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RELATIONSHIPS BETWEEN DYSFUNCTIONAL BELIEFS AND POSITIVE AND NEGATIVE INDICES OF WELL-BEING: A CRITICAL EVALUATION OF THE COMMON BELIEFS SURVEY-III

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ABSTRACT: The Common Beliefs Survey-III is a factored measure of dysfunctional beliefs and has generally shown satisfactory convergent validity and test–retest reliability [(2001) *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, 19(2), 89–103). We sought to further establish the utility of the measure by examining the extent the dysfunctional belief subscales related to a wide variety of positive and negative indices of well-being, after controlling for a potential confound, namely, social desirability. Four hundred and fifty-seven university students completed questionnaires that assessed six dimensions of dysfunctional belief, seven negative indices of well-being (depression, anxiety, stress, guilt, hostility, hopelessness, suicidal thinking), three positive indices of well-being (life satisfaction, joviality, state self-assurance), and social desirability. Analyses revealed that lower well-being was associated with (1) beliefs that self-worth is dependent on success, (2) beliefs that self-worth is dependent on approval, (3) demanding beliefs that reflect unrealistically high expectations for events and individuals. Belief variables predicted 14% of the variance in the negative indices but only 7.3% in the positive indices. Stepwise regression revealed that the optimal set of belief predictors depended on the type of well-being predicted. These findings have implications for both theory and practice.

KEY WORDS: well-being; irrational beliefs; anxiety; depression; positive emotion; joy.

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INTRODUCTION

A substantial number of people report feeling moderately to severely anxious or depressed at any given time (Ciarrochi, Dean, & Anderson, 2002; Ciarrochi, Scott, Deane, & Heaven, 2003). In addition, about half of the population will face moderate to severe levels of suicidality sometime in their lives (Hayes, Strosahl, & Wilson 1999). The normal human condition seems to involve much emotional suffering.

Theorists have argued that a certain amount of emotional disturbance is natural, but that humans also experience a great deal of unnecessary disturbance (Ellis, 2001; Hayes et al., 1999). This unnecessary disturbance is proposed to stem to some extent from dysfunctional attitudes or beliefs (Beck, 1995; Dryden, 2001; Ellis & Harper, 1975; Walen, DiGiuseppe, & Dryden 1992). Many forms of cognitive behavioural therapy (CBT) seek to reduce emotional disturbance by challenging and seeking to change dysfunctional beliefs. For example, someone might believe that they absolutely *need* to be loved by another person, or they will not be worthwhile. A CBT practitioner might help the client to see that their global self-worth is not determined by the love of the other person and that the client has value even if the other person does not think so.

There is now evidence that dysfunctional beliefs are related to lower levels of well-being (Lindner, Kirkby, Wertheim, & Birch, 1999; Malouff & Schutte, 1986; Weissman, 2000). Much previous research has focused exclusively on a few negative indices of well-being, such as anxiety and depression. There has been some research that has focused on cognitions or general irrationality associated with states such as hostility and guilt (e.g (DiGiuseppe & Froh, 2002; Ford, 1991)), but little research that has examined the relationship between specific dysfunctional beliefs subscales and a variety of negative states. Even less research has focused on the positive indices of well-being, which include joviality, life satisfaction, and state self-assurance. The present study sought to examine the relevance of dysfunctional beliefs to a wide variety of aspects of well-being. We were particularly interested in whether dysfunctional beliefs had as strong a relationship with the positive indices as they do with the negative, given that much theorizing focuses on negative indices (Ellis, 2001).

Dysfunctional beliefs have often been treated as unidimensional construct (e.g., Malouff & Schutte, 1986). However, theories and psychometric research suggest that there are multiple dimensions (Beck, 1995; Walen et al., 1992). For example, there are dysfunctional beliefs concerning needing others' approval, and needing to always succeed in

order to feel worthwhile. The present study sought to evaluate what dimensions of dysfunctional beliefs show the strongest relations with each aspect of well-being.

Dysfunctional Beliefs and Well-being

Well-being is a broad category of phenomena that includes people's affective responses (e.g., state levels of guilt, depression, anger, joy, and self-assurance) and global judgments of life satisfaction (Diener, Suh, Lucas, & Smith, 1999). There are also constructs that seem to reflect both affective responses and global judgments, such as hopelessness and suicidal ideation. These constructs appear to be a mix of aversive affect and low satisfaction with present and future. Each of the specific constructs warrant study in their own right, yet they all tend to correlate, suggesting the need for a higher order well-being construct (Diener et al., 1999).

A number of cognitive theories suggest that dysfunctional beliefs or attitudes put people at risk for two aspects of low well-being, namely, depression and anxiety (Beck, 1995; Ellis, 2001; Walen et al., 1992). For example, someone might believe that "People are bound to put themselves down when they fail." Such a person is likely to become anxious about the prospect of failing, or depressed if they do fail. Consistent with this view, there is now substantial evidence that dysfunctional attitudes are associated with increased levels of depression and anxiety (Lindner et al., 1999; Malouff & Schutte, 1986; Thorpe & Frey, 1996; Weissman, 2000). In addition, there is evidence that reduction in dysfunctional beliefs due to clinical interventions is associated with reductions in disturbing emotional states (Engels, Garnefski, & Diekstra, 1993; Hajzler & Bernard, 1991; Weissman, 2000).

Much research treats dysfunctional beliefs as a unidimensional construct, but there is now substantial factor analytic evidence that it is multidimensional (Thorpe, Parker, & Barnes, 1992; Weissman, 2000). In particular, two classes of dysfunctional beliefs appear to emerge across different measures. One belief type deals with interpersonal concerns ("It is a great necessity to be loved and approved by every significant other") and the other deals with achievement concerns ("One can't help getting down on one's self when one fails at something.").

The two types of beliefs also appear to predict different outcomes. For example, excessive interpersonal concern (sometimes termed sociotropy) has been shown to correlate with anxiety concerns, whilst excessive

achievement concern (autonomy) has been shown to be more related to depression (Fresco, Sampson, Craighead, & Koons, 2001). Similarly, excessive concern about achievement as measured by the Dysfunctional Attitude Scale (DAS) predicted higher depression at therapy termination (Blatt, Quinlan, Pilkonis, & Shea, 1995). In contrast, the need for approval was not significantly related to higher depression.

Much research has focused on dysfunctional beliefs and negative indices of well-being (e.g., depression), but little has focused on positive indices (e.g., life satisfaction). Past research suggests that positive and negative states are two separable dimensions with different causes (Snyder & Lopez, 2002; Watson & Clark, 1994). Therefore it is possible that positive and negative states will be associated with different sets of dysfunctional beliefs. We explored this possibility in the present study.

In summary, there appears to be solid support for multidimensional conceptualisations of dysfunctional beliefs. There is also reasonable evidence that the different types of dysfunctional beliefs may relate directly with mental health.

Measuring Dysfunctional Beliefs

Many early measures of dysfunctional beliefs were flawed (Ramanaiah, Heerboth, & Schill, 1987). They contained items that measured behaviour ("I avoid things I cannot do well") or feelings ("I feel a little anxiety over unexpected dangers of future events"). Other related scales contain items that measure preferences rather than beliefs. For example, the Revised Sociotropy-Autonomy Scale (Clark & Beck, 1991) contains items such as "I prefer to work out my personal problems by myself" and "I value work accomplishments more than I value making friends." However, some CBT theorists argue that preferences are not by themselves dysfunctional and should not be the primary target of interventions (Ellis, 2001). We at present agree with this assumption and therefore chose to focus exclusively on belief measures.

The Dysfunctional Attitude Scale (Weissman, 2000) and the Common Belief survey (CBS-III; (Thorpe, Walter, Kingery, & Nay, 2001)) contain dysfunctional belief items such as "One can't help getting down on one's self when one fails at something (CBS-III)" and "My life is wasted if I am not a success (DAS)." They both contain scales that related to interpersonal and achievement concerns (Thorpe et al., 2001). They also both contain items that focus exclusively on beliefs. We chose to use the CBS-III in this study because it was designed to measure a

number of dimensions of dysfunctional beliefs, in addition to those dealing with interpersonal and achievement concerns.

The CBS-III is based on theorizing within Rational Emotive Behavior Therapy (REBT; (Ellis & Harper, 1975), one form of CBT. According to REBT parlance, all humans—not just "clients"— have the natural tendency to hold dysfunctional beliefs which lead to unnecessary disturbance. REBT focuses almost exclusively on undermining dysfunctional beliefs. It has been one of the most influential forms of CBT (Haaga & Davison, 1993), and has been shown to be an effective intervention for a wide range of psychological problems (Engels et al., 1993; Lyons & Woods, 1991).

One important category of dysfunctional beliefs within REBT is *Demandingness*. Demanding beliefs reflect unrealistic and absolute expectations of events or individuals. They usually involve such words as "must," "should," "have to," and "need." Demands indicate a lack of acceptance of reality (e.g., "People must always be fair"). The central goal of REBT is to move people towards unconditional acceptance of themselves, of others, and of life. The word "acceptance" should not be taken to mean "condoning" aspects of life we do not like. It means primarily *recognizing* life for what it is, not what we demand it to be.

A second important category of dysfunctional beliefs involves the tendency to make global evaluations of self, others, and life (I/you are worthless; life is bleak). REBT assumes that demandingness and global evaluations lead to unnecessary disturbance. If we believe that we "must" succeed, then it will seem horrible if we don't and we will become anxious. Similarly, if we incorrectly believe that our self-worth will be lowered if someone disapproves of us, then we are bound to feel miserable when we inevitably face disapproval.

The common belief survey (CBS-III) contains four scales that reflect low acceptance and the tendency to make global evaluations of the self and others. The *demanding perfectionism* scale measures beliefs that reflect unrealistically high expectations of events and individuals ("There is invariably a right, precise, and perfect solution to human problems···"). The *self-downing scale* reflects beliefs that people's global self-worth is naturally lowered if they fall short of their goals or standards ("One can't help get down on one's self when one fails at something"). The *need for approval* scale reflects the belief that one can not accept oneself if not approved of by others ("People do not need to be loved in order to accept themselves (reversed)"). The *blame proneness* scale reflects the belief that when others do wrong, they can be globally evaluated as bad or evil ("Criminals are basically bad people and should be punished").

The final two scales of the CBS-III focus on how much people believe their emotions and behaviour are determined by external factors. REBT seeks to teach people that external events do not by themselves cause emotions; rather it is the combination of external events and what one believes about those external events that cause emotions. The *past is all powerful* scale includes items such as "There is no stronger influence on the present than the past." The *emotions caused externally* scale includes items such as "People pretty much cause their own moods."

STUDY

We examined the relationship between the six dimensions of dysfunctional beliefs and seven negative indices of well-being, which included depression, stress, anxiety, hopelessness, suicidal thinking, hostility, and guilt. We also looked at three positive indices, which were joviality, self-assurance, and life satisfaction. These 10 indices provide a reasonably comprehensive sampling of the well-being construct (Diener et al., 1999; Watson & Clark, 1994).

It is possible that socially desirable responding may inflate observed relationships between our independent and dependent variables. Thus, we controlled for social desirability in all main analyses.

We sought to identify what aspects of dysfunctional beliefs, if any, related to each index of well-being. We also sought to explore the possibility that dysfunctional beliefs relate more strongly to negative compared to positive indices of well-being.

Participants

Four hundred and fifty-seven participants (109 male and 348 female) received course credit for completing the anonymous survey. The mean age of the students was 21.10 ($SD = 6.17$).

Materials

Dysfunctional Beliefs. The Common Beliefs Survey-III is a 54-item inventory of dysfunctional beliefs (Bassai, 1976, 1977; Tosi, Forman, Rudy, & Murphy, 1986). The scale was formulated by pooling and refining nine existing surveys into one. The six factor structure of the measure was originally identified by Bassai (1977) and was replicated

by Tosi et al. (1986) (Tosi et al., 1986). The subscales have shown adequate test–retest reliability (*R*s range from .65 to .76) (Thorpe et al., 2001). The subscales and internal reliabilities for the present sample are as follows: Demanding perfection (α = .77), self-downing (α = .82), need for approval (α = .68), blame proneness (α = .79), importance of past (α = .80), and emotional control (α = .72). Examples of each subscale are presented in the introduction. The CBS-III has been shown to relate to other measures of unhelpful thoughts and to discriminate respondents from clinical vs. nonclinical settings (Thorpe et al., 1992, 2001).

Well-being and Social Desirability

The *Depression Anxiety Stress Scale (DASS*(Lovibond & Lovibond, 1995)) consists of three 14-item scales and is designed to measure depression ("I couldn't seem to get any enjoyment out of the things I did," α = .94), anxiety ("I felt terrified," α = .91), and stress ("I found it hard to wind down," α = .93). Participants are asked to indicate the extent that each statement applied to them over the past month. The *Life Satisfaction Scale* (Diener, Emmons, Larsen, & Griffin, 1985) asks participants the extent that they agree (1) or disagree (7) with each of five statements related to life satisfaction ("In most ways my life is close to my ideal;" α = .89).

The *Beck Hopelessness Scale* (BHS; (Beck, Weissman, Lester, & Trexler, 1974) comprises 20 true-false items that reflect hopelessness or pessimism (e.g., "My future seems dark to me"). *The Suicide Ideation Questionnaire* (SIQ (Reynolds, 1987)) consists of 30 Likert items (e.g. "I thought it would be better if I were not alive") concerning thoughts relating to suicide that occurred in the previous month. The 7-point scale ranges from 0 (I never had this thought) to 6 (Almost every day). Hostility, guilt, state self-assurance, and joviality were measured using the Positive and Negative Affect Schedule-Expanded (Watson & Clark, 1994). Finally, *social desirability* was measured using the 33 item Marlow-Crowne scale (Crowne & Marlow, 1960). The social desirability scale and the well-being scales all had satisfactory internal consistency in the present sample, all αs $> .78$.

Preliminary Analyses

Descriptives. We set α at .01 for all preliminary analyses in order to reduce the problem of Type I error. As can be seen in Table 1,

Table 1

Descriptives for Endorsement of Dysfunctional Beliefs

	Mean	Std. dev.
Self-downing	3.43	.60
Need for approval	2.65	.53
Demanding perfection	2.76	.61
Blame proneness	2.79	.61
Past is all powerful	3.40	.57
Emotions caused externally	2.65	.53

Note. Scale ranged from 1 (strongly disagree with dysfunctional belief) to 5 (strongly agree).

endorsement of beliefs was towards the middle of the scale. Thus, people generally did not strongly rejecting dysfunctional beliefs. There is no danger of a ceiling effect for this measure.

Social Desirability. We found that people who engage in socially desirable responding also tend to report lower need for approval ($r = -.15$) and higher demand for perfection ($r = .18$), $p < .01$. Social desirability was also related to all our indices of well-being (*r*s (ranged in absolute magnitude between .20 for guilt and .33 for stress)), indicating that people who engage in socially desirable responding also report less negative and more positive affect.

Sex. We used GLM ANOVAs to examine whether men and women differed on any of our independent and dependent variables. Given the number of tests we were performing, we set α at a conservative .01. The analyses revealed that women felt more stressed than men ($M_{\text{women}} = 1.06$, SE = .036, $M_{\text{men}} = .843$, SE = .068) and endorsed self-downing beliefs more strongly ($M_{\text{women}} = 3.46$, SE = .032, $M_{\text{men}} = 3.25$, SE = .059).

Correlations between Belief Subscales. Although the scales are generally positively correlated, the correlations are not especially high (none above an absolute value of .36 and most falling in the .1–.3 range). We describe the correlations between self-downing, need for approval, and demanding perfection because these dysfunctional belief subscales turned out to be important in future analyses. The correlations were:

.20 for Need for Approval-Demanding Perfection, .34 for Self-Downing and Need for Approval, and .33 for Self-downing and Demanding Perfection.

Factor Analyses of Significant Scales. We next performed exploratory factor analysis to see if the previously reported CBS-III factor structure (Thorpe et al., 1992) could be replicated to the present sample. We utilized principle axis factoring (PAF) with a direct oblimin rotation (Conway & Huffcutt, 2003). Examination of the scree plot and factor loadings suggested that only six factors could be meaningfully extracted (eigenvalues: 6.6, 4.3, 3.7, 2.7, 2.25, 1.8). The six factors of the PAF accounted for 39% of the variance. Examination of the rotated pattern matrix revealed that the items clustered in the expected ways on each of the six factors. The items for the Emotions Caused Externally, Blame Proneness, and the Past is All Powerful subscales all loaded most strongly on factors 2, 3, and 4, respectively. We describe the other scales in somewhat more detail, given their significance in later analyses. All the demanding perfection items loaded on factor 5, and eight of nine of them loaded more strongly on this factor than any other factor (loadings range from .38 to .59). Item 32 loaded on factor 5 (.25) and factor 1 (.37). This item was, "It is awful when things are not the way one would very much like them to be." All of the need for approval items loaded on factor six, and 8 of the 9 loaded most highly on this factor (7 of the 9 loadings were from to .50). Item 4 loaded on both factor 1 (.29) and factor 6 (.20). Item 4 was, "Being approved by others is very important." Finally, the nine items for self-downing all loaded most strongly on factor 1 (all loadings but one were greater than .50). In sum, the previously reported factorial structure (Thorpe et al., 1992) was largely replicated in this Australian Sample.

Main Analyses

Given the correlations between social desirability and our variables, we controlled for social desirability in all analyses reported below. We also set α at .01 to reduce issues of Type I error. We used GLM multivariate analyses to first examine whether each of our dysfunctional belief variables related to the set of dependent variables. There were significant multivariate effects for self-downing, demanding perfection, and need for approval, Wilks' Lambdas $< .915$, $p < .01$. The three other independent variables were not significantly related to the dependent variables as a set, Wilks' Lambdas $< .941$, ps $> .05$. To reduce Type I

Table 2

Relationship (Beta) between Indices of Well-being and Dysfunctional Beliefs, after Controlling for Social Desirability

	Self-downing	Need approval	Demanding perfection
Negative Indices			
Depression	.28***	.15**	.22***
Stress	.25***	.18***	.17***
Anxiety	.19***	.19***	.19***
Hopelessness	.18***	.18***	.11*
Suicidal thinking	.15**	.12*	.10*
Hostility	.12*	.11*	.15**
Guilt	.23***	.22***	.15**
Negative Variance explained[1]	10%***	8%***	6%**
Positive Indices			
Joviality	−.14**	−.12*	−.11*
Self-Assurance	−.15**	−.14*	.04
Life Satisfaction	−.13*	−.07	−.07
Positive Variance explained[1]	3%*	2%*	3%**

Note 1. Variance explained reflects the multivariate relationship (1-Wilks' Lambda) between the belief variable and the set of negative or positive variables.
Note 2. To reduce the problem of Type I error, only belief variables that showed a significant multivariate relationship are reported here.
*$p < .05$; **$p \leq .01$; ***$p \leq .001$.

error, these variables were not included in any of the univariate analyses that follow.

Table 2 presents the univariate relationships for the significant multivariate effects. As predicted, the three dysfunctional belief types are significantly related to all of the negative indices of well-being. The strongest relationships appear to be between the dysfunctional beliefs and depression, stress, anxiety and guilt. As expected, dysfunctional beliefs tend to relate negatively to the positive indices of well-being.

We next sought to determine if the relationship between dysfunctional beliefs and well-being was stronger amongst the negative indices compared to the positive indices. Sign tests revealed that the absolute value of the negative index correlations tended to be larger than the absolute value of the positive index correlations, all ps $< .001$. Thus, dysfunctional beliefs were generally more strongly related to negative than positive indices.

In order to get a more refined understanding of the differences in correlations between the negative and positive indices, we followed the procedure outlined by Howell to test the difference between the non-independent correlations (Howel, 1997). We report significance levels at the .05 level in order to describe the general pattern, though we acknowledge the problem of Type I error and the need to replicate these results. The correlations involving self-downing (Table 2) differed for the following variables: depression ($r = .28$) versus joviality (absolute value of $r = .14$), stress vs. joviality, depression versus self-assurance, and depression, stress, and guilt versus life satisfaction. The correlations involving need for approval differed for the following variables: guilt and anxiety versus life satisfaction, and stress versus hopelessness. Finally, the correlations involving demanding perfection differed between all the negative indices versus self-assurance, depression versus joviality, and finally depression, stress, and anxiety, versus life satisfaction. In general, there appears to be evidence that all three dysfunctional belief measures were more strongly related to the negative indices than to the positive indices.

We used two GLM multivariate analyses to determine how much variance the three significant dysfunctional belief scales in Table 2 predicted in the group of negative indices and the group of positive indices. The three variables predicted 14% of the variance in the negative indices, and 7.3% of the variance in the positive indices.

Our final analyses sought to determine which subset of the three belief types best predicted each index of well-being. We used stepwise regression analyses. To reduce the issue of Type 1 error, we set a probability of .01 as a criteria for entry in the model and probability of .011 for removal from the model. Social desirability was always forced first into the model.

As can be seen in Table 3, the best subset of predictors depends on the type of well-being predicted. For example, self-downing uniquely predicts depression but not anxiety. Need for approval predicts anxiety but not depression. Demanding perfection was uniquely related to anxiety and hostility, but not to depression or guilt. In general, dysfunctional beliefs appeared to predict less variance in suicidal thinking and hostility than in the other negative indices and the positive indices.

An alternative way to perform the analyses presented in Table 3 is to enter all of the dysfunctional beliefs into the model, rather than selecting them in a stepwise analyses. We conducted this analyses, entering social desirability in step 1 and the dysfunctional beliefs in

Table 3

Set of Belief Variables that Predict Unique Variance (beta) in Each Well-being Index as Determined by Stepwise Regression Analyses

Best model	Negative Indices	% Variance[1]
SelfD (.24)[b], DemandP (.12)[a]	Depression	8.8%
SelfD(.22)[b], NeedP(.11)[a]	Stress	7.3%
NeedP(.16)[b], DemandP (.16)[b]	Anxiety	5.8%
SelfD (.15)[a], NeedP (.13)[b]	Hopelessness	5.1%
SelfD(.15)[a]	Suicidal Thoughts	2.1%
DemandP (.14)[a]	Hostility	1.9%
SelfD (.18)[b], NeedP(.16)[b]	Guilt	7.0%
Positive Indices		
SelfD(−.13)[a]	Joviality	1.8%
SelfD(−.15)[a]	Self-assurance	2.1%
SelfD(−.16)[a]	Life Satisfaction	2.4%

Note 1. Percentage of variance explained by dysfunctional beliefs after controlling for social desirability, which was always entered first in the model.
Note 2. SelfD = Self-downing indicates the belief that when you act or perform poorly then you necessarily must feel less worthwhile; DemandP = Demanding perfection indicates beliefs that reflect unrealistically high expectations for events and individuals; NeedP = need for approval indicates the belief that love and approval are absolutely necessary for people to feel good about themselves.
Note 3. Only the three belief variables that were significant in multivariate analysis were included in the stepwise regression, which utilized a conservative criteria for variable entry (.01) in order to minimize family wise error rate.
[a]$p \leq .01$; [b]$p \leq .001$ (one-tailed directional tests).

step 2. Using the same alpha as the above analyses ($p < .01$, one tailed), the results essentially mirrored those reported in Table 3. For example, SelfD and DemandP were the only significant predictors for depression, and SelfD and NeedP were the only significant predictors of guilt. There were only two differences. First, none of the variables was significant with joviality, with the previously significant variable (SelfD) having a p value of .097. However, given that SelfD was significant in the univariate relationship analysis (Table 2), it would be incorrect to conclude that SelfD was not related to joviality. Rather, we conclude that it is not uniquely related, after controlling for the other dysfunctional belief variables. The other minor difference involved self-assurance. Both SelfD and NeedP were significant in the "enter" analysis, whereas only SelfD was significant in the stepwise analysis.

DISCUSSION

Self-downing, need for approval, and demanding perfection all predicted substantial variance in well-being, even after controlling for social desirability. In contrast, well being was not predicted by the three other belief variables, which were blame proneness, belief that the past is all powerful, and belief that emotions are caused externally. The three significant belief variables predicted 14% of the variance in the negative indices but only 7.3% in the positive indices.

Clarifying the Link between Dysfunctional Beliefs and Well-being

Previous research has established the link between dysfunctional beliefs and anxiety and depression (Lindner et al., 1999; Malouff & Schutte, 1986; Thorpe & Frey, 1996). One potential limitation of past research is that common method variance (CMV) might have inflated observed relationships between dysfunctional beliefs and well-being (Lindell & Whitney, 2001). Both these variables are often assessed using self-report methods. Perhaps there is a general tendency for some people to present a positive image of themselves and their level of well-being.

Two aspects of our study and analyses are inconsistent with a self-report CMV explanation. First, we measured and controlled for one major source of CMV, namely, socially desirable responding. Second, we administered a number of self-report measures that are presumably affected by CMV and used these variables together as covariates in a regression. This procedure reduces or eliminates the impact of CMV on the estimates (Lindell & Whitney, 2001).

Towards Improved Interventions

Rational Emotive Behavior Therapy (REBT) seeks to challenge and change dysfunctional beliefs in order to reduce clinical levels of negative affect (e.g., anxiety, depression). The present research provides two clues for designing REBT interventions. First, dysfunctional beliefs are relevant to normal groups, not just clinical samples, and therefore REBT interventions may be effective with the normal population. Our college sample tended to rate beliefs in the middle of the scale, indicating that they did not strongly reject dysfunctional beliefs. Also, the belief ratings correlated moderately with our indices of well-being, indicating that the range of belief endorsement was not so restricted as to prevent correlation.

Our findings are consistent with the arguments of Hayes et al. (1999) and Ellis (Ellis & Harper, 1975) that "normal" people have beliefs that cause them unnecessary disturbance. As Hayes et al., argue (1999), we humans are unique in that we ". . .can judge ourselves and find ourselves wanting; we can imagine ideals and find the present to be unacceptable by comparison (Hayes et al., 1999)." Or to put this in Ellis's terms, we can create a concept of a single self that we believe can be globally evaluated (I did poorly at this, therefore I am a bad person), and we demand life be better than it actually is (Ellis, 2001). This judging and demanding is purported to lead to unnecessary distress.

Our research also suggests that REBT interventions should focus on certain belief types depending on what aspect of well-being they seek to improve. Not every dysfunctional belief type was equally relevant to every aspect of well-being. Consistent with past research (Fresco et al., 2001), we found that self-downing was part of the best model for predicting depression but was not in the model for anxiety (Table 3). In contrast, the need for approval was in the best model for anxiety but not for depression. Finally, demanding perfection was the only unique predictor of hostility.

Limitations and Future Directions

Three of the six subscales of dysfunctional beliefs were not related to well-being. Specifically, belief in all powerful past, belief that emotions caused externally, and blame proneness were not related to lower well-being. It may be that the measures need refining to better specify the aspects of those beliefs that are functional and dysfunctional.

For example, it might be assumed that people would feel more in control of their lives if they believe emotions are due to internal rather than external factors. However, careful examination of the Emotions Caused Externally Scale suggests that there might be two factors in this scale. One factor suggests one is responsible for their negative feelings ("unhappiness comes from inside oneself."). The second factor suggests that one can control their emotions ("human unhappiness is not externally caused, and people have the ability to control their sorrows and disturbances."). We hypothesize that believing you are responsible for negative states will not be associated with higher well-being. After all, taking responsibility for such negative states might "mean" that there is something wrong with you. Rather, we hypothesize that believing you are *in control* of such states will be associated with well-being. This hypothesis is consistent with research on self-efficacy and

hope which suggests that a sense of control is associated with higher well being (Snyder, 2000).

Generally, the CBS-III subscales were more strongly related to negative than positive states. This finding is consistent with the evidence that positive and negative states have different causes (Snyder & Lopez, 2002; Watson & Clark, 1994). The CBS-III did not cover every dysfunctional belief type. For example, low frustration tolerance (LFT; "I can not stand to do poorly") was notably missing. Future research is needed to identify what sorts of dysfunctional beliefs, if any, are more strongly related to positive than negative states.

Research suggests that positive states occur when people are moving towards the attainment of personally meaningful goals (Berenbaum, 2002; Cantor & Sanderson, 1999; Csikszentmihalyi, 1999). Future research might profitably ask, "What sorts of dysfunctional beliefs are most likely to interfere with goal achievement?" We propose that one such belief might be low frustration tolerance. LFT is likely to lead people to give up on the goals, when they encounter barriers. Giving up may reduce the immediate frustration, but is also likely to reduce opportunities for joy.

In conclusion, dysfunctional beliefs were related to substantial levels of variance in the negative indices and moderate levels of variance in the positive indices of well-being. These findings are encouraging for theoretical frameworks that assume that dysfunctional beliefs are partially responsible for normal human suffering (Ellis, 2001; Hayes et al., 1999). Our findings should encourage future researchers to take the next step and evaluate the direction of the causal relationship between the CBS-III dimensions of dysfunctional beliefs and well-being. In addition to research applications, our findings suggest that the three significant scales in the CBS-III can be used to help rational-emotive therapists determine if their clients have learned the principles believed to be crucial for enduring well-being.

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