists examining multiple self-enhancement strategies in the context of individual differences (but see Hepper et al. 2010). Previous research investigating self-enhancement and autonomy was limited in its ability to test multiple self-enhancement strategies; earlier studies focused only on avoidant forms of self-enhancement (e.g., the self-serving bias; Knee & Zuckerman, 1996). Results of the regression analyses (Study 1 and preliminary Study 2 analyses) showed that while individuals high in autonomy do not tend to self-enhance defensively, they appear to use approach oriented strategies such as self-affirmation and positivity embracement (but not favorable construals) to maintain a positive self-view.

One avenue for future research in regard to Hepper et al.’s (2010) strategies and autonomy is the expression of positivity embracement as a self-enhancement strategy. While Hepper and colleagues (2010) maintain that positivity embracement is an approach oriented self-enhancement strategy, they note that positivity embracement is also associated with a prevention focus. In our studies, autonomy was positively associated with positivity embracement and self-affirmation. It would be interesting to examine what situations or threats lead autonomous individuals to choose one strategy over the other. In the present research positivity embracement was the only strategy that was positively associated with both autonomy and control which may suggest that positivity embracement is slightly avoidant.

Based on the correlational results of Study 1, we hypothesized that self-enhancement strategies congruent with one’s level of autonomy would be most beneficial. In other words, we suggested that individuals high in autonomy would experience greatest psychological well-being after engaging in the approach oriented self-
enhancement strategy of self-affirmation relative to the avoidance oriented defensive
strategy or no strategy at all. After experimentally manipulating the self-enhancement
strategy in which participants engaged, we were not able to provide support for this
hypothesis; in fact, results showed that there was no effect of condition (e.g., self-
enhancement coping strategy) on psychological well-being, nor did condition interact
with autonomy to predict psychological well-being. There are a number of possible
factors, however, that could account for our null findings.

The lack of support for the Study 2 hypothesis can be explained in part by our
misassumption that our correlational findings would predict actual behavior in an
experimental setting. Based on Study 1 findings (and supported by preliminary Study 2
analyses), we assumed that individuals would behave in accordance with their tendencies
toward specific self-enhancement strategies, and hypothesized that doing so (via
experimental manipulation) would be positively associated with psychological well-
being. Our correlational data provided evidence for the types of self-enhancement in
which people of varying levels of autonomy tend to engage (or their attitudes toward the
self-enhancement strategies). Nonetheless, research on attitudes would suggest that
attitudes do not always predict behavior (e.g., Ajzen & Fishbein, 1970; LaPiere, 1934); in
fact, Ajzen and Fishbein (1969) found that it is a combination of attitudes and normative
believes that best predict behavioral intentions. That being said, extensive research has
shown that autonomy is characterized by acting in accordance with beliefs and values
(e.g., Deci & Ryan, 2000; Ryan & Deci, 2000b) and that is what drove Study 2
hypotheses.
Another possible explanation for our null findings in Study 2 is dissonance reduction. Cognitive dissonance literature states that when one’s public opinion varies from one’s private opinion, one will attempt to change one’s private opinion to relieve this tension (Festinger & Carlsmith, 1959). The tension associated with cognitive dissonance is unpleasant and individuals want to avoid these dissonant feelings; however, dissonance appears to occur only when individuals feel their opinions are not being forced by external pressures (for a review see Tedeschi, Schlenker, & Bonoma, 1971). Even though we randomly assigned participants to use specific self-enhancement strategies it’s possible that they did not view the manipulation as being forced to self-enhance. If this is the case, participants may actually have experienced dissonance after failure feedback and reduced the dissonance by changing their attitude toward the mazes (e.g., “maybe I’m really not as good at mazes as I thought I was”) effectively minimizing the need to self-enhance.

Additionally, there are factors associated with autonomy that may have made it difficult for us to find the effect for which we were looking. Individuals characterized as highly autonomous have been found to be less ego-involved—one who is ego-involved is interested in expanding his or her self-concept while also protecting the self-concept from threat (for a review see Hodgins, 2008). Additionally, autonomous individuals are better at differentiating between feedback that is consistent or inconsistent with their self-concept relative to controlled individuals and it takes more to threaten their self-concepts (e.g., Bober & Grolnick, 1995). That being said, when a controlled orientation is activated—egoistic traits and contingent self-esteem are made salient—egos are threatened more easily (Hodgins, 2008). Therefore, even though our correlational data
supported the notion that highly autonomous individuals would use self-affirmation as a means of self-enhancement, it is possible that consciously focusing on the self and generating examples of previous success was ego-involving, created pressure, and/or was inconsistent with their self-concept to the point that it diminished autonomy and thus all conditions had the same effect on psychological well-being.

Moreover, in our analyses we controlled for the concept of controlledness because controlledness has been associated with a range of self-enhancement behaviors (e.g., Knee & Zuckerman, 1996; Study 1 of this paper). It is possible, however, that this may have been unnecessary and may have diminished some of the effects in which we were interested. When controlledness is not hypothesis relevant, most studies ignore it entirely (e.g., Bauer & McAdams, 2004; Chirkov et al., 2003; La Guardia et al., 2000; Reis et al., 2000) or only investigate it in regards to specific questions and then ignore it in other analyses (e.g., Koestner & Losier, 1996; Wiliams et al., 1996). Knee and Zuckerman (1996, 1998) included controlledness in their analyses to test for their synergistic model. The present paper was largely based on expanding those findings, and it may only have been necessary to include controlledness in the specific regression analyses examining Knee and Zuckerman’s (1996, 1998) synergistic model (e.g., Study 1 and preliminary Study 2 analyses). Including controlledness in the rest of the Study 2 analyses, let alone controlling for controlledness, may not have been necessary.

Furthermore, the concepts of modesty and narcissism have previously been associated with self-enhancement expression and may impact the association between self-enhancement strategy and autonomy in predicting well-being. Research has shown that individuals self-enhance in culturally and socially acceptable ways (e.g., Cai et al.,
2011; Gaertner et al., 2008; Kurman, 2003; Sedikides et al., 2003). For example, individuals who value modesty are tactful in their approach to self-enhancement and actually feel better about themselves for being modest (e.g., Cai et al., 2011). Narcissism has also been found to moderate self-enhancement behaviors (e.g., Campbell, Reeder, Sedikides, & Elliot, 2000; Horvath & Morf, 2010; John & Robins, 1994) and narcissists are more likely to expect positive feedback than non-narcissists (e.g., Hepper, Hart, Gregg, & Sedikides, 2011, Study 3). To our knowledge, no research has directly investigated the association between autonomy and modesty, or autonomy and narcissism. In regards to the association between narcissism and autonomy research that indirectly examines the association between these constructs is Kasser and Ryan’s (1996) work examining intrinsic and extrinsic motivation. They found that when individuals valued intrinsic aspirations (characteristic of autonomy) it was associated with less narcissism; however, valuing extrinsic goals was associated with more narcissism. Given the fact that both modesty and narcissism affect self-enhancement expression it makes sense that one or both of these constructs could have affected the influence of autonomy on self-enhancement strategy. Future research should investigate the moderating roles of modesty and narcissism on the expression of self-enhancement for autonomous individuals.

The current research presents multiple future directions for the study of self-enhancement and autonomy. Not only is there a need to further investigate potential moderators of self-enhancement (e.g., modesty, narcissism) in the context of autonomy, but we were able to identify a key weakness in our study: Due to manipulating self-enhancement strategy, we were unable to investigate the effect that autonomy has on how
individuals naturally behave in the face of failure feedback (e.g., what self-enhancement strategies do individuals of varying levels of autonomy actually engage in when their egos are threatened). Instead of manipulating self-enhancement strategy, future research should perhaps investigate what strategies people high in autonomy actually use to maintain a positive sense of self in the face of failure feedback. For example, present participants with failure feedback and measure the tendency to self-enhance and the strategy used. Additionally, research should investigate which self-enhancement strategies people engage in when their autonomy is made salient. While there is plenty of room to continue exploring the relation between autonomy and self-enhancement, a major strength of this research was the ability to provide further support for the universality of self-enhancement by identifying strategies of self-enhancement positively associated with autonomy.
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doi:10.1080/10463280802613866


APPENDIX A

GENERAL CAUSALITY ORIENTATION SCALE (LONG FORM)

On these pages you will find a series of vignettes. Each one describes an incident and lists three ways of responding to it. Please read each vignette and then consider the responses in turn. Think of each response option in terms of how likely it is that you would respond in that way. We all respond in a variety of ways to situations, and probably each response is at least slightly likely for you. If it is very unlikely that you would respond in the way described in a given response, you would select numbers 1 or 2. If it is moderately likely, you would respond in the midrange of numbers; and if it is very likely that you would respond as described, you would select the 6 or 7. Please select one number for each of the three responses on the answer sheet for each vignette. The actual items begin on the next page.

Please use the following scale to answer each set of questions following the 17 vignettes:

1  2  3   4  5   6
  7
very unlikely   moderately likely   very likely

1. You have been offered a new position in a company where you have worked for some time. The first question that is likely to come to mind is:
   _____ a) What if I can't live up to the new responsibility?
   _____ b) Will I make more at this position?
   _____ c) I wonder if the new work will be interesting.

2. You had a job interview several weeks ago. In the mail you received a form letter which states that the position has been filled. It is likely that you might think:
   _____ a) It's not what you know, but who you know.
   _____ b) I'm probably not good enough for the job.
   _____ c) Somehow they didn't see my qualifications as matching their needs.
3. You are a plant supervisor and have been charged with the task of allotting coffee breaks to three workers who cannot all break at once. You would likely handle this by:
   ______ a) Telling the three workers the situation and having them work with you on the schedule.
   ______ b) Simply assigning times that each can break to avoid any problems.
   ______ c) Find out from someone in authority what to do or do what was done in the past.

4. You have just received the results of a test you took, and you discovered that you did very poorly. Your initial reaction is likely to be:
   ______ a) "I can't do anything right," and feel sad.
   ______ b) "I wonder how it is I did so poorly," and feel disappointed.
   ______ c) "That stupid test doesn't show anything," and feel angry.

5. When you and your friend are making plans for Saturday evening, it is likely that you would:
   ______ a) Leave it up to your friend; he (she) probably wouldn’t want to do what you’d suggest.
   ______ b) Each make suggestions and then decide together on something that you both feel like doing.
   ______ c) Talk your friend into doing what you want to do.

6. You have been invited to a large party where you know very few people. As you look forward to the evening, you would likely expect that:
   ______ a) You'll try to fit in with whatever is happening in order to have a good time and not look bad.
   ______ b) You'll find some people with whom you can relate.
   ______ c) You'll probably feel somewhat isolated and unnoticed.

7. You are asked to plan a picnic for yourself and your fellow employees. Your style for approaching this project could most likely be characterized as:
   ______ a) Take charge: that is, you would make most of the major decisions yourself.
   ______ b) Follow precedent: you're not really up to the task so you'd do it the way it's been done before.
   ______ c) Seek participation: get inputs from others who want to make them before you make the final plans.

8. Recently a position opened up at your place of work that could have meant a promotion for you. However, a person you work with was offered the job rather than you. In evaluating the situation, you're likely to think:
   ______ a) You didn't really expect the job; you frequently get passed over.
   ______ b) The other person probably "did the right things" politically to get the job.
   ______ c) You would probably take a look at factors in your own performance that led you to be passed over.
9. You are embarking on a new career. The most important consideration is likely to be:
   _____ a) Whether you can do the work without getting in over your head.
   _____ b) How interested you are in that kind of work.
   _____ c) Whether there are good possibilities for advancement.

10. A woman who works for you has generally done an adequate job. However, for the past two weeks her work has not been up to par and she appears to be less actively interested in her work. Your reaction is likely to be:
    _____ a) Tell her that her work is below what is expected and that she should start working harder.
    _____ b) Ask her about the problem and let her know you are available to help work it out.
    _____ c) It's hard to know what to do to get her straightened out.

11. Your company has promoted you to a position in a city far from your present location. As you think about the move you would probably:
    _____ a) Feel interested in the new challenge and a little nervous at the same time.
    _____ b) Feel excited about the higher status and salary that is involved.
    _____ c) Feel stressed and anxious about the upcoming changes.

12. Within your circle of friends, the one with whom you choose to spend the most time is:
    _____ a) The one with whom you spend the most time exchanging ideas and feelings.
    _____ b) The one who is the most popular of them.
    _____ c) The one who needs you the most as a friend.

13. You have a school-age daughter. On parents' night the teacher tells you that your daughter is doing poorly and doesn't seem involved in the work. You are likely to:
    _____ a) Talk it over with your daughter to understand further what the problem is.
    _____ b) Scold her and hope she does better.
    _____ c) Make sure she does the assignments, because she should be working harder.

14. Your friend has a habit that annoys you to the point of making you angry. It is likely that you would:
    _____ a) Point it out each time you notice it, that way maybe he(she) will stop doing it.
    _____ b) Try to ignore the habit because talking about it won’t do any good anyway.
    _____ c) Try to understand why your partner does it and why it is so upsetting for you.
15. A close (same-sex) friend of yours has been moody lately, and a couple of times has become very angry with you over "nothing." You might:
_______a) Share your observations with him/her and try to find out what is going on for him/her.
_______b) Ignore it because there's not much you can do about it anyway.
_______c) Tell him/her that you're willing to spend time together if and only if he/she makes more effort to control him/herself.

16. Your friend's younger sister is a freshman in college. Your friend tells you that she has been doing badly and asks you what he (she) should do about it. You advise him (her) to:
_______a) Talk it over with her and try to see what is going on for her.
_______b) Not mention it; there’s nothing he (she) could do about it anyway.
_______c) Tell her it’s important for her to do well, so she should be working harder.

17. You feel that your friend is being inconsiderate. You would probably:
_______a) Find an opportunity to explain why it bothers you; he (she) may not even realize how much it is bothering you.
_______b) Say nothing; if your friend really cares about you he (she) would understand how you fell.
_______c) Demand that your friend start being more considerate; otherwise you’ll respond in kind.
APPENDIX B

SELF-ENHANCEMENT AND SELF-PROTECTION STRATEGIES SCALE (SHORT-FORM)

**Instructions:** In this set of questions, we will list particular patterns of thought, feeling, and behavior that people engage in during the course of everyday life. For each pattern, we will ask you to consider whether it is something that you yourself engage in, and how much it is characteristic or typical of you.

**Response scale for each item**

*Question: To what extent is this characteristic or typical of you?*

Response scale: 1 (not at all characteristic of me) to 6 (very characteristic of me)

1. Thinking of yourself as generally possessing positive personality traits or abilities to a greater extent than most people
2. Remembering hardships that you had to overcome in order to be really successful
3. Thinking about how you have grown and improved as a person over time; how much more good/honest/skilled you are now than you used to be
4. Believing that you are changing, growing, and improving as a person more than other people are
5. Believing you are more likely than most people to be happy and successful in the future
6. When you achieve success or really good grades, thinking it was due to your ability
7. When you achieve success or really good grades, thinking it says a lot about you as a person
8. When you achieve success or really good grades, playing up the importance of that ability or area of life
9.) When you do poorly at something or get bad grades, thinking it was due to bad luck

10.) When you do poorly at something or get bad grades, thinking that the situation or test was uninformative or inaccurate (e.g., thinking the exam was badly designed, or thinking "that can't be right")

11.) When you do poorly at something or get bad grades, thinking hard about the situation and feedback until you find something wrong with it and can discount it

12.) When someone says something ambiguous about you, interpreting it as a positive comment or compliment (e.g., if someone says "you certainly speak your mind, don't you?", you might think they were praising your honesty, not insulting your lack of tact)

13.) Generally getting over the experience of negative feedback quickly, so a few hours/days/weeks after a negative event (e.g., doing poorly in an exam, being criticized by a friend) you no longer feel bad

14.) In times of stress, reminding yourself of your values and what matters to you

15.) In times of stress, thinking about your positive close relationships and loved ones

16.) Studying very little for a test, or going out the night before an exam or appraisal at work, so that if you do well, it would mean you must have very high ability

17.) Studying very little for a test, or going out the night before an exam or appraisal at work, so that if you do poorly, it would not mean you are incompetent

18.) Thinking about how things could have been much worse than they are (e.g., “well, at least…”; “it could be worse”)

19.) Spending time with people who think highly of you, say good things about you, and make you feel good about yourself

20.) Asking for feedback when you expect a positive answer (e.g., asking a friend “Do I look ok?” when you have made a lot of effort with your appearance; approaching a senior colleague or tutor for feedback on a piece of work if you think you did well)
APPENDIX C

MAZES

Maze 1
Maze 3
APPENDIX D
SATISFACTION WITH LIFE SCALE

Below are 5 statements that you may agree or disagree with. Using the 5-point scale below, indicate your agreement with each item.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Definitely Disagree</td>
<td>Neutral</td>
<td>Definitely Agree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. In most ways my life is close to my ideal.

2. The conditions of my life are excellent.

3. I am satisfied with my life.

4. So far I have gotten the important things I want in life.

5. If I could live my life over, I would change almost nothing.
APPENDIX E
SUBJECTIVE WELL-BEING SCALE

Thinking of the past week, how often have you felt each of the following?

1 = never
2 = rarely
3 = occasionally
4 = sometimes
5 = often
6 = always

(Please CIRCLE the appropriate number.)

<table>
<thead>
<tr>
<th>tense</th>
<th>1 2 3 4 5 6</th>
<th>Uneasy</th>
<th>1 2 3 4 5 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>worried</td>
<td>1 2 3 4 5 6</td>
<td>Calm</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>contented</td>
<td>1 2 3 4 5 6</td>
<td>Relaxed</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>depressed</td>
<td>1 2 3 4 5 6</td>
<td>Gloomy</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>miserable</td>
<td>1 2 3 4 5 6</td>
<td>Cheerful</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>enthusiastic</td>
<td>1 2 3 4 5 6</td>
<td>Optimistic</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>
APPENDIX F

SUBJECTIVE VITALITY SCALE

Please respond to each of the following statements in terms of how you are feeling right now. Indicate how true each statement is for you at this time, using the following scale:

1  2  3  4  5  6  7
not at all somewhat very
ture true true

1. At this moment, I feel alive and vital.

2. Currently I feel so alive I just want to burst.

3. At this time, I have energy and spirit.

4. I am looking forward to each new day.

5. At this moment, I feel alert and awake.

6. I feel energized right now.
APPENDIX G
CENTER FOR EPIDEMIOLOGICAL STUDIES—DEPRESSION SCALE

Below is a list of the ways you might feel or behave. Please indicate the extent to which you agree with the following times, RIGHT NOW.

1 = Strongly disagree  2 = Disagree  3 = Agree  4 = Strongly agree

(Please CIRCLE the appropriate number.)

Right now...

1. I am bothered by things that usually don’t bother me.  
2. I do not feel like eating; my appetite is poor.  
3. I feel that I cannot shake off the blues even with help from my family or friends.  
4. I feel that I am just as good as other people.  
5. I have trouble keeping my mind on what I am doing.  
6. I feel depressed.  
7. I feel that everything I do is an effort.  
8. I feel hopeful about the future.  
9. I think my life has been a failure.  
10. I feel fearful.  
11. My sleep is restless.  
12. I am happy.  
13. I talk less than usual.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14. I feel lonely.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. people are unfriendly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. I enjoy life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. I have crying spells.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. I feel sad.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. I feel that people dislike me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. I cannot get “going.”</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
APPENDIX H
PERCEIVED STRESS SCALE

In the past week, how often have you...

1 = never
2 = rarely
3 = occasionally
4 = frequently
5 = always

(Please CIRCLE the appropriate number.)

1. been upset because of something that happened unexpectedly?  1  2  3  4  5
2. felt that you were unable to control the important things in your life?  1  2  3  4  5
3. felt nervous and stressed?  1  2  3  4  5
4. successfully dealt with irritating life hassles?  1  2  3  4  5
5. felt that you were effectively coping with important changes that were occurring in your life?  1  2  3  4  5
6. felt confident about your ability to handle your personal problems?  1  2  3  4  5
7. felt that things were going your way?  1  2  3  4  5
8. felt that your could not cope with all the things that you had to do?  1  2  3  4  5
9. been able to control irritations in your life?  1  2  3  4  5
10. felt that you were on top of things?  1  2  3  4  5
11. been angered because of things that happened that were outside of your control? 1 2 3 4 5
12. found yourself thinking about things that you have to accomplish? 1 2 3 4 5
13. been able to control the way you spend your time? 1 2 3 4 5
14. felt difficulties were piling up so high that you could not overcome them? 1 2 3 4 5
APPENDIX I

POSITIVE AND NEGATIVE AFFECT SCALE

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally feel this way, that is, how you feel on the average. Use the following scale to record your answers.

1. very slightly
2. a little
3. moderately
4. quite a bit
5. extremely
or not at all

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