Cognitive Therapy and Research, Vol. 16, No. 6, 1992

Gender and Mood as Mediators of the Relationship Between Attributional Style, Daily Life Events, Depression Symptoms, and Hopelessness[1]

Jeffrey G. Johnson[2]
Columbia University

A study was conducted to investigate whether or not the relationship between attributional style, daily life events or "hassles," and hopelessness depression is mediated by gender and mood at the time when attributional style is assessed. Measures of attributional style, hassles, depression, and hopelessness were administered, in a prospective design, to 100 undergraduate students on two occasions separated by 1 month. Results showed that the interaction of attributional style, hassles, and gender predicted change in hopelessness levels ($p < .05$) and that this interaction demonstrated a nonsignificant trend toward predicting change in depression symptom levels ($p = .07$). The interaction of attributional style, hassles, and time 1 depression scores also demonstrated a nonsignificant trend toward predicting change in depression symptom levels ($p = .08$), but did not predict change in hopelessness levels. The interaction of attributional style and hassles did not, by itself, predict change in either depression or hopelessness levels. These findings suggest that research investigating relationships between causal attributions for negative life events and depression should consider the potential influences of gender and of mood at the time when causal attributions are assessed.

KEY WORDS: attributional style; depression; gender; hopelessness; life events.

[1]This research was funded in part by a Gettysburg College Institutional Renewal Grant. The author wishes to express his appreciation to Dr. Constance Hammen and two anonymous reviewers for their helpful comments regarding earlier versions of this article.
[2]Address all correspondence regarding this article to Dr. Jeffrey G. Johnson, Biometrics Research, Box 74, New York State Psychiatric Institute, 722 W. 168th St., New York, New York, 10032.

0147-5916/92/1200-0687$6.50/0

Cognitive theories of depression, such as the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989), predict that dysfunctional cognitions about negative life events play a causal role in the onset of certain types of exogenous or reactive depression. Numerous studies have examined such predictions, some of which have provided support for the idea that cognitions may play such a causal role (e.g., Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982; Metalsky, Halberstadt, & Abramson, 1987; Nolen-Hoeksma, Girgus, & Seligman, 1986; Stiensmeier-Pelster, 1989), and some of which have not (e.g., Cochran & Hammen, 1985; Lewinsohn, Steinmetz, Larson, & Franklin, 1981). Recent research has suggested that certain variables, such as gender (Barnett & Gotlib, 1990) and mood at the time when dysfunctional cognitions are assessed (Miranda & Persons, 1988; Miranda, Persons, & Byers, 1990) may mediate the relationship between dysfunctional cognitions and depression. It is important that the potential mediating role of such variables should be elucidated, so that researchers, theorists, and practitioners will better understand the conditions under which dysfunctional cognitions might influence the onset of depression symptoms.

The present research was thus conducted in order to provide further evidence regarding whether gender and mood at the time when attributional style for negative life events (Seligman, Abramson, Semmel, & von Baeyer, 1979) is assessed mediate the relationship between attributional style, negative life events, and hopelessness depression, an hypothesized type of exogenous depression. Specifically, the present research involved a prospective design with measurement of composite negative attributional style at time 1, measurement of negative daily life events or "hassles" during the month intervening between time 1 and time 2, and measurement of depression symptom levels and hopelessness at both time 1 and time 2 to address the following questions by means of hierarchical multiple-regression analyses: (1) Does the statistical interaction between time 1 attributional style, negative daily life events, and gender predict change in depression and hopelessness levels over one month? (2) Does the statistical interaction between time 1 attributional style, negative daily life events, and time 1 depression symptom levels predict change in depression and hopelessness levels over 1 month? (3) Does the statistical interaction between time 1 attributional style and negative daily life events, by itself, predict change in depression and hopelessness levels over 1 month? Two other questions were also addressed by the present research, via correlational analyses: (1) Does time 1 attributional style predict time 2 depression and hopelessness levels? (2) Do time 1 depression and hopelessness levels predict time 2 attributional style? Life events were measured with the Revised Hassles Scale (DeLongis, 1985), for the following reasons: (1) Some theo-

rists (e.g., Abramson et al., 1989) have stated that research needs to be conducted in order to determine whether or not daily life events, or hassles, function in the same hypothesized manner as major life events in the causal sequences linking dysfunctional cognitions with depression; and (2) a number of investigators (e.g., DeLongis, Coyne, Dakof, Folkman, Lazarus, 1982; Kanner, Coyne, Schaefer, & Lazarus, 1981; Monroe, 1983; Weinberger, Hiner, & Tierney, 1987) have found that daily life event measures are superior to major life event measures as predictors of medical and psychiatric symptoms.

METHOD

Subjects

One hundred and two Gettysburg College undergraduate students (61 females and 41 males) enrolled in an introductory psychology course voluntarily participated in the first of two group research sessions, receiving partial course credit and $4.00 in return, which were made contingent upon completion of both research sessions. One hundred of these subjects (60 females and 40 males) returned to participate in the second research session, which took place 1 month later.

Measures

The following questionnaires were administered to subjects who participated in the present research:

Attributional style was measured with a revised version of the original attributional style questionnaire (ASQ; Seligman, Abramson, Semmel, & von Baeyer; 1979) that was expanded and adapted for use with college students by Metalsky, Halberstadt, and Abramson (EASQ; Metalsky et al., 1987). The EASQ measures tendencies of college students to attribute negative outcomes of 12 hypothetical interpersonal and academic acheivement scenarios to internal, as opposed to external, stable, as opposed to unstable, and global, as opposed to specific, factors. Each of the three attributional dimensions—internality, stability, and globality—yields a separate subscale score. The EASQ stable + global (SG) composite score used in the present research was obtained by summing scores on the stable and global subscales. This composite score was used because the hopelessness theory of depression (Abramson et al., 1989) predicts that stable and global causal attributions pertaining to negative life events play a causal role in

the onset of hopelessness depression. Reliability and validity data for the EASQ have been reported by Metalsky et al. (1987).

Depression was measured with the depression scale of the Hopkins Symptom Check List (SCL-90; Derogatis, Lipman & Covi, 1973; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), an instrument that has been used widely in research on depression and other forms of psychopathology. The SCL-90 is a 90-item questionnaire that yields nine specific psychopathology scales and two measures of overall psychopathology. Each SCL-90 item is formatted with a 5-point Likert-type rating scale; subjects respond to each of 90 statements that describe symptoms that the individual may have experienced " . . . in the past, including today . . . " with responses to the question, "How much were you bothered by ____?" Subject ratings range from *not at all* (0) to *extremely* (4) on each item. The SCL-90 depression scale is comprised of 13 items, one of which measures hopelessness with an item worded as follows: "Feeling hopeless about the future." Information regarding the reliability and validity of the SCL-90 has been reported by Derogatis et al. (1973, 1974).

Minor life events (i.e., hassles) were measured with the Revised Hassles Scale (HS-R; DeLongis, 1985). On the modified version of the HS-R used in the present research, a subject reports (1) which of 53 common hassles (e.g., family-related obligations) she/he has experienced "within the past month," and (2) how severe each of the reported hassles has been. Severity ratings are made of a 4-point rating scale, ranging from *none* to *a great deal.* Reliability and validity data for the HS-R have been reported by DeLongis (1985; see DeLongis, Folkman, & Lazarus, 1988). The "past month" version of the HS-R used in the present research has been found to predict changes in overall psychopathology levels, even after correlations between previous psychopathology levels and HS-R scores were factored out (Johnson & Bornstein, in press).

Procedure

Packets of questionnaires were completed by subjects in two group testing sessions that were separated by a 1-month interval. The EASQ and SCL-90 were administered at time 1, and the HS-R, EASQ, and SCL-90 were administered at time 2. The order of administration at time 1 was (1) EASQ; (2) SCL-90. The order of administration at time 2 was (1) EASQ; (2) HS-R; (3) SCL-90. Subjects were instructed to complete each questionnaire according to instructions that were printed at the top of the questionnaire.

RESULTS

Two-tailed *t*-tests were conducted in order to determine whether the female and male subsamples produced significantly different EASQ, HS-R, and SCL-90 scores. Mean depression scores in the female subsample were significantly higher than mean depression scores in the male subsample at time 1 $t = 3.82$; $df = 100$; $p < .001$), but not at time 2, although the time 2 difference approached statistical significance ($t = 1.90$; $df = 98$; $p = .06$). Statistically significant differences were not obtained between the female and male subsamples for time 1 hopelessness scores ($t = 0.08$; $df = 100$; $p > .05$), time 2 hopelessness scores ($t = 0.32$; $df = 98$; $p > .05$), time 1 EASQ SG scores ($t = 0.12$; $df = 100$; $p > .05$), time 2 EASG SG scores ($t = 1.07$; $df = 98$; $p > .05$), or HS-R scores ($t = 0.26$; $df = 98$; $p > .05$).

Correlational analyses were conducted in order to determine whether time 1 EASQ SG scores would predict time 2 SCL-90 depression and hopelessness scores, and whether time 1 SCL-90 depression and hopelessness scores would predict time 2 EASQ SG scores. Results were that time 1 EASQ SG scores did predict both time 2 depression ($r = .30$; $p < .01$) and hopelessness ($r = .21$; $p < .05$) scores, and that time 2 EASQ SG scores were not predicted by either time 1 depression ($r = .15$; $p > .05$) or hopelessness ($r = .05$; $p > .05$) scores.

Hierarchical multiple-regression analyses were conducted in order to determine whether time 1 EASQ SG composite scores, HS-R scores, gender, and/or the statistical interactions of these variables were statistically significant predictors of change in SCL-90 depression scale and hopelessness item scores between time 1 and time 2. The statistical procedure used in the present research involved entering the time 1 measure of the criterion variable (i.e., depression or hopelessness scores) in the first step in the hierarchical multiple-regression procedure. After this autocorrelation between the time 1 and time 2 scores on the criterion variable was thereby factored out, any remaining unaccounted variation in these scores was subjected to independent prediction by the predictor variables in the second, third, fourth, and fifth steps of the procedure.

This procedure was conducted six times, permitting the research questions described in the introduction to be addressed. The results of these analyses are described below and in Tables I and II. Table I presents the results of two hierarchical multiple-regression analyses conducted in order to test whether the statistical interaction between EASQ SG scores, HS-R scores, and gender would predict change in depression and hopelessness levels. As Table I indicates, this interaction term was a statistically significant predictor of change in SCL-90 hopelessness scores ($F = 4.12$; $df = 5, 94$; $p < .05$). Although this interaction term was not a statistically sig-

Table I. Summary of Hierarchical Multiple-Regression Analyses Involving EASQ SG Composite Scores, HS-R Scores, Gender, and the Product of EASQ SG Scores, HS-R Scores, and Gender as Predictors of Change in SCL-90 Depression (D) and Hopelessness (H) Scores over 1 Month[a]

Step	Criterion	Predictor	r	r^2 Change	F	p
1	D2	D1	.65[b]	.53	48.36	.000
2	D2	SG1	.30[c]	.01	0.37	.543
3	D2	HS-R	.58[b]	.06	0.06	.804
4	D2	Gender	.19[d]	.00	2.50	.117
5	D2	SG1,[d] HS-R,[d] Gender		.01	3.35	.070
1	H2	H1	.50[b]	.25	21.76	.000
2	H2	SG1	.21[d]	.01	0.50	.479
3	H2	HS-R	.30[d]	.01	1.75	.188
4	H2	Gender	.03	.00	2.60	.110
5	H2	SG1,[d] HS-R,[d] Gender		.03	4.12	.045

[a]EASQ = expanded Attributional Style Questionnaire; EASQ SG = EASQ stable + global; HS-R = Revised Hassles Scale; SCL-90 = Hopkins Symptom Checklist; D1, D2 =depression at times 1 and 2; SG1 = SG at time 1; H1, H2 = hopelessness at times 1 and 2.
[b]$p < .001$.
[c]$p < .01$.
[d]$p < .05$.

nificant predictor of change in SCL-90 depression scores, a trend toward significance was obtained ($F = 3.35$; $df = 5, 94$; $p < .10$). The EASQ SG and HS-R main effects were nonsignificant.

Because the interaction of EASQ SG scores, HS-R scores, and gender was a statistically significant predictor of change in hopelessness scores, hierarchical multiple-regression analyses were conducted in order to determine whether the interaction of EASG SG scores and HS-R scores was a statistically significant predictor of change in hopelessness scores in either the subsample of 60 female or the subsample of 40 males. Results of these analyses were that the interaction of EASQ SG scores and HS-R scores was a statistically significant predictor of change in hopelessness scores in the female subsample ($F = 4.96$; $df = 4, 55$; $p < .05$), but not in the male subsample ($F = 0.44$; $df = 4, 35$; $p > .05$). Neither EASQ SG scores nor HS-R scores, entered as steps 2 and 3, respectively, in the multiple-regression procedures, were statistically significant predictors of change in hopelessness scores in either the subsample of 60 females or the subsample of 40 males.

Table II presents the results of two hierarchical multiple-regression analyses conducted in order to test whether the statistical interaction between EASQ SG scores, HS-R scores, and time 1 depression scores would

Table II. Summary of Hierarchical Multiple-Regression Analyses Involving EASQ SG, HS-R, and SCL-90 Depression (D) Scores and the Product of EASQ SG, HS-R, and CSL-90 D Scores as Predictors of Change in SCL-90 D and H (Hopelessness) Scores over 1 Month[a]

Step	Criterion	Predictor	r	r^2 Change	F	p
1	D2	D1	.65[b]	.53	6.24	.014
2	D2	SG1	.30[c]	.01	0.05	.825
3	D2	HS-R	.58[b]	.06	2.65	.107
4	D2	SG1,[d] HS-R, Gender		.01	3.16	.078
1	H2	H1	.50[b]	.25	5.04	.027
2	H2	SG1	.21[d]	.01	0.02	.885
3	H2	HS-R	.30[d]	.01	0.58	.447
4	H2	D1	.58[b]	.10	1.44	.234
5	H2	SG1,[d] HS-R, Gender		.01	1.27	.262

[a]EASQ = expanded Attributional Style Questionnaire; EASQ SG = EASQ stable + global; HS-R = Revised Hassles Scale; SCL-90 = Hopkins Symptom Checklist; D1, D2 =depression at times 1 and 2; SG1 = stable + global at time 1; H1, H2 = hopelessness at times 1 and 2.
[b]$p < .001$.
[c]$p < .01$.
[d]$p < .05$.

predict change in depression and hopelessness levels. These analyses were conducted as a test of the diathesis–stress component of the hopelessness theory of depression. As Table II indicates, although this interaction term was not a statistically significant predictor of change in SCL-90 depression scores, a trend toward significance was obtained ($F = 3.16$; $df = 5, 94$; $p < .10$). On the other hand, this interaction term did not predict change in SCL-90 hopelessness scores. The EASQ SG and HS-R main effects were nonsignificant.

Two hierarchical multiple-regression analyses were conducted in order to test whether the statistical interaction between time 1 EASQ SG scores and HS-R scores would predict change in depression and hopelessness levels. The interaction of EASQ SG scores and HS-R scores did not predict change in SCL-90 depression ($F = 1.92$; $df = 5, 94$; $p < .05$) or hopelessness ($F = 1.06$; $df = 5, 94$; $p > .05$) scores. The EASQ SG and HS-R main effects were nonsignificant in both cases.

DISCUSSION

The present findings that the interaction of attributional style, daily negative life events, and gender predicted change in hopelessness levels

and demonstrated a nonsignificant trend toward predicting change in depression levels support the findings of others (e.g., Barnett & Gotlib, 1990), indicating that the relationship between dysfunctional cognitions and depression may differ for females and males. More specifically, the interaction of attributional style and daily negative life events predicted change in hopelessness levels in the female subsample, but not in the male subsample. These findings are also consistent with the idea that different types of life events may induce differential affective responses in females and males, due in part to differences between females and males in how life events are interpreted (see Whiffen & Gotlib, 1989). As Barnett and Gotlib (1990) have pointed out, little is currently known about the relationship between gender, dysfunctional cognitions, and depression. The present findings thus provide further evidence indicating that additional research in this area is called for.

The present findings that the interaction of attributional style, negative life events, and time 1 mood demonstrated a nonsignificant trend toward predicting change in depression levels, but that this interaction did not predict change in hopelessness levels, are somewhat difficult to interpret. On one hand, the finding that this interaction approached statistical significance in predicting change in depression scores is consistent with the findings of previous researchers indicating that dysfunctional cognitions can be measured accurately only when an individual is relatively depressed and thus in a mood state that facilitates the accessing of state-dependent depressive cognitions (e.g., Miranda & Persons, 1988; Miranda et al., 1990). It is perhaps likely that this finding would have been statistically significant had a slightly larger sample size been studied. On the other hand, the finding that this interaction did not approach statistical significance in predicting change in hopelessness scores fails to support the hypothesis that the assessment of dysfunctional cognitions is influenced by current mood states. Thus, the present findings are equivocal with regard to this hypothesis. However, it should be noted that the present research did not constitute a direct test of the mood-state hypothesis, since a direct test of this hypothesis involves examining whether or not dysfunctional cognitions vary with mood states (see Miranda et al., 1990). The present findings addressed another, albeit related question: Is the influence of mood-state on the assessment of attributional style sufficiently strong to influence the ability of attributional style to predict subsequent depression? In view of the importance of this issue and the fact that other researchers have obtained support for this hypothesis, it is clear that additional research will need to be conducted in order for the influence of current mood on the assessment of dysfunctional cognitions to be more fully understood.

The present findings that time 1 attributional style was correlated with time 2 depression and hopelessness levels, while time 1 depression and hopelessness levels did not predict time 2 attributional style indicate that the predictive relationships over time between attributional style and hopelessness depression are asymmetrical, in a manner consistent with the prediction that attributional style may contribute to the onset of depression and hopelessness. These findings, as well as the finding that the interaction of time 1 EASQ SG scores and HS-R scores predicted change in hopelessness levels between time 1 and time 2 in the female subsample, are consistent with Brewin's (1985) "vulnerability" model (which, like the hopelessness theory, predicts that depressogenic attributions render individuals vulnerable to the onset of depression), and are inconsistent with the predictions of at least one of the models presented by Brewin as alternatives to the vulnerability model—the "symptom" model—which predicts that " . . . depressive attributions are a symptom of the clinical state of depression and have no causal impact on the onset or cause of the disorder." (Brewin, 1985, p. 300). But it should be noted that other researchers have indicated that depressive symptoms may predict changes in attributional style over time (e.g., Johnson & Miller, 1990; Lewinsohn et al., 1981). Since the potential effect of life experiences, including episodes of depression, on attributional style and other dysfunctional cognitions is a question of substantial importance, it would appear that further research should be conducted in order to clarify further how depression and attributional style are interrelated over time.

Several possible limitations of the present research should be taken into consideration. First, unlike most studies in this area, negative life events were assessed with a measure of negative daily life events, or hassles. Comparisons between the present findings and the findings of other studies that have addressed the issues dealt with in this paper should take this methodological issue into account. Second, the contemporaneous measurement of life events and mood may have been problematic, insofar as it may have caused subjects who were in a depressed mood at time 2 to have recalled an excessively high number of negative life events. It would certainly have been preferable for life events to have been measured on a daily basis throughout the course of the present research. Third, the measure of hopelessness used in the present research was based upon a single SCL-90 item. Ideally, a hopelessness questionnaire would instead have been used. Finally, the present research findings may have been adversely affected by the fact that the sample studied was a nonclinical sample of undergraduate students, thereby leading to a truncated range of depression scores.

REFERENCES

Abramson, L. Y., Metalsky, G. I., and Alloy, L. B. (1989). Hopelessness depression: A theory based subtype of depression. *Psychological Review,* 96, 358-372.

Barnett, P. A., & Gotlib, I. H. (1990). Cognitive vulnerability to depressive symptoms among men and women. *Cognitive Therapy and Research, 14,* 47-61.

Brewin, C. R. (1985). Depression and causal attributions: What is their relation? *Psychological Bulletin, 98,* 297-309.

Cochran, S. D., & Hammen, C. L. (1985). Perceptions of stressful life events and depression: A test of attributional models. *Journal of Personality and Social Psychology, 54,* 1562-1571.

DeLongis, A. (1985). *The relationship of everyday stress to health and well-being: Inter- and intra-individual approaches.* Unpublished doctoral dissertation, University of California, Berkeley.

DeLongis, A., Coyne, J. C., Dakof, G., Folkman, S., & Lazarus, R. S. (1982). Relationship of daily hassles, uplifts, and major life events to health status. *Health Psychology, 1,* 119-136.

DeLongis, A., Folkman, S., & Lazarus, R. S. (1988). The impact of daily stress on health and mood: Psychological and social resources as mediators. *Journal of Personality and Social Psychology, 54,* 486-495.

Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale-preliminary report. *Psychopharmacology Bulletin, 9,* 13-28.

Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Check List (HSCL): A self-report inventory. *Behavioral Science, 19,* 1-15.

Johnson, J. G., & Bornstein, R. F. (in press). The revised hassles scale predicts psychopathology symptoms when preexisting psychopathology is accounted for. *Journal of Social Behavior and Personality.*

Johnson, J. G., & Miller, S. M. (1990). Attributional, life-event, and affective predictors of onset of depression, anxiety and negative attributional style. *Cognitive Therapy and Research, 14,* 417-430.

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine, 4,* 1-39.

Lewinsohn, P. M., Steinmetz, J. L., Larson, D. W., & Franklin, J. (1981). Depression-related cognitions: Antecedent or consequence? *Journal of Abnormal Psychology, 90,* 213-219.

Metalsky, G. I., Abramson, L. Y., Seligman, M. E. P., Semmel, A., and Peterson, C. (1982). Attributional style and life events in the classroom: Vulnerability and invulnerability to depressive mood reactions. *Journal of Personality and Social Psychology, 43,* 612-617.

Metalsky, G. I., Halberstadt, L. J., and Abramson, L. Y. (1987). Vulnerability to depressive mood reactions: Toward a more powerful test of the diathesis-stress and causal mediation components of the reformulated theory of depression. *Journal of Personality and Social Psychology, 52,* 386-393.

Miranda, J., & Persons, J. B. (1988). Dysfunctional attitudes are mood-state dependent. *Journal of Abnormal Psychology, 9,* 76-79.

Miranda, J., Persons, J. B., & Byers, C. N. (1990). Endorsement of dysfunctional beliefs depends on current mood state. *Journal of Abnormal Psychology, 99,* 237-241.

Monroe, S. M. (1983). Major and minor life events as predictors of psychological distress: Further issues and findings. *Journal of Behavioral Medicine, 6,* 189-205.

Nolen-Hoeksma, S., Girgus, J. S., & Seligman, M. E. P. (1986). Learned helplessness in children: A longitudinal study of depression, achievement, and explanatory style. *Journal of Personality and Social Psychology, 51,* 435-442.

Seligman, M. E. P., Abramson, L. Y., Semmel, A., and von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology, 88,* 242-247.

Stiensmeier-Pelster, J. (1989). Attributional style and depressive mood reactions. *Journal of Personality, 57,* 581-599.

Weinberger, M., Hiner, S. L., & Tierney, W. M. (1987). In support of hassles as a measure of stress in predicting health outcomes. *Journal of Behavioral Medicine, 10,* 19-31.

Whiffen, V. E., & Gotlib, I. H. (1989). Stress and coping in maritally satisfied and dissatisfied couples. *Journal of Social and Personal Relationships, 6,* 327-344.