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THE RELATIONSHIP BETWEEN COPING STYLE AND AFFECT IN RECOVERING CARDIAC PATIENTS

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ABSTRACT

The maintenance of emotional well-being in cardiac patients is important for recovery from heart disease and prevention of further coronary episodes. We examined the mediation of affect by monitoring and blunting coping styles in 85 patients attending cardiac rehabilitation. The monitoring/blunting literature shows that threat monitors prefer to attend to threats, and to use a coping response that will deal directly with the threats. Blunters are less likely to attend to the threat, but are able to minimize negative affect associated with it. We hypothesized that monitoring would be associated with greater positive and lower negative affect amongst participants whose outcome expectations for problem-focussed coping were high, and that blunting would be related to greater positive and lower negative affect amongst participants whose expectations were low. The latter hypothesis received strong support. Blunting was strongly associated with greater positive and lower negative affect in participants with low outcome and self-efficacy expectations for problem-focussed coping, but these associations did not exist for participants with higher expectations. These findings suggest that dispositional blunting assists to minimize emotional disturbance when problem-focussed coping is perceived to be ineffective.

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INTRODUCTION

Cardiac illnesses, particularly those with sudden onset, often lead to emotional disturbances. At worst, a cardiac event can precipitate a clinical depression or an anxiety disorder, whilst a majority of patients report some emotional disturbance (Hagan 1991). Emotional distress, particularly depression, is an independent risk factor for further coronary disease (Carney, Rich,

Freeland and Saini 1988), poorer physical and psychological recovery, and a reduced likelihood that a patient will succeed in modifying coronary risk behaviors (Bennett, Mayfield, Norman, Lowe and Morgan 1999). Understanding processes of affective disturbance in cardiac patients, and the ways that they cope with these disturbances, is a high priority for cardiac rehabilitation research.

The emotional consequences of any traumatic event are not fixed, but are influenced by several individual and contextual factors (Lazarus and Folkman 1984). One factor, coping style, refers to stable patterns in the way that people respond to threatening events, and is a strong predictor of coping responses that are employed in specific situations (De Groot, Boeke, Bonke and Passchier 1997; Muris, van Zuuren and de Vries 1994) Almost all theories of coping make a fundamental distinction between coping styles oriented toward dealing with the threat, and those directed toward minimizing negative affect associated with the threat (Lazarus and Folkman 1984). Miller (1987) suggests that these styles can be described in terms of selective attention directed either toward or away from the source of the threat. Threat monitoring involves the allocation of attention to a threatening stimulus, and is viewed as a precursor to active coping. High monitoring scorers are more likely to attend to threatening stimuli (Constans, Mathews, Brantley and James 1999), seek information about a threat (Muris, van Zuuren and de Vries 1994), and to institute direct action to alleviate it (van Zuuren and Wolfs 1991; van Zuuren, de Groot, Mulder and Muris 1996; van Zuuren and Doopler 1999; Bar-Tal and Spitzer 1999). Conversely, high scorers on blunting scales limit attention to, and cognition about, threat stimuli. Blunting is associated with fewer thoughts about threat stimuli (Muris, de Jong, van Zuuren and Schoenmakers 1996) and less reporting of physical pain (Bruehl, Carlson, Wilson and Norton 1996; Gard, Edwards, Harris and McCormack 1988). A relationship between blunting and defensive avoidance appears indicated by links between blunting and repression (Phipps and Srivastava 1997; Turvey and Salovey 1994), wishful thinking (van Zuuren and Wolfs 1991; Bar-Tal and Spitzer 1999) and the avoidance of threatening information (Muris, van Zuuren and de Vries 1994).

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With regard to heart disease patients, Van Elderen, Maes and Dusseldorp (1999) found that, immediately after a cardiac event, a coping style similar to monitoring was associated with poorer emotional well-being, and blunting was beneficial. Monitoring was positively related to well-being at subsequent observations, suggesting that directly confronting the threat of heart disease is highly unpleasant at first, but may have ultimate rewards. However, the effectiveness of coping style appears to be influenced by contextual factors such as control over the threat stimulus, presentation of the stimulus and time-frame (De Groot, Boeke, Bonke and Passchier 1997). Thus, the effectiveness of a coping style may be dependent on the fit between it and the context within which it is practiced. One contextual factor is the extent to which patients believe that problem-focussed coping responses will be effective in reducing the threat (Rippeto and Rogers 1987). This paper investigates whether monitoring is more likely to be associated with emotional well-being when this belief is present, and blunting to be associated with well-being when it is not.

Social cognitive theory (Bandura 1986) specifies that two dimensions underlie beliefs about the effectiveness of specific actions. Outcome expectations refer to the extent to which the individual believes that desired outcomes will be achieved by executing specific behaviors, and self-efficacy expectations refer to the extent to which people perceive themselves to be capable of executing those behaviors. When these expectations for problem-focussed coping responses are high, such coping responses are stimulated, whereas low expectations tend to inhibit them (Rippeto and Rogers 1987). As high outcome and self-efficacy expectations are often precursors to successful coping, they are likely to suit monitors' preferences for problem-focussed coping. However, when expectations are low, a tension may exist between monitors' tendency to attend to threats, and their poor expectations of coping with them. Thus, monitoring may be beneficial if expectations of being able to cope are high, but detrimental if expectations are low. Blunting, on the other hand, may be ineffective or wasteful when expectations about the effectiveness of problem-focussed coping are high, but may be appropriate when blunters believe that attempting problem-focussed coping responses will be ineffective (De Groot et al. 1997; Rippeto and Rogers 1987).

We are interested in the extent to which monitoring and blunting are associated with emotional well-being in recent cardiac patients. Given Van Elderen et al's (1999) findings, we expect that blunting will be positively and monitoring negatively associated with well-being. More importantly, we hope to extend van Elderen et al's findings by establishing that they apply to specific categories of patients, defined by outcome and efficacy expectancies. As high outcome and efficacy expectancies are compatible with a monitoring disposition, we expect that negative relationships between monitoring and emotional well-being will be more likely to occur when these expectancies are low. Conversely, positive relationships between blunting and well-being are expected to be greater when outcome and efficacy expectancies are low.

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METHOD

Participants were recruited from cardiac rehabilitation groups in Melbourne, Australia. The first author visited each group, explained that the study objective was to examine attitudes and feelings about cardiac rehabilitation, and presented potential participants with questionnaires and stamped self-addressed envelopes. 101 questionnaires of a possible 174 were returned. 16 potential participants were eliminated because they had not properly completed the affect scale. Sixty males and 20 females (48.85% of distributed questionnaires) with a mean age of 61.59 (S.D.=10.18) were included in the study. Primary diagnoses or procedures were 10 myocardial infarctions, 34 coronary artery bypass graft surgery, 21 coronary angioplasty, 7 heart failure, 5 angina only and 8 other conditions or procedures (arterial fibrillation, ventricular septal myectomy and valve repair or replacement). The average number of weeks expired between the cardiac event and questionnaire completion was 10.61 weeks (S.D.=7.45).

Monitoring and Blunting

The Threatening Medical Situations Inventory (TMSI – van Zuuren et al. 1996) assesses monitoring and blunting styles using responses to four hypothetical medical scenarios. The TMSI has acceptable reliability in Dutch speaking (van Zuuren and Muris 1993; Muris, van

Zuuren and de Vries 1994) and English speaking (van Zuuren et al. 1996) samples, shows good correlations with monitoring and blunting dimensions of Miller's (1987) Behavioral Style Survey (Muris, van Zuuren and de Vries 1994) and is related to coping behavior in the face of a quasi-medical stressor (Muris, van Zuuren and de Vries 1994) and predicts health-related behaviors (van Zuuren and Doopler 1999). Discriminant validity for this study is indicated by the absence of any relationship with trait anxiety or depression (Muris, van Zuuren and de Vries 1994). We used an English translation of the original Dutch scale (van Zuuren et al. 1996). Cronbach Alpha reliability analyses showed a coefficient of 0.82 for both monitoring and blunting.

Outcome Expectancies

Social cognitive theory specifies that outcome expectancies be measured with reference to specific outcomes. Domain-specific outcome efficacy estimations were measured using two five-point likert scales. Respondents were asked to estimate the probabilities of their experiencing a future heart attack and making a full recovery from their current condition, assuming that they cease smoking, eat a low-fat diet and engage in regular exercise.

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However, generalized measures of outcome expectancy (Scheier and Carver 1992) are also associated with emotional well-being in cardiac patients, independently of domain-specific outcome measures (Scheier, Magovern, Abbott, Matthews, Owens, et al 1989; Helgeson 1999, Helgeson and Fritz 1999). Generalized outcome expectancies were measured using the Life Orientation Test of dispositional optimism (LOT – Scheier and Carver 1985) The LOT has been used to successfully predict well-being and recovery in a sample of heart disease patients (Scheier, et al 1989). The full scale contains four items pertaining to optimistic outcomes and four pertaining to pessimistic outcomes. Recent factor analytic studies suggest that optimism and pessimism constitute separate but inversely related dimensions (Robinson-Whelan, Kim, MacCallum and Kiecolt-Glaser 1997; Chang and D'Zurilla 1994; Chang, Maydeu-Olivares and D'Zurilla 1997). We used both dimensions in this study.

Self-Efficacy

A four-item, self-efficacy scale was developed, with each item measured on a five-point likert scale. Items reflected the respondent's confidence in being able, if they chose, to lose weight, maintain weight loss for at least one year, maintain a low-fat diet for a year and maintain physical activity for 20 minutes, four times per week, for a full year. The scale had a Cronbach Alpha of 0.72.

Emotional Well-Being

General measures of mood appear to be more sensitive indicators of well-being in cardiac populations than measures of psychopathology, such as depression and anxiety (Denollet 1993). The Positive and Negative Affect Scale (PANAS) is based upon research demonstrating that self-reported mood states can be effectively classified on these two dimensions (Watson, Clark and Tellegen 1988). The use of mood scales confers an additional advantage, as they do not contain items pertaining to optimistic beliefs which may be spuriously associated with our outcome and efficacy measures. Each PANAS scale comprises ten specific mood-related

adjectives, rated on five-point scales, of frequency over a two-week period. Both PANAS scales have good reliability (Watson, Clark and Tellegen 1988), are correlated with other indicators of affect (Watson, Clark and Tellegen 1988) and are sensitive to changes over time (Watson, Clark and Tellegen 1988). When respondents are asked to consider a two-week period, there is a small inverse correlation between positive and negative affect ($r=.22$, Watson, Clark and Tellegen 1988).

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RESULTS

To detect possible sources of spurious correlation, we examined relationships between age, gender, diagnosis, time since the cardiac event and the presence of other serious health conditions and study variables. Although negative affect was inversely related to age ($r_{(78)}=-0.30$, $p<.01$), age was not related to monitoring or blunting, and, thus, could not be a source of spurious correlation. The existence of other health complaints (usually diabetes and arthritis) was related to both lower blunting ($t_{(32.01)}=2.36$, $p=0.024$) and lower positive affect scores ($t_{(30.98)}=2.74$, $p=0.010$), and may be a source of spurious correlation.

Means, standard deviations and intercorrelations for all measures used in this study are presented in Table 1.

Table 1. Means, Standard Deviations and Correlations Between Optimism, Coping Style and Affect Measures.

	Mean	S.D.	2	3	4	5	6	7	8	9
1 Monitoring	39.44	8.49	.30**	-.07	-.06	.15	.07	-.02	.10	.13
2 Blunting	43.04	7.61		.08	.06	.09	.33**	-.14	.30**	-.27**
3 Self-Efficacy	14.83	3.48			-.32**	.29**	.13	-.39**	.40**	-.06
4 Heart Attack Outcome	2.15	0.85				-.50**	-.31**	.15	-.39**	.19
5 Recovery Outcome	3.69	0.87					.34**	-.14	.47**	-.07
6 LOT Optimism	10.84	2.46						-.17	.33**	-.12
7 LOT Pessimism	6.50	2.91							-.26**	.28**
8 Positive Affect	30.14	6.67								-.37**
9 Negative Affect	20.58	8.98								

* $p < .05$, ** $p < .01$

Table 1. shows that blunting was associated with positive affect and inversely associated with negative affect, whilst monitoring was related to neither. As expected, self-efficacy and all

outcome expectancy variables predicted positive affect. However, only LOT Pessimism predicted negative affect.

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As monitoring and blunting were positively correlated with each other ($r=0.30$, $df=83$, $P<.001$), we entered both variables into two regression equations to identify unique predictors of positive and negative affect. As the existence of other health complaints was associated with both blunting and positive affect, we included this variable in the equation predicting positive affect. The equation predicting positive affect was significant ($R^2=0.16$, $F_{(2,84)}=5.33$, $p=0.003$) with blunting (standardized coefficient= 0.22 , $p<.048$) the sole predictor. The equation predicting negative affect was also significant ($R^2=0.12$, $F_{(2,84)}=5.45$, $p<.01$), with both monitoring (standardized coefficient= 0.23 , $p<.05$) and blunting (standardized coefficient= 0.33 , $p<.01$) significant predictors. It should be noted that monitoring was a significant multivariate, but not univariate, predictor of negative affect. The most likely explanation for this is that blunting acts as a suppressor for irrelevant variance in the monitoring variable (Pedhauer 1999), and that, with this variance suppressed, monitoring predicts negative affect.

Outcome Expectations and Self-Efficacy as Moderators of the Coping Style Affect Relationship

The two measures of specific outcome expectations and LOT Optimism were strongly intercorrelated (see Table 1.). To reduce the possibility of alpha error, we used a principal components analysis to combine them into a single variable. The principal components analysis yielded a single factor (eigenvalue= 1.78), explaining 58.92% of the variance (factor loadings; heart attack outcome -0.80 , recovery outcome 0.82 , LOT Optimism 0.68). Factor scores, LOT Pessimism scores and self-efficacy scores were divided into approximately equal groups using a median split. To identify moderating influences of outcome expectations and self-efficacy, we regressed monitoring and blunting onto both positive and negative affect for the full sample and for participants scoring high and low on outcome expectancy, LOT pessimism and self-efficacy. Again, we included the existence of other health concerns into the equation predicting positive affect. The R-square and standardized regression coefficients of these analyses are presented in Table 2.

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Table 2. R-Square and Standardized Regression Coefficients Predicting Affect Variables for the Full Sample and Broken Down by Outcome Expectations, Pessimism and Self-Efficacy.

	Positive Affect[#]	Negative Affect
Full Sample		
Monitoring	.06	.23*
Blunting	.22*	-.33**

Low Outcome Expectancy		
Monitoring	.13	.33*
Blunting	.39**	-.52**
High Outcome Expectancy		
Monitoring	.15	.16
Blunting	.01	-.12
Low LOT Pessimism		
Monitoring	.20	.27
Blunting	-.26	-.09
High LOT Pessimism		
Monitoring	-.08	.20
Blunting	.53**	-.09
Low Self-Efficacy		
Monitoring	-.06	.20
Blunting	.44**	-.43**
High Self-Efficacy		
Monitoring	.10	.16
Blunting	.02	.14

To eliminate the possibility of spurious correlation, the presence of co-morbid health conditions was included in the equation predicting positive affect.

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The analyses presented in Table 2 clearly show that the relationship between blunting and both affect variables was almost completely confined to low outcome expectations, high LOT Pessimism and low self-efficacy. The relationship between blunting and affect scores was only present when participants also scored below the median on outcome expectations, LOT Pessimism and self-efficacy. Monitoring was positively associated with negative affect in the full sample and in those with low outcome expectancy scores. However there were no consistent trends suggesting that the association between monitoring and negative affect was moderated by any expectancy variable.

DISCUSSION

We used a sample of recovering cardiac patients to examine relationships between coping style and emotional well-being, and possible moderation of those relationships by outcome and self-efficacy expectations. As we predicted, the positive relationship between blunting and emotional well being held only for patients who scored low on outcome and self-efficacy measures. However, our prediction that negative relationships between monitoring and well-being would only hold for participants with low expectancy scores was not supported.

Some caution must be exercised in the interpretation of these findings. Generalizability of our results may be limited due to participant self-selection. Participation in cardiac rehabilitation in Australia is voluntary, and less than 50% of recovering cardiac patients take advantage of programs. The effects of this bias are unknown. On one hand, patients who choose to attend rehabilitation may be more likely to engage in active coping, both by disposition and the influence of program content. However, it may also be the case that patients with greater physical and emotional needs choose to attend rehabilitation programs. The generalizability problem is compounded by the low response rate of 49%. Another interpretive problem lies in the difficulty in ascribing causal relationships from a correlational design. Reverse causation (e.g., emotional well being may cause blunting) or causation by an unmeasured third factor are possible. However, we suggest that a causal relationship between coping style and affect is the most likely interpretation, because coping style is a dispositional measure with a high temporal stability (Muris, van Zuuren and de Vries 1994) whilst the PANAS measures refer only to the two weeks preceding questionnaire completion. A final interpretive limitation is that high outcome and efficacy expectations refer to beliefs about coping effectiveness. It is not possible to determine whether our findings are attributable to the expectations themselves or any coping responses that they may stimulate.

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Van Elderen et al., (1999) pointed out that a dispositional tendency toward blunting has short-term benefits for emotional well-being, but it may have poor long-term effects because it inhibits problem-focussed coping. Based on research findings that emotion-focussed coping is used when problem-focussed coping options are perceived to be ineffective (Rippetoe and Rogers 1987), we suggested that the relationship between blunting and well-being should be stronger in patients with low outcome and efficacy expectancies. This finding suggests that blunting protects emotional well-being when expectations of being able to cope are low, but does not affect well-being when expectations are high. This is consistent with de Groot et al's (1997) experimental work showing that blunters are superior at coping with uncontrollable threat stimuli. A key question is whether blunting is suppressed when expectations are high, or whether blunting still occurs but is ineffective. If the former is true, blunting represents a valuable resource for coping with stressful events. If the latter is true, the benefits of blunting need to be considered in the light of the potential inhibition of future problem-focussed coping attempts. This question is presently unanswered, and requires a longitudinal study of the hypothesis that elevations of outcome expectations will suppress blunting and reduce problem-focussed coping.

As expected, monitoring was related to higher levels of negative affect. A great deal of literature suggests that monitors' focus on stressful stimuli can augment their emotional reactions to them (Constans, Mathews, Brantley and James 1999; Muris, van Zuuren and de Vries 1994; van

Zuuren and Muris 1993). Van Elderen et al. (1999) suggest that this disadvantage may be offset over time by monitors' propensity for problem-focussed coping. As monitoring is associated with emotional distress early in the recovery period, we are concerned that this may deter monitors' engagement in problem-focussed coping. This concern is heightened by the fact that the correlation did not greatly differ between patients with high or low expectancies. We are not aware that this problem has been identified or a resolution attempted in the literature, and research is certainly recommended. On a practical level, one possible option may be to teach monitors the use of appropriate emotion-focussed coping techniques such as relaxation and distraction.

In summary, our findings suggest that blunting represents a coping resource when expectations of problem-focussed coping are low. It is currently not known whether this benefit is offset by blunters' unwillingness to engage in problem-focussed coping. We also found monitoring to be related to negative affect. A number of future research priorities can be identified from this research. A longitudinal study is desirable to consolidate our findings, and to extend them to identify the influence of interventions designed to increase outcome expectations and teach appropriate coping techniques to both monitors and blunters. It may also be useful to determine the extent to which patients actually engage in coping behavior, to supplement measures of coping style in hypothetical situations.

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