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Distinguishing between anxiety, depression, and hostility: relations to anger-in, anger-out, and anger control

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Summary—The present study examined the role of internalized anger, externalized anger, and anger control (Spielberger, 1991) as predictors of depressive, anxious, and hostile symptoms. Based on regression analyses, internalized anger, followed by lack of anger control, was found to play an important role in predicting both depressive and anxious symptoms. However, for depressive symptoms, sex and externalized anger were also found to play a significant role in predicting this outcome. In contrast, hostility was predicted by externalized anger, followed by lack of anger control and internalized anger. These results are taken to support the validity of distinguishing between measures of depression, anxiety, and hostility. © 1997 Elsevier Science Ltd. All rights reserved.

INTRODUCTION

Past research has defined emotional liabilities such as anxiety, depression, and hostility as facets of a more general construct, namely Neuroticism (McCrae, 1991). Conceptualizing them in this way can help account for some of the difficulty researchers have faced in trying to distinguish between the separate constructs of anxiety and depression in both normal and clinical populations (e.g. Clark & Watson, 1991; Feldman, 1991; Greenberg & Beck, 1989). On the other hand, there has been less difficulty in differentiating hostility from these two related facets. For example, Watson and Clark (1992) found that negative affectivity or neuroticism was strongly reflected in measures of depression and anxiety, but not in hostility. Despite these findings, some studies have begun to identify individual differences that can help distinguish between depression and anxiety symptoms (e.g. differences in self-discrepancies; see Scott & O'Hara, 1993). Hence, one might be able to distinguish between these emotional outcomes as a function of other individual differences variables.

One important individual-difference variable that has been the focus of considerable research in recent years is the manner in which people express or control their anger. According to Spielberger (1991), anger reflects a multidimensional phenomenon composed of internalized anger, externalized anger, and anger control. Internalized anger reflects the tendency to suppress angry thoughts and feelings. In contrast, externalized anger reflects the tendency to engage in aggressive behaviors towards objects or persons in the environment. Finally, anger control refers to the ability to monitor and prevent the experience or expression of anger. Hence, differences across these dimensions of anger might help distinguish between depressive, anxious, and hostile symptoms.

Traditionally, psychoanalytic theorists have commonly viewed depression as an effect of anger turned inward (see Freud 1917/1958). Empirical support for this hypothesis has been found in a number of different studies. For example, Clay, Anderson and Dixon (1993) found that in addition to stress, inwardly directed anger independently and additively predicted depressive symptoms. However, few if any studies have examined the role of other dimensions of anger (i.e. externalized anger, and anger control) as unique predictors of depressive symptoms. For example, because internalization of anger competes, but is not incompatible with externalization of anger, the latter might be found to be an important unique predictor of depressive symptoms independent of the former.

Similarly, there is some evidence to suggest that anxiety is also a consequence of anger. For example, Hazaleus and Deffenbacher (1986) found that reduction of anger through the use of cognitive restructuring significantly reduced anxiety symptoms. Moreover, previous difficulties in distinguishing between depressive and anxious symptoms might imply that anger internalized plays a prominent role in determining both of these outcomes. However, because anxiety is believed to reflect an expression of perceived threat or worry, one should not expect externalized anger to play a significant role here (see Clark, Beck & Beck 1994; Russel & Mehrabian, 1974). Nonetheless, the specific dimensions of anger that are believed to lead to anxious vs depressive symptoms remain to be investigated.

As one might speculate, hostility, reflected in strong feelings of opposition toward others, should not be strongly related to internalized anger. On the other hand, hostility should be strongly predicted by externalized anger. Moreover, because hostility also involves the expression of sometimes violent behavior, one should expect that lack of anger control will also predict feelings of hostility.

Given the above, the purpose of the present study was to examine unique predictors of depressive, anxious, and hostile symptoms. Specifically, we are interested in determining the extent and manner in which internalized anger, externalized anger, and anger control might predict these related, but distinct facets of neuroticism. We had two specific hypotheses: (a) internalized anger would play a significant role in predicting both depressive and anxious symptoms, although we expected the effect to be stronger for the former; and (b) externalized anger would play a significant role in predicting symptoms of hostility only. Although we had no specific hypothesis for anger control, previous research suggests that impulsivity or lack of anger control plays a significant role in determining emotional well-being (e.g. Camp, 1977). Hence, we expected that a lack of anger control would play a significant role in predicting all three outcomes.

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Table 1. Correlations between all study measures

	1	2	3	4	5	6
1. Anger/In						
2. Anger/Out	0.32					
3. Anger/Control	−0.27	−0.51				
4. Depression	0.55	0.38	−0.39			
5. Anxiety	0.51	0.36	−0.37	0.81		
6. Hostility	0.39	0.56	−0.51	0.66	0.66	
M	17.41	16.43	23.20	15.13	8.93	6.22
SD	4.49	4.06	4.71	11.03	7.93	5.46

$N = 214$.
All correlations were significant at $P < 0.001$.

METHOD

Participants

Participants were 215 undergraduate students (84 men and 131 women) from a mid-sized Midwestern university. Participants were predominantly White (94%). All participants were enrolled in an introductory psychology course and fulfilled a course requirement or obtained extra credit for participating. Ages ranged from 18 to 43 with a mean age of 20.4 years. Men and women did not differ significantly in age.

Measures

Anger. The Anger Expression Inventory (AXI: Spielberger, 1991) is a 24-item self-report measure that assesses anger along three conceptually different conditions. Respondents are asked to rate the frequency that they engaged in these items when feeling angry across a four-point Likert-type scale ranging from (1) "almost never" to (4) "almost always". The Anger-In scale (AX/In) measures how often anger is internalized or suppressed (e.g. "I keep things in"). The Anger-Out scale (AX/Out) assesses the prevalence of anger expressed towards people or objects (e.g. "I strike out at whatever infuriates me"). The Anger Control scale (AX/Con) determines the extent to which an individual is able to restrain himself from expressing anger (e.g. "I control my temper"). Coefficient alphas for the subscales were 0.78, 0.78 and 0.84 respectively.

Psychological symptoms. Symptoms Check List-90-R (SCL-90-R; Derogats, 1983) is a 90-item measure of psychological symptomatology. Respondents are asked to rate the extent to which each item produced discomfort across a five-point Likert-type scale ranging from (0) "not at all" to (4) "extremely" in the past week. For the present study, we employed the Depression (e.g. "feeling blue"), Anxiety (e.g. "nervousness and shakiness inside"), and Hostility (e.g. "getting into frequent arguments") subscales of the SCL-90-R. Coefficient alphas for these scales were 0.90, 0.89, and 0.85 respectively.

Procedure

All study measures were administered to either small groups (50 participants or less) or large groups (100 participants or less) in the form of a take home survey that was to be returned the next day of class. The response provided by one female participant was dropped from the study because it was incomplete. Hence, the responses provided by the remaining 214 participants were used. Participants were not made aware of the purpose of the study until after they had completed all of the measures. To protect the participants' anonymity, only *S* numbers were placed on the instruments. In addition, all participants signed separate consent forms that indicated that all test data would be kept strictly confidential.

RESULTS

Correlations between all the study measures are presented in Table 1. As the table shows, the different dimensions of anger were all significantly associated with each other and with each distress measure. However, these correlations reveal considerable differences in the magnitude and direction of the associations between measures. For example, anger control was more strongly related to externalized anger than to internalized anger ($r = -0.57$ vs $r = -0.27$, $P < 0.001$, respectively; see Steiger, 1980). On the other hand, both internalized and externalized anger were positively associated with each distress measure, whereas anger control was inversely related to these outcomes. Consistent with expectations, it is worth noting that depressive and anxious symptoms were more strongly related to each other than the hostility ($r = 0.81$, vs $r = 0.66$, $P < 0.01$).

Because of potential gender differences in the expression of anger, we conducted a series of t-tests. No gender difference was found for internalized and externalized anger. However, men were found to have higher anger control scores than women ($M = 24.20$, SD = 4.57 vs $M = 22.55$, SD = 4.70, respectively) ($t(1,212) = 2.53$, $P < 0.05$).

To identify the best predictors of each distress outcome, a series of forward stepwise regression analyses was conducted. The predictors included in the initial or starting equation were age, sex, and all three of the anger dimensions. Only predictors that accounted for a significant amount of the variance for each outcome criterion were included in the final model. Results are presented in Table 2.

As Table 2 shows, sex and all three anger dimensions were significant predictors of depressive symptoms. Greater internalization of anger accounted for the most amount of the variance this outcome, followed by lack of anger control, sex, and externalization of anger, respectively. The final regression model accounted for 40% of the variance in depressive symptoms, $F(4, 209) = 34.16$, $P < 0.001$. For anxiety symptoms, internalized anger and lack of anger control were the only significant predictors. Internalization of anger accounted for the most amount of the variance in this outcome. The final model accounted for 32% of the variance in psychological symptoms, $F(2, 211) = 50.05$, $P < 0.001$. Lastly, for hostility, all three anger dimensions were significant predictors. Externalized anger accounted for the largest amount of the variance in this outcome, followed by lack of control, and internalized anger, respectively. The final model accounted for 42% of the variance in hostility, $F(3, 210) = 50.52$, $P < 0.001$. Hence, these results support the validity and utility of distinguishing between different dimensions of anger and neuroticism.

Table 2. Stepwise regression analyses showing amount of variance accounted for by significant predictors of each outcome measure

Outcome measure	β	R	R^2	$F(1,212)$
Depression				
AX/In	0.46***	0.55	0.30	91.84***
AX/Con	−0.17**	0.60	0.06	20.24***
Sex	0.15**	0.62	0.02	6.18*
AX/Out	0.14*	0.63	0.01	4.71*
Anxiety				
AX/In	0.43***	0.52	0.27	76.40***
AX/Con	−0.15**	0.57	0.06	17.66***
Hostility				
AX/Out	0.36***	0.56	0.32	98.31***
AX/Con	−0.27***	0.62	0.07	22.38***
AX/In	0.20***	0.65	0.04	13.27***

$N = 214$. AX/In = Anger-In; AX/Out = Anger-Out; AX/Con = Anger Control.
* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

DISCUSSION

Results from the present study indicated that depressive, anxious, and hostile symptoms are predicted by differences in anger expression and control. Specifically, measures of depression and anxiety were both found to be strongly predicted by internalization of anger, followed by lack of anger control. However, for depressive, but not anxious symptoms, sex and externalization of anger were also found to contribute significantly in the prediction of the former outcome measure. This is consistent with the typical finding that women tend to report more depressive symptoms than men (see Nolen-Hoeksema, 1987). On the other hand, the present study found that the strongest predictor of hostility was externalized anger, followed by lack of anger control and internalized anger. Taken together, these findings indicate that although measures of anxiety, depression, and hostility can be predicted by some common variables (e.g. internalized anger and lack of anger control), they are also predicted by some unique variables (e.g. externalized anger and sex). Hence, the present findings lend additional support for distinguishing between measures of depression, anxiety, and hostility (Clark *et al.*, 1994).

Beyond implications for assessment, the present findings can also provide important implications for treatment. Specifically, the present findings suggest that for individuals who report depressive and anxious symptoms, it might be of considerable value to examine and possibly modify the extent to which they may be internalizing their feelings of anger. By decreasing the frequency or intensity of anger internalization, one might conceivably reduce levels of emotional distress reflected in depressive and anxious symptoms. In contrast, the present findings tend to suggest that it might be more useful to focus on identifying and modifying outward expressions of anger to decrease heightened feelings of hostility. Hence, by reducing anger externalization, one might again conceivably decrease an individual's feeling of hostility.

Yet despite the above, it is important to note at least two major limitations to the present study. First, the present results may not generalize across different populations. That is, it remains to be seen whether the present findings for a non-clinical college student population are also valid for a clinical population. Second, because the present study is cross-sectional, it is impossible to distinguish cause and effect. For example, one might equally conclude that by decreasing depressive symptoms, one can reduce the frequency of anger internalization. In order to address questions of causality, a prospective design study in which all measures are given on at least two different points in time, is required.

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