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# Coping With a Breakup: Negative Mood Regulation Expectancies and Depression Following the End of a Romantic Relationship

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Three studies assessed the impact of generalized expectancies for negative mood regulation on the severity of depression individuals experience following the end of a romantic relationship. The Negative Mood Regulation Scale (NMR) measured these expectancies. In Study 1 ($n$ = 583), the NMR predicted college students' reports of initial depression in the first week after the relationship ended. Study 2 ($n$ = 114) demonstrated that subjects with higher expectancies used active coping strategies more than did those with lower expectancies. Study 3 ($n$ = 78) provided prospective data that showed subjects' NMR scores to predict initial depression in the first week after a relationship ended—when that relationship ended subsequent to their taking the NMR. Results support the importance of expectancies for negative mood regulation as determinants of emotional reactions to distressing events, and they support the validity of the NMR.



Several factors have been proposed as influencing how people react emotionally to distressing events. Antonovsky (1987a, 1987b) described one such factor: Sense of coherence is a belief that one's life is comprehensible, orderly, and predictable. Antonovsky (1987b) suggested that people with a high sense of coherence have more flexibility when confronting life problems and that, therefore, they view life's demands as less threatening and more manageable. Antonovsky and Sagy (1986) presented evidence that a high sense of coherence is associated with lower levels of anxiety before and after an anticipated distressing event. Related to sense of coherence is the concept of hardiness. Kobasa and colleagues (Kobasa, Maddi, Puccetti, & Zola, 1985; Kobasa & Puccetti, 1983) described people high in hardiness as having a sense of commitment to their lives and as feeling in control. People high in hardiness anticipate needed life changes and incorporate them. High levels of hardiness have been related to lower incidence of illness among individuals in stressful situations (Kobasa et al., 1985; Kobasa & Puccetti, 1983).

Taylor (e.g., Taylor, Lichtman, & Wood, 1984) also suggested that perceiving oneself as in control positively affects one's adjustment to distressing events, such as having breast cancer. And Taylor and Brown (1988) proposed that these beliefs in one's control can be beneficial even when they are unrealistic or overly optimistic. Bandura (1977; Bandura, Cioffi, Taylor, & Brouillard, 1988) has presented evidence that one's sense of self-efficacy regarding stress—a belief that one has control over stressors in one's life—is associated with less distress and lower autonomic arousal after experiencing a stressful event. Rotter's (1982b, 1982c) construct of expectancies for control of reinforcement has been widely investigated with regard to people's reactions to distressing events. Finally, research by Smith and colleagues (e.g., Lazarus & Smith, 1988; Smith & Ellsworth, 1985, 1987) suggests that people's appraisals of circumstances are important determinants of their emotional reactions.

## The Coping Process

The process by which people respond to distressing events has been labeled coping. Lazarus and Folkman (1984) described people's reactions to events as being determined by primary and secondary appraisals of the situation. They defined secondary appraisal as an assessment of one's options for coping and primary appraisal as an assessment of what is at stake in a situation requiring coping. Lazarus and Folkman (1984) also drew parallels between secondary appraisal and Bandura's outcome expectancy, and beliefs about personal control such as Rotter's reinforcement expectancies. They proposed that the interaction of primary and secondary appraisals shapes one's emotional reaction to a distressing event, but their model is not clear about whether this outcome is mediated by use of coping strategies. However, several studies (e.g., Billings & Moos, 1984; Folkman & Lazarus, 1988; Holahan & Moos, 1987) have shown that the types of coping strategies individuals engage in determine their reactions to distressing events: Use of planning or problem-solving strategies is associated with more positive emotional outcomes, whereas use of strategies that distance the person from solving the problem through avoidance is associated with more negative coping outcomes.

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In general, Lazarus and Folkman's (1984) model of coping closely resembles Rotter's (1954, 1982a) model for behavior potential: Primary appraisal parallels reinforcement value, and secondary appraisal resembles expectancy. In Rotter's (1954) model, behavior is jointly determined by the expectancy of gaining a reinforcement and the subjective value of that reinforcement. Because of this similarity between the Lazarus and Folkman (1984) primary appraisal/secondary appraisal model and Rotter's (1954) reinforcement value/expectancy model, it should be possible to pursue coping research within the framework of Rotter's social learning theory.

## Expectancies for Negative Mood Regulation

Recently, Catanzaro and Mearns (1987, 1990) devised a questionnaire to measure generalized expectancies for negative mood regulation. They defined the construct within social learning theory (Rotter, 1954, 1982a) as people's generalized expectancies that they can do something to alleviate the negative moods they experience. Negative mood regulation expectancies would be considered situational appraisals by Lazarus and Folkman (1984); situational appraisals include expectancies about one's ability to have control over one's feelings or reactions. Mood regulation expectancies are also related to Rotter's internal–external control of reinforcement (I-E) expectancies, although they are more specific than I-E expectancies in that they relate to situations involving emotions. Mood regulation expectancies may also play a role in phenomena such as sense of coherence, hardiness, and beliefs in personal control.

Catanzaro and Mearns (1990) reported data that suggest that the Negative Mood Regulation Scale (NMR) has good psychometric qualities and good concurrent validity, and they presented evidence of the NMR's discriminant validity from measures of depression. They also proposed that mood regulation expectancies would be an important determinant of people's coping behavior in response to a distressing event.

Following research by Holahan and Moos (1987) in which personality dispositions were used to predict use of coping strategies, Kirsch, Mearns, and Catanzaro (1990) made a preliminary examination of the role of negative mood regulation expectancies in the coping process. Kirsch et al. (1990) introduced the NMR into Holahan and Moos's (1987) methodology, assessing social support, stressful life events, coping strategies, personality disposition, expectancies, and coping outcomes of depression and somatic complaints in a cross-sectional study of a large number of college undergraduates. Kirsch et al. found that expectancies for negative mood regulation were significantly positively associated with the use of active, problem-focused coping strategies and negatively associated with avoidance strategies. Also, analyses showed that the NMR made a significant independent contribution to the prediction of depression and somatic complaints, above and beyond the scale's association with coping strategy. This suggests that the relationship between expectancies and emotional reactions to stressful life events is not wholly mediated by attempts at coping. Rather, mood regulation expectancies exhibit, as well, direct influences on one's emotional reactions. Kirsch et al. (1990) concluded that these expectancies are partially self-confirming generalized response expectancies (cf. Kirsch, 1985, 1990): Having the belief that one can regulate one's negative moods has a direct impact on one's mood state.

Catanzaro and Mearns (1990) and Kirsch et al. (1990) have shown that, when life stress is statistically held constant, people with different levels of NMR expectancies differ in both their level of depression and the behaviors they use to cope with stressful life events. However, what process accounts for the difference in level of depression has yet to be determined. Do individuals scoring high and low on the NMR scale differ significantly in their immediate reactions to stressful or upsetting circumstances? Or is the entire difference accounted for by the rate with which they recover from a stressful or upsetting stimulus? Do high scorers recover at a faster rate than do others? This investigation will attempt to answer these questions. In addition, this study is intended to replicate Kirsch et al.'s findings that individuals rely on active and avoidant coping differently depending on their level of negative mood regulation expectancies.

## Overview of the Present Research

Subjects in the three studies were college undergraduates who had recently experienced the end of a romantic relationship. Study 1 is a cross-sectional investigation that examines the ability of the NMR to predict depression in the first week after the end of a romantic relationship. Study 2 presents longitudinal data on the ability of the NMR to predict changes in depression over a 1-month interval, following the recent end of a relationship. Study 3 is a prospective study that examines the ability of the NMR—taken before a relationship ended—to predict initial and current depression reported 6 months later, following the subsequent end of the relationship.

It was hypothesized that, when relationship characteristics were held constant, expectancies for negative mood regulation would predict both subjects' initial depression in the first week following the end of a romantic relationship and the rate at which their depression diminished over time. People with high scores on the NMR were expected (a) to be less depressed initially after the relationship's end, (b) to experience a more rapid lessening of depression over time, and (c) to use more active, problem-focused coping strategies and fewer avoidance strategies.

## Study 1

### *Method*

#### *Subjects*

Subjects were 372 female and 211 male undergraduate students. Their mean age was 18.2 years ($SD$ = 1.0), and 79% of them were freshmen. Subjects were drawn from approximately 1,500 individuals who filled out questionnaires during a regularly scheduled laboratory period for their introductory psychology course. Subjects in this study were those who reported experiencing the end of a romantic relationship within the preceding 12 months.

#### *Measures*

*NMR.* The NMR (Catanzaro & Mearns, 1987, 1990) is a 30-item self-report measure on which subjects respond to a number of stems

completing the statement, "When I'm upset, I believe that. . . ." The completions represent different behavioral and cognitive strategies for coping with negative moods, and subjects rate to what extent they think each strategy generally will work for them to alleviate a negative mood. Sample completions include "planning how I'll deal with things will help," "wallowing in it is all I can do," and "I can feel better by treating myself to something I like." Catanzaro and Mearns (1987) reported alpha coefficients—an index of internal consistency—for the NMR of between .86 and .92. They also reported correlations with the Marlowe–Crowne Social Desirability Scale that ranged from .09 to .23. Test–retest correlations ranged from .76 for a 1-month interval to .67 for 8 weeks. Catanzaro and Mearns originally intended for cognitive and behavioral items to constitute discrete subscales; however, proposed subscales did not exhibit different patterns of correlations with criterion measures, and factor analyses have shown the NMR to be a unidimensional scale (Catanzaro & Mearns, 1990).

*Relationship survey.* The Relationship survey was constructed for this study. Subjects were asked to report on a romantic relationship that had ended during the previous year. If they had experienced the end of more than one relationship, they were asked to report on the relationship most recently ended. The survey was designed to assess several aspects of the ended relationship that Hindy and colleagues (Hindy, 1984; Hindy, Schwarz, & Brodsky, 1989) identified as important predictors of postbreakup depression: (a) duration of the relationship, (b) how much the subject wanted the relationship to end, (c) how much the partner wanted it to end, (d) the intensity of the subject's love or infatuation with the partner, (e) the partner's physical attractiveness, and (f) the exclusivity of the relationship. The survey also included a depression measure that the subjects filled out twice—once for the worst they had felt during the first week after the relationship ended and again for the worst they had felt in the past week.

The depression inventory was adapted by Kirsch et al. (1990) from the Health and Daily Living Form (Moos, Cronkite, Billings, & Finney, 1983). It consists of 19 statements of symptoms of depression, and subjects twice rated the frequency with which they experienced each symptom—once for each time period—on a scale ranging from *never* to *constantly.* Kirsch et al. reported an alpha coefficient of .92 for this measure, and in the current research this depression measure exhibited correlations ranging from .74 to .78 with a contemporaneously administered Beck Depression Inventory (BDI; Beck, 1978).

### Procedure

Subjects completed the NMR and the Relationship survey in groups of approximately 25 students during their regularly scheduled laboratory meetings. These two questionnaires were interspersed among several other measures, which made it unlikely that subjects would perceive any relation between the two. All students (1,500) were asked to fill out the NMR, whereas only those students who had experienced the end of a romantic relationship within the past year (583) were asked to complete the Relationship survey.

## Results and Discussion

### Characteristics of the Relationships

Subjects had experienced the end of their relationships a mean of 17.5 weeks previously ($SD$ = 10.8, median = 14). Their relationships lasted an average of 11.5 months ($SD$ = 10.8, median = 8).[1] Subjects rated both themselves and their partners as leaning slightly toward wanting to continue the relationship. Also, subjects rated themselves as generally experiencing strong feelings of love for their partners, and they reported the relationships to be almost unanimously exclusive. In general, the relationships subjects reported on appeared to be psychologically involving and important to them.

A simultaneous regression analysis was conducted to determine the relationship characteristics most strongly associated with initial depression. Four variables made independent predictions: (a) how much the subjects wanted the relationship to end, $F(1, 555) = 59.76$, $p < .0001$; (b) the intensity of the subject's love for the partner, $F(1, 555) = 50.52$, $p < .0001$; (c) how much the partner wanted the relationship to end, $F(1, 555) = 5.40$, $p < .05$; and (d) the partner's physical attractiveness, $F(1, 555) = 4.87$, $p < .05$.

### NMR Expectancies and Depression

Scores on the NMR ranged from 48 to 144, with a mean of 103.5 ($SD$ = 16.7, median = 103).[2] Scores ranged from 18 to 90 for initial depression in the first week after the relationship ended ($M$ = 49.0, $SD$ = 17.3, median = 49). For current depression in the past week, the mean was 34.4 ($SD$ = 11.6), and scores ranged from 18 to 80. To test for sex differences in NMR and depression, subject sex was regressed as a class variable separately on each variable. There was no significant sex difference in NMR, $F(1, 581) = 1.36$, $p > .10$. However, women and men significantly differed in both initial depression, $F(1, 581) = 24.65$, $p < .0001$, and current depression, $F(1, 581) = 22.64$, $p < .0001$. Women reported more severe depression in both instances.

The NMR correlated −.31 with initial depression and −.35 with current depression, and the correlation between initial and current depression was .43 (all $df$s = 582, $p < .0001$). In order to assess the extent to which the NMR predicted initial depression—outside of its association with current depression—sex of subject, the four relationship variables most predictive of initial depression, current depression, and the NMR were simultaneously regressed on initial depression. Current depression was included as a statistical control for current mood at the time the NMR was filled out. For the model, $R^2$ was .45, $F(7, 567) = 65.85$, $p < .0001$, and all terms except partner's attractiveness were significant independent predictors of initial depression. Table 1 displays $F$ and $\beta$ values for the regression analysis. Of most interest is the NMR, which was a significant predictor despite the partialling out of variance associated with other variables (see Table 1). This finding suggests that the NMR is not merely measuring a cognitive symptom of current depression, such as hopelessness, and it indicates that negative mood regulation expectancies have an impact on initial depression following an upsetting event. When other variables predicting depression at the end of a relationship are statistically controlled for, subjects with higher negative mood regulation ex-

[1] Statistics suggest that the distribution was skewed toward containing more relationships of shorter duration (skewness = 1.47). This skewness should not pose a problem for data analysis, in part because length of relationship is not an important predictor of depression following the relationship's end.

[2] There was no difference in NMR total between subjects in this study ($n$ = 583) and those who completed the NMR ($N$ = 1,500) but had not had an ended relationship.

Table 1
*Simultaneous Regression Analysis for Predictors of Initial Depression*

| Predictor | *F* | β |
|---|---|---|
| Sex of subject | 35.11* | −.19 |
| Subject wanted to end | 68.81* | −.29 |
| Intensity of love | 55.96* | .27 |
| Partner wanted to end | 11.07* | .11 |
| Physical attractiveness | .56 | −.03 |
| Current depression (Time 2) | 53.75* | .25 |
| Negative Mood Regulation Scale | 24.49* | −.17 |

*Note.* $N = 583$.
* $p < .01$.

pectancies reported feeling less depressed in the first week following the end of their romantic relationships.

## Study 2

Study 2 provides longitudinal data on the association between the NMR and depression in individuals who had recently experienced the end of a relationship.

### Method

#### Subjects

An attempt was made to contact by telephone all Study 1 subjects who had experienced the end of a romantic relationship within the previous 8 weeks to invite them to return for two additional sessions. A total of 81 women and 33 men completed Study 2 with no missing data. Their mean age was 17.9 ($SD = .7$), and 85% were college freshmen.

#### Measures

In addition to the NMR and the Relationship Survey described above, three other measures were used in Study 2.

*Depressive Symptom Inventory (DSI).* The DSI is the same depression measure used in the Relationship survey. However, in Study 2, subjects rated themselves only once: The DSI asks subjects to rate the worst they had felt during the previous week on a 1 to 5 scale for 19 symptoms of depression.

*BDI.* The BDI[3] (Beck, 1978) is a 21-item inventory. Each item assesses one symptom of depression and consists of four statements that describe experience of the symptom with a different degree of severity. The subjects choose which statement best describes how they have been feeling in the past week. Beck, Steer, and Garbin (1988) reported that the BDI has exhibited a high level of internal consistency in studies with nonpsychiatric populations, and that alpha coefficients have ranged from .82 to .92. Beck et al. (1988) also reported that test–retest correlations ranged from .60 to .90 for undergraduate subjects tested at a 2-week interval or less.

*Coping Behaviors Inventory.* The Coping Behaviors Inventory was adapted by Kirsch et al. (1990) from the assessment of coping contained in the Health and Daily Living Form (Moos et al., 1983). The Moos et al. measure consists of three subscales: active–behavioral, active–cognitive, and avoidant. Kirsch et al. combined the two active coping subscales into a single active scale, which exhibited higher internal consistency than either of the separate subscales. In addition, Kirsch et al. supplemented the measure with 8 active coping items. This resulted in a 41-item measure comprising two subscales—active and avoidant. The scale asks people to rate the frequency of 41 coping behaviors they may have employed since their relationship ended. Sample active items include "treated myself to something I like," "tried to find out more about the situation," and "made a plan of action and followed it." Sample avoidant items include "refused to believe that it happened" and "kept things to myself." Items are rated on a 4-point scale ranging from *no, never* to *yes, fairly often.* Kirsch et al. reported alphas for this measure that ranged from .86 for active coping to .62 for avoidant coping.

#### Procedure

Figure 1 presents a diagram of the testing sessions and instruments used in Study 2, in which Study 1 subjects were assessed twice more. The first follow-up session (Session 2/Time 3) took place approximately 2 weeks after their participation in Study 1, and the second session (Session 3/Time 4) occurred 2 weeks after the first follow-up session. During Session 2, subjects filled out both the DSI and the BDI, rating their depression during the previous week, and the Coping Behaviors Inventory. At Session 3, subjects again filled out the DSI and the BDI, rating their depression for the previous week, and they also took a second NMR. Sessions 2 and 3 were group testing sessions, with between 25 and 35 subjects participating in each group.

#### Results and Discussion

In order to test for differences between the samples for Studies 1 and 2, whether or not the subject completed Study 2 was regressed as a class variable on the relationship characteristics and scale totals. Only two pairs came out significantly different: how long ago the relationship ended, $F(1, 581) = 186.0$, $p < .0001$, and level of current depression, $F(1, 581) = 23.22$, $p < .0001$. Compared with all subjects who participated in Study 1, those subjects who completed Study 2 had experienced the end of their relationship more recently, and they were significantly more depressed at Time 2 (T2). Both of these results are as expected. The subjects' similarity on the other variables indicated that the sample of subjects who completed Study 2 did not differ systematically from the population who participated in Study 1.

#### Time 3 and Time 4 Variables

In Study 2, over 40% of the subjects were experiencing clinically measurable depression. Scores on the BDI indicate that, at Time 3 (T3), 57.1% of the subjects were experiencing "none to minimal depression," 31.1% were experiencing "mild to moderate depression," 10.1% were experiencing "moderate to severe depression," and 1.7% were experiencing "severe depression" (Beck et al., 1988, p. 79). For the Time 4 (T4) BDI, these percentages were 69.7, 21.1, 8.4, and .8, respectively. In order to assess for sex differences in the T3 and T4 DSI, BDI, and coping strategies, sex of subject was regressed as a class variable on each value. Two variables exhibited differences by subject sex: active coping, $F(1, 111) = 8.74$, $p < .01$, and DSI at Time 3, $F(1, 112) = 4.37$, $p < .05$. Women were higher on both measures.

The 1-month test–retest correlation for the NMR was .75. Correlations between the depression measures were .72 and .71

[3] I am grateful to Aaron T. Beck, who granted me permission to reproduce the scale for use in this research.

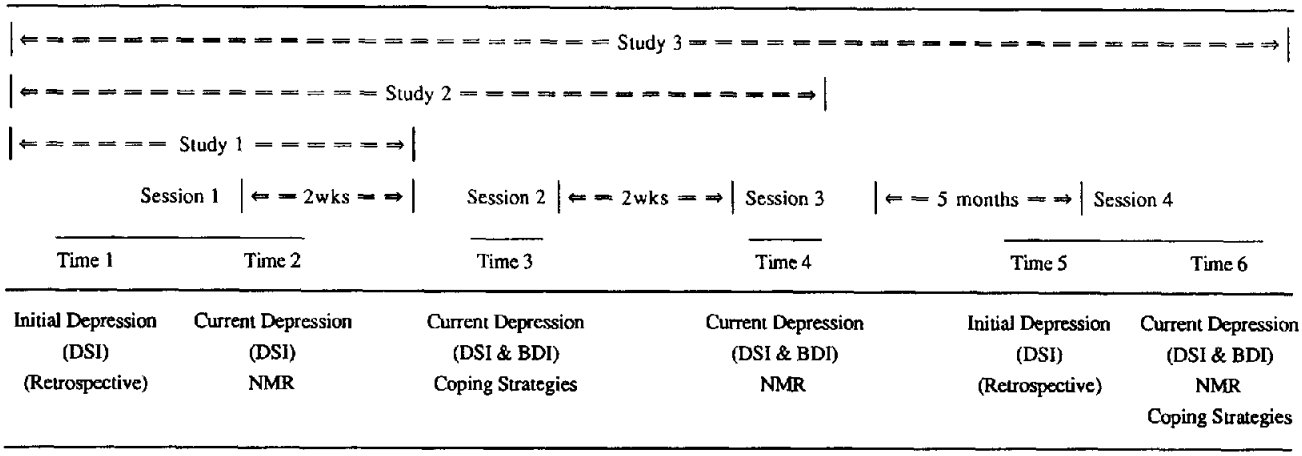


*Figure 1.* Chronology of studies, sessions, and questionnaire administrations.

for the pairs of successive administrations of the DSI and .76 between the T3 and T4 administrations of the BDI. Table 2 presents correlations between the Session 1 variables and the variables assessed at follow-up. All follow-up variables were significantly correlated with the three Session 1 variables, except for active coping, which was not correlated with any variables. Session 1 depression was positively correlated with follow-up depression and avoidant coping, whereas the NMR was significantly negatively correlated with both of them.

### *NMR and Coping Behavior*

Two regression analyses were conducted to examine whether NMR scores predicted attempts at coping with the end of the relationship (reported at follow-up) above and beyond what was predicted by subjects' level of depression. In the first analysis, subject sex, Time 1 (T1) initial depression, T2 current depression, and T2 NMR were simultaneously regressed on avoidant coping at T3. The $R^2$ for the model was .26, $F(4, 108) = 9.52$, $p < .0001$, with initial depression being the only significant independent predictor; it was positively associated with avoidant coping. (See Table 3 for $F$ and $\beta$ values for the model.) In the second analysis, the same four predictor variables were regressed on active coping at T3. The $R^2$ for this model was .12, $F(4, 108) = 3.81$, $p < .01$, with subject sex and NMR being the only significant independent predictors (see Table 3). Women reported more active coping, and high NMR scores were associated with more active coping.

A comparison of the values in Table 2 with those in Table 3 reveals that the relationship between NMR and the two coping strategies changes depending on the analyses performed. The significant correlation between NMR and avoidant coping (Table 2) disappears in the regression analysis (Table 3). It is quite possible that the correlation between NMR and avoidant coping was due to both variables' correlations with initial depression. Therefore, when NMR and initial depression are simultaneously regressed on avoidant coping, NMR does not uniquely account for any variance in avoidant coping. The change in NMR's relationship with active coping most likely results from the inclusion of subject gender in the regression equation. Gender was correlated with active coping, but it did not correlate with NMR. By adding gender to the regression model, the proportion of variance explained by NMR is increased.

These regression results are similar to those reported by

Table 2
*Correlations of Session 1 Variables With Follow-Up Variables*

| | Session 1 | | |
|---|---|---|---|
| | Depression | | |
| Follow-up variable | Initial (Time 1) | Current (Time 2) | NMR (Time 2) |
| NMR (Time 4) | −.45* | −.46* | .75* |
| Active coping (Time 3) | .16 | .11 | .15 |
| Avoidant coping (Time 3) | .50* | .28* | −.27* |
| Depressive symptoms (Time 3) | .62* | .72* | −.42* |
| Depressive symptoms (Time 4) | .41* | .50* | −.33* |
| Beck Depression Inventory (Time 3) | .54* | .60* | −.45* |
| Beck Depression Inventory (Time 4) | .35* | .51* | −.37* |

*Note.* NMR = Negative Mood Regulation Scale. $N = 114$.
* $p < .01$.

Table 3
*Simultaneous Regression Analyses for Predictors of Coping Strategies at Time 3*

| Predictor | Coping strategy: Active F | Active β | Avoidant F | Avoidant β |
|---|---|---|---|---|
| Subject sex | 4.26* | −.20 | .74 | .07 |
| Initial depression (Time 1) | 2.09 | .16 | 23.06** | .50 |
| Current depression (Time 2) | .47 | .08 | .14 | −.04 |
| Negative Mood Regulation Scale (Time 2) | 4.81* | .23 | .70 | −.08 |

*Note.* $N = 114$.
* $p < .05$. ** $p < .01$.

Kirsch et al. (1990), and indicate that the determinants of active versus avoidant attempts at coping may be different. Gender differences aside, active coping appears to be related to personality characteristics such as mood regulation expectancies, whereas avoidant coping appears to be most strongly influenced by intensity of distress.

### *NMR Expectancies and Change in Depression*

In order to assess the association between scores on the Session 1 NMR and change in depression over time, NMR was correlated with a residual change score for depression. The residual was created by regressing current depression at T2 on depression at T4. The correlation of NMR and the depression change value was not significant.

## Study 3

Study 3 was intended to replicate and extend the findings of Study 1. Because the NMR was administered subsequent to the end of the relationship in Study 1, no conclusion as to causal direction could be made. Study 3 was intended to clarify the association between NMR and initial depression by gathering prospective data.

### *Method*

#### *Subjects*

Subjects were 71 female and 7 male undergraduates. Their mean age was 17.9 ($SD = .6$), and 85% of them were freshmen. Subjects were recruited by the experimenter from the second semester of a two-semester introductory psychology course. They were asked to volunteer their participation if they met two eligibility criteria: (a) they had been in the first semester of introductory psychology in the previous semester, and (b) they had experienced the end of a romantic relationship subsequent to the testing during that semester. Only subjects with complete data are reported here. Forty-seven of these subjects were among the subjects reported on in Study 1, and 12 of them participated in Study 2.

#### *Measures*

Subjects filled out the Relationship survey, the NMR, the BDI, and the Coping Inventory.

#### *Procedure*

Subjects were tested once in group sessions of approximately 20 individuals (Session 4). This session took place 6 months after Session 1. (See Figure 1 for a diagram of sessions and times for Study 3.)

### *Results and Discussion*

To test for differences within the Study 3 sample between those who had and had not participated in Study 1, participation was regressed as a class variable on relationship variables and scale totals. There were no significant differences between the two groups on any of the variables.

In order to assess the association between scores on the NMR and depression following—and coping with—the subsequent end of a romantic relationship, zero-order correlations were calculated between NMR at Session 1 and NMR, depression, and coping at the 6-month follow-up. These results are presented in Table 4. The 6-month test–retest correlation for NMR was .65. Session 1 NMR was significantly negatively related to the level of initial depression after the subsequent end of a romantic relationship and current depression 6 months later, as measured by the BDI. Also, Session 1 NMR was significantly positively related to active coping attempts following the end of that relationship.

Table 4 also presents the zero-order correlations between T2 current depression and the 6-month follow-up variables for those 47 subjects in Study 3 who filled out a Relationship survey during Session 1. Time 2 current depression was significantly correlated with only current depression at follow-up, as measured by the DSI.

Table 4
*Correlations of Session 1 NMR and Current Depression With 6-Month Follow-Up Variables*

| 6-month follow-up variable | Session 1: NMR ($N = 78$) | Session 1: Current depression ($n = 47$) |
|---|---|---|
| NMR (Time 6) | .65* | .15 |
| Active coping (Time 6) | .37* | .12 |
| Avoidant coping (Time 6) | −.06 | −.06 |
| Initial depression (DSI; Time 5) | −.27* | .23 |
| Current depression (DSI; Time 6) | −.20 | .38* |
| Beck Depression Inventory (Time 6) | −.27* | .13 |

*Note.* NMR = Negative Mood Regulation Scale. DSI = Depressive Symptom Inventory.
* $p < .01$.

### *NMR and Subsequent Initial Depression*

In order to examine further the extent to which NMR predicted reactions to the subsequent end of a romantic relationship, the four relationship variables and NMR at T2 were entered into a simultaneous regression equation as predictors of initial depression at Time 5 (T5). $R^2$ was .33, $F(5, 72) = 7.22$, $p < .0001$, and NMR was a significant independent predictor of subsequent initial depression (see Table 5 for $F$ and $\beta$ values). As a more stringent test, the regression model was run again, with the addition of T2 current depression from the Session 1 Relationship survey ($n = 47$). In this analysis, $R^2$ was .45, $F(6, 40) = 5.43$, $p < .001$, and both NMR and current depression were significant independent predictors of depression during the first week of the subsequent breakup (see Table 5).

The results of these analyses provide strong evidence for the validity of the NMR. Subjects' expectancies for negative mood regulation were significantly associated with less intense depression following the subsequent breakup of a romantic relationship, and these expectancies remained significant predictors even when the variance explained by current level of depression was removed.

### *NMR and Subsequent Coping Behavior*

As in Study 2, two regression analyses were conducted to examine whether the NMR predicted attempts at coping with the end of the relationship—ended subsequent to their filling out the NMR—above and beyond what was predicted by depression. In the first analysis, T5 initial depression, T2 current depression, and T2 NMR were simultaneously regressed on avoidant coping at the 6-month follow-up. The $R^2$ for the model was .25, $F(3, 43) = 4.69$, $p < .01$, with initial depression being the only significant independent predictor (see Table 6 for $F$ and $\beta$ values). In the second analysis, the same three predictor variables were regressed on active coping at Time 6. The $R^2$ for this model was .20, $F(3, 43) = 3.55$, $p < .05$, with NMR being the only significant independent predictor (see Table 6). These results replicate the findings of Study 2 and extend them by providing prospective data.

It appears that active attempts to cope with a distressing situation and attempts to avoid dealing with the problem have different determinants. Active coping attempts seem to stem from expectancies that coping behaviors will alleviate subjects' negative mood, whereas avoidance stems more from the intensity of depression experienced.

Table 5
*Simultaneous Regression Analyses for Predictors of Subsequent Initial Depression*

| Model/predictor | $F$ | $\beta$ |
|---|---|---|
| Model 1 ($N = 78$) | | |
| Subject wanted to end | 16.90** | −.49 |
| Intensity of love | .19 | .04 |
| Partner wanted to end | .14 | .04 |
| Physical attractiveness | .45 | .07 |
| NMR (Time 2) | 6.48** | −.25 |
| Model 2 ($n = 47$) | | |
| Subject wanted to end | 8.51** | −.43 |
| Intensity of love | .12 | .04 |
| Partner wanted to end | 1.70 | .18 |
| Physical attractiveness | 1.09 | −.14 |
| Current depression (Time 2) | 4.42* | .25 |
| NMR | 6.09** | −.32 |

*Note.* NMR = Negative Mood Regulation Scale.
* $p < .05$. ** $p < .01$.

Table 6
*Simultaneous Regression Analyses for Predictors of Subsequent Coping Strategies*

| | Coping strategy | | | |
|---|---|---|---|---|
| | Active | | Avoidant | |
| Predictor | $F$ | $\beta$ | $F$ | $\beta$ |
| Initial depression (Time 5) | 1.84 | −.20 | 12.83** | .52 |
| Current depression (Time 2) | 1.58 | .18 | 1.69 | −.18 |
| Negative Mood Regulation Scale (Time 2) | 4.57* | .31 | .14 | .05 |

*Note.* $n = 47$.
* $p < .05$. ** $p < .01$.

## General Discussion

### *NMR and Initial Depression After a Relationship Ends*

This research shows the NMR to be a useful predictor of emotional reaction to a distressing event. Two studies, including a prospective analysis, demonstrate that the NMR predicts depression in the first week following the end of a romantic relationship, and they demonstrate that the NMR predicts initial depression independent of subjects' mood at the time they filled out the NMR. These data provide evidence that the NMR is psychometrically distinct from measures of depression, and they demonstrate the predictive validity of the NMR. High scorers on the NMR show evidence of greater mood regulation capabilities after a distressing event: People with high expectancies for regulating negative moods become less depressed following a depressing event than do individuals with low expectancies.

### *NMR and Active Coping Behavior*

The NMR also predicted subjects' reports of active attempts to cope with the end of the relationship, either through behaviors or problem-solving cognitions, and was able to do so even when those coping behaviors were in response to the end of a relationship subsequent to when they filled out the NMR. These results indicate that not only can the NMR predict affective consequences of a distressing event, it can also predict behavioral responses to the event. Subjects with higher mood regulation expectancies exhibited more active coping strategies than those with low expectancies.

### *NMR and Change in Depression Over Time*

Analyses did not support the hypothesis that the NMR would predict change in depression over time. Further longitudinal research is needed to clarify the relationship between NMR and change in current depression over time.

### *Conclusion and Implications*

The results of the three studies reported here (a) provide support for the validity of the NMR and (b) illuminate the process by which negative mood regulation expectancies affect people's moods following a distressing event. Individuals with high expectancies for mood regulation become less depressed immediately following an upsetting event. In addition, these people were more likely to engage in active coping attempts following the breakup.

Results of these studies suggest the value of research on the role of negative mood regulation expectancies in the coping process and the value of the NMR as a measure of these expectancies. Results also support the utility of researching the coping process within a social learning theory framework. Future research should continue to focus on the process by which expectancies affect mood: Do mood regulation expectancies affect the rate of abatement of depression over time? To what extent is the impact of these expectancies on initial depression unmediated by use of coping strategies? Finally, further studies should examine the effects of mood regulation expectancies on negative emotions other than depression, such as anger and fear.

## References


Antonovsky, A. (1987a). The salutogenic perspective: Toward a new view of health and illness. *Advances, 4,* 47–55.

Antonovsky, A. (1987b). *Unraveling the mystery of health: How people manage stress and stay well.* San Francisco: Jossey-Bass.

Antonovsky, H., & Sagy, S. (1986). The development of a sense of coherence and its impact on responses to stress situations. *Journal of Social Psychology, 126,* 213–225.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191–215.

Bandura, A., Cioffi, D., Taylor, C. B., & Brouillard, M. E. (1988). Perceived self-efficacy in coping with cognitive stressors and opioid activation. *Journal of Personality and Social Psychology, 55,* 479–488.

Beck, A. (1978). *Depression inventory.* Philadelphia: Center for Cognitive Therapy. (Available from Aaron T. Beck, Center for Cognitive Therapy, Rm. 602, 133 S. 36th St., Philadelphia, PA 19104)

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77–100.

Billings, A. G., & Moos, R. H. (1984). Coping, stress, and social resources among adults with unipolar depression. *Journal of Personality and Social Psychology, 46,* 877–891.

Catanzaro, S. J., & Mearns, J. (1987, August). *Measuring generalized expectancies for negative mood regulation.* Paper presented at the annual meeting of the American Psychological Association, New York.

Catanzaro, S. J., & Mearns, J. (1990). Measuring generalized expectancies for negative mood regulation: Initial scale development and implications. *Journal of Personality Assessment, 54,* 546–563.

Folkman, S., & Lazarus, R. S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54,* 466–475.

Hindy, C. G. (1984). *Individual differences in three facets of "lovesickness": Tendency toward anxious romantic attachments, sexual jealousy, and heterosexual depression.* Unpublished doctoral dissertation, University of Connecticut, Storrs.

Hindy, C. G., Schwarz, J. C., & Brodsky, A. (1989). *If this is love, why do I feel so insecure?* New York: Atlantic Monthly Press.

Holahan, C. J., & Moos, R. H. (1987). Personal and contextual determinants of coping strategies. *Journal of Personality and Social Psychology, 52,* 946–955.

Kirsch, I. (1985). Response expectancy as a determinant of experience and behavior. *American Psychologist, 40,* 1189–1202.

Kirsch, I. (1990). *Changing expectations: A key to effective psychotherapy.* Pacific Grove, CA: Brooks/Cole.

Kirsch, I., Mearns, J., & Catanzaro, S. J. (1990). Mood regulation expectancies as determinants of depression in college students. *Journal of Counseling Psychology, 37,* 306–312.

Kobasa, S. C., Maddi, S. R., Puccetti, M. C., & Zola, M. A. (1985). Effectiveness of hardiness, exercise and social support as resources against illness. *Journal of Psychosomatic Research, 29,* 525–533.

Kobasa, S. C., & Puccetti, M. C. (1983). Personality and social resources in stress resistance. *Journal of Personality and Social Psychology, 45,* 839–850.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lazarus, R. S., & Smith, C. A. (1988). Knowledge and appraisal in the cognition-emotion relationship. *Cognition and Emotion, 2,* 281–300.

Moos, R. H., Cronkite, R. C., Billings, A. G., & Finney, J. W. (1983). *Health and Daily Living Form manual.* (Available from Social Ecology Laboratory, Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, CA 94305).

Rotter, J. B. (1954). *Social learning and clinical psychology.* Englewood Cliffs, NJ: Prentice-Hall.

Rotter, J. B. (Ed.). (1982a). *The development and application of social learning theory.* New York: Praeger.

Rotter, J. B. (1982b). Generalized expectancies for internal versus external control of reinforcement. In J. B. Rotter (Ed.), *The development and application of social learning theory* (pp. 171–214). New York: Praeger.

Rotter, J. B. (1982c). Some problems and misconceptions related to the construct of internal versus external control of reinforcement. In J. B. Rotter (Ed.), *The development and application of social learning theory* (pp. 265–283). New York: Praeger.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48,* 813–838.

Smith, C. A., & Ellsworth, P. C. (1987). Patterns of appraisal and emotion related to taking an exam. *Journal of Personality and Social Psychology, 52,* 475–488.

Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103,* 193–210.

Taylor, S. E., Lichtman, R. S., & Wood, J. V. (1984). Attributions, beliefs about control, and adjustment to breast cancer. *Journal of Personality and Social Psychology, 46,* 489–502.


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