

## Interpersonal relationships and irrationality as predictors of life satisfaction

JEFFREY J. FROH<sup>1</sup>, CHRISTOPHER J. FIVES<sup>2</sup>, J. RYAN FULLER<sup>2,3</sup>,  
MATTHEW D. JACOFISKY<sup>2</sup>, MARK D. TERJESSEN<sup>2</sup>, & CHARLES YURKEWICZ<sup>2</sup>

<sup>1</sup>*Hofstra University, New York, USA*, <sup>2</sup>*St. John's University, New York, USA*, and <sup>3</sup>*The Albert Ellis Institute, New York, USA*

### Abstract

This study examined the association among interpersonal relationships, irrational beliefs, and life satisfaction. Twenty-eight psychotherapy clients and 207 college undergraduates completed measures of interpersonal relations (Outcome Questionnaire; Lambert et al., 1996), irrationality (Rational Behavior Inventory; Shorkey & Whiteman, 1977), and life satisfaction (The Satisfaction with Life Scale; Diener, Emmons, Larsen, & Griffin, 1985). Results indicated that interpersonal relations predicted life satisfaction, whereas global irrationality was indirectly related to life satisfaction. Specifically, interpersonal relations mediated the association between global irrationality and life satisfaction. Clinicians aiming to foster life satisfaction in their patients are encouraged to carefully assess their social functioning and utilize relationship-enhancing treatments. Targeting irrational thinking may also be necessary to set the stage for and support such interventions.

**Keywords:** *Interpersonal relationships, irrationality, life satisfaction, positive psychology, acceptance, well-being*

### Introduction

Prior to World War II, psychology had three main missions: (1) make the lives of all people fulfilling; (2) identify and enhance human excellence; and (3) treat pathology (Seligman, 2002; Seligman & Csikszentmihalyi, 2000). Nonetheless, clinical psychology has largely focused on decreasing maladaptive emotions and behaviors (Baltes, Gluck, & Kunzmann, 2002). Although symptom reduction is an integral part of treatment it may not be sufficient for facilitating life satisfaction or happiness (Jahoda, 1958; Snyder & McCollough, 2000). While treatments have been developed and evaluated for psychological disturbances, optimal functioning, until recently, has been largely ignored (Seligman & Csikszentmihalyi, 2000).

Happiness is conceptualized in the literature to consist of three components: (1) frequent positive affect, (2) infrequent negative affect, and (3) high life satisfaction (i.e., the cognitive component). Collectively, these three terms are called “subjective well-being” (for reviews, see Diener, 1984; Diener, Suh, Lucas, & Smith, 1999). Although related, the three aspects of subjective well-being appear

independent as multitrait-multimethod analyses conducted by Lucas, Diener and Suh (1996) showed that each of these variables were discernible from one another. Given the distinct nature of each, it is reasonable to conclude that alleviating negative affect may not result in an increase in positive affect and overall life satisfaction (Fuller, et al., 2003; Leaf, DiGiuseppe, Mass, & Alington, 1993; Terjesen & Froh, 2005). A simple conceptual model to understanding this is that by solely treating the negative affect, an individual may have simply gone from  $-5$  to  $0$  and *not* to  $+5$ . Support for this view comes from a great deal of empirical evidence demonstrating that negative and positive mood states are not mutually incompatible or polar opposites (for a review, see Watson, 2000).

This is not to say that happy people do not experience negative affect; indeed they do (Diener, 1984; Diener et al., 1999; Lyubomirsky, King, & Diener, 2005a). Happy individuals, however, experience infrequent negative mood states *and* frequent episodes of positive affect (Diener, Sandvik, & Pavot, 1991), suggesting that a life characterized solely by infrequent negative affect does not result in a sense of well-being. Consistent with the previously reviewed

definition of happiness, it seems that it is the *combination* of high life satisfaction, infrequent negative affect, *and* frequent positive affect that leads to the experience of happiness. Therefore, in order to promote positive psychological functioning among our clients it is important to target *both* negative sequelae and promote overall well-being (Jahoda, 1958; Snyder & McCullough, 2000).

#### *Cognitions, interpersonal relationships, and maladaptive emotion*

Congruent with the third mission of psychology, cognitive psychotherapies (e.g., Beck, Rush, Shaw, & Emery, 1979; Ellis, 1962, 1994) have attempted to identify dysfunctional cognitions, which are associated with particular psychopathologies: depression (Nelson, 1977; Thyer & Papsdorf, 1981), anxiety (Zwemer & Deffenbacher, 1984), and anger (DiGiuseppe & Froh, 2002; Hogg & Deffenbacher, 1988; Tafrate, Kassonove, & Dundin, 2002), and subsequently target them for change and replacement. One type of cognitive psychotherapy, Rational Emotive Behavior Therapy (REBT), suggests that emotional responses are the result of external or internal events (i.e., activating events) and the irrational beliefs, or evaluative cognitions, about those activating events. Proponents of REBT maintain that, “cognition is the most important proximal determinant of human emotion” (Walen, DiGiuseppe, & Dryden, 1992, p. 15) and “dysfunctional thinking is a major determinant of emotional distress” (Walen et al., 1992, p. 16). REBT theory suggests that if people replace their irrational beliefs with rational beliefs they will tend to experience healthy negative emotions (e.g., sadness, concern), rather than unhealthy negative emotions (e.g., depression, anxiety) or symptom distress. Certainly, challenging and replacing one’s irrational beliefs with cognitions that are more consistent with social reality has been shown to be an efficacious intervention for treating symptom distress (e.g., Chambless & Gillis, 1993).

Beyond faulty cognitions, individuals who frequently experience negative affect also tend to experience poor interpersonal relationships. “The depressed patient generally does not function at his normal level in nearly all areas of his life, including his social life” (Beck et al., 1979, p. 204). Two possible reasons why negative affect and quality of interpersonal relationships are associated are the following. First, poor interpersonal relationships may lead to emotional disturbance. Joiner (2002) suggested that social withdrawal is a risk factor, and not just a consequence of depression. A study by Vanderhorst and McLaren (2005) found that

having few social support systems was related to increased levels of depression and suicidal ideation. Moreover, high quality interpersonal relationships may mitigate the relationship between ethnicity (i.e., minority status) and depressive symptoms (Plant & Sachs-Ericsson, 2004). Research conducted by the sociologist Emile Durkheim (1951/1897, cited in Haidt, 2006) suggested that, “people who had fewer social constraints, bonds, and obligations were more likely to kill themselves” (p. 133). Consequently, it is likely that building strong and supportive interpersonal relationships reduces symptom distress, depression, and perhaps even suicide. The efficacy of interpersonal psychotherapy as a treatment for depression (Chambless et al., 1996; Elkin et al., 1989) supports this conclusion.

Second, high levels of emotionality may interfere with the initiation and maintenance of social relationships. Numerous studies have demonstrated the evocative function of emotion with negative agent affect evoking a complementary or similar emotion in observers. For example, agent anger can elicit fear as a complementary emotion (see Dimberg & Ohman, 1996, for a review) whereas agent sadness may rouse a similar feeling of melancholy in observers (Batson & Shaw, 1991). In both cases, the chronically angry or sad person is less likely to achieve successful relationships because of the negative feelings that they elicit in others, thus possibly attenuating the agent’s life satisfaction.

#### *Quality interpersonal relationships and well-being*

Consistent with the first mission of psychology (i.e., making the lives of all people fulfilling), recent research has demonstrated that socializing and expending resources to maintain and enhance social relationships are important components to well-being enhancement. According to Argyle (2001) “social relationships have a powerful effect on happiness and other aspects of well-being, and are perhaps its *greatest single cause*” (italics added, p. 71). Similarly, Myers (1992) stated, “short of torture, society’s worst punishment is solitary confinement” (p. 148). A voluminous literature does indeed support a strong relationship between social relationships, happiness, and well-being (Argyle, 2001; Diener, 1984; Diener & Seligman, 2002; Lyubomirsky et al., 2005a; Myers, 1992; Pincus & Sörensen, 2000). For instance, individuals in close relationships report better physical, mental, and emotional quality of life, as well as more adaptive coping responses to stress and adversity (Myers, 1992, 1999). Current research also suggests that quality interpersonal relationships predict both life satisfaction and negative symptomology

above and beyond having a sense of meaning in life (Froh & Terjesen, 2005). In short, strong social relationships seem to be robustly related to subjective well-being and an overall enhancement in quality of life.

### *Cognitions and well-being*

Unfortunately, little research has been carried out in order to identify specific cognitions that are predictive of happiness and life satisfaction. Lyubomirsky (2001) suggested a construal theory of happiness, proposing that in order “to understand why some people are happier than others, we must understand the *cognitive* and motivational processes that serve to maintain or enhance both enduring happiness and transient mood” (Lyubomirsky, 2001, p. 240, italics added). In line with Lyubomirsky’s logic that cognitions need to be investigated as predictors of subjective well-being, Shorkey and Reyes (1978) found a moderate association between cognitions and self-actualization, which is the maximum realization of our potentials, talents, and abilities (Maslow, 1954). Moreover, Lichter, Haye and Kammann (1980) discovered that a mere discussion of Dyer’s *Your erroneous zones* (1977), which is based on Ellis’ (1962) notion that feelings result from evaluations about an activating event, led to increases in happiness and satisfaction at both the 2 week post-test and a 6 week follow-up. In a second experiment, Lichter and colleagues (1980) found that the daily rehearsal of positive statements (e.g., I have confidence in my decisions) for 2 weeks led to significantly greater levels of happiness and less depression post-test for the treatment group compared to controls. Despite these implications mental health practitioners typically focus on reducing dysfunction without approximating optimal functioning (Jahoda, 1958; Seligman & Csikszentmihalyi, 2000). That is, changing the dysfunctional beliefs associated with negative affective and behavioral states is emphasized rather than directly fostering the development of positive psychological states (e.g., subjective well-being).

Cognitive restructuring is not limited to reducing maladaptive, unhealthy cognitions but also plays an essential role in some positive psychology interventions. In fact, optimism training has been empirically validated as an efficacious treatment for depression, as well as a means of increasing happiness (for a review, see Seligman, 1998). Empirical evidence also exists suggesting that the cognitive exercise of counting one’s blessings is associated with well-being, life satisfaction, and optimism (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2006). It should be noted that the cognitions targeted in

positive psychology interventions differ from those typically given focus in traditional cognitive restructuring treatments. More specifically, the cognitions targeted by positive psychologists appear to be directly related to life satisfaction (e.g., forgiveness, mindfulness, counting one’s blessings, and optimism for the past, present, and future, respectively) (Seligman, 2002), whereas thoughts targeted in cognitive psychotherapies, such as REBT, seem to relate more to dysfunctional behavior and emotions (Ellis, 1994).

Although some may argue that cognitive restructuring is needed to attain happiness, contraindicative evidence also exists. Rodrigue, Baz, Widows and Ehlers (2005) found that quality of life therapy was related to improvement in quality of life, mood disturbance, and social intimacy, whereas cognitive restructuring might not have been a necessary treatment component. Moreover, in a retrospective review of quantitative self-report mental health records, Leaf et al. (1993) found that a measure of satisfaction with life remained unchanged throughout therapy. In fact, the authors reported, “the clients who remained in treatment for long periods were typically more unhappy (lacking positive well-being) than distressed” (p. 499). In light of these findings, it is plausible that irrationality has a marginal relationship with life satisfaction. Cognitive restructuring, therefore, may be more beneficial for symptom reduction than enhancing life satisfaction.

### *The present study*

The purpose of the present study was to further clarify the relationship among interpersonal relationships, irrationality, and life satisfaction (i.e., one component of happiness). Given the vast amount of research supporting the link between quality of interpersonal relations and life satisfaction, and the notion that symptom reduction *alone* is minimally related to well-being, it was expected that quality of interpersonal relationships would predict life satisfaction. It was further anticipated that interpersonal relationships would contribute substantially more to the prediction of life satisfaction than global irrationality. Because the cognitions generally targeted in cognitive behavioral treatments such as REBT appear more related to reducing symptom distress rather than directly increasing life satisfaction, it was hypothesized that irrational cognitions would not predict life satisfaction after controlling for quality of relationships. This is not to say that irrational cognitions are unrelated to life satisfaction. Instead, we anticipated that an association between overall maladaptive cognitions and satisfaction with life would be found, yet would be mediated by quality

of interpersonal relationships. For instance, we propose that individuals with irrational cognitions are more likely to display negative affect and dysfunctional behaviors, which may then decrease the quality of their social network. Specifically, the negative impact of their affective and behavioral tendencies on others may lead to a failure in establishing and sustaining meaningful relationships. In turn, poor relationships contribute to low life satisfaction.

Important treatment implications can be derived from the results of this study. If maladaptive cognitions are found to be unrelated to life satisfaction once quality of interpersonal relationships are controlled for, then it would be advisable for practitioners of cognitive-behavior therapy to incorporate relationship building interventions (e.g., interpersonal psychotherapy) in their treatment plans if the therapeutic goal is the attainment of happiness and not merely symptom reduction. However, if it is found that irrational thinking is indirectly associated with life satisfaction (i.e., quality of interpersonal relationships mediate the relationship between irrationality and life satisfaction), it may suggest that irrational cognitions need to be addressed not only to reduce symptom distress, but to help set the stage for and increase the successfulness of life satisfaction enhancing interventions, such as relationship building.

## Method

### *Participants*

Two hundred and seven undergraduate students attending three New York based academic institutions volunteered to participate in the study. Additionally, 28 patients were recruited from a non-profit outpatient training/treatment center, yielding an overall sample of 235 participants. The sample had a mean age of 23.27 ( $SD = 7.7$ ), with 16 participants failing to report on age. Seventy-nine percent of the sample was female. The ethnic makeup of the sample included 75.7% Caucasian, 8.9% African American, 5.5% Hispanic, 4.3% Asian, 0.9% American Indian, and 4.3% Other, with one participant failing to provide information about ethnicity.

### *Instruments*

*Rational Behavior Inventory.* The Rational Behavior Inventory (RBI; Shorkey & Whiteman, 1977) is a 37-item self-report measure of irrationality. The RBI is based on definitions of irrationality as conceptualized in Rational Emotive Behavioral Therapy (REBT) (Ellis, 1962). This measure consists of 11 subscales including: (1) catastrophizing, (2) guilt,

(3) perfectionism, (4) need for approval, (5) caring and helping, (6) blame and punishment, (7) inertia and avoidance, (8) independence, (9) self-downing, (10) projected misfortune, and (11) control of emotions. The RBI uses a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” An overall rating of irrationality (i.e., RBI Total Score; RBI TOT) may be obtained by summing the scores for all 11 factors of the RBI, with higher scores reflecting greater levels of irrationality.

Regarding reliability, the RBI TOT has been shown to demonstrate a split-half reliability coefficient of 0.71 (Shorkey & Whiteman, 1977) and internal consistency for the total score is strong, with alpha coefficients ranging from 0.82 to 0.86 (Sanderman, Mersch, Van der Sleen, Emmelkamp, & Ormel, 1987). Test-retest reliability for the RBI TOT has been shown to be adequate, with coefficients of 0.82 and 0.71 at 3-day and 10-day follow-up administrations, respectively. Significant correlations with various measures of trait and state anxiety in both clinical and non-clinical samples, as well as other personality measures (e.g., authoritarianism, dogmatism, and self-esteem) indicate strong concurrent and convergent validity (Shorkey & Whiteman, 1977).

*Outcome Questionnaire.* The Outcome Questionnaire (OQ; Lambert et al., 1996) is a 45-item self-report measure designed for repeated administration before, during, and at treatment termination to assess common symptoms across a wide range of adult pathology and role functioning. The OQ utilizes a 5-point Likert scale ranging from “never” to “almost always,” which indicates how frequently the individual thinks, feels, or behaves in a particular way. A total score can be obtained by summing up all of the items. In addition, the OQ is comprised of three separate subscales including Symptom Distress (SD) (i.e., degree of depression, anxiety, stress, substance abuse, and suicidality), Interpersonal Relations (IR) (i.e., satisfaction with friendships and family and marital relationships), and performance of Social Roles (SR) (i.e., satisfaction with work relations and leisure activities). For each scale of the OQ, including the total score, higher scores are indicative of greater levels of disturbance.

The authors (Lambert et al., 1996) report that internal consistency and test-retest reliability have been assessed with clinical and non-clinical (i.e., undergraduate students) populations. Internal consistency coefficients obtained for a clinical population were: OQ total score ( $\alpha = 0.93$ ), SD ( $\alpha = 0.91$ ), IR ( $\alpha = 0.74$ ), and SR ( $\alpha = 0.71$ ). Similarly, internal consistency coefficients for a non-clinical student

population were as follows: OQ total score ( $\alpha = 0.93$ ), SD ( $\alpha = 0.92$ ), IR ( $\alpha = 0.74$ ), and SR ( $\alpha = 0.70$ ). Test-retest reliability obtained 3 weeks after an initial administration using only a non-clinical student population were as follows: OQ total score ( $\alpha = 0.84$ ), SD ( $\alpha = 0.78$ ), IR ( $\alpha = 0.80$ ), and SR ( $\alpha = 0.82$ ).

Concurrent and construct validity of the OQ have been assessed with student, clinical, and community populations. Moderate to high validity coefficients (i.e., 0.53 to 0.88) have been found between the OQ total score and various criterion measures, whereas somewhat lower validity coefficients have been reported for the subscales (i.e., 0.41 to 0.71). Construct validity has also been established by the scale's ability to distinguish between student, clinical, and community samples, as well as its sensitivity in detecting changes during treatment (Lambert et al., 1996).

*The Satisfaction with Life Scale.* The Satisfaction with Life Scale (SWLS; Diener et al., 1985) is a 5-item self-report measure. The scale uses a 7-point Likert scale, ranging from "strongly disagree" to "strongly agree," and reflects the degree of agreement with statements relating to global life satisfaction. Scores on this scale range from 5 to 35 with higher scores indicative of greater levels of overall life satisfaction. The SWLS is internally consistent, with reported alpha coefficients exceeding 0.80 across numerous studies (Pavot & Diener, 1993). This instrument has adequate test-retest reliability, with the original validation sample yielding test-retest correlation coefficients of 0.82 over a 2-month period.

Regarding validity, scores on the SWLS have been demonstrated to significantly correlate with other measures of subjective well-being (e.g., Rosenberg Self-Esteem Scale) and personality characteristics related to positive psychological health (e.g., high extraversion and low neuroticism) (Diener et al., 1985). Additional evidence of construct validity comes from the instrument's sensitivity to life changes and the ability of the scale to discriminate between populations expected to differ in terms of life satisfaction (e.g., prisoners and psychiatric patients) (Pavot & Diener, 1993).

### Procedure

Participation was voluntary and no compensation was given. Prior to completing the measures, informed consent was obtained by all participants. Upon obtaining consent, packets consisting of a demographic questionnaire, the RBI, the OQ, and the SWLS were distributed. Given the sensitive nature of the constructs assessed (e.g., suicidality)

and in keeping with best practices and ethical guidelines, participants received a list of potential referral sources if they determined that they were in need of additional therapeutic resources. The measures were given in all possible orders to counterbalance any potential order effects.

## Results

### Preliminary analyses

*Data transformation.* Prior to running analyses it was decided that ethnicity and study site would be transformed due to the homogeneous nature and limited number of cases (e.g., <30) found for some levels of these variables. Specifically, the six categories of ethnicity were collapsed into two categories: white and non-white, and the four study site categories were collapsed into two categories: non-clinical and clinical. The following dummy codes were entered into the regression equations: female = 0, male = 1; white = 0, non-white = 1; and non-clinical = 0, clinical = 1. Any missing cases were deleted listwise.

*Internal reliabilities and correlations.* Composite scores were created for the SWLS, RBI TOT, and IR scale of the OQ. The created composites were based on previous findings on the factor structure of these measures (Diener et al., 1985; Lambert et al., 1996; Shorkey & Whiteman, 1977). Because this study focused on the relationship between global irrationality and life satisfaction, composite scores were not created for the 11 original subscales of the RBI. Noteworthy is that the factor structure of the RBI was inconsistent with that reported by the authors, which may be due to sampling variation. Internal reliability analyses conducted for each scale revealed the following: SWLS ( $\alpha = 0.89$ ), RBI TOT ( $\alpha = 0.88$ ), and IR ( $\alpha = 0.79$ ). All scales demonstrated good reliability and were comparable to previously reported reliability data. Moreover, all correlations among study variables were significant (see Table I). Noteworthy is the high association between the SWLS and the IR scale ( $r = -0.62$ ). Although these variables are highly correlated, they also appear to be independent constructs, because the SWLS, unlike the IR scale, assesses general life satisfaction and does not include items specific to interpersonal relationships.

*Descriptive statistics and main effects.* Total score sample means and standard deviations for all scales are reported in Table I. A series of one-way ANOVAs were conducted to determine if there were any main effects of demographic variables on

Table I. Total score sample means, standard deviations, and correlations among study variables.

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. SWLS	23.57	6.75	–	–0.27*	–0.62*
2. RBI TOT	104.21	16.51		–	0.44*
3. IR	11.54	6.18			–

Note: SWLS = The Satisfaction with Life Scale; RBI TOT = Rational Behavior Inventory Total Score; IR = Interpersonal Relations.  
\* $p < 0.01$ .

Table II. Summary of main effects of demographic variables on the satisfaction with life scale.

Variable	<i>M</i>	<i>SD</i>	<i>F</i>	$\eta_p^2$
Gender			7.32*	0.03
Male	21.32	6.79		
Female	24.20	6.62		
Ethnicity			9.18*	0.04
White	24.29	6.56		
Non-white	21.18	6.83		
Study site			7.18*	0.03
Clinical	20.04	7.50		
Non-clinical	23.97	6.56		

\* $p < 0.01$ .

the SWLS that might confound the results. Main effects were shown for gender,  $F(1, 226) = 7.32$ ,  $p = 0.007$ , partial  $\eta^2 = 0.03$ ; ethnicity,  $F(1, 225) = 9.18$ ,  $p = 0.003$ , partial  $\eta^2 = 0.04$ ; and study site,  $F(1, 226) = 7.18$ ,  $p = 0.008$ , partial  $\eta^2 = 0.03$ . Inconsistent with prior research suggesting that men and women are about equally as happy (Keltner & Harker, 2001), female participants were found to have slightly higher levels of life satisfaction than male participants. With respect to ethnicity, white participants reported somewhat higher levels of satisfaction with life than non-white participants consistent with previous research (Campbell, Converse, & Rodgers, 1976; Moller, 1989, as cited in Argyle, 1999). Lastly, participants from non-clinical settings reported higher levels of life satisfaction than individuals from the clinical setting. This would make sense given that participants seeking therapy were presumably doing so because they were not satisfied with some aspect of their lives. A summary of these main effects is shown in Table II.

### Predicting life satisfaction

Hierarchical regression analysis was used to test the first two hypotheses that: (1) quality of interpersonal relationships would significantly predict life satisfaction, and (2) irrationality would not predict life

Table III. Hierarchical regression analysis summary for interpersonal relations and irrationality predicting satisfaction with life.

Variable	<i>R</i> <sup>2</sup>	$\Delta R^2$	$\Delta F$	$\beta$	<i>sr</i> <sup>2</sup>
Step 1	0.12	0.12	10.22**		
Gender				–0.11*	0.01
Ethnicity				–0.13*	0.02
Study site				–0.12*	0.01
Step 2	0.42	0.30	109.64**		
IR				–0.54**	0.20
Step 3	0.42	0.00	1.10		
RBI TOT				–0.06	0.00

Note: IR = Interpersonal Relations Scale; RBI TOT = Rational Behavior Inventory Total Score.

\* $p < 0.05$ . \*\* $p < 0.001$ .

satisfaction after controlling for quality of relationships. To control for the previously reviewed main effects, gender, ethnicity, and study site were controlled for when predicting satisfaction with life. Statistically significant findings over and above the effects of these demographic variables are reported and the results of these tests are summarized in Table III.

As expected, IR predicted the SWLS variable,  $R^2$  change = 0.30,  $F(1, 216) = 109.64$ ,  $p < 0.001$ . In addition, consistent with the second hypothesis, the RBI TOT failed to significantly predict the SWLS variable after controlling for the IR variable,  $R^2$  change = 0.00,  $F(1, 215) = 1.10$ ,  $p = 0.296$ . An examination of squared semi-partial correlations revealed that after removing the common variance between the IR and RBI TOT variables, IR accounted for approximately 20% of the variance in SWLS, whereas the RBI TOT variable explained minimal SWLS variance (i.e., <1%).

Although this finding points to the importance of interpersonal relationships in explaining satisfaction with life, it does not necessarily follow that irrational beliefs are unimportant in determining life satisfaction. It may be that irrational cognitions influence life satisfaction indirectly through their association with interpersonal relationships. In other words, individuals characterized by higher levels of irrational thinking may be more likely to experience relationship difficulties, which in turn results in lower life satisfaction. To test this third hypothesis a mediation analysis was conducted following the recommendations of Judd and Kenny (1981).

### Interpersonal relationships as a mediator

Judd and Kenny (1981) have indicated that mediation can be tested by estimating the following three regression equations: (1) regressing the mediator on the independent variable, (2) regressing the

dependent variable on the independent variable, and (3) regressing the dependent variable on both the independent variable and on the mediator. To establish mediation the independent variable should affect the mediator in the first equation and the independent variable must affect the dependent variable in the second equation. In addition, the mediator must affect the dependent variable in the third equation. Mediation is shown when these conditions are in the predicted direction and the influence of the independent variable on the dependent variable is less in the third equation than in the second (Baron & Kenny, 1986). As with the previous analyses for the SWLS variable, gender, ethnicity, and study site were entered as the first set of predictors for all of the following tests. The first condition necessary for mediation was met as the RBI TOT significantly predicted IR,  $\beta = 0.48$ ,  $t(222) = 8.22$ ,  $p < 0.001$ , and explained a significant portion of variance in this variable,  $R^2$  change = 0.22,  $F(1, 222) = 67.53$ ,  $p < 0.001$ . Likewise, the second condition was met as the RBI TOT significantly predicted the SWLS variable,  $\beta = -0.31$ ,  $t(220) = -5.11$ ,  $p < 0.001$ , and explained a significant amount of variance in life satisfaction,  $R^2$  change = 0.09,  $F(1, 220) = 26.07$ ,  $p < 0.001$ . To establish the remaining conditions required for mediation, the SWLS variable was regressed on both the independent variable (i.e., RBI TOT) and the potential mediator (i.e., IR). As expected, this equation was significant,  $R^2$  change = 0.30,  $F(2, 215) = 55.39$ ,  $p < 0.001$ . Once IR was entered into the model, the relationship between the RBI TOT and SWLS variable dropped from  $\beta = -0.31$  to  $\beta = -0.06$ . Whereas RBI TOT no longer affected SWLS ( $p = 0.296$ ), the association between IR and SWLS remained strong and significant ( $\beta = -0.54$ ,  $p < 0.001$ ). Sobel's test (Sobel, 1982) indicated significant mediation ( $z = -5.91$ ,  $p < 0.001$ ). Collectively these results demonstrate that quality of interpersonal relationships mediated the relationship between global irrationality and life satisfaction (see Figure 1).

In sum, the above findings support the contention that quality of interpersonal relationships predicts life satisfaction, whereas overall irrationality failed to predict life satisfaction after controlling for the influence of interpersonal relationships. The findings of a mediation analysis, however, are consistent with the theory that overall irrational thinking influences life satisfaction indirectly through its association with interpersonal relationships. It appears that individuals with higher levels of irrationality may be more likely to experience relationship difficulties, subsequently engendering lower life satisfaction.

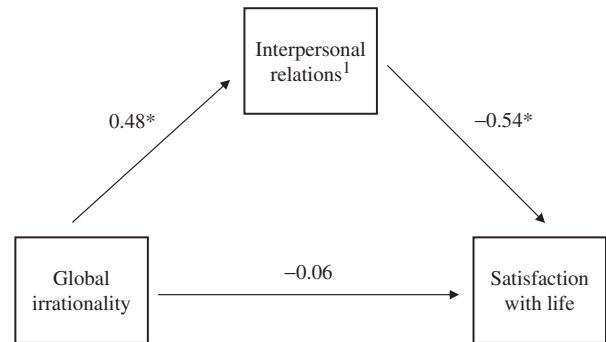


Figure 1. Path model from global irrationality to satisfaction with life. \* $p < 0.001$ .

## Discussion

From its inception psychology had three overriding missions, which gave attention to both mitigating pathology and approximating positive psychological functioning (Seligman, 2002; Seligman & Csikszentmihalyi, 2000). Some have suggested that psychology has devoted a vast amount of its resources to therapeutic interventions that focus primarily on symptom reduction (Jahoda, 1958; Seligman & Csikszentmihalyi, 2000; Snyder & McCollough, 2000). As a result, great strides have been made in treatment, as evidenced by the development of numerous empirically-based interventions (Seligman, 1994, 2002; Seligman & Csikszentmihalyi, 2000). Nonetheless, since decreasing negative symptomology does not necessarily guarantee an improvement in the quality of one's life (Fuller et al., 2003; Jahoda, 1958; Leaf et al., 1993), it is imperative that sufficient attention also be given to the advancement of life satisfaction.

According to Baumeister and Leary's (1995) belongingness hypothesis, maintaining ongoing, meaningful, reciprocal, and caring relationships with others is intrinsic to the human condition. Consistent with this view and the findings of numerous investigations (Argyle, 2001; Diener, 1984; Diener & Seligman, 2002; Lyubomirsky et al., 2005a; Myers, 1992; Pinquart & Sörensen, 2000), the results of the current study suggest that the quality of social relationships in a person's life is strongly associated with his or her life satisfaction. Given this finding, clinicians are encouraged to dedicate careful attention to the interpersonal functioning of their patients. Relationships with significant others, including colleagues, friends, family members, and romantic partners should be assessed on an ongoing basis and relationship-enhancing interventions (e.g., active-constructive responding; Gable, Reis, Impett, & Asher, 2004) should be utilized in treatment. Therapeutic methods derived

from interpersonal psychotherapy, such as communication analysis may be particularly useful.

For many in psychotherapy, relationship-enhancing interventions will probably not be successful unless underlying psychopathology is addressed prior or simultaneously. Our data indicated that the association between irrational cognitions and life satisfaction is mediated by quality of interpersonal relationships. This is consistent with the view that individuals with higher levels of irrationality are more likely to experience relationship difficulties, which is then associated with a lower degree of life satisfaction. In line with the theory of REBT and the evocative function of emotion (Keltner & Kring, 1998), it may be that individuals with irrational cognitions are more likely to experience and demonstrate unhelpful negative emotions and maladaptive behaviors, which in turn interferes with the initiation and maintenance of social relationships. For example, high levels of irrationality are believed to lead to dysfunctional emotions such as anger, anxiety, and depression; as well as unhelpful behaviors such as aggressiveness, social withdrawal, and excessive emotional dependency. These emotions and behaviors are likely to foster unpleasant feelings in others, thus contributing to poor social relationships.

We originally aimed to investigate a more complex model that incorporated mood as a possible intervening variable between irrationality and interpersonal relationships. However, mood, as measured by the Symptom Distress scale of the OQ (Lambert et al., 1996), was not used in analyses due to poor reliability ( $\alpha = 0.32$ ) in the current sample. Therefore, although we believe mood may explain the link between irrationality and interpersonal relationships and may ultimately clarify why interpersonal relationships mediate the association between irrationality and life satisfaction, further research is needed to test this hypothesis.

If interpersonal relationships do indeed mediate an association between irrational beliefs and life satisfaction, targeting irrational cognitions and associated pathologies may be necessary to set the stage for and increase the successfulness of relationship-enhancing treatments so that a higher level of life satisfaction can be achieved. To this end, traditional cognitive-behavioral interventions such as cognitive restructuring, relaxation training, and exposure will be useful. In addition, consistent with the functional analytic psychotherapy approach (FAP; Kohlenberg & Tsai, 1991), dysfunctional interpersonal problems stemming from psychopathology could also be identified, addressed, and ultimately changed by taking advantage of therapist–client relationship learning opportunities (TCRLOs). This method is based on the idea that the relationship between the

therapist and client is a social environment that could potentially elicit and alter problematic interpersonal behavior as they occur within therapy sessions (Kohlenberg et al., 2004). It should be noted that we are not the first to advocate for the inclusion of cognitive and behavioral methods in positive psychology interventions as other authors such as Frisch (2006) have discussed the role of emotional management skills in the pursuit of life satisfaction.

Although the mediational analysis results of this study are consistent with our *a priori* hypothesis, alternative interpretations are also plausible. For instance, it is possible that quality of interpersonal relationships influence both the degree of irrational thinking and overall satisfaction with life. In other words, the relationship between irrationality and life satisfaction may be spurious because it is confounded by a third variable, quality of interpersonal relationships. If such is the case, the use of relationship-strengthening techniques may have the effect of reducing irrational thinking without directly targeting such cognitions, while also contributing to the individual's overall satisfaction with life.

#### *Limitations and future directions*

Several limitations of the present research should be noted. First, generalizations based on the current findings should be made with caution because the majority of participants were female undergraduate college students. Although the nature of the sample impacts its external validity, the findings are not without merit, especially when interpreted in the context of psychology's mission to enhance the life satisfaction of *all* individuals. Future research should be carried out with varied populations (e.g., clinical and non-clinical) taking into account differences among individuals (e.g., gender, culture, SES, ethnicity, etc.).

In addition, only global irrationality, as based on the theory of REBT, was examined. Other types of cognitions relating to optimism (Seligman, 1998), gratitude (Emmons & McCullough, 2003; Froh et al., 2006), and best possible selves (Sheldon & Lyubomirsky, 2006), which may have a direct relationship with life satisfaction and happiness, should be empirically investigated. Indeed, “the subjective element is essential” (i.e., top-down processes) (Diener et al., 1999, p. 277) in understanding happiness, thus making the continued identification of specific cognitions held by happy people an important step in establishing the “good life.” Given that some suggest (Lyubomirsky, Sheldon, & Schkade, 2005b; Sheldon & Lyubomirsky, 2004) that 40% of happiness can be enhanced via intentional activity, it is plausible that

altering one's cognitions, either directly, or indirectly as a facilitating prerequisite, can lead to sustainable well-being and life satisfaction.

As previously stated, a comprehensive conceptualization of subjective well-being includes aspects of high positive affect, low negative affect, and high life satisfaction (Diener, 1984; Diener et al., 1999). The present investigators focused on life satisfaction, one of the three components of well-being. Therefore, future research should examine the effect of interpersonal relationships on all three dimensions. Future efforts should also focus on developing empirically supported treatments (Chambless, 1995) that would teach our patients the skill sets necessary for personal growth, human excellence, and life satisfaction.

The correlational and concurrent design of this study precludes conclusions concerning causality. To more clearly affirm the directionality among specific cognitive patterns, quality of interpersonal relationships, and life satisfaction, researchers are advised to use longitudinal research designs in future studies. This methodology would support recent efforts indicating that happiness indeed *causes* success such as relationships, objective health, income, and work performance (Lyubomirsky et al., 2005a). As discussed earlier, the inclusion of a mood indicator in future investigations is needed to clarify the mechanism by which irrational thinking might influence interpersonal relationships. The development and empirical analysis of more complex models that include mood may also help clarify whether the relationship between irrational beliefs and satisfaction with life is spurious or is indeed mediated by quality of interpersonal relationships. Experimental research could also be conducted to determine whether the enhancement of interpersonal relationships results in a reduction in irrational thinking and a concomitant increase in life satisfaction. Finally, the findings of this study were based solely on self-report data. Therefore, it could be argued that the associations found among quality of interpersonal relationships, irrational beliefs, and life satisfaction may be due to shared method variance. In future studies, researchers should consider making use of a multi-method multi-informant approach to assessing constructs of interest.

## Conclusion

In order to promote positive psychological functioning among patients, as well as individuals from other populations, clinicians should aim to mitigate negative symptoms *and* approximate life satisfaction and overall well-being (Jahoda, 1958; Seligman & Csikszentmihalyi, 2000). Specific to this latter goal and based on our findings, fostering strong

interpersonal relationships appears to be one way to maximize well-being. Therefore, therapists are advised to thoroughly assess interpersonal issues, establish treatment goals, and offer empirically supported treatments to enhance social functioning during the course of treatment. Traditional cognitive-behavior methods such as cognitive restructuring decrease negative symptoms and may also help support interventions aimed at improving interpersonal functioning and subsequent life satisfaction. Conversely, based on the previously noted alternative explanation of our mediational analyses, use of relationship-strengthening techniques may automatically reduce irrational thinking while also improving the individual's life satisfaction.

There is hope that psychotherapy patients can experience a sustainable increase in well-being if taught the proper skill set, particularly those related to relationship enhancement. In order for this to be achieved, the focus of psychology will need to shift from mere symptom reduction to an approach that integrates goals and treatment plans related to happiness. To achieve this aim, practitioners must keep in mind that:

*The key implications of this for practice are that the goals of intervention, within a therapeutic context at least, do not begin and end with the target of the client being symptom-free. Rather, the applied positive psychologist, working to facilitate the client's OVP (organismic valuing process), would not consider their work done when the disorder had been treated. Instead, they would continue through the zero point of neither ill-being nor well-being, and work with the goal of the facilitation of well-being (Joseph, Linley, Harwood, Lewis, & McCollam, in press, as cited in Linley & Joseph, 2004, p. 724).*

## Acknowledgements

We are most grateful to several anonymous reviewers who provided extremely helpful comments on earlier drafts of this manuscript.

## Note

1. Interpersonal relations mediates global irrationality-satisfaction with life ( $z = -5.91, p < 0.001$ ).

## References

- Argyle, M. (1999). Causes and correlates of happiness. In D. Kahneman, E. Diener & N. Schwarz (Eds), *Well-being: The foundations of hedonic psychology* (pp. 353–373). New York: Russell Sage Foundation.

- Argyle, M. (2001). *The psychology of happiness*. New York: Taylor & Francis Inc.
- Baltes, P. B., Gluck, J., & Kunzmann, U. (2002). Wisdom: Its structure and function in regulating successful life span development. In C. R. Snyder & S. J. Lopez (Eds), *Handbook of positive psychology* (pp. 327–347). New York: Oxford University Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Batson, C. D., & Shaw, L. L. (1991). Evidence for altruism: Toward a pluralism of prosocial motives. *Psychological Inquiry*, *2*, 107–122.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: The Guilford Press.
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life*. New York: Russell Sage Foundation.
- Chambless, D. L. (1995). Training in and dissemination of empirically-validated psychological treatments: Report and recommendations. *The Clinical Psychologist*, *48*, 3–24.
- Chambless, D. L., & Gillis, M. M. (1993). Cognitive therapy of anxiety disorders. *Journal of Consulting and Clinical Psychology*, *61*, 248–260.
- Chambless, D. L., Sanderson, W. C., Shoham, V., Johnson, S. B., Pope, K. S., Crits-Christoph, P., et al. (1996). An update on empirically validated therapies. *Clinical Psychologist*, *49*, 5–14.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*, 542–575.
- Diener, E., Emmons, R., Larsen, R., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*, 71–75.
- Diener, E., Sandvik, E., & Pavot, W. (1991). Happiness is the frequency, not the intensity, of positive versus negative affect. In F. Strack, M. Argyle & N. Schwarz (Eds), *Subjective well-being: An interdisciplinary perspective* (pp. 119–139). Oxford: Pergamon Press, Inc.
- Diener, E., & Seligman, M. (2002). Very happy people. *Psychological Reports*, *13*, 81–84.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, *125*, 276–302.
- DiGiuseppe, R., & Froh, J. J. (2002). What cognitions predict state anger? *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *20*, 133–150.
- Dimberg, U., & Ohman, A. (1996). Behold the wrath: Psychophysiological responses to facial stimuli. *Motivation and Emotion*, *20*, 149–182.
- Dyer, W. W. (1977). *Your erroneous zones*. London: Sphere Books.
- Elkin, I., Shea, M. T., Watkins, J. T., Imber, S. D., Sotsky, S. M., Collins, J. F., et al. (1989). National Institute of Mental Health treatment of depression collaborative research program: General effectiveness of treatment. *Archives of General Psychiatry*, *46*, 971–983.
- Ellis, A. (1962). *Reason and emotion in psychotherapy*. New York: Carol Publishing Group.
- Ellis, A. (1994). *Reason and emotion in psychotherapy: A comprehensive method of treating human disturbances* (Revised and updated). New York: Carol Publishing Group.
- Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, *84*, 377–389.
- Frisch, M. B. (2006). *Quality of life therapy: Applying a life satisfaction approach to positive psychology and cognitive therapy*. New Jersey: John Wiley & Sons, Inc.
- Froh, J. J., Sefick, W. J., & Emmons, R. A. (2006). *Counting blessings in early adolescents: An experimental study of gratitude and subjective well-being*. Manuscript submitted for publication.
- Froh, J. J., & Terjesen, M. D. (2005). *Quality of life enhancement and symptom relief as complementary goals in psychotherapy*. Poster session presented at the 39th Association for Behavior and Cognitive Therapy Annual Convention, Washington, DC.
- Fuller, J. R., Froh, J. J., Jacofsky, M. D., Terjesen, M. D., Fives, C. J., & Fuller, J. B. (2003). *Symptomology and optimal functioning as orthogonal constructs: Implications for science and practice*. Poster session presented at 37th Association for Advancement of Behavior Therapy Annual Convention, Boston, MA.
- Gable, S. L., Reis, H. T., Impett, E. A., & Asher, E. R. (2004). What do you do when things go right? The intrapersonal and interpersonal benefits of sharing good events. *Journal of Personality and Social Psychology*, *87*, 228–245.
- Haidt, J. (2006). *The happiness hypothesis*. New York: Basic Books.
- Hogg, J. A., & Deffenbacher, J. L. (1988). A comparison of cognitive and interpersonal-process group therapies in the treatment of depression among college students. *Journal of Counseling Psychology*, *35*, 304–310.
- Jahoda, M. (1958). *Current concepts of positive mental health*. New York: Basic Books.
- Joiner, T. E. Jr. (2002). Depression in its interpersonal context. In I. H. Gotlib & C. L. Hammen (Eds), *Handbook of depression* (pp. 295–313). New York: The Guilford Press.
- Judd, C. M., & Kenny, D. A. (1981). Process analysis: Estimating mediation in evaluation research. *Evaluation Research*, *5*, 602–619.
- Keltner, D., & Harker, L. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, *80*, 112–124.
- Keltner, D., & Kring, A. M. (1998). Emotion, social function, and psychopathology. *Review of General Psychology*, *2*, 320–342.
- Kohlenberg, R. J., Kanter, J. W., Bolling, M., Wexner, R., Parker, C., & Tsai, M. (2004). Functional analytic psychotherapy, cognitive therapy, and acceptance. In S. C. Hayes, V. M. Follette & M. M. Linehan (Eds), *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (pp. 96–119). New York: The Guilford Press.
- Kohlenberg, R. J., & Tsai, M. (1991). *Functional analytic psychotherapy: Creating intense and curative therapeutic relationships*. New York: Plenum Press.
- Lambert, M. J., Burlingame, G. M., Umphress, V., Hansen, N. B., Vermeersch, D. A., Clouse, G. C., et al. (1996). The reliability and validity of the Outcome Questionnaire. *Clinical Psychology and Psychotherapy*, *3*, 249–258.
- Leaf, R. C., DiGiuseppe, R. A., Mass, R., & Alington, D. E. (1993). Statistical methods for analyses of incomplete clinical services records: Concurrent use of longitudinal and cross sectional data. *Journal of Consulting and Clinical Psychology*, *61*, 495–505.
- Lichter, S., Haye, K., & Kammann, R. (1980). Increasing happiness through cognitive restructuring. *New Zealand Psychologist*, *9*, 57–64.
- Linley, P. A., & Joseph, S. (2004). Toward a theoretical foundation for positive psychology in practice. In P. A. Linley & S. Joseph (Eds), *Positive psychology in practice* (pp. 713–731). Hoboken, NJ: John Wiley & Sons, Inc.
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology*, *71*, 616–628.

- Lyubomirsky, S. (2001). Why are some people happier than others? The role of cognitive and motivational processes in well-being. *American Psychologist*, *56*, 239–249.
- Lyubomirsky, S., King, L., & Diener, E. (2005a). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005b). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, *9*, 111–131.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Harper & Row.
- Myers, D. G. (1992). *The pursuit of happiness*. New York: Avon Books.
- Myers, D. G. (1999). Close relationships and quality of life. In D. Kahneman, E. Diener & N. Schwarz (Eds), *Well-being: The foundations of hedonic psychology* (pp. 374–391). New York: Russell Sage Foundation.
- Nelson, R. E. (1977). Irrational beliefs in depression. *Journal of Consulting & Clinical Psychology*, *45*, 1190–1191.
- Pavot, W., & Diener, E. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, *5*, 164–172.
- Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging*, *15*, 187–224.
- Plant, E. A., & Sachs-Ericsson, N. (2004). Racial and ethnic differences in depression: The roles of social support and meeting basic needs. *Journal of Consulting and Clinical Psychology*, *72*, 41–52.
- Rodrigue, J. R., Baz, M. A., Widows, M. R., & Ehlers, S. L. (2005). A randomized evaluation of Quality-of-Life therapy with patients awaiting lung transplantation. *American Journal of Transplantation*, *5*, 2425–2432.
- Sanderman, R., Mersch, P., Van der Sleen, J., Emmelkamp, P. M. G., & Ormel, J. (1987). The rational behavior inventory (RBI): A psychometric evaluation. *Personality and Individual Differences*, *8*, 561–569.
- Seligman, M. (1994). *What you can change & what you can't*. New York: Knopf.
- Seligman, M. (1998). *Learned optimism: How to change your mind and your life*. New York: Pocket Books.
- Seligman, M. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York: Free.
- Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5–14.
- Sheldon, K. M., & Lyubomirsky, S. (2004). Achieving sustainable happiness: Prospects, practices, and prescriptions. In P. A. Linley & S. Joseph (Eds), *Positive psychology in practice* (pp. 127–145). Hoboken, NJ: John Wiley & Sons, Inc.
- Sheldon, K. M., & Lyubomirsky, S. (2006). How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *The Journal of Positive Psychology*, *1*, 73–82.
- Shorkey, C. T., & Reyes, E. (1978). Relationship between self-actualization and rational thinking. *Psychological Reports*, *42*, 842.
- Shorkey, C. T., & Whiteman, V. L. (1977). Development of the Rational Behavior Inventory: Initial validity and reliability. *Educational and Psychological Measurement*, *37*, 527–534.
- Snyder, C. R., & McCullough, M. E. (2000). A positive psychology field of dreams: “If you build it, they will come.”. *Journal of Social and Clinical Psychology*, *19*, 151–160.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290–312). San Francisco: Jossey-Bass.
- Tafate, R. C., Kassinove, H., & Dundin, L. (2002). Anger episodes in high- and low-trait-anger community adults. *Journal of Clinical Psychology*, *58*, 1573–1590.
- Terjesen, M. D., & Froh, J. J. (2005). *Expanding our conception of clinical psychology: The role of adaptive cognitions in life satisfaction*. Poster session presented at the 39th Association for Behavior and Cognitive Therapy Annual Convention, Washington, DC.
- Thyer, B. A., & Papsdorf, J. D. (1981). Concurrent validity of the Rational Behavior Inventory. *Psychological Reports*, *48*, 255–258.
- Vanderhorst, R. K., & McLaren, S. (2005). Social relationships as predictors of depression and suicidal ideation in older adults. *Aging and Mental Health*, *9*, 517–525.
- Walen, S. R., DiGiuseppe, R. A., & Dryden, W. (1992). In *A practitioner's guide to rational-emotive therapy* (2nd ed.). New York: Oxford University Press.
- Watson, D. (2000). *Mood and temperament*. New York: The Guilford Press.
- Zwemer, W. A., & Deffenbacher, J. L. (1984). Irrational beliefs, anger, and anxiety. *Journal of Counseling Psychology*, *31*, 391–393.