

## MULTIPLE CORRELATES OF UNIPOLAR DEPRESSION: CONTRIBUTIONS FROM THE PARADIGMATIC BEHAVIORAL THEORY

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This study is based upon a paradigmatic behavioral analysis of unipolar depression (Staats & Heiby, 1985) which predicts numerous situational and behavioral deficits and inappropriacies as correlates and determinants of this disorder. Subjects were 74 depressives from both a clinical and college population and 66 nondepressives from a college population. Situational factors measured in this correlational study include inadequacy of reinforcement and other pleasant events, including the availability of social support. Behavioral deficits predicted to be related to depression were poor social skills, misattributions of negative events, and poor self-attitudinal/reinforcement/directive (ARD) skills. Behavioral inappropriacies included anhedonia, poor self-efficacy, and negative thoughts. It was found from stepwise regression analysis that 61% of the variance of depression scores was accounted for by the situational factor of loss of controllable sources of pleasant events, the behavioral deficit of poor self-ARD skills, and behavioral inappropriacies of anhedonia, poor self-efficacy, and negative thoughts. Results are discussed in terms of being consistent with Craighead's (1980) call for multivariate approaches to theories of depression.

*Correlatos múltiples de la depresión unipolar: contribuciones desde la teoría conductual paradigmática.* Este estudio basado en el análisis conductista paradigmático de la depresión unipolar (Staats y Heiby, 1985) predice numerosos déficits e inadecuaciones comportamentales como correlatos y determinantes de dicho trastorno. Los sujetos fueron 74 depresivos procedentes de una población clínica y estudiantil y 66 no depresivos también procedentes de una población de estudiantes universitarios. Los factores situacionales medidos en este estudio correlacional, incluyen la inadecuación de refuerzos y otros acontecimientos placenteros, incluyendo la disponibilidad de apoyo social. Los déficits comportamentales predictivos de la depresión fueron la pobreza en las habilidades sociales, los errores en la atribución de los acontecimientos negativos y la pobreza de habilidades de auto-refuerzo y auto-dirección. Las inadecuaciones comportamentales consistieron en anhedonia, baja autoeficacia y pensamientos negativos. Se descubrió partiendo de análisis de regresión stepwises, que el 61% de la varianza de la depresión fué explicado a través de el factor situacional de pérdida de control sobre acontecimientos placenteros, los déficits en auto-refuerzo y auto-dirección, y las inadecuaciones comportamentales relativas a anhedonia, baja autoeficacia y pensamientos negativos. Los resultados se discuten como consistentes con la teoría de Craighead (1980) que aboga por acercamientos multivariados a la explicación de la depresión.

Over the last decade, there has been a recognition that unipolar depression is a heterogeneous disorder with numerous possible eti-

ologies (Craighead 1980; Lewinsohn, Hoberman, Teri, & Hautzinger, 1985; Staats & Heiby, 1985), suggesting that studies investigating the correlates, determinants, and effective treatments must be concerned with multiple factors. Recent reviews of the depression research and theoretical developments

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(Heiby & Staats, 1990) suggest that there are numerous behavioral repertoire, environmental, and biological factors that may be relevant to depression.

These complex theories have been proposed in conjunction with evidence that unitary theories have failed to account for individual differences in the onset and response to treatment for depression. For example, while many theories since Freud's (1933) have proposed the role of an environmental precipitant, research investigating this as a unitary factor suggest that it may account for less than ten percent of the variance in the onset of depression when measured in terms of general negative life events (Hirschfeld & Cross, 1982). If, indeed, depression is multiple determined, this is what is to be expected when variables are studied in isolation rather than in conjunction with other possible contributing factors.

Unfortunately, much of the effect of such failures to account for depression from unitary environmental predictors has been to abandon the study of specific environmental determinants in favor of unitary behavioral repertoire (e.g., Abramson, Seligman, & Teasdale, 1978) or biological (e.g., Stokes, 1987) ones. One exception is a recent study on depression among victims of spouse abuse which found that one situational (loss of sources of reinforcement, attributions, and history of depression) indices accounted for 46% of the variance in depression scores (Sato & Heiby, 1989).

The present study is an attempt to include a *subset* of the behavioral repertoire and environmental factors that have been proposed by the paradigmatic behavioral (PB) theory of depression and enjoy some empirical support when studied in isolation (Staats & Heiby, 1985; Heiby & Staats, 1990). PB theory was derived by adopting concepts proposed by previous theories of depression that have empirical support (e.g., Beck, 1967; Bunney & Davis, 1965, Lewinsohn, 1974, Rehm, 1977) as well as introducing addi-

tional hypotheses derived from the general theory of social or paradigmatic behaviorism (Staats, 1975). The PB theory of depression is considered to be a third generation behavioral theory in which the basic principles of Pavlovian classical and Thorndikian operant conditioning are extended to complex human behavior by positing a central function of emotional stimuli and causal powers to basic behavioral repertoires.

For heuristic purposes, PB theory categorizes behavioral repertoire involvement in depression as representing either a deficit or an inappropriacy and as representing the *overlapping* functional repertoires categorized as primarily language-cognitive, emotional-motivational, or sensory-motor. Deficits are viewed as a lack of skills needed to maintain a homeostatic, nondepressed mood given environmental adversity while inappropriacies are viewed as the presence of skills which interfere with the maintenance of homeostatic mood. The language-cognitive repertoire involves language and imagery, the sensory-motor involves instrumental skills, and the emotional-motivational involves all stimuli conditioned to elicit an affective response. Affective stimuli are viewed to have attitudinal (or mood determining), reinforcing, and directive (ARD) functions.

In addition, the PB theory of depression posits that it is a combination of a number of possible behavioral deficits and inappropriacies with the current environment and organic conditions that may occasion dysphoria which, in turn, determines the remaining symptoms of depression. While it is beyond the scope of this paper to thoroughly describe the PB theory, it must be noted that the complete theory posits a role of early learning of the behavioral repertoires, ten deficits and inappropriacies of the behavioral repertoires that are relevant to maintenance of a homeostatic mood, five dysphoria-eliciting current environmental conditions, and three areas of organic

involvement in the development of the behavioral repertoires, interference with expression of the repertoires, and direct elicitation of dysphoria. While the precise contributions of these variables have not yet been evaluated, the PB theory does predict that, in order to account for the variance in onset and maintenance of depression, it is necessary to measure both deficits and inappropriacies in each of the three functional behavioral repertoires. The purpose of this study is to provide a partial evaluation of the PB theory by assessing the three repertoires in a sample of depressed and nondepressed subjects in order to evaluate whether such correlations are consistent with Craighead's (1980) assertion that depression is associated with multiple potential determinants.

Behavioral deficits considered in this study which involve the language-cognitive repertoire include deficit self-administration of positive ARD stimuli that has been related to depression in terms of self-reinforcement (e.g., Rehm, 1977; Rozensky, Rehm, Pry, & Roth, 1977). Self-ARD also involves the emotional-motivational repertoire insofar as the stimuli that can function as reinforcers are viewed as also eliciting mood and directing behavior.

A second deficit concerns internal, global, and stable misattributions (Abramson et al., 1978). The PB conceptualization of misattributions differs from Abramson et al. insofar as they are viewed to involve not just thoughts but both language-cognitive and emotional-motivational repertoires due to the dysphoria-eliciting properties of the statements involved in assuming responsibility for and expecting future recurrences of negative events.

A third deficit investigated in this study includes the primarily sensory-motor functions of social skills (Lewinsohn, 1974) which have been found to be predictive of depression following exposure to an environmental adversity (Henderson, Byrne, & Dun-

can-Jones, 1981), particularly if the adversity involves a social context (Zuroff & Mon-grain, 1987). Because social interactions often take place on the verbal level and such actions often have mood-eliciting properties, social skills also represent an overlap of the three functional repertoires of the PB theory. Poor self-ARD skills, misattributions, and deficient social skills, misattributions, and deficient social skills are considered to be deficits because they are believed to represent skills required for adaptive functioning in the maintenance of a homeostatic mood state and treatment efforts would focus on their enhancement.

An inappropriacy derived directly from PB theory involves the emotional-motivational repertoire of having an excess of stimuli to which there is dysphoric emotional conditioning (i.e., anhedonia). It is reasoned that individuals who are saddened by common events are more likely to become dysphoric particularly in combination with other deficits or inappropriacies related to the maintenance of a homeostatic mood. Associated with anhedonia may be the inappropriate language-cognitive characteristic represented in a negative view of the self, world, and future proposed by Beck (1967). Such negative views may also be exhibited in what has been termed poor self-efficacy (Bandura, 1977). Anhedonia, negative views, and poor self-efficacy are considered to be inappropriacies because their presence may interfere with maintenance of a homeostatic mood and treatment efforts would focus on their elimination.

Current situational factors investigated in this study involve negative life events (Brown & Harris, 1973) and social support (Linn, Dean, & Ensel, 1986). Negative life events, such as the loss of a loved one, are viewed as a loss of sources of both reinforcement and noncontingent pleasant events that effect mood and direct behavior. Social support is viewed as a particular type of

resource for information, materials, and emotional understanding that elicits positive emotional response in the individual when presented noncontingently and also can function as reinforcement and directive stimuli when presented contingently.

In the present exploratory correlational study, it is hypothesized that significant variance in depression can be accounted for by the consideration of the following variables: (1) deficits in self-ARD, attributions, and social skills; (2) inappropriacies in negative thoughts, including poor self-efficacy, and negative emotional conditioning (anhedonia); and (3) inadequate sources of pleasant situations in terms of the presence of negative life events and the lack of social support. By having a theoretical framework to guide the a priori categorization of variables, it is possible to consider several possible correlates of depression with a moderate sample size. In order to evaluate these hypotheses with a range of depression, subjects were obtained from both a clinical and a college population.

## Method

### *Subjects*

A total of 140 subjects participated. Twenty subjects were individuals who had presented themselves for treatment for depression at a private mental health center in Alicante, Spain and who scored at least 14 on the Beck Depression Inventory (BDI; Beck, 1967). These subjects participated in this study at pre-treatment and included 8 males and 12 females whose average was 29 years. Fifty-four subjects were first year students at the Alicante University School of Medicine who scored at least 14 on the BDI but had not entered treatment for depression, totalling 74 depressives. The college student depressives included 31.48% males and 68.51 females with an average age of 19.3 years. Sixty-six subjects were nondepressed college students also in the first year at the Alicante University and included 25.7%

males and 74.3% females with an average age of 18.5 years.

### *Materials*

The dependent variable depression was measured by four self-report instruments. The Depression Adjectives Checklist (DACL, Lubin, 1965), the Beck Depression Inventory (BDI; Beck, 1967), and the Zung Depression Scale (Zung, 1965). Each of these instruments have been used routinely in depression research and have acceptable levels of reliability and validity. As indicated in the Results section, the DACL, BDI, and Zung scores were combined to create a single composite depression score.

Behavioral deficits were measured by the following instruments: (1) social skills in terms of deficit assertiveness were measured by the Interpersonal Behavior Survey, Assertiveness Scale (IBS; Mauger & Adkinson, 1980) which is a normed instrument with strong evidence of reliability and validity; (2) attributions were measured with the Attributional Style Questionnaire (ASQ; Seligman, Semmel, Abramson, & VonBaeyer, 1979) which has only moderate evidence of reliability and validity and no reported norms but is the only instruments known available for measurement of internal (I), stable (S), and global (G) depression-relevant attributions of both positive (P) and negative (N) events, yielding six scores (ASQIP, ASQSP, ASQGP, ASQIN, ASQSN, ASQGN); and (3) self-ARD was measured with the frequency of Self-Reinforcement Scale (FSRQ, Heiby, 1982; 1983a,b,c, 1986) which has acceptable indices of reliability and validity but no published norms.

Behavioral inappropriacies were measured by the following self-report instruments: (1) anhedonia or excessive negative emotional conditioning was measured by the Unpleasant Events Schedule (UES; Lewinsohn & Talkington, 1979); the UES was originally conceptualized as an index of environmental events but here the intensity ratings were

used as a measure of the emotional-motivational characteristics of the subjects; and (2) a negative view of self, the world, and future was measured by Cautela & Uper's (1976) Negative Thoughts Questionnaire (NTQ) which does not have established psychometric criteria and by two indices of self-efficacy derived from the Self-Efficacy Scale (Sherer & Adams, 1983); the first self-efficacy index was derived from the 17 general self-efficacy (GSE) items of the original 30 item scale while the second index was derived from the seven items of the original scale pertaining to self-efficacy in social situations (SSE); each subscale has acceptable levels of reliability and validity although no established norms.

Situational factors were measured by the following: (1) loss of sources of reinforcement and other pleasant events was measured by a modified Spanish version (Vizcarro, 1987) of the PERI Life Events Scale (Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978) yielding eight scores related to situational change: total (PERIT), degree (PERIA), desirability (PERIB), anticipation (PERIC), controllability (PERID), occupational (PERI1), social (PERI2), and other contexts (PERI3). While the original PERI has adequate psychometric support, the effects of modifying the instrument are unknown; and (2) the availability of social support as a source of pleasant events was measured by the Mediators of Social Support Scale (MSSS; MacFarlane, Neale, Norman, Roy, & Streiner, 1981) which yields three scores: total (MSSST), family (MSSSF), and others (MSSSNF). All of the self-report measures were translated into Spanish and except for the social support index (Diaz Veiga, 1987), none of the instruments have been psychometrically evaluated with a Spanish population.

### *Procedure*

A battery of questionnaires completed by all subjects were administered in the following order in group settings: IBS (assertiveness

scale), GSE, SSE, FSRQ, ASQ, NTQ, UES, PERI, and MSSS. Subjects were instructed that the purpose of the experiment was to study risk factors for depression. All subjects were provided with results of the study.

### *Results*

A composite depression score was computed by the following formula:  $DEP = (|DACL \text{ score}/22| + |Zung \text{ score}/80| + |BDI \text{ score}/63|)/3$ . Each depression score was divided by the highest possible score on that instrument, summed across instruments, and then divided by the number of instruments in order to obtain a weighted proportion index of self-reported depression. This depression score had a mean value of .3199, standard deviation of .1278 and range of .1000 to .6810. The correlation between the composite depression score and the DACL, Zung, and BDI was .87, .79, and .84 respectively. Summary statistics for all measures are presented in Table 1.

In order to assess the hypotheses that deficits, inadequacies, and situational factors each contribute to the variance in depression scores, four standard multiple regressions were conducted. In the first regression analysis, the composite depression score was predicted by measures of deficit behavioral repertoires which accounted for 36% of the variance ( $R = .6015$ ,  $F(8,131) = 9.282$ ,  $P < .0001$ ). Only three of the eight predictors were significant. FSRQ, IBS, and ASQGN. In the second regression analysis, the composite depression score was predicted by measures of behavioral repertoire inappropriacies which accounted for 45% of the variance in depression scores ( $R = .6699$ ,  $F(4,1359) = 27.473$ ,  $P < .0001$ ). Three of the four predictors were significant. GSE, UES, and NTQ. In the third analysis, the composite depression score was predicted by situational factors of life events which accounted for 37% of the variance ( $R = .6142$ ,  $F(8,131)$ ,  $p < .0001$ ). Only PERIA and PERID were sig-

*Table 1*  
Means and standard deviations for the 74 depressed and 66 nondepressed subjects

<i>Variable</i>	<i>Group</i>	<i>M</i>	<i>S.D.</i>
FSRQ	NDEP	17.20	6.57
	DEP	12.45	3.91
GSE	NDEP	56.83	8.55
	DEP	51.38	9.00
SSE	NDEP	19.12	3.92
	DEP	18.72	3.45
PERIT	NDEP	3.97	2.40
	DEP	5.12	3.29
PERIA	NDEP	3.11	1.06
	DEP	3.42	0.96
PERIB	NDEP	3.21	1.18
	DEP	2.65	0.96
PERIC	NDEP	3.26	0.99
	DEP	2.65	1.00
PERID	NDEP	3.30	0.99
	DEP	2.67	1.09
PERI1	NDEP	1.70	1.53
	DEP	2.34	1.97
PERI2	NDEP	1.86	1.37
	DEP	2.65	2.12
PERI3	NDEP	0.30	0.58
	DEP	0.23	0.61
IBS	NDEP	29.92	9.52
	DEP	22.26	8.01
ASQIP	NDEP	29.12	3.67
	DEP	27.16	4.85
AQSP	NDEP	28.24	3.51
	DEP	28.50	4.53
ASQGP	NDEP		
	DEP		
UES	NDEP	8.07	7.27
	DEP	14.55	9.03
NTQ	NDEP	7.53	5.85
	DEP	13.57	7.75
MSSST	NDEP	4.03	1.77
	DEP	3.47	1.81
MSSSF	NDEP	1.63	0.97
	DEP	1.36	0.80
MSSSNF	NDEP	1.46	0.91
	DEP	1.35	0.81
DEP	NDEP	0.22	0.07
	DEP	0.43	0.10

**Legion for Table 1**

FSRQ = Frequency of self-reinforcement questionnaire; GSE = General self-efficacy; SSE = Social self-efficacy; PERI = Life events schedule total (T), degree of change (A), desirability (B), anticipation (C), controlability (D), occupational context (1), social context (2), and other (3); IBS = Interpersonal behavior survey, assertiveness scale; ASQ = Attributional style questionnaire for internal (I), stable (S), and global (G) attributions for positive (P) and negative (N) events; UES = Unpleasant events schedule; NTQ = Negative thoughts questionnaire; DEPT = Depression composite total score; NDEP\_ Nondepressed subjects; DEP = depressed subjects.

nificant predictors. The fourth analysis found no significant predictions of depression from the three measures of social support.

In order to ascertain the relative contribution of the predictor variables, a stepwise regression analysis was conducted with the composite depression score as the dependent variable and the deficits, inappropriacies, and situational factors which accounted for significant variance in the standard regression analyses (i.e., FSRQ, IBS, ASQGN, GSE, UES, NTQ, PERIA and PERID) as the independent variables. Five of these eight predictors (GSE, NTQ, PERID, FSRQ, and UES) account for 61% of the variance in the composite depression scores ( $R = .7833$ ,  $F(5,134) = 42.56$ ;  $p < .0001$ ). The addition of any other predictor did not increase significantly the amount of variance of the composite depression score accounted for by the regression model.

**Discussion**

The results of this study must be viewed within the limits of the method used. First, it is important to note that the association of deficits, inappropriacies, and environmental conditions to depression is correlational, thus not permitting causal inferences. Second, the study did not include nondepressed psychiatric controls so it is not known if the correlates of depression are unique to this disorder. Third, subjects were not selected at random and thus may not be representational. Fourth, the classification of variables as behavioral deficits versus inappropriacies was not verified through reliability evaluations of interjudge agreement or construct validity factor analyses. Finally, the use of translated self-report measures may limit the accuracy of the assessment, although the use of a composite score may have improved the accuracy of the assessment of depression. Nevertheless, the findings of this investigation are consistent with suggestions that a multivariate approach to the study of depression is warranted (Craighead, 1980) and that a paradigmatic behavioral (PB) theory (Staats & Heiby,

1985) of depression can provide a heuristic framework for such investigations in part by suggesting the grouping of variables into clusters representing behavioral deficits, behavioral inappropriacies, and situational factors.

In the initial series of standard multiple regression analyses, it was found that variables grouped as deficits, inappropriacies, and situational factors each accounted for a sizable portion of the variance in composite depression scores. It was found that the group of deficits in terms of poor self-ARD skills (FSRQ), poor social skills (IBS), and poor attributional styles (ASQGN, negative global) accounted for 36% of the variance in the composite depression scores. In terms of inappropriacies, it was found that dysfunctional general self-efficacy (GSE), anhedonia (UES), and negative thoughts (NTQ) accounted for 45% of the variance in composite depression scores. Regarding situational factors, controllable (PERID) and major (PERIA) life events accounted for 37% of the variance in the composite depression scores.

The results from the stepwise regression analysis provide additional evidence that the consideration of numerous factors in depression is warranted. The results from this analysis suggests that there are independent contributions to the variance in the composite depression scores from one behavioral deficit (self-ARD), three behavioral inappropriacies (negative thoughts, poor general self-efficacy, and anhedonia), and one situational factor (controllable life events). These five variables accounted for 61% of the variance in the composite depression score.

The finding that deficit self-ARD skills are related to depression is consistent with prior research. Self-reinforcement training (Fuchs & Rehm, 1977; Heiby, Ozaki, & Campos, 1984) has been found to be effective in the establishment of positive self-ARD skills and the alleviation of depression. In terms of inappropriacies, negative thoughts, including those about one's abilities or self-efficacy, have been found to be

amenable to reduction or elimination with depressives using cognitive therapies (e.g., Teasdale & Fennell, 1982). Anhedonia has been targeted for reduction in behavioral therapies designed to increase the frequency in which depressives engage in competing pleasant activities (Lewinsohn, 1974). And the finding that controllable negative events are related to depression suggests that the focus of these interventions should include the individual's response to negative events for which the subject assumes responsibility.

These results suggest it may be warranted to further specify the exact behavioral deficits and inappropriacies in each case of depression. It has been argued that depression may be best classified according to the presenting behavioral deficit or inappropriacy (Heiby, 1989; Heiby & Staats, 1990) in order to provide individualized treatment for skills that warranted development or reduction. At least two studies have demonstrated the efficacy of matching treatment to the particular exhibited deficit or inappropriacy as opposed to identifying a generic depression intervention (Heiby, 1986; McKnight, Nelson, Hayes, & Jarret, 1984). The need of matching an intervention to the presenting behavioral skill deficits or inappropriacies is also suggested from treatment outcome studies for depression which report variance in the effectiveness of different treatment (Miller, Norman, Keitner, Bishop, & Dow, 1989).

It is noteworthy that the stepwise regression results found no significant additional variance accounted for by the inappropriacy of poor social self-efficacy or the deficits of misattributions and poor social skills. This may be due to redundancy or inadequate measurement of these constructs. Attributions and self-efficacy may be particular aspects of negative thoughts or contingent (self-reinforcement) and noncontingent (positive self-estimulation) aspects of self-ARD (see Heiby & Staats, 1990; Huesmann & Morikawa, 1985). The lack of predictive power of social skills or social support is inconsistent with prior research demonstrating

the effectiveness of social skills training for depression (e.g., Bellack, Hersen, & Himmelhoch, 1980) and may be partly due to the restricted range of social skills (i.e., assertiveness) assessed. Because the stepwise regression analysis suggested more inappropriacies than deficits in the prediction of depression, future research may benefit from the inclusion of inappropriate social skills, such as an aggressive interpersonal style.

It is also interesting that only *controllable* life events as a situational factor appeared significant in the stepwise regression analysis. This finding is consistent with other research suggesting that it is controllable negative events that are related to depression as opposed to negative events in general (Hammen & deMayo, 1982). This distinction may partly explain why prior studies investigating global negative events failed to demonstrate a strong relationship between those events and depression (Hirschfeld & Cross, 1982). The failure of social support and other negative life events to contribute to the prediction of depression scores may suggest the need for more specific measurement of these constructs as suggested by Ferster (1973) who argued that contingency variables such as a strained ratio schedule, are causal in depression. Self-report measures of life events generally classify the events according to context or intensity not in terms of contingent relations to depressed behavior. In addition, it may be that social support ad some life events are predictive of depression when studied in isolation (Linn, Dean & Ensel, 1986) but not when considered in conjunction with behavioral deficits and inappropriacies. In other words, it may be individual differences in response to environmental conditions that accounts for depression.

In conclusion, the results of this study provide mixed support for the paradigmatic behavioral (PB) theory of depression (Staats & Heiby, 1985) as one attempt to develop a complex multivariate theory for this disorder (Craighead, 1980). The findings support the PB theory assertion that depression may be better

understood if behavioral deficits, behavioral inappropriacies, and situational factors are considered. While the PB theory also posits biological determinants of depression, one of these factors were investigated in this study. The results partly support the PB hypothesis that complex behaviors such as depression may be better understood if the deficits and inappropriacies considered are ones which represent the emotional-motivational, language-cognitive, and sensory-motro functional behavioral repertoires. The present study found correlational support for the inclusion of inappropriacies and deficits that can be conceptualized further as representing two of these three functional repertoires. The inappropriacy of negative thoughts and poor self-efficacy as well as the deficits of poor self-ARD skills are considered to be primarily language-cognitive factors. The inappropriacy of anhedonia is considered to be primarily an emotional-motivational factor. The deficit of social skills is considered to be primarily a sensory-motor factor but did not significantly account for variance in depression scores in the stepwise regression analyses. The results of this study are also consistent with the inclusion of situational factors as part of the PB theory of depression as opposed to the abandonment of situational factors as some theories suggest (e.g., Seligman et al., 1979). The finding that controllable negative life events are related to depression suggests that it is important to consider both behavioral repertoire and situational conditions in the development of a comprehensive theory of depression.

Finally, the application of PB theory to a Spanish population with translated self-report measures provides some construct validation support for the PB theory. It has been argued that cross-cultural applications of predictive models provide a robust test of a theory's explanatory power (Brislin, 1991).

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