

## A Nondefensive Personality: Autonomy and Control as Moderators of Defensive Coping and Self-Handicapping

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Previous work (Knee & Zuckerman, 1996) found that the combination of high autonomy and low control was associated with fewer self-enhancing attributions after success and fewer self-protective attributions after failure. The present research again found strong support for a synergistic effect of causality orientations on defensive behavior through a prospective examination of defensive coping strategies (e.g., denial, behavioral disengagement, and mental disengagement) and self-handicapping tendencies. Individuals who were high in autonomy and low in control engaged in less defensive coping strategies (particularly denial) and exhibited less self-handicapping compared to all other individuals. The present findings support the proposition that self-determined individuals are less defensive in their behavior compared to others. Implications for self-determination theory as well as the controversy over the relation between positive illusions and well-being are discussed. © 1998 Academic Press

Several psychologists have long argued that optimal psychological development is characterized by authentic emotional experience and the absence of illusions and psychological defenses (Deci, 1980; Jahoda, 1958; Maslow, 1970; Rogers, 1961, 1970). This notion gave rise to much theoretical work but relatively little research (Gray, 1986; Ryckman, Robbins, Thornton, Gold, & Kuehnel, 1985; Valle & Koeske, 1974). Furthermore, a potent con-

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troversy has ensued between those who argue that positive illusions and defensive strategies are beneficial to well-being (Taylor & Brown, 1988, 1994) and those who argue the opposite (Block & Colvin, 1994; Colvin & Block, 1994). The present work approaches this ongoing debate not by examining health implications of illusions, but by investigating whether self-determination, a quality of psychological growth, is indeed associated with less defensive and illusory tendencies.

One reason that constructs associated with organismic growth have received little empirical attention may be that adequate instruments that can identify growth-oriented individuals were developed only recently. One such tool is the General Causality Orientations Scale (GCOS) (Deci & Ryan, 1985a), which evolved from the assumption that people differ in the extent to which they regulate their behavior according to autonomy and control orientations. Autonomy-oriented behaviors are based on a sense of choice and awareness of one's needs; control-oriented behaviors are based on pressures to perform (either real or imagined). For each person, the GCOS yields two scores, one for each orientation.<sup>1</sup> Based on self-determination theory (Deci & Ryan, 1985b, 1987, 1991), optimal psychological development depends on the experience of choice (autonomy) and the absence of pressures (control). The present work examined prospective effects of autonomy and control orientations on defensive coping. It was predicted that organismically integrated individuals, those with high scores on autonomy and low scores on control, would display less defensive coping.

Previous research has revealed that the autonomy orientation, as measured by the GCOS, is positively correlated with ego-development, self-esteem, and self-actualization, and negatively correlated with self-derogation and hostility (Deci & Ryan, 1985a). In addition, autonomous individuals show greater consistency among their attitudes, traits, and behaviors (Koestner, Bernieri, & Zuckerman, 1992), persist confidently toward their goals (Koestner & Zuckerman, 1994), report focusing on enjoyment and challenge in the workplace (Amabile, Hill, Hennessey, & Tighe, 1994), and rarely experience boredom (Farmer & Sundberg, 1986). In contrast, the control orientation has been shown to correlate positively with the type-A coronary-prone behavior pattern and public self-consciousness and is associated with the adoption of a pressured, ego-involved stance toward achievement tasks (Deci & Ryan, 1985b). In addition, controlled individuals exhibit less consistency among their attitudes, traits, and behaviors (Koestner *et al.*, 1992) and tend to regulate their behavior according to external rather than internal cues (Scherhorn & Grunert, 1988).

The first investigation of autonomy and control orientations as determi-

<sup>1</sup> The GCOS also measures impersonal orientation which corresponds to the amotivating aspect of events, but this dimension was not of theoretical interest in the present study.

nants of defensive behavior examined self-serving attributions for performance. Knee and Zuckerman (1996) assessed autonomy and control orientations and then manipulated success and failure on a maze-solving task. As expected, participants who experienced success took more responsibility for their performance than did participants who experienced failure. However, these effects were moderated by autonomy and control orientations. A synergistic pattern emerged such that individuals high in autonomy and low in control exhibited less self-serving bias than all other participants. Examination of simple effects revealed the self-serving bias for every combination of autonomy and control except for the high autonomy/low control cell. Finally, interaction contrasts within success and failure conditions revealed that participants high in autonomy and low in control engaged in fewer self-enhancing attributions (after success) as well as fewer defensive attributions (after failure).

Qualifying the notion that positive illusions foster mental health (e.g., Taylor & Brown, 1988), the use of defensive attributions characterized everyone *except* those who possessed personality characteristics associated with optimal psychological development. In this way, the study provided preliminary support for the notion that self-determined individuals exhibit fewer distortions that serve to maintain self-esteem. Knee and Zuckerman (1996) reasoned that a low, relative to a high, control orientation reflects an absence of ego-involvement. In addition, a high, relative to a low autonomy orientation, reflects an orientation toward interest, learning, and growth. Because individuals who are both low in control and high in autonomy perceive fewer threats to self-esteem and more opportunities for growth, they are not motivated to exhibit a self-serving bias. The question remained, however, whether this pattern would generalize to defensive behaviors other than outcome attributions. Accordingly, the present work investigated defensive coping strategies as another potential outcome variable of autonomy and control orientations.

Coping strategies play an important and complex role in a person's physical and psychological well-being in response to challenging events (Aldwin & Revenson, 1987; Endler & Parker, 1989; Lazarus & Folkman, 1984; Miller, Brody, & Summerton, 1988). Although the coping literature comprises various theoretical frameworks and inventories that assess a wide range of coping strategies, there is evidence that coping behavior can be adequately conceptualized using a limited number of dimensions (Billings & Moos, 1984; Carver, Scheier, & Weintraub, 1989; Endler & Parker, 1990; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). One of the dimensions incorporates strategies that reflect an attempt to avoid, deny, or ignore the problem (Carver *et al.*, 1989; Endler & Parker, 1990; Roth & Cohen, 1986). In general, *avoidance* coping is associated with poorer health outcomes (Compas, Malcarne, & Fondacaro, 1988; Holohan & Moos, 1990, 1991). However, it has been argued that avoidance coping may also protect

the "self" from potential negativity (Cohen & Lazarus, 1973; Lazarus, 1983). Indeed, avoidant strategies like denial and behavioral or mental disengagement may serve to defend the fragmented self from personal awareness.

In general, humanistic theories on the self view avoidance behavior as detrimental to organismic growth and development. Optimal psychological development, according to humanistic theorists, eventuates from full awareness of experiences, whether sensory, visceral, or emotional (Deci & Ryan, 1985b; Maslow, 1970; Rogers, 1961). In this way, denying, ignoring, or remaining unaware of a negative event can block organismic growth, preventing self-actualization and constraining the authenticity of one's behavior. Individuals who are self-determined, that is, oriented toward interest, learning, and growth, and away from the pressured regulation of their behavior, should employ less avoidant and defensive coping strategies when dealing with negative events. The present research was designed to examine this prediction.

We employed a prospective design that examined individuals' coping strategies at two time periods during their first semester at a rigorous mid-sized research university. Time 1 was assessed at the beginning of the semester, just after their arrival, whereas time 2 was assessed at the end of the semester, just before final exams. In this way, the amount of stress and challenge present before finals would be higher than baseline, thus providing an appropriate context for studying defensive coping over time.

## METHOD

### *Participants*

Eighty-one male and 181 female introductory psychology students participated in the study to partly fulfill a course requirement. A battery of questionnaires was administered at the beginning (time 1) and again at the end of the fall semester (time 2), with approximately two months in between.<sup>2</sup> Participants attended the sessions in small groups. In addition to the 262 participants, 12 students completed the questionnaires at time 1 but not at time 2. Two students left early for the semester break; 6 finished the research requirement in other ways and refused to return; 4 could not be reached. Finally, two more left large portions of the questionnaires blank and their data were discarded.

### *Measures*

*Causality orientations.* Participants completed the General Causality Orientations Scale (GCOS; Deci & Ryan, 1985a) at time 1 and time 2. The original GCOS consisted of 12 vignettes, 8 of which could be construed as achievement-related. The scale was later revised to include an additional 5 vignettes that were explicitly interpersonal to broaden the content (Hodgins, Koestner, & Duncan, 1996; Ryan, 1989). This expanded version was used in the present study. Each of the 17 vignettes is followed by an autonomous response and a controlled

<sup>2</sup> This study was part of another project that investigated consequences of realistic and unrealistic perceived control (Knee, Zuckerman, & Kieffer, 1996).

response. Each response, in turn, is followed by a 7-point scale on which the respondent rates the extent to which the response would be characteristic of him or her. For example, one of the vignettes is as follows:

You are embarking on a new career. The most important consideration is likely to be:

The autonomy orientation is measured by the response, "How interested you are in that kind of work." The control orientation is measured by the response, "Whether there are good possibilities for advancement." (For other sample vignettes, see Appendix B). Participants rate each response on a 1 (very unlikely) to 7 (very likely) scale. For each orientation, scores are computed by averaging respondents' ratings for that orientation across all 17 vignettes. A higher score indicates more of that particular orientation. Internal reliabilities (Cronbach  $\alpha$ s) for autonomy and control orientations in this study were .84 and .81, respectively. Test-retest reliability over 3 months was .52 autonomy and .60 for control. The correlation between autonomy and control in the present study was  $-.04$ .

*Coping.* Participants completed the COPE (Carver *et al.*, 1989), an inventory of coping strategies which represent various features of problem-focused coping, social support, and emotion-focused coping. We were interested in three 4-item subscales of the COPE that measure aspects of defensive coping: *Denial* involves denying that the event is occurring, *behavioral disengagement* involves ceasing to try to deal with the event, and *mental disengagement* involves immersing oneself in other activities to avoid thinking about the event. We were interested in coping strategies as general tendencies. Thus, participants received "trait-like" instructions, requesting them to indicate what they generally do when under stress. Response choices for each item ranged from 1 (I usually don't do this at all) to 4 (I usually do this a lot). Items from the three subscales are presented in Appendix A. Items were averaged for each subscale, and a second-order factor analysis (principal component followed by varimax rotation) was conducted on these scores. The three subscales emerged as a single factor (eigenvalue = 2.32) capturing 19.2% of the original variance. Factor analyses from time 1 and time 2 yielded essentially identical results for defensive coping; the loadings reported are from time 2. Factor loadings for denial, behavioral disengagement, and mental disengagement were .81, .81, and .71, respectively; further, these three subscales did not load on any other factor (all loadings < .17). Internal reliabilities (Cronbach  $\alpha$ s) for the denial, behavioral disengagement, and mental disengagement subscales were .70, .65, and .38 at time 1, and .79, .74, and .45 at time 2, respectively. Carver *et al.* (1989) also reported somewhat lower reliability (.45) for the mental disengagement subscale than for all other subscales. According to them, the reason is that the items describe very different methods of disengagement (e.g., sleeping versus watching TV). The denial, behavioral disengagement, and mental disengagement subscales of the COPE were combined to form a single index of defensive coping, separately for time 1 and time 2. Internal reliability (Cronbach  $\alpha$ ) of the 12-item index was .72 and .81 at time 1 and time 2, respectively.

Three other factors emerged in the analysis as well: (a) a positive approach factor with high loadings from three strategies: positive reinterpretation and growth, active coping, and planning; (b) a support factor with high loadings from two strategies: seeking social support for instrumental reasons and seeking social support for emotional reasons; and (c) a religion factor with a high loading from only the religion strategy. These factors were retained to examine whether effects of autonomy and control orientations were specific to defensive coping, rather than to all forms of coping.

*Self-handicapping.* The Self-Handicapping Scale (Jones & Rhodewalt, 1982) was included in the battery of questionnaires administered at time 1 (but not at time 2), originally for purposes unrelated to the present study. The Self-Handicapping Scale is a 25-item instrument that samples a wide variety of self-handicapping behaviors (e.g., "I tend to put things off until the last minute"). It has been shown that those scoring high on the Self-Handicapping

TABLE 1  
 Concurrent Effects of Autonomy and Control on Defensive Coping at Time 1 and Time 2

Predicting time 1 defensive coping	<i>F</i>	<i>df</i>	Partial <i>r</i>
At time 1			
Autonomy	3.36	1,257	-.11
Control	19.11***	1,257	.26
Autonomy × control	<1	1,254	-
At time 2			
Autonomy	10.42***	1,254	-.20
Control	19.00***	1,254	.26
Autonomy × control	<2	1,251	-

\*\*\*  $p < .001$ .

Scale tend to use both behavioral and self-reported handicaps when facing threats to self-esteem (Rhodewalt, Saltzman, & Wittmer, 1984; Rhodewalt & Fairfield, 1989, cited in Rhodewalt, 1990). It follows, therefore, that individuals high in autonomy and low in control, who rarely perceive threats to self-esteem, may report less self-handicapping.

Given the predicted relation between causality orientations and defensive coping, we realized after the time 2 assessment that a similar relation might exist between causality orientations and self-handicapping. Because the scale had not been administered at time 2, we randomly selected 150 individuals of the original 267 participant population during the following spring semester (approximately 3 months after time 2) and administered the Self-Handicapping Scale. We will refer to this administration as "subsequent" self-handicapping. One hundred and forty-seven participants agreed to return and complete the scale for no extra credit. Internal reliability (Cronbach  $\alpha$ ) for the Self-Handicapping Scale was .71 at time 1 and .73 at the subsequent administration. Test-retest reliability over 7 months was .94 in this study.

## RESULTS AND DISCUSSION

We examined both concurrent and prospective effects of autonomy and control orientations on defensive coping. The concurrent analysis at time 1 employed hierarchical multiple regression with the defensive coping index from time 1 as the criterion. At step 1, sex was entered, along with autonomy and control from time 1. At step 2, product terms that carried the two-way interactions of sex × control, sex × autonomy, and autonomy × control were entered. At step 3, the product term representing the three-way interaction between sex, autonomy, and control was entered. Results are presented in the upper portion of Table 1. The table shows the significance ( $F$  test) of the variance accounted for controlling for other predictors in the model, the degrees of freedom, and the partial correlation between the predictor and the criterion. As shown, autonomy was marginally associated with less defensive coping, whereas control was independently associated with more defensive coping.<sup>3</sup> The autonomy × control interaction did not approach significance.

<sup>3</sup> A main effect of sex emerged as well, such that women reported more defensive coping than men, at time 1  $F(1, 257) = 4.04, p < .05, pr = -.12$ , and time 2,  $F(1, 254) = 4.95, p < .05, pr = -.14$ . No other effects of sex emerged in the study.

TABLE 2

Predicting time 2 defensive coping	<i>F</i>	<i>df</i>	Partial <i>r</i>
Prospective effects of autonomy and control on defensive coping			
Time 1			
Defensive coping	65.62***	1,256	.45
Autonomy	5.54*	1,256	-.15
Control	4.28*	1,256	.13
Autonomy × control	4.26*	1,253	.13
Prospective effect of the synergistic contrast (high autonomy/low control versus all others) on defensive coping			
Time 1			
Defensive coping	66.12***	1,257	.45
Synergistic contrast	8.87**	1,257	.18

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

A similar analysis examined concurrent effects at time 2, with defensive coping from time 2 as the criterion, and autonomy, control, and sex from time 2 as predictors. Results are presented in the lower portion of Table 1. Similarly, autonomy was associated with less defensive coping, whereas control was associated with more defensive coping. Again, the autonomy × control interaction did not approach significance. Thus, when examined concurrently, autonomy and control were each independently associated with defensive coping.

Turning to the prospective analysis, our central prediction was that self-determined individuals (those characterized by high autonomy and low control) would exhibit less defensive coping over time relative to other individuals. In other words, it may be that both an orientation toward growth and an orientation away from ego-involvement are necessary to decrease defensive coping. Accordingly, the defensive coping index from time 2 served as the criterion in a hierarchical multiple regression analysis. The following variables were entered simultaneously at step 1: defensive coping from time 1, sex, autonomy orientation from time 1, and control orientation from time 1. At step 2, product terms that carried the two-way interactions of sex × control, sex × autonomy, and autonomy × control were entered simultaneously. At step 3, the product term representing the three-way interaction between sex, autonomy, and control was entered. Results are presented in the upper portion of Table 2.

As shown, defensive coping from time 1 positively predicted defensive coping at time 2. More interestingly, autonomy and control each reliably predicted defensiveness at time 2, but in opposite directions. Higher autonomy was associated with less defensiveness over time, whereas higher control orientation was associated with more defensiveness over time. At

TABLE 3  
 Mean Levels of Defensive Coping Over Time as a  
 Function of Autonomy and Control Orientations

Control	Autonomy	
	Low	High
Low	22.40	19.79
High	22.49	22.41

step 2, the autonomy  $\times$  control interaction was significant, indicating that the negative relation between autonomy and defensiveness increased with control orientation. No other effects on defensive coping approached significance ( $F_s < 1$ ).

To examine more clearly the effect of causality orientations on defensive coping, the predicted defensive coping scores were derived from the regression equation at step 2 (for procedure, see Cohen and Cohen, 1983, pp. 313–325). Table 3 displays these means as a function of high and low levels (one standard deviation above and one standard deviation below the mean, respectively) for autonomy and control orientations.

A direct test of the synergistic pattern involves a contrast of those who are high in autonomy and low in control compared to all other participants. Accordingly, a contrast variable was computed by assigning a  $-3$  to participants who were above the median on autonomy and below the median on control; all remaining participants were assigned the value of 1. This contrast variable was entered in a hierarchical regression together with sex and defensive coping from time 1 as predictors at step 1 and defensive coping from time 2 as the criterion. At step 2, the product of sex  $\times$  contrast was entered. Results are presented in the lower portion of Table 2. As shown, the contrast significantly predicted defensive coping over time. Clearly, individuals who were both high in autonomy and low in control became less defensive over time compared to all other individuals.<sup>4</sup>

Taken together, the present results indicate that autonomy and control are independently associated with concurrent defensive coping. However, over

<sup>4</sup> Three additional hierarchical multiple regression analyses were performed, identical to those described above except that denial, behavioral disengagement, and mental disengagement from time 2 now served as the criterion, controlling for the appropriate subscale score from time 1. Autonomy was associated with less denial and less behavioral disengagement over time, whereas control was associated with more denial over time. The autonomy  $\times$  control interaction was significant for denial and, although in the same direction, was not significant for behavioral and mental disengagement. Thus, the defensive coping results may be more strongly due to the denial subscale. Of the three subscales, mental disengagement, which was lowest in internal reliability, also yielded the weakest results.



time, a synergistic relationship emerges such that both an orientation toward interest and growth and an orientation away from pressure and ego-involvement were necessary to reduce defensive coping. One criticism of these results is that self-determined individuals may be less likely to engage in all forms of coping, rather than specifically less defensive coping. If so, one might argue that self-determined individuals merely experience less stress than other individuals. Accordingly, similar regression analyses were conducted on each of the three other COPE factors (positive approach, support-seeking, and religion). None of these analyses yielded any significant effects of either autonomy or control orientations ( $ps > .18$ ). Regression analyses of the individual coping strategies yielded two effects: Participants higher in autonomy orientation reported more planning ( $p < .05$ ) and somewhat greater seeking of support for instrumental reasons ( $p < .08$ ) at time 2. Clearly, then, the effects of autonomy and control are specific to less defensive (or avoidant) coping strategies; strategies which serve to block the stressor from one's awareness, either mentally or behaviorally.

An implicit issue that deserves mention involves our assessment of defensive coping as a trait. As Carver *et al.*, (1989) explain, when assessing a dispositional coping style, the items are framed in terms of what the person usually does when under stress. When assessing situational responses, the items are framed in terms of what the person did (or is currently doing) in a specific episode or frame of time. Although we assessed dispositional coping tendencies, our results do not imply that participants abandoned or acquired new dispositional styles of coping over an academic semester, but rather that some participants endorsed their existing coping strategies even more strongly after a semester at college. Most participants reported more defensive coping near the end of the semester,  $F(1, 259) = 3.81, p < .05$ , with the exception of those individuals who were high in autonomy and low in control at time 1.

The present results merge nicely with Knee and Zuckerman (1996), who showed that individuals high in autonomy and low in control did not exhibit self-enhancing attributions after succeeding or self-protective attributions after failing, whereas all other participants did. Their design was experimental and defensive attributions were assessed after manipulated performance. In the present study, the design was prospective and defensive coping strategies were assessed near the beginning and end of a first semester at college. Together, these two studies provide strong support for a synergistic relation between causality orientations and defensive processes. But what about other esteem-maintenance strategies?

### *Self-Handicapping*

Concurrent and prospective effects of causality orientations on self-handicapping were examined. To examine concurrent effects at time 1, a hierarchi-

TABLE 4  
 Concurrent and Prospective Effects of Autonomy and Control on Self-Handicapping

Predicting time 1 self-handicapping	<i>F</i>	<i>df</i>	Partial <i>r</i>
Time 1			
Autonomy	12.22***	1,258	-.21
Control	14.35***	1,258	.23
Autonomy × control	2.51	1,255	.10
Predicting subsequent self-handicapping			
Time 1			
Self-handicapping	145.09***	1,144	.71
Time 2			
Autonomy	5.02*	1,142	-.18
Control	<1	1,142	.05
Autonomy × control	<1	1,139	.08

\*  $p < .05$ .

\*\*\*  $p < .001$ .

cal multiple regression analysis was performed with self-handicapping from time 1 as the criterion. Sex, autonomy, and control (all from time 1) were entered simultaneously at step 1, followed at step 2 by the three product terms that represented all possible two-way interactions. Results are reported in Table 4. Autonomy was negatively associated with concurrent handicapping, whereas control was positively associated with concurrent handicapping. The interaction between autonomy and control was not significant ( $p = .11$ ). A more precise test involved a synergistic contrast. The predicted means (derived from the prediction equation at step 2) are shown in Table 5. We regressed self-handicapping at time 1 on the synergistic contrast (high autonomy/low control versus all others), sex (entered simultaneously at step 1), and on the sex × contrast interaction (entered at step 2). The contrast was significant,  $F(1, 258) = 22.02$ ,  $p < .001$ , partial  $r = .28$ , indicating that individuals who were high in autonomy and low in control reported less self-handicapping compared to all other participants. No other effects approached significance ( $F_s < 1$ ).

To examine prospective effects of causality orientations, a hierarchical multiple regression analysis was performed with subsequent self-handicap-

TABLE 5  
 Mean Levels of Concurrent Self-Handicapping as  
 a Function of Autonomy and Control Orientations

Control	Autonomy	
	Low	High
Low	60.06	52.29
High	63.20	60.24

ping as the criterion. Self-handicapping and sex (from time 1) were entered at step 1, followed by autonomy and control (from time 2) at step 2. The three product terms representing the two-way interactions between sex, autonomy, and control were entered at step 3. As shown in the lower portion of Table 4, baseline handicapping predicted handicapping during the spring. More importantly, higher autonomy was associated with decreased handicapping over time. No other effects approached significance ( $F_s < 1$ ).

In summary, we found strong support for a synergistic relationship between causality orientations and concurrent self-handicapping. When examined prospectively, self-handicapping decreased over a period of 7 months,  $F(1, 146) = 5.33, p < .05$ , and support for the synergistic model did not emerge. Interestingly, this analysis showed that autonomy alone was sufficient to reduce self-handicapping over time.<sup>5</sup>

## CONCLUSION

Previous work examined the implications of autonomy and control orientations for personal values (Kasser & Ryan, 1993), personality integration (Koestner *et al.*, 1992), achievement behavior (Koestner & Zuckerman, 1994), health (Zuckerman, Knee, & Kieffer, 1996), and performance attributions (Knee & Zuckerman, 1996). The present work found that self-determination is associated with a less defensive approach to stressful experiences. Turning first to defensive coping, higher autonomy and lower control orientations were independently associated with less defensive coping when examined concurrently. When examined prospectively, both high autonomy and low control were necessary to reduce defensive coping relative to other individuals. Specifically, individuals with the unique combination of high autonomy and low control engaged in less defensive coping (particularly less denial) over time relative to everyone else. This synergistic effect is consistent with earlier work which found that those high in autonomy and low in control display no self-serving bias, whereas all other individuals generally do.

Turning to self-handicapping as another potentially defensive tendency, it was found that self-determined individuals exhibit less self-handicapping as well. Specifically, individuals high in autonomy and low in control displayed less self-handicapping relative to all other participants when examined concurrently. When examined prospectively, autonomy, irrespective of control, was associated with less self-handicapping.

A strong and weak model of the effects of causality orientations can thus

<sup>5</sup> We also conducted a prospective analysis on subsequent self-handicapping as a function of autonomy and control from time 1 in which no effects of autonomy or control emerged. We feel that given the reliability of the measures involved, it would be unrealistic to expect prospective effects over a period of 7 months, particularly since our subsequent sample was much smaller.

be offered. The strong model requires both high autonomy and low control to eliminate defensive strategies. The weak model requires high autonomy *or* low control (or both) to eliminate defensive strategies. Both models are consistent with the proposition that the experience of autonomy (interest and choice) and the absence of control (pressure and coercion) are associated with less defensive behavior. Further, both models have interesting implications with regard to the relation between illusions and health. Individuals who are high in autonomy and low in control, according to self-determination theory, are thought to exhibit optimal self-regulation and psychological development. Yet, contrary to some theoretical positions that advocate illusions as a hallmark of well-being (Taylor & Brown, 1988), these self-determined individuals exhibit fewer self-enhancing attributions after success, fewer self-protective attributions after failure, less defensive coping strategies (e.g., denial), and less self-handicapping compared to all other individuals. Elsewhere, it has been shown that self-determined individuals also exhibit better health (Kasser & Ryan, 1996; Sheldon & Kasser, 1995). At the very least then, these findings imply that self-determined individuals do not need positive illusions to be healthy.

The present work mandates continued exploration of the nondefensive personality from several directions. First, it may be fruitful to investigate whether effects from situational manipulations of interest and pressure parallel the dispositional effects found on defensive strategies. Theoretically, the nondefensive personality evolves from contexts that promote and encourage interest, autonomy, and choice, and in this way, provide the ingredients necessary for psychological growth and development. It stands to reason, therefore, that situations that afford more choice and less pressure will yield less defensive behavior. Second, the present findings may generalize to interpersonal relations. A body of relationship research has suggested that satisfying close relationships are characterized by defensive illusions that serve to quell doubt and uncertainty about one's partner (Murray & Holmes, 1993, 1994; Murray, Holmes, & Griffin, 1996). Interestingly, the causality orientations literature indicates that autonomous reasons for being in close relationships are associated with stronger love and satisfaction in dating relationships and marriages (Blais, Sabourin, Boucher, & Vallerand, 1990; Rempel, Holmes, & Zanna, 1985; Seligman, Fazio, & Zanna, 1980). Furthermore, recent research has demonstrated that autonomy is associated with more positive and honest social interaction, whereas control orientation relates to a defensive pattern of everyday social functioning (Hodgins, Koestner, & Duncan, 1996). We have already shown that individuals who are high in autonomy and low in control display fewer defensive illusions. Similarly, self-determined individuals may possess less illusory views of their relationship partners, because they tend to perceive fewer threats to self-esteem and tend to engage in more authentic social interaction. An interesting parallel emerges here between how illusions impact general health, how they impact

the quality of close relationships, and the moderating role of the self-determined personality for both phenomena. Inasmuch as self-determined individuals maintain health and optimal development in the absence of illusions and defenses, self-determined individuals may maintain healthy and satisfying relationships in the absence of illusions about their partners.

Clearly, there is much potential for future research in these areas. In the interim, if we pursue interest, choice, and organismic growth, perhaps we can become less concerned with defending the self and more concerned with developing it.

## APPENDIX A

### Items from the COPE used to Measure Defensive Coping

#### Denial

- I say to myself "this isn't real."
- I refuse to believe that it has happened.
- I pretend that it hasn't really happened.
- I act as though it hasn't even happened.

#### Behavioral disengagement

- I admit to myself that I can't deal with it and I quit trying.
- I just give up trying to reach my goal.
- I give up the attempt to get what I want.
- I reduce the amount of effort I'm putting into solving the problem.

#### Mental disengagement

- I turn to work or other substitute activities to take my mind off things.
- I daydream about things other than this.
- I sleep more than usual.
- I go to movies or watch TV, to think about it less.

## APPENDIX B

### Sample Autonomy and Control Items from the General Causality Orientations Scale (Deci & Ryan, 1985b)

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) I wonder if the new work will be interesting. (Autonomy)
 

1	2	3	4	5	6	7
very unlikely						very likely
  - b) Will I make more at this position? (Control)
 

1	2	3	4	5	6	7
very unlikely						very likely
2. You have just received the results of a test you took, and discovered that you did very poorly. Your initial reaction is likely to be:
  - a) "I wonder how it is I did so poorly," and feel disappointed. (Autonomy)
 

1	2	3	4	5	6	7
very unlikely						very likely
  - b) "That stupid test doesn't show anything," and feel angry. (Control)
 

1	2	3	4	5	6	7
very unlikely						very likely

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