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ABSTRACT

EXAMINING THE RELATIONSHIP BETWEEN
HOPELESSNESS AND DEPRESSION

By

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The Hopelessness Theory of Depression (HTD; Abramson, Metalsky & Alloy, 1989) postulates that hopelessness is a sufficient but not necessary cause of depression. The causal asymmetry in this relationship implies a curvilinear relationship, with depression increasing at a positively accelerated rate with increases in hopelessness. The hypothesis that such a curvilinear relationship exists is examined using curvilinear regression analyses where Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961) scores are predicted using each of five hopelessness measures. These include the Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974) and four pilot measures: the Modified Hopelessness Scale (MHS; i.e., a Likert scale adapted HS); and the Outlook Questionnaire (OQ) measures of OQ-Expected Dissatisfaction, OQ-Hopelessness and OQ-Weighted Hopelessness – each a successive approximation of hopelessness as conceptualized by HTD.

Uniform support for the curvilinearity hypothesis is found across measures of hopelessness in the main samples (i.e., unselected for demographic variables) and the female subsamples. In the main samples, curvilinear interpretations of the data (i.e., corresponding to the quadratic steps of the analyses) account for increments in BDI variance (beyond that accounted for by linear interpretations) ranging from 1.7%

($p < .001$) when predicting with the HS to 6.1% ($p < .001$) when predicting with OQ-Expected Dissatisfaction. Similarly, among females, curvilinear interpretations account for unique increments in BDI variance ranging from 2.6% ($p < .001$) when predicting with the MHS to 8.5% ($p < .001$) when predicting with OQ-Expected Dissatisfaction. Among males, curvilinear interpretations do not account for unique increments in BDI variance when predicting with the HS, MHS or OQ-Weighted Hopelessness, and otherwise account for 1.4 and 1.7% ($p < .05$) when predicting with OQ-Hopelessness and OQ-Expected Dissatisfaction respectively. Support for the curvilinearity hypothesis is strongest among participants reporting severe depression histories, except when predicting with the MHS, when support is strongest among participants reporting no history of depression. Support for the curvilinearity hypothesis is viewed as consistent with, but not confirming of the HTD postulate about the relationship between hopelessness and depression. Areas of mixed support for the curvilinearity hypothesis, the relative performance of the hopelessness measures, and directions for future research are discussed.

For Christine

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Introduction

The Hopelessness Theory of Depression[1] (HTD; Abramson, Metalsky & Alloy, 1989) states that hopelessness is a sufficient, but not a necessary cause of depression. In so stating, the theory specifically allows for causes of depression that are wholly independent of hopelessness and which therefore may produce depression even in its absence. At the same time, the theory maintains that hopelessness will *always* cause depression. While there is a great deal of research that has focused on other aspects of HTD (the theory is summarized below), this hypothesized relationship between hopelessness and depression remains largely unexamined.

This study examines and characterizes the relationship between concomitant levels of hopelessness and depression, and considers the corresponding implications for HTD. In order to place the focus of this study into perspective with the full breadth of HTD, a summary of the full etiological postulates of the theory is presented, as well as a brief overview of research on the theory in general. Then, to provide a more general research perspective, a summary of HTD independent research on the relationship between hopelessness and depression is also presented. Drawing from these perspectives, the conceptualization of the research hypotheses is then presented.

The Hopelessness Theory of Depression

The Hopelessness Theory of Depression (HTD) hypothesizes that within the general heterogeneous disorder of depression (Depue & Monroe, 1978, Kerry & Orme,

1975; see Haslam & Beck, 1994 for an alternate view) there is an etiologically defined subtype of depression, which the theory labels hopelessness depression. HTD suggests that hopelessness – defined as "an expectation that highly desired outcomes will not occur or that highly aversive outcomes will occur coupled with an expectation that no response in one's repertoire will change the likelihood of occurrence of these outcomes" (Abramson et al., 1989; p. 359) – is a proximal and sufficient cause of hopelessness depression.

HTD conceptually divides the etiological processes that lead to the onset of hopelessness depression into a diathesis-stress component and a causal mediation component (see Figure 1). The *diathesis-stress component* specifies three *depressogenic cognitive styles* (i.e., *diatheses*, or predispositions), each of which represents a vulnerability to making some type of depressogenic inference in response to experiencing a negative life event (i.e., a *stress*). The diathesis-stress relationships in this component are interactive, such that an individual's likelihood of making actual depressogenic inferences is increased only when there is a co-occurrence of at least one of the depressogenic cognitive styles and a negative life event. Therefore, neither the presence of a depressogenic cognitive style in the absence of the experience of a negative life event, nor the experience of a negative life event in the absence of a depressogenic cognitive style, is expected to increase the likelihood of making actual depressogenic inferences. However, Abramson et al. (1989; p. 362) suggest viewing the elements of the diathesis-stress relationship as fitting a titration model (cf. Zubin & Spring, 1977), such that "the less negative a person's cognitive style, the more negative an event needs to be in order to interact with that style."

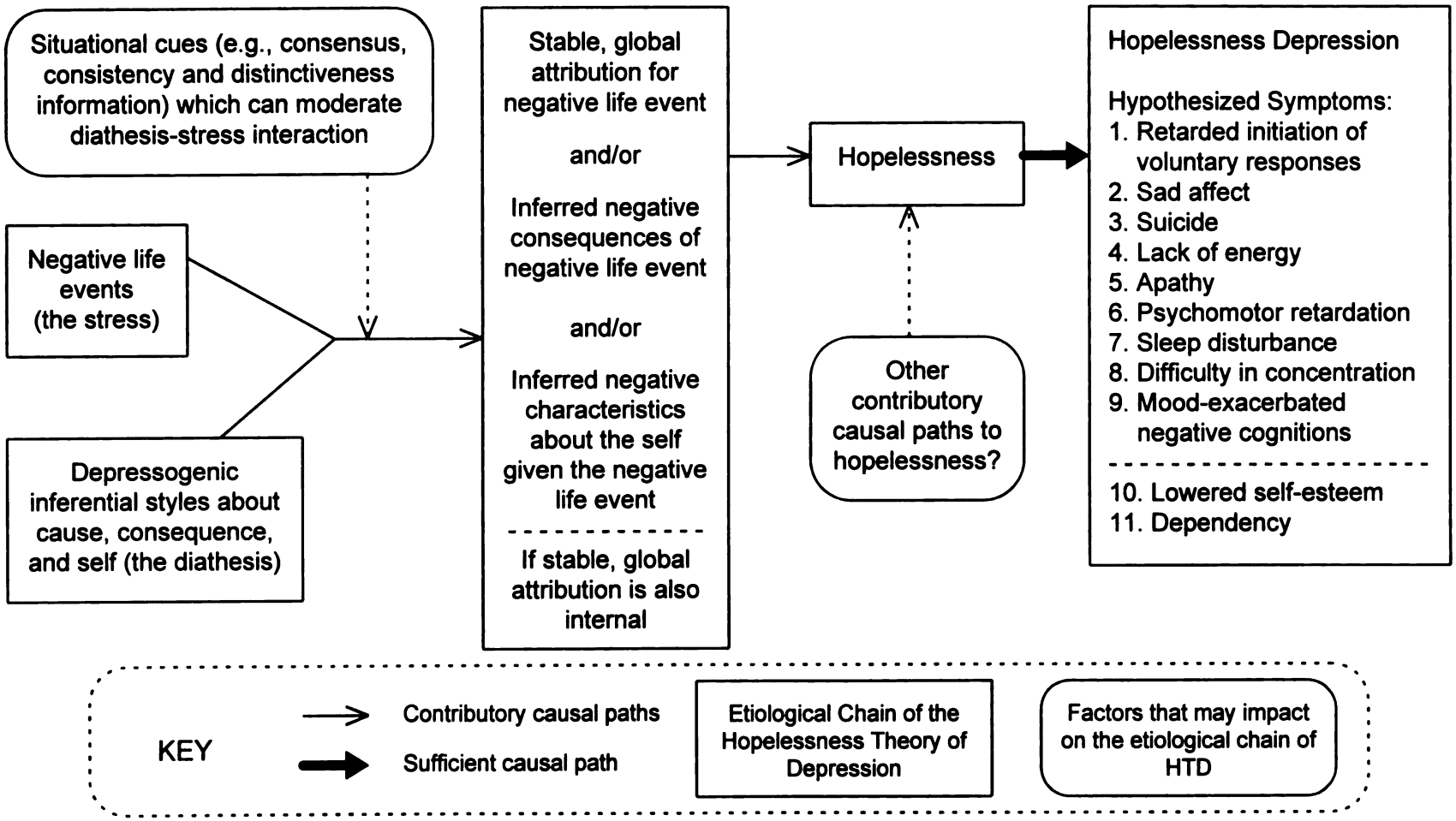

Figure 1
The Hopelessness Theory of Depression
Adapted from Abramson, Metalsky & Alloy, 1989

The three depressogenic cognitive styles proposed by HTD differ primarily with regard to the type of depressogenic inference that is expected to be drawn from having experienced a negative life event. One of these depressogenic cognitive styles involves an increased vulnerability to concluding that additional negative consequences will follow the experience of a negative life event. For example, people with this type of cognitive style might infer from the receipt of a failing grade on a college exam that their preferred career path is no longer reasonably attainable. Another depressogenic cognitive style involves an increased vulnerability to inferring negative characteristics about oneself in response to a negative life event. People with this type of cognitive style might infer from their failing exam grade that they are worthless and unlikable.

The final depressogenic cognitive style proposed by HTD involves an increased vulnerability to attributing the experience of a negative life event to global and stable causes (i.e., a *depressogenic attributional style*). People with this type of cognitive style might attribute their receipt of a failing exam grade to being unintelligent, and thereby to being generally (i.e., globally) and invariably (i.e., with stability) unable to perform at that level of academic achievement. Rephrased in terms of depressogenic inferences, such an attribution involves making a depressogenic inference regarding the cause of a negative life event. HTD states that attributional style may differ for interpersonal and achievement events, such that there is a specific vulnerability to depressive reactions to negative life events within a particular content domain (i.e. interpersonal or achievement oriented) for people who have a corresponding domain specific depressogenic attributional style. Therefore, a negative exam outcome is not expected to elicit actual depressogenic

attributions in a person whose depressogenic attributional style is specific only to events in the interpersonal domain.

The *causal mediation component* of HTD delineates an etiological chain of causal relationships that begins with the co-occurrence of a depressogenic cognitive style and a negative life event, and culminates with the onset of hopelessness depression.

First, the co-occurrence of the diathesis-stress elements is said to contribute to the formation of actual depressogenic inferences. This relationship is said to involve only contributory causation because strong situational information around the occurrence of a negative life event moderates the activation of a depressogenic attributional style, thereby interrupting the formation of depressogenic inferences. For example, even a student with a very depressogenic attributional style who receives a failing grade on an exam is hard pressed to form a global and stable depressogenic attribution about it if the exam is taken shortly after receiving some very good but very distracting news, especially if the student receives excellent grades on two exams taken just before hearing the distracting news.

Second, the occurrence of the formation of actual depressogenic inferences is said to contribute to the formation of hopelessness. This relationship is also characterized as involving only contributory causation because HTD suggests that depressogenic inferences with more moderate qualities may lead to only a relatively circumscribed pessimism rather than to a more generalized hopelessness. Also, HTD allows for the possibility that there may be other reliable contributory causes for hopelessness for which the theory does not account (for examples, see Bonner & Rich, 1991) Therefore, HTD does not view the formation of depressogenic inferences as necessary for the formation of hopelessness.

Finally, as discussed at the outset of this study, HTD states that the occurrence of hopelessness is sufficient to cause hopelessness depression. However, Abramson et al. (1989; p.369) state that HTD "is silent about the time lag between the formation of hopelessness and the onset of the symptoms of hopelessness depression." Therefore, HTD offers no specific predictions regarding the course of the process whereby hopelessness causes hopelessness depression, other than to say that hopelessness precedes depression and that depression necessarily follows hopelessness. HTD also allows for the possibility that depression that is caused by hopelessness may be maintained by other psychological or biological processes even after the precipitating hopelessness has remitted.

The remaining aspect of the etiological model of HTD is the set of symptoms hypothesized to comprise hopelessness depression (detailed briefly in the symptoms box in Figure 1). Abramson et al. (1989) offer a rationale for why each of these symptoms is expected to be shown in hopelessness depression, and under what conditions certain variations are expected. However, since hopelessness depression is ultimately defined in etiological terms, the predicted set of symptoms is essentially sound speculation. That is, even though the evolution of HTD has involved revisions in both the predicted etiology and symptoms of hopelessness depression, and even though every aspect of the theory is still subject to further revision when indicated by compelling research, ultimately, any verification of a characteristic set of symptoms still requires a determination that they are a reliable product of the etiological processes defined in the theory.

Research on the Hopelessness Theory of Depression

Because of the marked conceptual and theoretical overlap between HTD and its earlier representation in the Reformulated Learned Helplessness Theory of Depression

(RLHTD; Abramson, Seligman & Teasdale, 1978), Abramson, Metalsky & Alloy, (1988) note that early research on RLHTD tended to focus on elucidating the relationship between attributional style and depression, and yielded mixed results (for reviews, see Barnett & Gotlib, 1988; Brewin, 1985; Coyne & Gotlib, 1983; Peterson & Seligman, 1984; Peterson, Villanova & Raps, 1985; Riskind & Rholes, 1984; Sweeney, Anderson & Bailey, 1986 and Zuroff, D. C., 1981). However, Abramson, Metalsky et al. (1988) observe that such studies typically did not address the predicted *interactive* relationship between attributional style and negative life events in contributing to the onset of depression, and therefore conclude that they are not logically relevant to RLHTD *or* HTD and can neither lend support nor criticism to these theories.

Among studies that examine the interactive cognitive diathesis-stress hypothesis in the context of either RLHTD or HTD, some find either mixed support (Nolen-Hoeksema, Girgus, & Seligman, 1986; Robins & Block, 1989) or no support (Johnson & Miller, 1990), while several have reported generally supportive results (Dixon & Ahrens, 1992; Follette & Jacobson, 1987; Hilsman & Garber, 1995; Hunsley, 1989; Metalsky, Halberstadt, & Abramson, 1987; Metalsky & Joiner, 1992; Metalsky, Joiner, Hardin, & Abramson, 1993; Sacks & Bugental, 1987; Spangler, Simons, Monroe and Thase, 1993).

Still, the logical complexity of HTD compels a careful consideration of what can and cannot be reasonably concluded from such studies. The issue of primary concern is whether any given study can be viewed as relevant to the hopelessness subtype of depression *per se*, as opposed to depression in general. Since the postulates of HTD are constrained to the hopelessness subtype of depression, inconsistencies between the theory and other subtypes of depression are not viewed as challenging to the theory. Therefore,

research on HTD must account for both hopelessness and non-hopelessness subtypes of depression in order to have meaningful implications for the theory. In instances when this involves either the isolation of hopelessness depression or the neat separation of a sample of depressed individuals into hopelessness and non-hopelessness subtypes, a considerable methodological challenge must be addressed. That is, since the isolation of hopelessness depression requires information on, among other things, the base-rate of non-hopelessness depression (Alloy, Abramson, Metalsky & Hartlage, 1988), and because non-hopelessness depression can only be defined relative to hopelessness depression, it is virtually impossible to separate a sample of depressed individuals into hopelessness and non-hopelessness subtypes. However, Wagner (1991) suggests that this problem can be neatly circumvented using a *prospective* research design that controls for *all types* of depression at baseline. Such a design, given appropriate controls and measures, provides the opportunity to focus on the *onset* of depression after baseline, and whether it occurs in a manner consistent with the etiological chain proposed by HTD.

Metalsky et al. (1987, 1993) uses a prospective research design to test whether a content domain specific depressogenic attributional style (i.e., for achievement outcomes) interacts with the experience of a domain matching negative event (i.e., college students' disappointing exam outcomes) to predict residual increases in depressive symptoms over baseline levels. Both studies report that the content domain specific diathesis-stress interaction predicts students *enduring* but not immediate mood reactions to the receipt of their exam grades. Hilsman and Garber (1995) reports a similar temporal factor in the expression of depressive affect by fifth and sixth grade children as a result of the interaction of negative cognitions and grade related stress. Hunsley (1989) also discusses

such temporal factors in the expression of depressive affect in response to interactive attributional style and subjective stress.

Still, neither of the Metalsky et al. (1987, 1993) studies formally isolates instances of hopelessness depression (nor do they claim to). Since baseline levels of depression are only controlled statistically, the research sample still contains participants who might be experiencing any manner or subtype of depression. Therefore, the residual changes in depression that are isolated could be exacerbations of existing depression (of any subtype) due to the cognitive diathesis-stress interaction. Even if the causal mediation component of HTD had been fully supported in both of these studies, such an exacerbation of symptoms would be more accurately labeled a hopelessness aggravation of undeterminable subtypes of depression, and could only lend partial support to HTD. Wagner (1991) modifies the methods of Metalsky et al. (1987) by removing currently depressed participants from the research sample, thereby eliminating the potential confounds introduced by existing depressions of undeterminable subtypes. Wagner (1991) finds the same attribution independent, outcome dependent immediate depressive mood response to negative exam grades seen by Metalsky et al. (1987), but finds no enduring depressive mood response of any kind. However, interpretation of these results is limited due to a possible manipulation failure regarding the experience of a negative life event (i.e., due to the generous curving of exams grades by instructors blind to the natural manipulation), and an inconsistency (as compared to Metalsky et al., 1987) in the functioning of a measure of students' subjective evaluations of their exam outcome.

Metalsky et al. (1987) does not address the role of hopelessness in their test of the causal mediation component, and Metalsky et al. (1993) report support for the mediating

role of hopelessness only in the context of an integration of HTD and the Self-Esteem Theory of Depression (e.g., Brown & Harris, 1978), so neither study directly examines the causal mediation component of HTD. The attempt by Wagner (1991) to test the role of hopelessness in the causal mediation component is inconclusive because no enduring depressive mood response is identified to predict.

The methodological issues relating to the isolation of hopelessness depression also have cautionary implications for research that addresses the symptoms of hopelessness depression. For example, Spangler et al. (1993) offer a non-prospective study that classifies individuals with hopelessness depression based on the co-occurrence of a domain specific cognitive diathesis and a matching domain specific stress, and then evaluates the correspondence between the depressive symptoms of those individuals and the hypothesized symptoms of hopelessness depression. While revealing important relationships that are interpreted as partially supporting HTD, Spangler et al. (1993) acknowledge that hopelessness depression may be more accurately identified through a more comprehensive consideration of relevant etiological factors. In another study, Whisman, Miller, Norman & Keitner (1995) also evaluate the correspondence between hopelessness depression and its hypothesized symptoms (as well as with patient characteristics and treatment outcome), but operationalize hopelessness depression as the co-occurrence of hopelessness with depression. While also offering partial support of HTD, Whisman et al. (1995, p.394) acknowledge that their study "did not examine the causal model proposed by Abramson et al. (1989), which 'figures prominently in the definition of hopelessness depression' (p.359) in their theory."

In sum, when the body of research on HTD is viewed using the most conservative of research standards, it can be asserted that no instance of hopelessness depression has yet been logically and empirically identified, that the diathesis-stress component of the theory has received incomplete and inconsistent support, that the causal mediation component of the theory is essentially untested, and that the predicted set of symptoms for hopelessness depression remains speculative. However, the failure of research to provide conclusive support for HTD is more a reflection of the logical complexity of such a comprehensive theory and the mammoth methodological challenges that this brings to the task, than it is a condemnation of the potential validity of the theory.

Hopelessness and Depression

There have been several studies conducted involving the relationship between hopelessness and depression independent of any specific consideration of HTD, but which individually or in combination still have relevance to the theory. For example, many studies done in the context of predicting suicide or parasuicide reveal a strong relationship between hopelessness and depression. Hopelessness is reported to correlate with both depression and suicide, to correlate with suicide to a greater extent than does depression, and is strongly suggested to be the link between depression and suicide (Beck, Kovacs & Weissman, 1975; Beck, Steer, Beck & Newman, 1993; Beck, Steer, Kovacs & Garrison, 1985; Bedrosian & Beck, 1979; Dyer & Kreitman, 1984; Kashden, Fremouw, Callahan & Franzen, 1993; Minkoff, Bergman, Beck & Beck, 1973; Schlebusch & Wessels, 1988; Wetzel, Margulies, Davis & Karam, 1980). Studies predicting suicidal ideation also show a strong relationship between hopelessness and depression (Prezant & Neimeyer, 1988; Ranieri, Steer, Lawrence, Rissmiller, Piper & Beck, 1987).

The magnitude and consistency of the relationship between hopelessness and depression is revealed by a consideration of several studies that report correlations between participants' scores on the Hopelessness Scale (HS; Beck et al., 1974) and the Beck Depression Inventory (BDI; Beck, et al., 1961). Examples include HS-BDI correlations of: $r(97) = .68, p < .001$ for adolescents in youth organizations (Johnson & McCutcheon, 1981), $r(317) = .71, p < .001$ for non-psychotic, non-retarded, adult mental health center clients (Moore & Paolillo, 1984), and $r(108) = .66, p < .01$ among college undergraduates (Wagner, 1991). Even when the BDI is scored excluding the hopelessness/pessimism item and the suicidal ideation item, high correlations with HS scores are found: $r(50) = .65, p < .001$ for psychiatric inpatients and $r(25) = .79, p < .001$ for psychiatric outpatients (Ranieri et al., 1987), and $r(1,794) = .63, p < .001$, also for psychiatric outpatients (Beck et al, 1993). While exceptions to such high HS-BDI correlations do exist in the literature (e.g., Johnson & McCutcheon, 1981, observe that Prociuk, Breen & Lussier, 1976 reported a correlation of $r = .35$), they are infrequent and do not seem representative.

More directly relevant to HTD, however, are studies that begin to reveal the qualitative nature of the relationship between hopelessness and depression. For example, Nekanda-Trepka, Bishop & Blackburn (1983) find that of a sample of 86 primary depressives – based on BDI scores of 14 or higher (Beck, 1972) and symptoms meeting the research diagnostic criteria (Spitzer, Endicott & Robins, 1978) – 11 scored less than six on the HS, indicating instances of depression in the absence of hopelessness. Similarly, Green (1989) finds that of 60 individuals diagnosed as clinically depressed, seven score above 20 on the BDI and below eight on the HS. These studies are consistent with the

HTD contention that there are varieties of depression that do not involve hopelessness in their etiology or course (i.e., the non-hopelessness subtypes of depression). It is worth noting that the uncontrolled presence of such non-hopelessness depressives in HTD research samples presents one of the primary confounds in research on the theory.

Weissman, Miller, Norman & Keitner (1995, p.378) observe that "there is a substantial body of evidence to suggest that elevated hopelessness is specific to depression." For example, hopelessness (as a symptom) is found to be significantly higher among depressed psychiatric inpatients as compared to non-depressed psychiatric inpatients, non-depressed community volunteers (Abramson, Garber, Edwards & Seligman, 1978; Hamilton & Abramson, 1983); and both chronically and acutely physically ill patients (Greene, O'Mahoney & Rungawamy, 1982). Similarly, hopelessness is found to be specific to depression relative to anxiety (Beck, Riskind, Brown & Steer, 1988; Watson, Weber, Assenheimer, Clark, Strauss & McCormick, 1995). Such findings are consistent with the HTD contention that depression necessarily follows from hopelessness, in that hopelessness is not expected to be characteristic of any other psychological malady in the absence of depression. This aspect of HTD is supported more directly by research which suggesting that hopelessness predicts subsequent depression (Rholes, Riskind & Neville, 1985).

Conceptualization and Presentation of Hypotheses Regarding the Expected Characteristics of the Relationship Between Hopelessness and Depression

It is well established that hopelessness and depression correlate quite highly in most instances. This high correlation suggests that on a scatter plot of participants' HS and BDI scores, the pattern of data points are likely to be suggestive of a linear regression line,

since greater data scatter away from the regression line lowers the value of *r* (Pedhazur, 1982).

An important question that is addressed in this study is whether the linear regression line associated with the simple correlation between hopelessness and depression provides the *best* representation of the relationship between these variables. To assume this requires a corresponding assumption that the scatter of data points away from the regression line is essentially unsystematic. By way of comparison, systematic differences in the scatter of data *along* a regression line does not affect how representative the line is. For example, a systematic concentration of data points near the end of the regression line representing low HS scores and low BDI scores simply indicates that lower scores on both measures are more common than higher scores on both measures, but does not challenge any presumption that the relationship between these measures is essentially linear. Conversely, systematic differences in the scatter of data *away* from a linear regression line suggests that a non-linear regression line may offer an improved representation of the relationship between the two measures.

The postulate of HTD that hopelessness is an unnecessary, but sufficient cause of depression suggests that the relationship between hopelessness and depression is not precisely linear. More specifically, since HTD states that depression may be caused and maintained even in the absence of meaningful levels of hopelessness (e.g., non-hopelessness depression), the identification of individuals with meaningful levels of depression who also show relatively low levels of hopelessness is expected. However, since HTD states that hopelessness will necessarily cause depression, instances of meaningful levels of hopelessness with relatively low levels of depression is comparatively

unexpected. Since HTD makes no predictions regarding how quickly hopelessness depression must follow the onset of hopelessness, a low incidence of higher hopelessness with lower depression may be accounted for by the theory if the etiological time course is slow enough for an assessment to capture a few participants in the midst of this process. However, assuming that the average latency from the onset of hopelessness to the onset of hopelessness depression is dramatically shorter than the average latency from onset to remission of non-hopelessness depression, it is expected that the incidence of higher depression with lower hopelessness is much greater than the incidence of higher hopelessness with lower depression.

Therefore, if HTD is correct regarding the relationship between hopelessness and depression, a scatter plot of hopelessness scores and depression scores is expected to show a greater concentration of data points in the area generally representing lower hopelessness scores and higher depression scores than in the area generally representing higher hopelessness scores and lower depression scores. For example – bearing in mind that the linear regression line on an HS-BDI scatter plot runs from the area representing low scores on both measures to the area representing high scores on both measures – the differential concentrations of data points just described are expected to systematically occur in the relatively off-diagonal regions of the scatter plot (i.e., *away* from the linear regression line). If those off-diagonal concentrations are sufficiently different, then the overall pattern of data points are *not* best represented by a linear regression line. Rather, a curvilinear regression line provides a better representation of the relationship between HS and BDI scores, because the arc in the regression line reflects the influence of the differential concentrations of off-diagonal data points.

More specifically, to be consistent with the postulates of HTD, the arc in such a curvilinear regression line must be characterized by having the end of the line associated with higher levels of hopelessness bend *away* from the region of the scatter plot generally representing higher levels of hopelessness with lower levels of depression. Correspondingly, the end of the line associated with lower levels of hopelessness must bend *toward* the region of the scatter plot generally representing lower levels of hopelessness with higher levels of depression. That is, the curvilinearity of such a regression line indicates that depression increases in a positively accelerated manner with increases in hopelessness.

This study employs the statistical method of curvilinear regression analysis (Pedhazur, 1982) to address the issue of what manner of regression line best represents the relationship between hopelessness and depression. While this statistical procedure is explained in more detail in the Methods section, the formulation of the main hypotheses of this study are presently facilitated by discussing a few aspects of the procedure. Curvilinear regression analysis begins with testing whether a straight regression line allows an independent variable to predict a significant proportion of the variance of a dependent variable. It then involves a sequential testing of whether each increment in the number of bends allowed for in the regression line provides for a significant increment in the amount of dependent variable variance that is predicted by the independent variable. That is, the procedure tests whether a regression line with one bend is a significant improvement over a straight one, then whether a regression line with two bends is a significant improvement over a line with one bend, and so on. This continues until the point is reached where the addition of additional bends in the regression line add no significant predictive value. The

last step to add significant predictive power, even if subsequent to a step that did not yield significance, is then viewed as the least complex regression line that best represents the relationship between the two variables. If a significant relationship between two variables is essentially linear, then curvilinear regression analysis will show that the addition of one or more bends to the regression line adds no predictive value.

For the purposes of this study, instances where the relationship between hopelessness and depression is best represented by a curvilinear regression line are subjected to a *qualitative* analysis to determine whether any bends correspond to the postulated of HTD. This is because it is possible that, for example, a regression line with one bend may best fit the data but may be inconsistent with HTD (i.e., a line that bends toward lower depression at its high hopelessness end and away from higher depression at its low hopelessness end, indicating that depression increases in a negatively accelerated manner with increases in hopelessness).

Hypotheses Regarding the Relationship Between Hopelessness and Depression

All of the research hypotheses for this study are presented below (and in Appendix A). Based upon the preceding theoretical conceptualization and discussion of relevant statistical procedures, the central hypotheses of this study are Hypotheses One and Two below – Three through Eight are explained later.

Hypothesis One: There is a curvilinear relationship between hopelessness and depression.

Hypothesis Two: The nature of this curvilinearity is consistent with the postulates of HTD in that depression increases in a positively accelerated manner with increases in hopelessness.

Hypothesis Three: Modified Hopelessness Scale (MHS; described later) scores will correlate positively with BDI scores. Further, the size of this correlation will be qualitatively similar to that of the corresponding correlation between HS and BDI scores.

Hypothesis Four: As compared to the distribution of HS scores, the distribution of MHS scores will be characterized by: a) a smaller coefficient of variation, and b) a skewness value that is closer to zero. Further, though qualitatively, these differences will be of a sufficient size to suggest that they represent truly meaningful differences.

Hypothesis Five: Scores on each of the three Outlook Questionnaire (OQ; explained later) measures will correlate positively with scores on the HS.

Hypothesis Six: Scores on each of the three OQ measures will correlate positively with scores on the BDI. Further, the size of these correlations will be qualitatively similar to that of the corresponding correlation between HS and BDI scores.

Hypothesis Seven: Scores on each of the three OQ measures will correlate positively with scores on the MHS.

Hypothesis Eight: Scores on each of the OQ measures will account for a significant portion of the variance in BDI scores beyond that accounted for by their HS or MHS scores.

For the purposes of testing Hypotheses One and Two, depression is consistently be operationalized as individual's BDI scores. Hopelessness, however, is operationalized

using a variety of measures. The HS functions as the primary operationalization of hopelessness. Even though a secondary focus of this study is to consider some possible limitations to using the HS for research on HTD, and to propose alternative measures that may address those limitations, the HS remains the best established and most widely accepted measure of hopelessness available. However, the alternative measures of hopelessness being piloted in this study are also used to consider the central hypotheses. The use of these alternative measures is necessarily qualified by their being subjected only to very limited tests of validation (which is consistent with their status as pilot measures). Therefore, they are viewed as offering only provisional contributions to the understanding of the relationship between hopelessness and depression.

The considerations which motivating the examination of a number of measures of hopelessness for use in this study, and the strategy that used in doing so, are presented in the following sections.

Issues of Concern Regarding the Measurement of Hopelessness in Research on HTD, and Corresponding Proposals for Alternative Measures of Hopelessness

Studies involving hopelessness are common in the research literature, but in such studies, the term "hopelessness" is frequently used as though the construct of hopelessness is universally understood or agreed upon. That is, in such studies, hopelessness may be identified as a variable of interest, and a measure of hopelessness may be identified as its operationalization, but usually, little attention is given to what the construct of hopelessness specifically consists of. Since in most instances hopelessness is operationalized using the HS, this practice usually does not hinder the comparability of such studies. Still, not all researchers and theorists conceptualize hopelessness identically.

For example, Melges and Bowlby (1969) suggest that hopelessness is not a unitary phenomenon. Emphasizing the time frame for desired goals as a factor that varies across types of hopelessness, they state:

> Different types of hopelessness are held to be central to the psychopathology of depression and sociopathy respectively. The depressed patient, while deeply concerned about his future, has lost the hope he once had because he has come to believe his plans will no longer achieve his continuing and long-term goals. By contrast, the sociopath has long since given up hope of reaching such goals, and, instead, habitually seeks only goals obtainable in the present (Melges & Bowlby, 1969, p. 695)

Offering a formal conceptual analysis of hopelessness, Campbell (1987, p. 20) concludes that:

> The common characteristics identified among the general usages of the term were: The attribute of negative expectations for the future; The attribute of loss of control over future outcomes; The attribute of passive acceptance of the futility of planning to achieve goals; [and] The attribute of emotional negativism as expressed in despair, despondency and/or depression.

However, in specific regard to HTD, Abramson et al. (1989, p. 359) state that:

> A proximal sufficient cause of the symptoms of hopelessness depression is an expectation that highly desired outcomes will not occur or that highly aversive outcomes will occur coupled with an expectation that no response in one's repertoire will change the likelihood of occurrence of these

> outcomes. The common-language term *hopelessness* captures the two core elements of this proximal sufficient cause: (a) negative expectations about the occurrence of highly valued outcomes (a negative outcome expectancy), and (b) expectations of helplessness about changing the likelihood of occurrence of these outcomes (a helplessness expectancy).... Whereas the term *hopelessness* sometimes implies negative affect as well as negative outcome and helplessness expectations, we do not include negative affect as part of out definition of hopelessness. Finally, we use the phrase *generalized hopelessness* when people exhibit the negative-outcome/helplessness expectancy about many areas of life. In contrast, *circumscribed pessimism* occurs when people exhibit the negative-outcome/helplessness expectancy about only a limited domain.

Because of the widespread use of the HS to operationalize hopelessness, such variability in the formal conceptualization of hopelessness has not resulted in numerous incomparable studies on the subject. Certainly, for many studies, a formal consideration of the construct of hopelessness is beyond the general scope of the research, and the routine use of the HS is quite justifiable. For example, research on HTD that has failed to account for specific relevant postulates is sometimes viewed as not directly relevant to the theory (e.g., Abramson, Metalsky et al., 1988). Therefore, after a consideration below of the operational properties of the HS, the measure is then be compared to HTD's definition of hopelessness. From this, it is suggested that the HS does not represent a fully accurate operationalization of hopelessness as defined by HTD, and the Outlook Questionnaire is proposed as an alternative measure of hopelessness which corresponds more closely to

HTD. Similarly, the discriminative properties of the HS is also presented, followed by the suggestion that the HS may be better suited to research involving relatively severe rather than moderate levels of hopelessness. Then a modified version of the HS which is intended to offer better discrimination at more moderate levels of hopelessness is proposed. Finally, specific hypotheses are presented regarding the expected functioning of the alternative measures of hopelessness as compared to that of the HS and the BDI.

Operational Properties of the Hopelessness Scale

In their original presentation of the HS, Beck et al. (1974, p. 864) state that "the underlying assumption [in the development of the HS] is that hopelessness can be readily objectified by defining it as a system of cognitive schemas whose common denomination is negative expectations about the future." In constructing the 20 item HS, Beck et al. (1974) uses nine items from a test focusing on attitudes about the future (Heimberg, 1961) and 11 items based on "pessimistic statements made by psychiatric patients who were adjudged by clinicians to appear hopeless.... [and] which seemed to reflect different facets of the spectrum of negative attitudes about the future" (Beck et al, 1974, p. 861). While not identified as a specific set of criteria in the construction of the HS, the validity of the scale is evaluated in part by comparing HS scores to clinicians' ratings of medical outpatients and suicidal inpatients on the following indices: "Patient believes (a) that he will never get well, (b) that he will not solve his problems, (c) that the future looks black, (d) that he has nothing to look forward to, (e) that he will not achieve his goals (Beck et al., 1974, p. 863).

In their factor analysis of the HS responses of 294 recent suicide attempters, Beck et al. (1974) identify three factors: feelings about the future (accounting for 41.7% of the

HS variance), loss of motivation (6.2%) and future expectations (5.6%), and state that these three factors "tapped affective, motivational, and cognitive aspects, respectively" (p. 864). Hill, Gallagher, Thompson and Ishida (1988) describe a factor analysis of the HS responses of 120 depressed elderly individuals and identify three factors of similar item composition to those of Beck et al. (1974), although they label the factors optimism about the future (26.5 %), giving up (9.1%) and future expectations (7.3%) respectively. Nekanda-Trepka et al. (1983) offer a factor analysis of the HS responses of 88 outpatients with primary major depression and note that their five factor solution corresponds recognizably with the factors identified by Beck et al. (1974) and Hill et al. (1988). The differences they note were that their last three factors need to be collapsed into a single one, and that rather than the affective factor, the motivational factor accounts for most of the HS variance (33.4%) in their sample. Given these factor analyses, and reliability estimates for the HS ranging from alpha = .65 to .94 (Beck et al., 1974; Durham, 1982; Holden & Fekken, 1988), it seems reasonable to conclude that the HS reliably measures, in varying proportions, the negativity of individuals' expectations for their future feelings, motivations and beliefs about the future.[2]

It is worth noting here that the affective aspect of the HS does not specifically conflict with HTD's exclusion of affect from its definition of hopelessness. This is because HTD excludes *present affect* as a defining quality of hopelessness, emphasizing instead *present expectancies* about future outcomes and their controllability. However, the affect laden items on the HS typically assess *expectations* regarding future affect (e.g., Item 13: "When I look ahead to the future, I expect I will be happier than I am now," Beck et al., 1974, p.862) rather than present affect. Translated into terms for HTD, these HS items

essentially treat future feelings as one class of future outcomes about which one might have positive or negative expectations, and do not directly assess present negative affect.

Commenting on the use of the HS to operationalize hopelessness in research on HTD, Abramson et al. (1989, p.367) state that "the HS is an adequate measure of hopelessness because it taps generalized hopelessness, as opposed to simply circumscribed pessimism. In addition, the HS provides an operational definition of hopelessness that is distinct from the symptoms of hopelessness depression." Certainly, there is recognizable overlap between HTD's definition of hopelessness and the operational characteristics of the HS (especially in terms of negative outcome expectancies), and therefore one is justified in stating that the HS likely has some utility in research on HTD.

However, HTD defines hopelessness not just in terms of negative outcome expectancies, but also in terms of helplessness expectancies, which are directly related to one's belief about whether one can control or change the likelihood of expected outcomes. Yet only one item out of 20 on the HS directly addresses the issue of personal control over future outcomes (i.e., item 2: "I might as well give up because I can't make things better for myself," Beck et al., 1974, p.862).

Therefore, the HS seems not to offer an adequate operationalization of the helplessness expectancy component of HTD's definition of hopelessness.

Further, HTD specifies a direct correspondence between helplessness expectancies and negative outcome expectancies. That is, they are linked so that helplessness expectancy consists of the expectation that "no response in one's repertoire will change the likelihood of occurrence of *these* [italics added] outcomes" (i.e., the valued outcomes about which one holds negative outcome expectations; Abramson et al., 1989, p.359). The

HS makes no provisions for operationalizing helplessness expectancies in direct correspondence with specific negative outcome expectancies, especially given its extremely limited treatment of helplessness expectancies in general. Therefore, the HS also seems not to offer an adequate operationalization of HTD's stated correspondence between negative outcome and helplessness expectancies.

These discrepancies between the operational properties of the HS and HTD's definition of hopelessness suggest that the HS may function as a relatively inaccurate operationalization of the HTD definition of hopelessness. In an effort to address this possible limitation of the HS, the following section proposes the Outlook Questionnaire as an alternative measure of hopelessness that corresponds more closely to HTD.

The Outlook Questionnaire.

The Outlook Questionnaire (OQ) is intended to represent a pilot effort to operationalize hopelessness in a manner that is consistent with HTD. The task of constructing the OQ consisted of selecting a pool of potentially important outcomes about which people might have meaningful future expectations, and then establishing a means for assessing individuals' expectations about those outcomes in a manner guided by the logic of HTD.

Two existing measures which offered starting points for the development of the OQ are the Hope Index (HI; Staats, 1989; see Appendix B) and the Expected Balance Scale (EBS; Staats, 1987; see Appendix C). The HI and EBS are each intended as measures of hope, but because of the range of response each offers, they can be viewed as measures of a hopefulness-hopelessness continuum.

The HI offers a list of frequently hoped for circumstances and asks people to rate the degree to which they want, and the degree to which they expect each circumstance to occur within a given time frame. The HI is divided into a hope for self scale (with items consisting of circumstances that bear on individuals) and a hope for others scale (with more global or communal items). Since hopelessness for self is the main concern of this study, the hope for others scale was not considered for inclusion on the OQ.

The items on the hope for self scale do not include any specific affective content (with the exception of the item "to be happy"), and instead consist largely of goal attainment types of circumstances (e.g., "to have money," and "to be competent"). Yet factor analyses on the HS suggest that expectations regarding future feelings (i.e., anticipated affective outcomes) can play a large role in hopelessness (Beck et al., 1974, Hill et al., 1988). In order to add an affective component to the list of potential outcomes on the OQ, and thus broaden the spectrum of expectations assessed, items from the EBS (which measures expectations for positive and negative feelings) were reworded to match the HI item format.

Having *broadened* the range of expectations on the OQ, another goal was to *balance* the distribution of types of expectations on the scale. It seemed that the items under consideration for the OQ represented a variety of appropriate content domains. The affectively oriented items could be divided into positive or negative affect items. These could be further divided into items involving feelings about personal achievement, interpersonal achievement, and general feelings outside of any particular achievement context. Similarly, the items without affective content could be divided into personal or interpersonal goal achievement categories. In order to achieve item balance (in terms of

frequency) across these categories, some items were deleted, others were reworded, and some were created to fill under-represented categories. The result of this process yielded the final list of 30 potential outcomes that would be used for item construction on the OQ. These 30 outcomes, broken down by content categorization, are displayed in Figure 2.

The next task in developing the OQ was to establish a means, based on the logic of HTD, for assessing individual's expectations about each of the outcomes identified for use on the OQ. For perspective, the HI operationalizes hope (and by extension, hopelessness as the inverse of hope) as the interaction between expectations and wants regarding future circumstances (Staats, 1989). This requires obtaining want scores (respondents rate on a 0 to 5 scale how much they want an outcome to occur) and expectation scores (respondents rate on a 0 to 5 scale how much they expect each outcome to occur) and multiplying them to get the hope score for each item. These scores are summed across items to get a total hope score. An issue of concern with this method is that a situation of no expectancy (score of zero) and no want (score of zero) yields the same hopelessness score (zero) as a situation of no expectancy (score of zero) and very much want (score of five).

The estimation of degree of want and degree of expectancy for a future outcome is related to the negative outcome expectancy component of hopelessness as defined by HTD. However, HTD describes this component as "an expectation that highly desired outcomes will not occur or that highly aversive outcomes will occur," (Abramson et al., 1989, p. 359) which suggests that the *discrepancy* between want and expectation for an event is of salient interest when measuring the negativity of expectations. For example, using difference scores (i.e., the absolute value of the difference between want and expectancy scores) yields higher numbers for greater negativity of expectation, no matter

Positive Goal Achievement: Interpersonal
- To have an exclusive relationship (boyfriend, girlfriend, spouse)
- To get along with my family
- To be invited to a social event or party

Negative Goal Achievement: Interpersonal
- To disappoint or let down someone close to me
- To have fewer friends than I would like
- To be rejected in love or romance

Positive Goal Achievement: Personal
- To do well in school
- To have good health
- To have enough money

Negative Goal Achievement: Personal
- To do poorly on an exam or on a job evaluation
- To have too little time for my hobbies or leisure activities
- To put off doing something I think I should do

Affective: Positive Expectations – Personal Achievement
- To feel confident about my future
- To feel pleased about having accomplished something
- To feel competent or skillful

Affective: Positive Expectations – Interpersonal Achievement
- To feel pleased with the friends I have
- To feel loved by someone important to me
- To feel popular

Affective: Positive Expectations – General
- To feel particularly excited or interested in something
- To feel really happy
- To feel full of energy

Affective: Negative Expectations – Personal Achievement
- To feel like a failure
- To feel unmotivated or uninspired
- To feel overwhelmed

Affective: Negative Expectations – Interpersonal Achievement
- To feel annoyed with someone close to me
- To feel rejected
- To feel lonely or remote from other people

Affective: Negative Expectations – General
- To feel depressed or very sad
- To feel like crying
- To feel worried or anxious

Figure 2

Final Items Selected for Use in the Outlook Questionnaire
And Their Categorization by Item Content

whether this is due to expecting an unwanted event or not expecting a wanted event. Similarly, lower scores reflect lower negativity of expectation, no matter whether this is due to expecting a wanted event or not expecting an unwanted event. Therefore, for the OQ, an individual's expected satisfaction vs. dissatisfaction for an item is defined as the absolute value of the difference between want and expectancy scores, with higher scores indicating greater expectation for dissatisfaction. Such *expected dissatisfaction* will serve as the OQ operationalization of the negative outcome expectancy element of hopelessness as defined by HTD. An expected dissatisfaction score can be calculated for each outcome, and these scores can be summed to represent an estimate of *general expected dissatisfaction* (OQ-Expected Dissatisfaction)

In order to address the helplessness expectancy component of the HTD definition of hopelessness (regarding one's belief about whether one can control or change the likelihood of expected outcomes), the OQ also includes an evaluation of individuals' perceived control by asking respondents to estimate the degree of their expected control over each outcome on the OQ. *Expected uncontrollability* (calculated as the inverse score of the estimate of expected control) will serve as the OQ operationalization of the helplessness expectancy element of hopelessness as defined by HTD.

The aspects of the OQ just described are intended as separate means for estimating individuals' negative outcome expectancies (reflected by the OQ-Expected Dissatisfaction score) and their hopelessness expectancies (reflected by the OQ-Expected Uncontrollability score). Given that HTD defines hopelessness as involving *corresponding* negative outcome and helplessness expectations, the OQ operationalizes hopelessness as the interaction of these two estimates as determined outcome by outcome. That is, a

separate *hopelessness* estimate (based on the product of the OQ-Expected Dissatisfaction and OQ-Expected Uncontrollability scores for each outcome) are calculated for each outcome on the OQ.[3] These individual estimates of hopelessness expectations can then be summed to obtain an estimate of *general hopelessness* (OQ-Hopelessness).

Abramson et al. (1989) explain that the degree of importance a person attaches to a negative event moderates the development of hopelessness. Therefore, high degrees of expected dissatisfaction and expected uncontrollability for a subjectively *unimportant* circumstance is not expected to impact on one's thoughts or emotions. That is, if someone does not care whether an event happens, the inevitability and uncontrollability of the event is unlikely to affect whether they become suicidal, depressed or even sad. In order to account for the moderating influence of *subjective importance* on hopelessness, the OQ also asks respondents how much they care whether each outcome actually occurs. This information is used to obtain a weighted hopelessness estimate (based on the product of subjective importance and hopelessness scores) for each outcome on the OQ. These values can be summed to obtain an estimate of *weighted general hopelessness* (OQ-Weighted Hopelessness). For the sake of precision, it is worth noting that the subjective importance of future outcomes is not explicitly stated as a component of HTD's definition of hopelessness, however its relevance is clearly implied by HTD's statement about its moderating role.

Therefore, for each of the 30 outcomes on the OQ, participants estimate their degree of want, degree of expectancy, degree of perceived control, and degree of subjective importance on a five-point scale (i.e., 0 to 4; reduced from the 0 to 5 scale used on the HI to allow respondents an option at the mid-point of the scale). Given these

estimates, the OQ provides for the logical operationalization of the HTD constructs of negative outcome expectancy, helplessness expectancy, and hopelessness – as well as an estimate of hopelessness that is weighted by subjective importance.

The final aspect of the OQ to consider is the relevant future time frame for which expectations are to be measured. For perspective, the HI stipulates the length of the future time frame respondents should consider when estimating their expectations and wishes (e.g., To what extent would you want this *in the next year*?). On the HI, shorter time frames (i.e., in the next few weeks, in one year) yield comparable hope for self scores, but that a longer time frame (i.e., in five years) yields significantly higher hope for self scores. Since this suggests that there is some latitude within the range of shorter time frames, a time frame of "in the next four months" is used on the OQ for this study. Four months represents more than one academic term but less than two, which the author speculated would be a meaningful time frame of interest to undergraduate students.

Discriminative Properties of the Hopelessness Scale

The discriminative power of the HS seems to vary according to the severity of the psychological disturbance (especially affective disturbance) of the population to which it is applied, with the scale showing less discriminative capability with populations that show less severe disturbances. The following exploration of this observation is not intended to suggest that this quality of the HS makes it a weaker measure, but rather to suggest that the scale's proven utility with more severely symptomatic populations may come at the expense of it having less utility with less symptomatic populations. Because these less symptomatic populations still have utility for research on depression (including research on HTD), this possible limitation of the HS suggests that an alternative measure of

hopelessness that has greater discriminative properties at lower levels of psychopathology is desirable.

More specifically, regarding individuals with more severe psychological disturbances, Durham (1982) reports mean HS scores of 6.6 (SD = 4.9) for forensic psychiatric patients and 6.0 (SD = 4.7) for general psychiatric patients; Hill et al. (1988) report mean HS scores of 11.9 (SD = 4.5) for the depressed elderly and Beck et al. (1975) report mean HS scores of 9.0 (SD = 6.1) for suicide attempters. Beck, et al., (1985) reports that among a sample of patients hospitalized for suicidal ideation, mean HS scores were 13.3 (SD = 4.4) for those who committed suicide during a 5-10 year follow up period and 8.9 (SD = 6.1) for those who did not commit suicide. Further, Beck et al. (1985, p. 561) founds that when using a cutoff score of 10 or higher on the HS to retrospectively predict eventual suicide within that same sample, "the number of true positives was 10 out of 86 cases (11.6%), and the number of false positives was 76 out of 86 cases (88.4%). Below the cutoff point were only one false negative (1.3%) and 78 true negatives (98.7%)." Providing a clearer representation of the discriminative power of the HS in a psychiatric sample, Durham (1982) reports that the 25th, 50th, 75th, 90th and 95th percentiles in the distribution of HS scores are represented by scores of 2, 5, 10, 13, and 15 respectively. This distribution spans across most of the zero to 20 point range of the HS.

In comparison, Durham (1982) reports that in a sample of college students, the 25th, 50th, 75th, 90th and 95th percentiles in the distribution of HS scores are represented by scores of 1, 2, 4, 6, and 7 respectively. This distribution shows a concentration of 75% of the sample within less that 25% of the scoring range of the measure (i.e., scoring

between zero and 4). Similarly, in a study of the test-retest reliability of the HS, Holden and Fekken (1988) report mean HS scores for college students of 2.7 (SD = 2.6) and 2.5 (SD = 2.7), with mean scores for males of 3.6 (SD = 3.8) and 3.5 (SD = 3.9), and mean scores for females of 2.3 (SD = 1.8) and 2.1 (SD = 1.9). Bonner and Rich (1988) report that in a sample of 186 college students, 22% scored 0 on the HS, 47% scored 1-5, 27% scored 6-10, and 4% scored 11 or greater. As an estimate of the level of hopelessness in the general population, Greene (1981) reports that for a random sample from the electoral lists of Dublin, Ireland, the mean HS score was 4.5 (SD = 3.1) with a modal score of 4 and a range of 0-17.

These data suggest that the HS demonstrates a greater discriminative power among more seriously depressed or suicidal samples than in less symptomatic samples (i.e., not typically suicidal) such as among college student populations or the general population. That is, in the less symptomatic populations, 50% of the individuals are typically constrained within a range of only a few points on the scale. With allowances made for measurement error, this renders a large portion of the less symptomatic population indistinguishable with regard to respective levels of hopelessness as measured on the HS. However, such generally less symptomatic populations still prove to be of utility in research on depression. For example, with specific regard to HTD, studies on college students' depressive reactions to negative exam outcomes (e.g., Metalsky et al., 1987, 1992, 1993; Wagner, 1991) show their value in examining the etiological chain proposed by HTD. Such less symptomatic samples are useful for testing and refining theories like HTD, and can then guide research that may be conducted with more severely symptomatic samples.

Given the valid and practical use of relatively less symptomatic samples in research on HTD, it seems there is utility in having a version of the HS that has greater discriminative power within the moderate to lower ranges of level of hopelessness. The following section proposes the Modified Hopelessness Scale as an alternative to the HS that is intended to show that property.

The Modified Hopelessness Scale.

In order to increase the discriminative power of the HS within the moderate to lower ranges of level of hopelessness, the Modified Hopelessness Scale (MHS) was developed to use the same 20 questionnaire items, but with a five-point Likert scale response format rather than the HS's dichotomous true-false response format.

Rasmussen (1989) discusses research (i.e., Ciccetti, Showalter & Tyrer, 1985; Cohen, 1983; Jenkins & Taber, 1977; and Lunney, 1970) that shows the advantages of multiple point Likert scale data over dichotomous scale data, and makes the following observations. First, the reliability of a scale increases as the number of points in the scale increases from two to seven, but little to no reliability is gained by making the scale larger than seven. Second, while the number of scale points in correlational research has little or no effect on Type I error rates, it has a considerable effect on Type II error rates with smaller scales causing a reduction in power. Rasmussen (1989, p. 167) states that "using a 2-point scale for one variable would result in a reduction of 67.4% for variance accounted for by r^2." This is primarily due to the increasing amount of information that is lost in the nonreversible transformation of data from a continuous distribution to a progressively smaller Likert scale or ultimately dichotomous scale distribution. Third, with regard to the

effects of scale size on power, "a 5-point scale is not that different from its continuous parent population" (Rasmussen, 1989; p. 170).

These observations suggest that a five to seven-point Likert scale is an optimal response format for a questionnaire that taps information from a continuous distribution, like degree of agreement. However, the information discussed by Rasmussen (1989) is based on simulations such as Monte Carlo studies, and does not take into account such phenomena as participants who may show response sets or who are extreme responders. Therefore, in order to minimize the amount of error that may be introduced by such responders and maximize the benefits of offering a Likert scale response format, the MHS uses a five-point Likert scale response format. Similarly, in order to reduce error due to varied interpretation of the five-point response format, each point on the scale is explicitly labeled (i.e., Almost always true, Often true, Sometimes true, Rarely true, Never true).

Conceptualization and Presentation of Hypotheses Regarding Alternative Measures of Hopelessness for Research on the Hopelessness Theory of Depression

Since the alternative measures of hopelessness proposed in this study (i.e., the MHS and the OQ) are only being piloted here, they are subjected to rather limited validation procedures, and any results based on their use is qualified accordingly. The HS, on the other hand, is the primary operationalization of hopelessness for this study.

Evaluating the Modified Hopelessness Scale

Since the item content of the MHS is identical to that of the HS, except that the dichotomous response format of the HS is expanded to a five-point Likert scale on the MHS, each participant in this study completed only one or the other of the two scales. While this prevents any direct comparison between the HS and the MHS, a high

correlation between the MHS and the BDI is consistent with (though not conclusive evidence for) the general integrity of the HS being preserved in the MHS. Therefore it is hypothesized that:

> Hypothesis Three: MHS scores will correlate positively with BDI scores. Further, the size of this correlation will be qualitatively similar to that of the corresponding correlation between HS and BDI scores.

An issue of particular relevance to evaluating the MHS is whether the scale's expanded response format results in improved discriminative power at the moderate to lower range of level of hopelessness, as compared to the HS. A qualitative comparison of the coefficient of variation (Guilford, 1936) and the skew for the distribution of scores for each measure yields relevant information.

The coefficient of variation for a distribution is defined as the standard deviation divided by the mean, multiplied by 100 – indicating the percentage of the mean that is equal to the standard deviation. It is a measure of relative variability and is used to compare the variability of measures that use different scales of measurement, so long as each scale has an absolute zero point and equal units throughout. For example, to the degree that the MHS shows a smaller coefficient of variation than the HS, it indicates that the MHS shows a greater number of standard deviations within the range between a score of zero and the mean score for the measure than does the HS. This would suggest that the MHS shows a greater capacity to distinguish meaningfully between scores within that zero to mean value range of scores than does the HS.

Similarly, since HS scores from relatively less symptomatic samples typically show a mean of about four or less (out of 20), about half of the participants in these samples

must have their HS scores represented within the narrow zero to four or less point range. Therefore, the corresponding frequency distributions of HS scores in these samples are necessarily strongly positively skewed (i.e., skewed to the right). In contrast, as the MHS effectively spreads out the distribution of scores within the moderate to lower levels of hopelessness, the frequency distribution of MHS scores is expected to be less skewed, which is indicated by a skewness value that is closer to zero. Therefore, it is hypothesized that:

> Hypothesis Four: As compared to the distribution of HS scores, the distribution of MHS scores will be characterized by: a) a smaller coefficient of variation, and b) a skewness value that is closer to zero. Further, though qualitatively, these differences will be of a sufficient size to suggest that they represent truly meaningful differences.

Evaluating the Outlook Questionnaire

The OQ provides three measures (i.e., OQ-Expected Dissatisfaction, OQ-Hopelessness, and OQ-Weighted Hopelessness) which represent a succession of closer approximations to an appropriate measure of hopelessness as conceptualized by HTD. Because each successive approximation incorporates another variable into its estimate of hopelessness, the more refined OQ scores are also more vulnerable to the negative effects of accumulated assessment error. Therefore, each of the hypotheses intended to evaluate the OQ is tested three times – once for each of the three OQ measures – in order to provide an opportunity to consider whether there is a point of diminishing return regarding increases in the conceptual accuracy vs. accumulated assessment error.

Each of the OQ measures is examined using both direct and indirect means to show whether they function in a manner similar to the HS. Regarding a direct comparison, it is hypothesized that:

> Hypothesis Five: Scores on each of the three OQ measures will correlate positively with scores on the HS.

As an indirect comparison of these measures (since the HS correlates highly with the BDI) it is hypothesized that:

> Hypothesis Six: Scores on each of the three OQ measures will correlate positively with scores on the BDI. Further, the size of these correlations will be qualitatively similar to that of the corresponding correlation between HS and BDI scores.

Similarly, given limited validity for the MHS, it is hypothesized that:

> Hypothesis Seven: Scores on each of the three OQ measures will correlate positively with scores on the MHS.

Finally, in order to show whether any of the OQ measures tap into an aspect of depression that is not accounted for by the HS or the MHS, a multiple regression analysis is done to reveal whether each OQ measure accounts for a significant portion of BDI variance after the variance accounted for by the HS (or MHS) is already been partialed out. Therefore, it is hypothesized that:

> Hypothesis Eight: Scores on each of the OQ measures will account for a significant portion of the variance in BDI scores beyond that accounted for by their HS or MHS scores.

Method

Participants

The participants for this study were 845 college students enrolled in one of five undergraduate introductory psychology courses at Michigan State University in the Fall of 1992. Of 856 students who originally participated in the study, 11 were removed from the research sample due to invalid data (i.e., evident transcription error or erroneous responding).

Participants who had incomplete data within only a single measure (i.e., skipped a measure, or left more than one item blank on a measure), were removed from the research sample only for analyses involving the spoiled measure. Similarly, some participants were excluded from analyses involving demographic variables if they did not provide the data required for demographic group assignment. Participation in the study was voluntary, although it did partially fulfill a course requirement to gain formal exposure to the research process.

Since all participants completed the Outlook Questionnaire (OQ), but completed only one or the other of the Hopelessness Scale (HS) or the Modified Hopelessness Scale (MHS), sample sizes for tests involving the HS or the MHS necessarily involve about half of the full participant sample. Since the halved samples corresponding to the HS and the MHS are still random samples of the same population from which the full sample was drawn, comparisons between tests involving OQ measures and those involving the HS or

MHS when each is unselected for demographic variables are wholly appropriate. Therefore, for clarity, the term "main sample" will be used to refer to portions of the full sample that are unselected for demographic variables, regardless of their size.

Measures

The Beck Depression Inventory (BDI; Beck et al., 1961; see Appendix D) will be used to estimate participants' level of depressive affect. BDI scores are calculated by summing the values (ranging from zero to three) associated with the single items endorsed (out of four options) for each of 21 questions on the scale. This yields a score that can range from zero to 63, with higher scores indicating higher levels of depression. Regarding degrees of depressive affect associated with BDI scores, Kendall, Hollon, Beck, Hammen and Ingram (1987) state:

> Large sample psychometrics for the BDI typically evidence a skewed distribution with a mean in the area of 4 to 6. The range of scores from 0 to 9 may be viewed as normal.... Mild levels of depression are associated with BDI scores of 10 to 20, with 10 to 17 suggesting dysphoria and greater than 17 more closely associated with depressive states. Scores of 20 to 30 reflect moderate depression, and scores greater that 30 reflect severe depression (p. 295).

Beck et al. (1961) reported the internal split-half reliability of the BDI as .86 rising to .93 with a Spearman-Brown correction. They also reported the correlation between BDI scores and clinicians' ratings of depth of depression to be .65 (n = 226) and .67 (n = 183). For this study, a reliability (Alpha) of .85 was found for the BDI.

The Beck Hopelessness Scale (HS, Beck et al.,1974; see Appendix E) was used to measure students' degrees of hopelessness. HS scores are calculated by assigning a value of one to items with a negative valence (i.e., items 2, 4, 7, 9, 11, 12, 14, 16, 17, 18 and 20) that are endorsed as true, and to items with a positive valence (i.e., items 1, 3, 5, 6, 8, 10, 13, 15 and 19) that are endorsed as false, and then summing across items. This yields a score that can range from zero to 20, with higher scores indicating higher levels of hopelessness. Beck et al. (1974) reported a reliability coefficient (Alpha) of .93 for the HS. They also reported that the HS correlated .74 with clinical ratings of hopelessness and .62 with attempted suicide. For this study, a reliability (Alpha) of .86 was found for the HS.

The Modified Beck Hopelessness Scale (MHS, see Appendix F) was conditionally used to measure students' degrees of hopelessness. The development of the MHS is described on pages 34-35. The MHS is scored in a manner closely corresponding to that for the HS since the only difference between the scales is the range of response. Therefore, for items with a negative valence (i.e., items 2, 4, 7, 9, 11, 12, 14, 16, 17, 18 and 20), values are assigned to responses according to the following coding scale: Almost always true = 4, Often true = 3, Sometimes true = 2, Rarely true = 1, and Never true = 0. For items with a positive valence (i.e., items 1, 3, 5, 6, 8, 10, 13, 15 and 19), values are assigned to responses according to the following coding scale: Almost always true = 0, Often true = 1, Sometimes true = 2, Rarely true = 3, and Never true = 4. Values are summed across items, yielding a score that can range from zero to 80, with higher scores indicating higher levels of hopelessness. This study presents a preliminary and limited

evaluation of the validity of the MHS. For this study, a reliability (Alpha) of .91 was found for the HS.

Three measures from the Outlook Questionnaire (OQ, see Appendix G) were also conditionally used in this study to measure relative approximations of students' degrees of hopelessness as defined by the Hopelessness Theory of Depression (HTD; Abramson, et al., 1989). The development of the OQ was described above (see pp. 25-31).

The OQ consists of 120 items that are divided into four 30 item scales (i.e., the Want, Expect, Control and Care Scales). The Want Scale (items 1-30) asks "to what extent do you WANT" each of 30 different possible future outcomes. The Expect Scale (items 31-60) asks "to what extent do you EXPECT" to obtain each of the same 30 future outcomes. The Control Scale (items 61-90) asks "how much CONTROL do you have over" obtaining the same 30 outcomes. The Care Scale (items 91-120) asks "how much do you CARE whether you actually" obtain each of the outcomes. Therefore, the outcome content of the four scales correspond directly, such that items 1, 31, 61 and 91 are matched in outcome content across the four scales, as are items 2, 32, 62 and 92, and so on. The degree to which a participant endorses that they want, expect, can control, or care bout the outcome described for each item is expressed on a five-point Likert scale with endpoints labeled "not at all" and "very much." Values are assigned for all four scales according to the following coding scale:

```
                Not at all                Very much
                     |-----|-----|-----|-----|
Response Option:     1     2     3     4     5
Assigned Value:      0     1     2     3     4
```

In accordance with the logic of the development of the OQ, the values for the three OQ measures are calculated in the following manner.

Calculating an OQ-Expected Dissatisfaction score requires the following steps. First, a separate estimate of expected dissatisfaction is made for each of the 30 outcome sets on the OQ by taking the absolute value of the difference between corresponding Want Scale values and Expect Scale values. The resulting estimates can range in value from 0 to 4, and are summed across the 30 outcome sets to get a single OQ-Expected Dissatisfaction value that can range from 0-120.

Calculating an OQ-Hopelessness score requires the following steps. First, an estimate of uncontrollability is calculated for each of the 30 outcome sets by reverse scoring the corresponding Control Scale value (i.e., 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0). Then, within each outcome set, the estimate of expected dissatisfaction is multiplied by the corresponding estimate of uncontrollability to obtain an outcome set specific estimate of hopelessness. The square root is taken of each of the resulting values to transform them back to a 0-4 point scoring range. The transformed estimates of hopelessness are then summed across the 30 outcome sets to get a single OQ-Hopelessness value that can range from 0-120

Calculating an OQ-Weighted Hopelessness score requires the following steps. First, within each outcome set, the estimate of hopelessness is multiplied by the corresponding estimate of subjective importance (i.e., the Care Scale value) to obtain an outcome set specific estimate of weighted hopelessness. The square root is taken for each of the resulting values to transform them back to a 0-4 point scoring range for each

outcome set. The resulting estimates are then summed across the 30 outcome sets to get a single OQ-Weighted Hopelessness value that can range from 0-120.

This study presents a preliminary and limited evaluation of the validity of each of the three measures on the OQ. For this study, a reliability (Alpha) of .92 was found for OQ-Expected Dissatisfaction, a reliability (Alpha) of .93 was found for OQ-Hopelessness, and a reliability (Alpha) of .93 was found for OQ-Weighted Hopelessness.

A one page questionnaire with ten demographic information items and six items assessing present feelings (see Appendix H) was also administered to participants in this study. However, the items assessing present feelings were not considered in this study, as they were designed to be compared to other measures derivable from the OQ that were not used in this study (see footnote 3).

Procedure

Students from five undergraduate introductory psychology courses who had a course requirement to gain exposure to the research process were recruited for participation in this study. The study was titled The Mood Study in order to honestly portray the general issues being researched without suggesting the specific issues and hypotheses being addressed in the study. The data were collected within a four day span from November 9-12, 1992. In order to minimize the likelihood of participants having any specific familiarity with the study, only one opportunity to participate was offered to the students from each course, for a total of five data collection sessions.

Each participant's participation involved completing a single questionnaire packet at a single sitting in a large lecture hall. There were two versions of the questionnaire packet, differing only in whether they included the HS or the MHS (due to the identical

item content of the two measures, no questionnaire packets contained both of the measures). So each questionnaire packet contained, in order, a one page Research Consent Statement (see Appendix I), the BDI, either the HS or the MHS, the OQ, and the one page demographic information questionnaire.

The two versions of the questionnaire packet were stacked alternately before being distributed to participants in order to minimize the chances of any systematic bias due to any distribution patterns. Participants recorded their responses on forms to be scored by computer. To protect confidentiality and anonymity, participants were instructed not to make any personally identifying marks on any of their materials. When finished, participants carried their materials from their seat and handed them in to a research assistant, from whom they then received a debriefing information sheet (see Appendix J).

Statistical Method

The general rationale for using curvilinear regression analysis to investigate the nature of the relationship between hopelessness and depression is explained in the Introduction section above (see pp. 16-17). This section is intended to offer more explicit detail about the mathematical basis for this statistical method.

Pedhazur (1982) offers a thorough consideration of curvilinear regression analysis, also called polynomial regression analysis. Pedhazur (1982) explains that the number of bends in a regression line is determined by the highest power to which the independent variable is raised in a polynomial regression equation. For example, "a first-degree polynomial, like $[\ Y'\ ] = a + bX$, describes a straight line" (Pedhazur, 1982; p. 405), using the symbols: Y' = predicted value of the dependent variable, X = value of the independent variable, a = an estimate of the mean value of the population for the dependent variable

when the value of X is zero, and b = an estimate of the regression coefficient in the population, or in this case, the slope of the linear regression line. Further:

> A second-degree polynomial [like $Y' = a + b_1X + b_2X^2$] describes a single bend in a regression curve, and is referred to as a quadratic equation. A third-degree polynomial [like $Y' = a + b_1X + b_2X^2 + b_3X^3$] has two bends and is referred to as a cubic equation.... One of the goals of scientific research, however, is parsimony. Our interest is not in the predictive power of the highest-degree polynomial equation possible, but rather in the highest-degree polynomial equation necessary to describe a set of data. Polynomial regression analysis is carried out as an ordinary multiple regression analysis, except that powered vectors are included and the analysis is done *hierarchically*. That is, the analysis is carried out in a series of steps, beginning with the first-degree polynomial and followed by successively higher-degree polynomials. At each step, the proportion of variance of the dependent variable incremented by a higher-degree polynomial is tested for statistical significance (Pedhazur, 1982; pp. 405-406).

Cohen and Cohen (1983) note that there are instances where, for example, a cubic regression equation can account for a significant and functionally meaningful increment in dependent variable variance in a data set where the lower order quadratic regression has not accounted for a significant increment in dependent variable variance. Because of such possibilities, they caution against making a blanket assumption that a non-significant lower order polynomial equation indicates that a higher order polynomial equation cannot be

significant and meaningful. As is apparent in the Results section, the data set for this study seems clearly not to be vulnerable to such an exception. First, Cohen and Cohen (1983) note that linear and quadratic regression lines are adequate for most behavioral science data, and that only rarely are higher order than cubic regression lines indicated. Since all of the curvilinear regression analyses done in this study tested at least the linear, quadratic and cubic regression equations (in instances when both the quadratic and cubic equations were not significant, the cubic is not reported), the probability is very low that a higher order regression equation will be meaningful, much less significant. Second, data sets that are vulnerable to such exceptional curvilinear regression analysis results typically show a visually discernable pattern that reveals the problem of fitting a simple line to it. For example, a data set that essentially takes the form of one or more full cycles of a sine wave can have a significant linear regression line that runs through the middle of the wave, but a quadratic regression line (which is limited to a single bend) can add little to the predictive power of the straight line – and both the linear and quadratic regression line are poor representations of the data. A higher order regression equation is necessary to capture the cycling in the data. However, visual inspection of a scatter plot of the data for this study clearly indicates that no such cycling is apparent (nor would it be expected to be.) Therefore, analyses of the data according to the recommendations of Pedhazur (1982) seems wholly appropriate.

For the purposes of conducting curvilinear regression analyses in this study, depression (as operationalized by the BDI) will be designated the dependent variable, and each of the measures of hopelessness will be designated as separate independent variables that will be used in independent tests.

Results

Because significant relationships were found between certain demographic variables and the research variables (i.e., dependent and independent variables), relevant descriptive data and analyses of variance will be presented before data pertaining to the testing of specific hypotheses.

Descriptive Data

Means and Standard Deviations for the Beck Depression Inventory (BDI; Beck et al., 1961), the Hopelessness Scale (HS; Beck et a., 1974), the Modified Hopelessness Scale (MHS) and the three measures of interest from the Outlook Questionnaire (OQ; i.e., OQ-Expected Dissatisfaction, OQ-Hopelessness and OQ- Weighted Hopelessness) are shown in Table 1. Response frequencies for the demographic items are shown in Table 2.

Analyses of Variance of Research Variable Means Across Demographic Subsamples

Analyses of variance were conducted to determine whether the means for each of the research variables differed significantly across demographically defined subgroups of the research sample (i.e., subgroups determined by each participant's response on each of the ten demographic variables). Of the ten demographic variables, four showed no significant relationship to any of the research variables. They were the variables regarding students' class in college, full or part time student status, whether students had received medical treatment in the last year, and whether their parents were living or either had died in the last five years.

Table 1
Descriptive Statistics for the Dependent and Independent Variables

	BDI	HS	MHS	OQ-E.D.	OQ-H	OQ-W.H.
Mean	8.49	3.60	23.20	38.78	30.42	36.68
SD	6.78	3.74	11.33	18.42	18.07	21.36
n	841	413	426	842	840	834

BDI = Beck Depression Inventory, HS = Hopelessness Scale, MHS = Modified Hopelessness Scale, OQ-E.D. = OQ-Expected Dissatisfaction, OQ-H = OQ-Hopelessness, OQ-W.H. = OQ-Weighted Hopelessness, SD = Standard Deviation, n = number.

Table 2
Response Frequencies for Items on the Demographic Questionnaire

DEMOGRAPHIC INFORMATION QUESTIONS AND RESPONSE OPTIONS Note: Some subjects did not complete all of these items.	(Total n) Frequencies
What is your gender?	(835)
Female	576
Male	259
What is your age?	(836)
19 years old or younger	548
20-25 years old	277
25-30 years old	4
30-40 years old	5
Over 40 years old	2
What is your relationship status?	(836)
Single and never married	815
Married	15
Divorced, separated or widowed	6
Remarried	0
What is your class in college?	(836)
Freshman	394
Sophomore	193
Junior	155
Senior	89
Graduate Student	5
Which applies to you?	(836)
Full time student	821
Part time student	15
Which applies to you?	(836)
Work full time	30
Work part time	376
Not working currently	430
Have you received any medical treatment in the last year?	(837)
Yes	538
No	299
Have you ever received psychological counseling?	(832)
Yes	174
No	658
Have you ever been depressed?	(837)
No	167
Yes, and received psychological counseling	82
Yes, and received medication	5
Yes, and received psych. counseling and meds.	18
Yes, but received no treatment	565
Are both of your parents living?	(832)
Yes	780
No, and one or both parents died in the past 5 years	26
No, but neither parent died in the past 5 years	26

Table 3 shows the abbreviated results of the analyses of variance for the means of the research variables across the response options of the remaining six demographic variables. Participants' gender and history of depression/intervention show a variety of powerful and interesting relationships with the research variables. With regard to gender, females scored higher than males on the BDI and the three OQ measures. Conversely, males scored higher than females on the HS. Of particular note, however, is that no significant difference was found between the scores of males and females on the MHS, even though the MHS and HS differ only in terms of range of response options.

Every research measure showed a significant between-groups difference in mean scores across participants' histories of depression/intervention. Participants who reported never having been depressed showed the lowest scores on all of the research measures except for the HS, where only four participants treated with medication alone had a slightly lower mean score. The MHS was unique in showing a comparatively low mean score for participants who had been depressed and had received psychological counseling as their only intervention. In contrast, the BDI, HS and the three OQ measures showed their highest mean scores for that subgroup, with similarly high mean scores for the subgroup that reported having been depressed with intervention by both psychological counseling and medication.

Because of the significant and relevant relationships found between the research variables and the demographic variables of gender and history of depression/intervention, these two demographic variables were used to partition the research sample for follow-up analyses of the central hypotheses of this study. Although each of the four remaining demographic variables addressed in Table 3 showed a significant relationship to at least

Table 3
Between Groups Differences in Mean Scores for the Dependent and Independent Variables Across Response Options on Selected Demographic Variables

	BDI		HS		MHS		OQ-E.D.		OQ-H		OQ-W.H.	
	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n
GENDER:	(.005)	834	(.015)	409	*(.636)*	*423*	(.000)	835	(.000)	833	(.000)	829
Female	9.0	575	3.3	276	*23.4*	*297*	40.4	576	32.1	575	39.4	572
Male	7.5	259	4.3	133	*22.8*	*126*	35.4	259	27.0	258	30.8	257
AGE:	(.005)	834	(ns)		(ns)		(.040)	835	(.038)	833	*(.065)*	*829*
less than 20	8.7	546					39.8	548	31.1	545	*37.7*	*542*
20-25	7.8	277					36.6	276	28.9	277	*34.6*	*276*
25-30	13.5	4					43.5	4	32.4	4	*39.5*	*4*
30-40	12.4	5					55.4	5	51.7	5	*54.9*	*5*
over 40	21.5	2					42.0	2	22.9	2	*19.3*	*2*
MARITAL STATUS:	(ns)		(.032)	409	*(.240)*	*424*	(ns)		(ns)		(ns)	
Never married			3.6	403	*23.1*	*409*						
Married			8.5	4	*23.3*	*11*						
Div./Sep./Wid.			3.5	2	*32.8*	*4*						
Remarried			-	0	-	*0*						
WORK STATUS:	(ns)		(ns)		(ns)		*(.607)*	*835*	*(.174)*	*833*	(.017)	829
Full time							*36.7*	*30*	*25.6*	*30*	26.3	29
Part time							*39.5*	*375*	*31.4*	*376*	37.9	375
Not working							*38.5*	*430*	*30.0*	*427*	36.5	425
PSY. TX. EVER?	(.000)	831	(.000)	407	*(.659)*	*422*	(.000)	832	(.000)	830	(.000)	826
Yes	11.3	173	4.8	91	*23.7*	*82*	43.6	174	35.6	173	41.9	173
No	7.7	658	3.2	316	*23.1*	*340*	37.6	658	29.1	657	35.2	653
EVER DEPRESSED?	(.000)	834	(.000)	408	(.000)	424	(.000)	835	(.000)	833	(.000)	829
No	5.3	167	2.1	81	18.7	84	30.9	166	22.7	167	28.0	165
Yes, with:												
Psy. Tx.	12.7	82	5.8	41	23.4	41	45.4	82	38.6	81	46.0	81
Med. Tx.	8.0	5	1.5	4	47.0	1	41.6	4	31.1	4	38.1	4
Psy. & Med. Tx.	11.1	18	4.4	9	30.9	9	43.7	18	38.4	17	42.4	17
No Tx.	8.8	562	3.7	273	24.2	289	40.0	565	31.3	564	37.7	562

BDI=Beck Depression Inventory, HS=Hopelessness Scale, MHS=Modified Hopelessness Scale, OQ-E.D.=OQ-Expected Dissatisfaction, OQ-H=OQ-Hopelessness, OQ-W.H.=OQ-Weighted Hopelessness, ns=not significant.
Note: Italics indicate non-significant results of potential interest.

one research variable, they were not used in such follow-up analyses for the following reasons.

Participants' history of psychological counseling was not used in follow-up analyses because those individuals who had received counseling for depression could be discerned from the history of depression/intervention item, and those who received counseling for other reasons were of less direct relevance to the central curvilinearity hypotheses of this study (i.e., Hypotheses One and Two).

Participants' age group was not used in follow-up analyses because: a) the trend in research variable mean scores was mixed across subgroups, b) the limits of the age groups were inadvertently defined in an overlapping manner, and c) the total representation in the three older of the five age groups was less than 1.5 % of the total research sample. Similarly, participants' marital status was not used in follow-up analyses because of extremely disproportionate group representation across subgroups.

Finally, participants' work status also was not used in follow-up analyses because OQ-Weighted Hopelessness was the only research variable that showed a relationship to it, and therefore its contribution to the general understanding of the relationship between hopelessness and depression was likely to be limited.

Hypothesis Testing with the Hopelessness Scale

Regarding Hypothesis One, that there is a curvilinear relationship between hopelessness and depression, as tested using the HS to operationalize hopelessness, Table 4 shows the results of a hierarchical curvilinear regression of BDI scores on HS scores for the main research sample. The HS correlated $r(410) = .63, p < .000$ with the BDI, equal to the $R = .63, F(1, 408) = 273.04, p = .000$ values in Step 1 of the equation in Table 4,

Table 4
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (HS) for the Main Research Sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.633	.401	.401	273.04	.000	1,408
2	HS^2	.647	.418	.017	12.06	.001	2,407
3	HS^3	.647	.419	.000	0.29	.588	3,406

accounting for 40% of the variance in BDI scores (i.e., 100 times the R^2). The quadratic equation for the HS (i.e., with the addition of HS^2 to the polynomial equation in Step 2 of the regression analysis) accounted for an additional 1.7% of the variance in BDI scores (i.e., 100 times the change in R^2 for the step), $F(2, 407) = 12.06$, $p = .001$. The cubic equation for the HS (i.e., with the addition of HS^3 to the polynomial equation in Step 3 of the regression analysis) did not account for a significant increment in BDI variance. This indicates that the quadratic regression line best represents the relationship between BDI scores and HS scores, and therefore supports Hypothesis One. The regression coefficient for the quadratic component of the regression equation (i.e., corresponding to b_2 from the equation $Y' = a + b_1X + b_2X^2$ described on p. 46) was .040. The positive value of this coefficient indicates a positive rate of acceleration in BDI scores as HS scores increase, indicating support for Hypothesis Two, that the nature of this curvilinearity is consistent with the postulates of HTD in that depression increases in a positively accelerated manner with increases in hopelessness. The plot in Figure 3 shows a comparison of the linear and quadratic regression lines for the relationship between BDI scores and HS scores. Along the Y axis are the predicted values for the BDI based on the linear and quadratic regression equations, and these values are plotted along the range of corresponding HS values across the X axis. Visual inspection of Figure 3 confirms that the curvilinearity of the quadratic regression line depicts a positive rate of acceleration in predicted BDI scores as HS scores increase.

Hypothesis Testing with the Modified Hopelessness Scale

Participants' MHS scores correlated $r(425) = .57$, $p = .000$ with their BDI scores, which is arguably comparable in size to the correlation between HS and BDI scores of

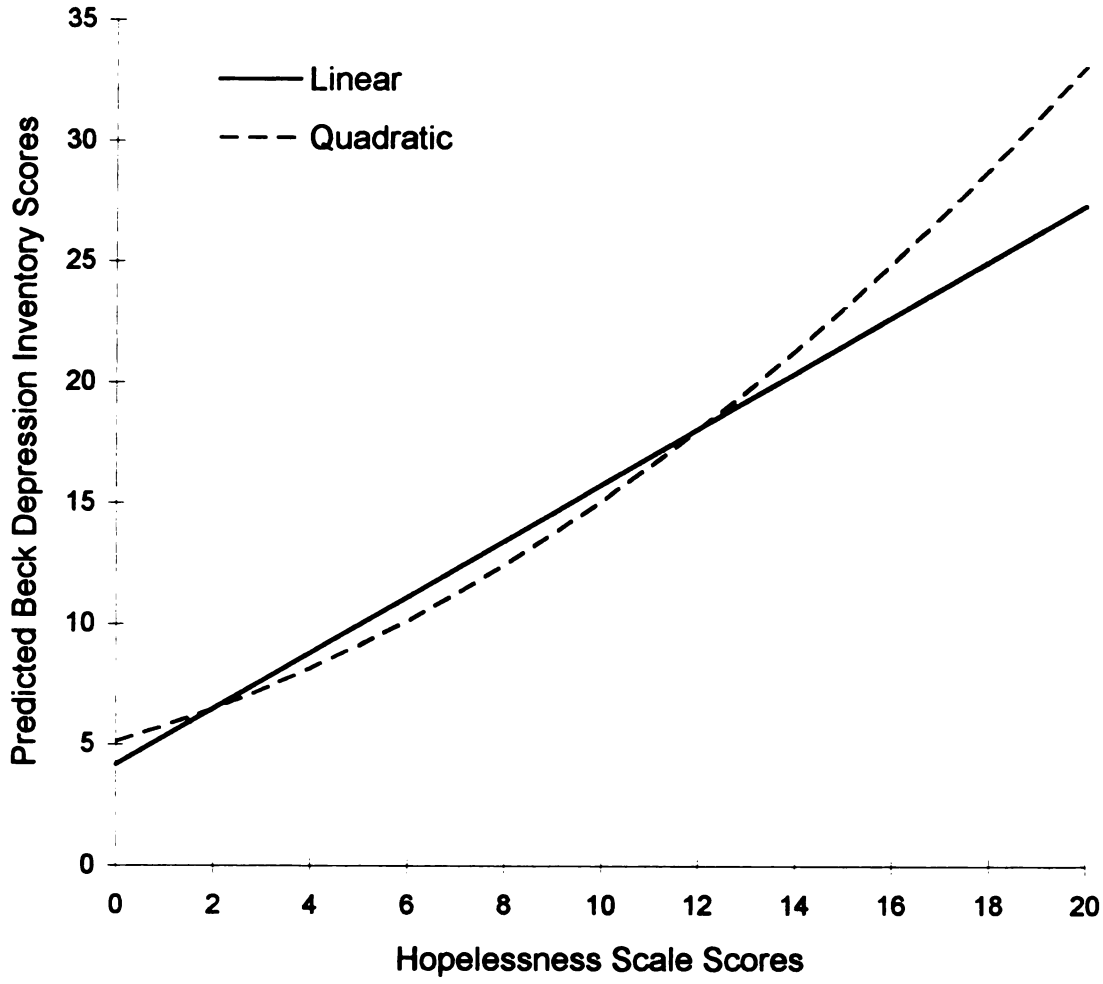

Figure 3
Linear and Quadratic Regression Lines Predicting Beck Depression Inventory Scores from Hopelessness Scale Scores for the Main Sample

Note. $n = 410$

$r(410) = .63, p = .000$, indicating support for Hypothesis Three, that MHS scores will correlate positively with BDI scores and that the size of this correlation will be qualitatively similar to that of the corresponding correlation between HS and BDI scores. The MHS was characterized by a coefficient of variance of 48.9, which is less than half of the coefficient of variance of 104.0 for the HS, and a skew of .57, which less than a third of the skewness of 1.8 for the HS, indicating support for Hypothesis Four, that as compared to the distribution of HS scores, the distribution of MHS scores will be characterized by: a) a smaller coefficient of variation, and b) a skewness value that is closer to zero, and though qualitatively, that these differences will be of a sufficient size to suggest that they represent truly meaningful differences.

Given support for Hypotheses Three and Four, the MHS was used to operationalize hopelessness for independent tests of Hypotheses One and Two. Regarding Hypothesis One, Table 5 shows that the MHS accounted for 33% of the BDI variance $F(1, 423) = 207.81, p = .000$. The quadratic polynomial for the MHS accounted for an additional 2.5% of the BDI variance, $F(2, 421) = 16.37, p = .000$. The cubic polynomial for the MHS did not account for a significant increment in BDI variance. This indicates that the quadratic regression line best represents the relationship between BDI and MHS scores, and therefore supports Hypothesis One. The regression coefficient for the quadratic component of the regression equation was .006. This positive coefficient value and visual inspection of the linear and quadratic regression lines plotted in Figure 4 indicate a positive rate of acceleration in BDI scores as MHS scores increase, indicating support for Hypothesis Two.

Table 5
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (MHS) for the Main Research Sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE R	R^2	CHANGE IN R^2 FOR STEP	F FOR CHANGE IN R^2	p	df
1	MHS	.574	.329	.329	207.81	.000	1,423
2	MHS^2	.595	.354	.025	16.37	.000	2,422
3	MHS^3	.598	.358	.004	2.31	.129	3,421

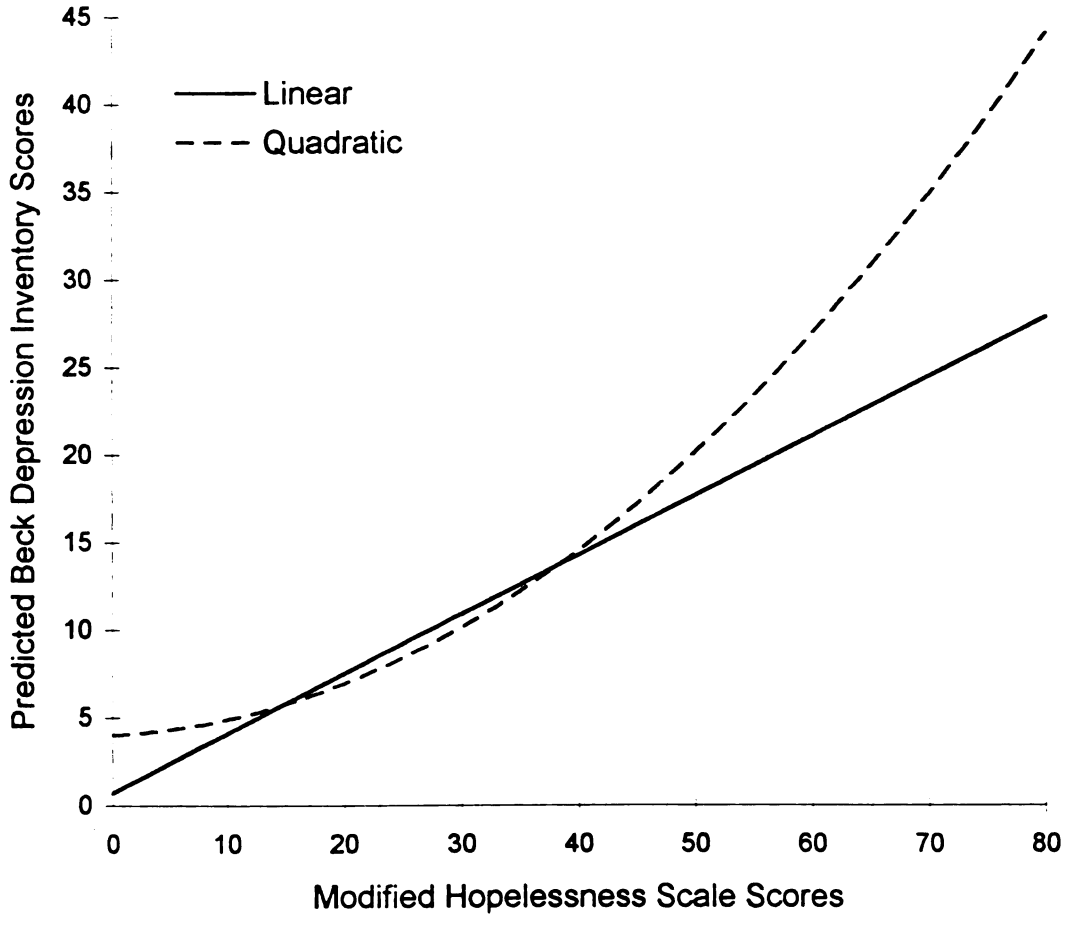

Figure 4
Linear and Quadratic Regression Lines Predicting Beck Depression Inventory Scores from Modified Hopelessness Scale Scores for the Main Sample

Note. n = 425

Hypothesis Testing with Outlook Questionnaire

For the sake of continuity, the hypotheses involving the three OQ measures (i.e., Hypotheses Five, Six and Seven, and re-examinations of Hypotheses One and Two; see Appendix A) will be addressed first for OQ-Expected Dissatisfaction, then again for OQ-Hopelessness, and then finally for OQ-Weighted Hopelessness.

Hypothesis Testing with OQ-Expected Dissatisfaction

Participants' OQ-Expected Dissatisfaction scores correlated $r(410) = .50$, $p=.000$) with their HS scores, indicating support for Hypothesis Five, that scores on each of the three Outlook Questionnaire measures will correlate positively with scores on the HS. Further, the correlation between OQ-Expected Dissatisfaction and the BDI was $r(838) = .53$, $p=.000$, which is arguably comparable in size to the $r(410) = .63$, $p = .000$ correlation between the HS and the BDI, indicating support for Hypothesis Six, that scores on each of the three OQ measures will correlate positively with scores on the BDI, and that the size of these correlations will be qualitatively similar to that of the corresponding correlation between HS and BDI scores. Finally, the correlation between OQ-Expected Dissatisfaction and the MHS was $r(426) = .56$, $p = .000$, indicating support for Hypothesis Seven, that scores on each of the three OQ measures will correlate positively with scores on the MHS.

Having found support for Hypotheses Five, Six and Seven, OQ-Expected Dissatisfaction was used to operationalize hopelessness for independent tests of Hypotheses One and Two. Regarding Hypothesis One, Table 6 shows that OQ-Expected Dissatisfaction accounted for 28% of the BDI variance $F(1, 836) = 320.00$, $p=.000$. The quadratic polynomial for OQ-Expected Dissatisfaction accounted for an additional 6.1%

Table 6
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Expected Dissatisfaction) for the Main Research Sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Expected Dissatisfaction	.526	.277	.277	320.00	.000	1,836
2	OQ-Expected Dissatisfaction^2	.581	.338	.061	76.87	.000	2,835
3	OQ-Expected Dissatisfaction^3	.582	.338	.000	0.71	.398	3,834

of the BDI variance $F(2, 835) = 76.87, p = .000$. The cubic polynomial for OQ-Expected Dissatisfaction did not account for a significant increment in BDI variance. This suggests that the quadratic regression line best represents the relationship between BDI and OQ-Expected Dissatisfaction, and therefore supports Hypothesis One. The regression coefficient for the quadratic component of the regression equation was .003. This positive coefficient value and visual inspection of the linear and quadratic regression lines plotted in Figure 5 indicate a positive rate of acceleration in BDI scores as OQ-Expected Dissatisfaction scores increase, indicating support for Hypothesis Two.

Table 7 shows that OQ-Expected Dissatisfaction accounted for 10.5 % of the variance in BDI scores beyond that accounted for by HS scores (i.e., 100 times the corresponding change in R^2) $F(2, 404) = 85.52, p = .000$, and Table 8 shows that OQ-Expected Dissatisfaction accounted for 2.8 % of the variance in BDI scores beyond that accounted for by MHS scores $F(2, 422) = 18.27, p = .000$, indicating support for Hypothesis Eight, that scores on each of the OQ measures will account for a significant portion of the variance in BDI scores beyond that accounted for by their HS or MHS scores.

Hypothesis Testing with OQ-Hopelessness

Participants' OQ-Hopelessness scores correlated $r(410) = .51, p = .000$ with their HS scores, indicating support for Hypothesis Five (see Appendix A). Further, the correlation between OQ-Hopelessness and the BDI was $r(837) = .49, p = .000$, which is arguably comparable in size to, although slightly smaller than, the $r(410) = .63, p = .000$ correlation between the HS and the BDI, indicating support for Hypothesis Six. Finally,

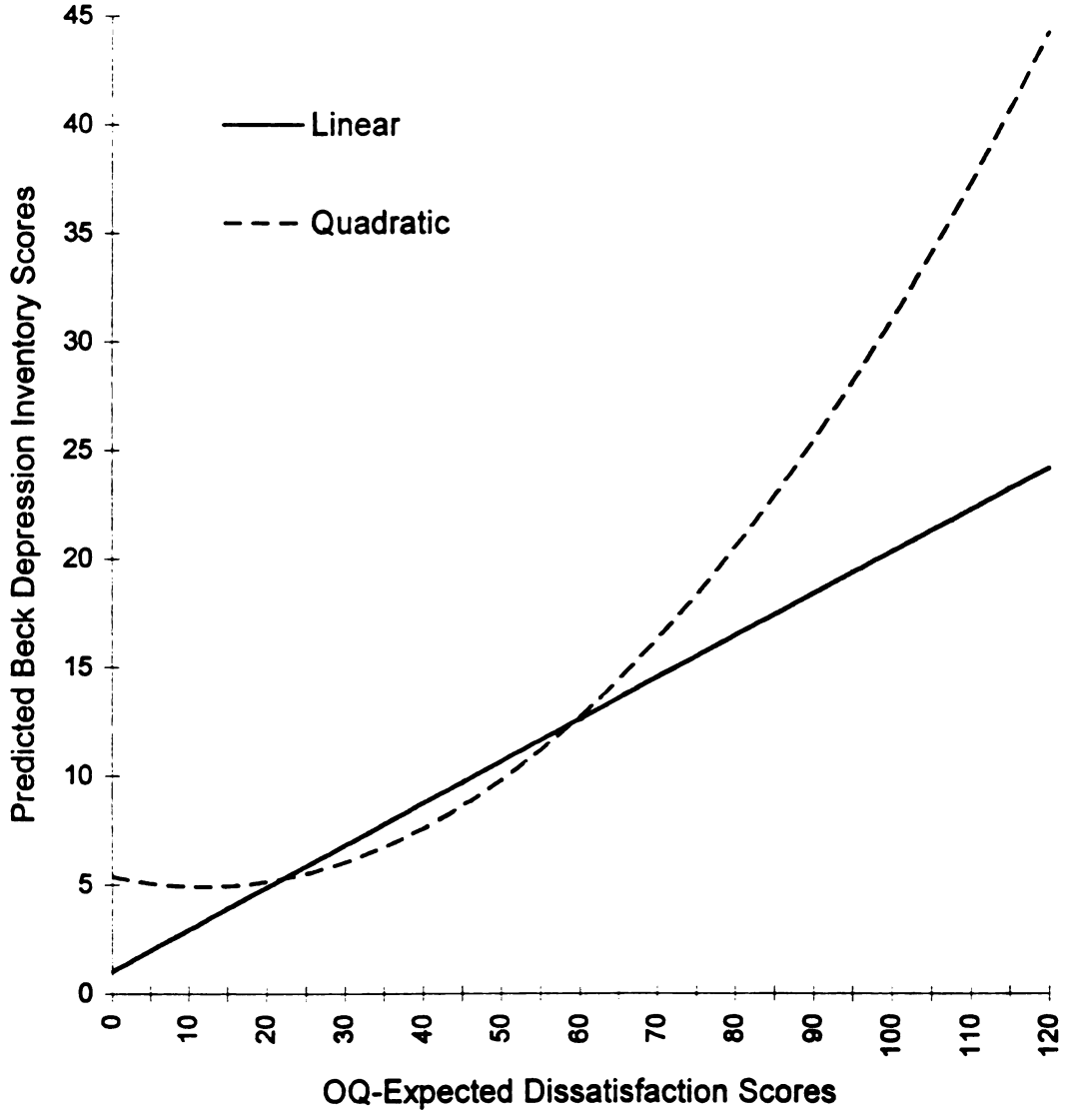

Figure 5
Linear and Quadratic Regression Lines Predicting Beck Depression Inventory Scores from Outlook Questionnaire-Expected Dissatisfaction Scores for the Main Sample

Note. n = 838

Table 7
Results of Multiple Regression of Depression (BDI) on OQ-Expected Dissatisfaction Scores after Controlling for Hopelessness Scale (HS) Scores

STEP	VARIABLE ENTERED IN STEP	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.632	.399	.399	269.41	.000	1,405
2	OQ-Expected Dissatisfaction	.710	.504	.105	85.52	.000	2,404

Table 8
Results of Multiple Regression of Depression (BDI) on OQ-Expected Dissatisfaction Scores after Controlling for Modified Hopelessness Scale (MHS) Scores

STEP	VARIABLE ENTERED IN STEP	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.574	.329	.329	207.81	.000	1,423
2	OQ-Expected Dissatisfaction	.598	.357	.028	18.27	.000	2,422

the correlation between OQ-Hopelessness and the MHS was $r(424) = .60, p = .000$, indicating support for Hypothesis Seven.

With support found for Hypotheses Five, Six and Seven, OQ-Hopelessness was used to operationalize hopelessness for independent tests of Hypotheses One and Two. Regarding Hypothesis One, Table 9 shows that OQ-Hopelessness accounted for 24% of the BDI variance $F(1, 835) = 264.16, p = .000$. The quadratic polynomial for OQ-Hopelessness accounted for an additional 2.9% of the BDI variance $F(2, 834) = 33.26, p = .000$. The cubic polynomial for OQ-Hopelessness did not account for a significant increment in BDI variance. This suggests that the quadratic regression line best represents the relationship between BDI and OQ-Hopelessness, and therefore supports Hypothesis One. The regression coefficient for the quadratic component of the regression equation was .002. This positive coefficient value and visual inspection of the linear and quadratic regression lines plotted in Figure 6 indicate a positive rate of acceleration in BDI scores as OQ-Hopelessness scores increase, indicating support for Hypothesis Two.

Table 10 shows that OQ-hopelessness accounted for 6.9% of the variance in BDI scores beyond that accounted for by HS scores $F(2, 404) = 52.97, p = .000$, and Table 11 shows that OQ-Hopelessness accounted for 1.4 % of the variance in BDI scores beyond that accounted for by MHS scores $F(2, 421) = 9.04, p = .003$, indicating support for Hypothesis Eight.

Hypothesis Testing with OQ-Weighted Hopelessness

Participants' OQ-Weighted Hopelessness scores correlated $r(409) = .39, p = .000$ with their HS scores, indicating support for Hypothesis Five (see Appendix A). Further, the correlation between OQ-Weighted Hopelessness and the BDI was $r(831) = .40$,

Table 9
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (OQ-Hopelessness) for the Main Research Sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Hopelessness	.490	.240	.240	264.16	.000	1,835
2	OQ-Hopelessness^2	.519	.269	.029	33.26	.000	2,834
3	OQ-Hopelessness^3	.519	.270	.000	0.28	.598	3,833

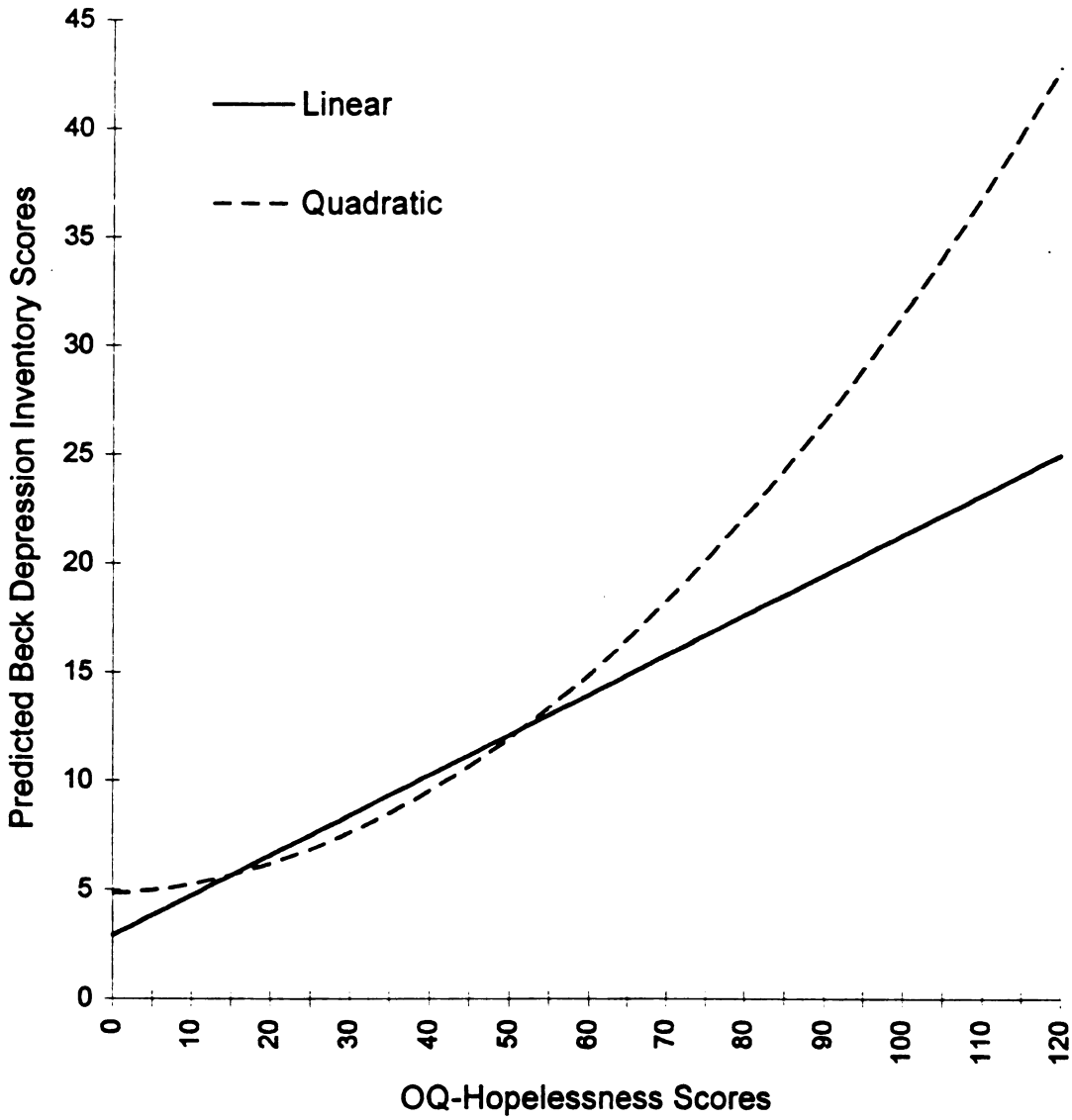

Figure 6
Linear and Quadratic Regression Lines Predicting Beck Depression Inventory Scores from Outlook Questionnaire-Hopelessness Scores for the Main Sample

Note. n = 837

Table 10
Results of Multiple Regression of Depression (BDI) on OQ-Hopelessness Scores after Controlling for Hopelessness Scale (HS) Scores

STEP	VARIABLE ENTERED IN STEP	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.633	.401	.401	270.69	.000	1,405
2	OQ-Hopelessness	.686	.470	.069	52.97	.000	2,404

Table 11
Results of Multiple Regression of Depression (BDI) on OQ-Hopelessness Scores after Controlling for Modified Hopelessness Scale (MHS) Scores

STEP	VARIABLE ENTERED IN STEP	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.574	.329	.329	207.26	.000	1,422
2	OQ-Hopelessness	.586	.343	.014	9.04	.003	2,421

$p = .000$, which is noticeably smaller than the $r(410) = .63, p = .000$ correlation between the HS and the BDI, but still remains of a sufficiently strong and positive value to argue support for Hypothesis Six. Finally, the correlation between OQ-Weighted Hopelessness and the MHS was $r(419) = .54, p = .000$, indicating support for Hypothesis Seven.

Since Hypotheses Five, Six and Seven were supported, OQ-Weighted Hopelessness was used to operationalize hopelessness for independent tests of Hypotheses One and Two. Regarding Hypothesis One, Table 12 shows that OQ-Weighted Hopelessness accounted for 16% of the BDI variance $F(1, 829) = 158.31, p = .000$. The quadratic polynomial for OQ-Weighted Hopelessness accounted for an additional 2.6% of the BDI variance $F(2, 828) = 25.99, p = .000$, and the cubic polynomial accounted for yet another 0.4% of the BDI variance $F(3, 826) = 4.15, p = .042$. The fourth-order polynomial did not account for a significant increment in BDI variance. This suggests that the cubic regression line best represents the relationship between BDI and OQ-Weighted Hopelessness, and, in a manner slightly different than expected, supports Hypothesis One.

Visual inspection of plots comparing the linear and quadratic regression lines (Figure 7), the linear and cubic regression lines (Figure 8), and finally the quadratic and cubic regression lines (Figure 9) suggest that the cubic regression line is functionally similar to the quadratic one, so far as they relate to Hypothesis Two. That is, the cubic regression line appears to be somewhat closely interlaced about the quadratic regression line, which is of a form that would indicate support Hypothesis Two. Still, taken alone, the cubic regression line depicts predicted BDI scores increasing with increases in OQ-Weighted Hopelessness scores, but at a negatively accelerated rate in the lowest ranges of predicted BDI and OQ-Weighted Hopelessness scores. Then, at or before the point on the

Table 12
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Weighted Hopelessness) for the Main Research Sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Weighted Hopelessness	.400	.160	.160	158.31	.000	1,829
2	OQ-Weighted Hopelessness^2	.431	.186	.026	25.99	.000	2,828
3	OQ-Weighted Hopelessness^3	.436	.190	.004	4.15	.042	3,827
4	OQ-Weighted Hopelessness^4	.436	.190	.000	0.36	.551	4,826

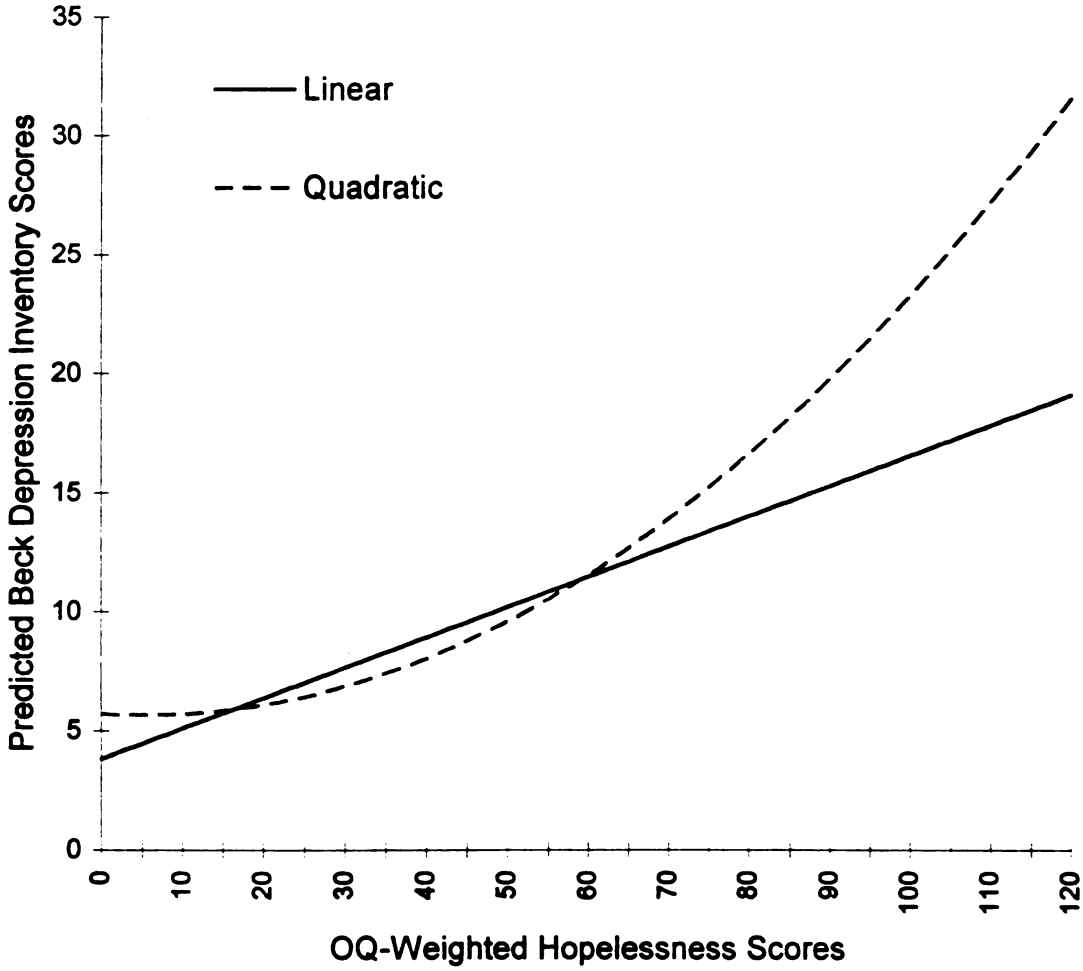

Figure 7
Linear and Quadratic Regression Lines Predicting Beck Depression Inventory Scores from Outlook Questionnaire-Weighted Hopelessness Scores for the Main Sample

Note. n = 831

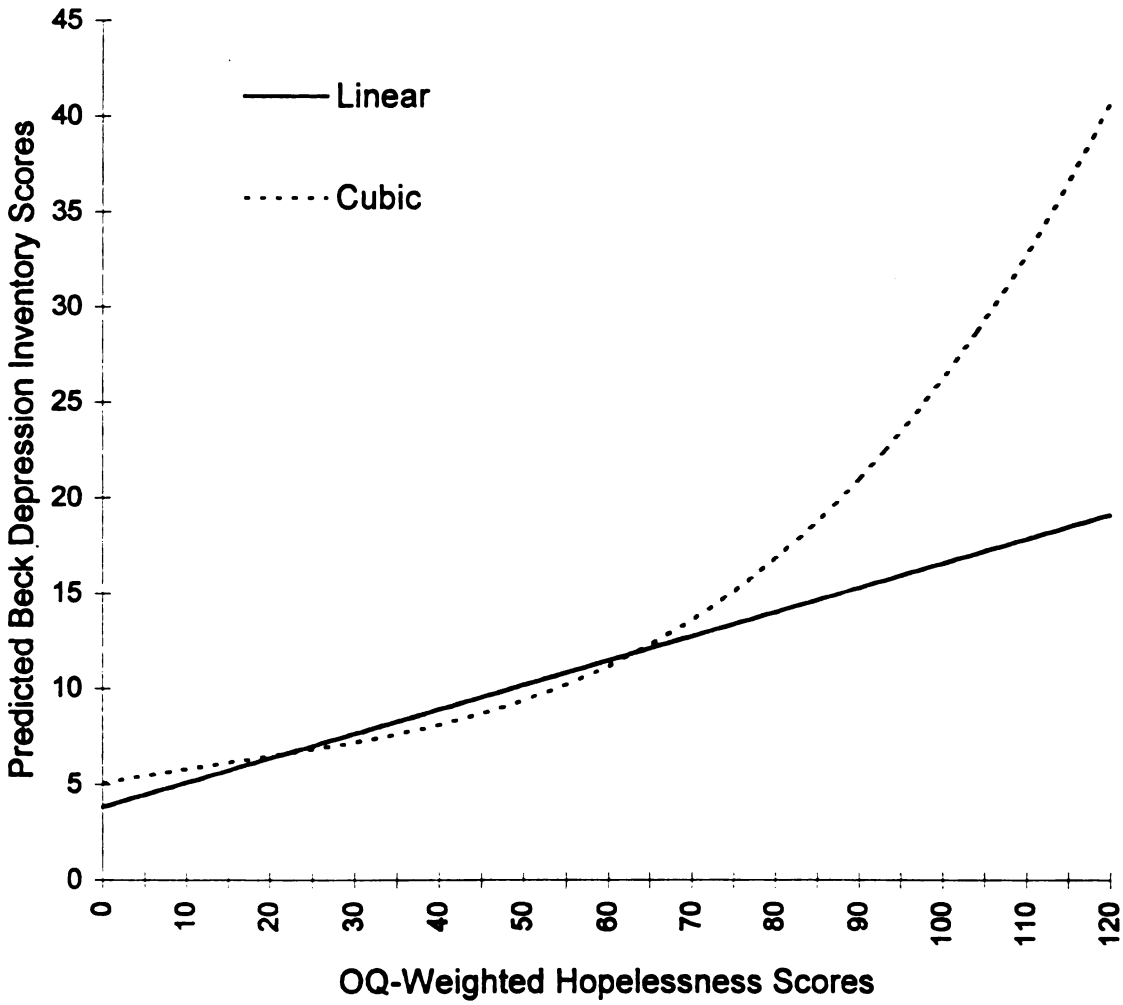

Figure 8
Linear and Cubic Regression Lines Predicting Beck Depression Inventory Scores from Outlook Questionnaire-Weighted Hopelessness Scores for the Main Sample

Note. n = 831

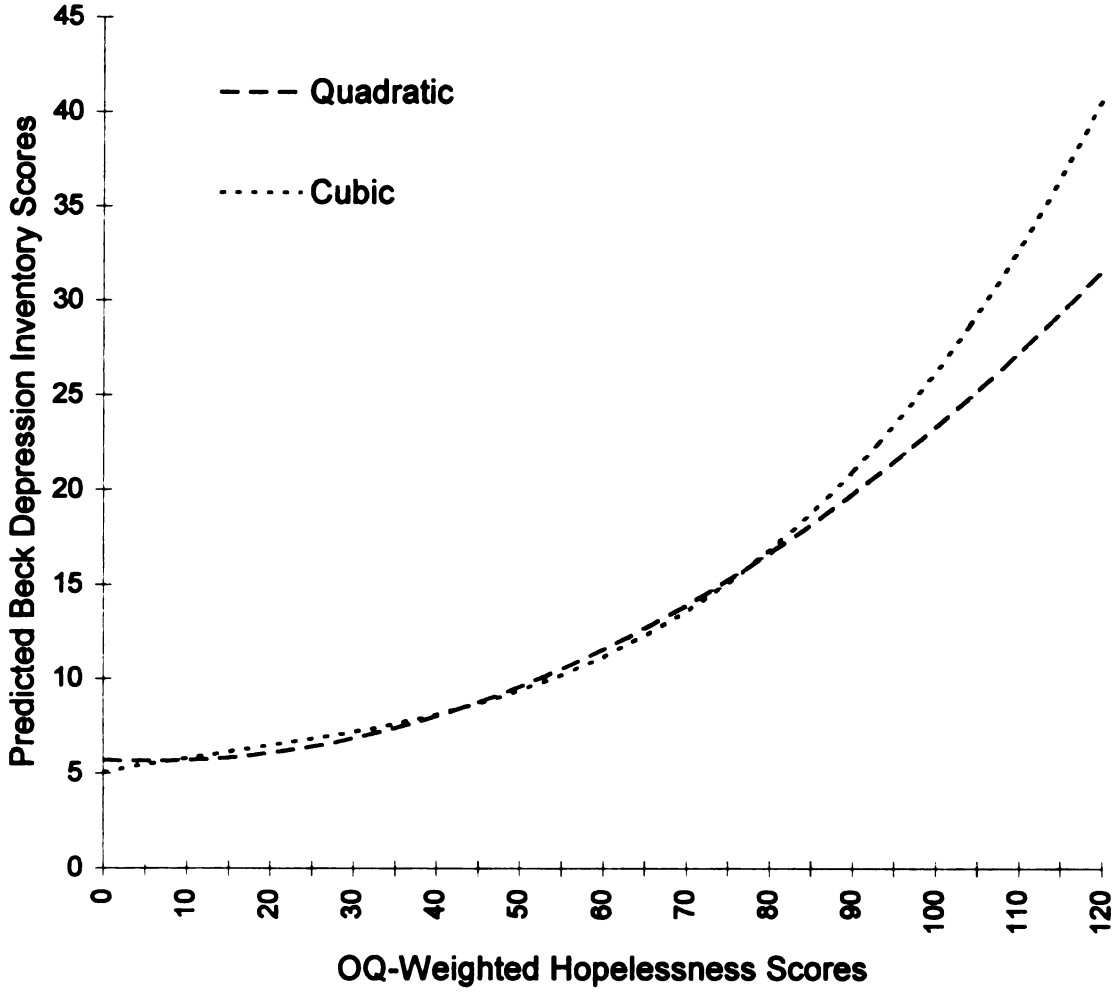

Figure 9
Quadratic and Cubic Regression Lines Predicting Beck Depression Inventory Scores from Outlook Questionnaire-Weighted Hopelessness Scores for the Main Sample

Note. n = 831

line where predicted BDI scores reach the threshold for dysphoria (i.e., 10; Kendall et al., 1987), the line gradually changes over to showing predicted BDI scores increasing at a positively accelerated rate with increases in hopelessness. Since the portion of the line corresponding to meaningful levels of dysphoria and depression are consistent with the logic of HTD, the OQ-Weighted Hopelessness data will be cautiously viewed as supporting Hypothesis Two.

Table 13 shows that OQ-hopelessness accounted for 5.5 % of the variance in BDI scores beyond that accounted for by HS scores $F(2, 403) = 40.40$, $p = .000$, but Table 14 shows that OQ-Hopelessness did not account for a significant portion of the variance in BDI scores beyond that accounted for by MHS scores, indicating mixed support for Hypothesis Eight.

Follow-up Analyses Within Demographically Defined Subgroups

The pattern of strong and interesting relationships between the research variables in this study and two of the demographic variables (i.e., gender, and history of depression/intervention) suggests that the relationship between hopelessness and depression could vary within corresponding demographically defined subgroups of the research sample. Therefore, while beyond the original scope of this study, it seemed prudent to re-examine the central hypotheses of this study (i.e., Hypotheses One and Two; see Appendix A) within such subsamples.

The separation of the main research sample by history of depression/intervention was complicated by the very small number of participants who reported that they had been treated for depression with medication alone ($n = 5$) or with medication and psychological counseling ($n = 18$). Similarly, even the number of participants who reported being treated

Table 13
Results of Multiple Regression of Depression (BDI) on OQ-Weighted Hopelessness Scores after Controlling for Hopelessness Scale (HS) Scores

STEP	VARIABLE ENTERED IN STEP	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.633	.401	.401	269.98	.000	1,404
2	OQ-Weighted Hopelessness	.675	.455	.055	40.40	.000	2,403

Table 14
Results of Multiple Regression of Depression (BDI) on OQ-Weighted Hopelessness Scores after Controlling for Modified Hopelessness Scale (MHS) Scores

STEP	VARIABLE ENTERED IN STEP	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.575	.331	.331	206.29	.000	1,417
2	OQ-Weighted Hopelessness	.577	.333	.002	1.08	.299	2,416

for depression with psychological counseling alone (n = 82) was small in comparison to those who reported never having been depressed (n = 167) or having a history of depression with no treatment (n = 565). While the relative representation of participants in each of these subgroups is not surprising, the smaller subgroups do not lend as well to curvilinear regression analyses. Therefore, for the purposes of the follow-up analyses, participants who reported having been treated for depression with psychological counseling *and/or* medication were combined into a single group (n = 105).

Given this re-categorization of the history of depression/intervention variable, another set of analyses of variance was conducted to determine whether the means of the research variables still varied significantly across the new categories. Table 15 shows the abbreviated results of those tests (as well as a reiteration of the corresponding analyses for gender, from Table 3). In order to allow for a test of linearity in the variation of research variable means along a progression of presumably more serious depression histories, the categories were sequentially coded in the order of: never depressed, history of depression with no treatment, and history of depression treated with medication and/or psychological counseling. In every instance, the means for each research variable were found to differ between groups, and the progressive linearity of the differences between the means was supported.

Table 16 shows an abbreviated representation of the results of the individual tests of Hypothesis One (see Appendix A) that were conducted using each of the measures of hopelessness within each of the demographic subsamples for the variables of gender and history of depression/intervention (see Appendix K for full representations of these analyses). For convenience, the abbreviated results of the corresponding tests done with

Table 15

Between Groups Differences in Mean Scores for the Dependent and Independent Variables Across Response Options on the Demographic Variables of Gender and the Re-coded Interpretation of Subjects' Reported Histories of Depression/Intervention

	BDI		HS		MHS		OQ-E.D.		OQ-H		OQ-W.H.	
	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n
GENDER:	(.005)	834	(.015)	409	*(.636)*	*423*	(.000)	835	(.000)	833	(.000)	829
Female	9.0	575	3.3	276	*23.4*	*297*	40.4	576	32.1	575	39.4	572
Male	7.5	259	4.3	133	*22.8*	*126*	35.4	259	27.0	258	30.8	257
EVER DEPRESSED?	(.000)	834	(.000)	408	(.000)	424	(.000)	835	(.000)	833	(.000)	829
No	5.3	167	2.1	81	18.7	84	30.9	166	22.7	167	28.0	165
Yes, with no Tx:	8.8	562	3.7	273	24.2	289	40.0	565	31.3	564	37.7	562
Yes, with Tx:	12.2	105	5.3	54	25.2	51	45.0	104	38.2	102	45.1	102
[Sig.: Linearity]	[.000]		[.000]		[.000]		[.000]		[.000]		[.000]	

BDI=Beck Depression Inventory, HS=Hopelessness Scale, MHS=Modified Hopelessness Scale, OQ-E.D.=OQ-Expected Dissatisfaction, OQ-H=OQ-Hopelessness, OQ-W.H.=OQ-Weighted Hopelessness, ns=not significant.
Note: Italics indicate non-significant results of potential interest.

Table 16

Abbreviated Results of Individual Tests of Hypothesis One That Were Conducted Using Each Measure of Hopelessness Within Each of the Demographic Subsamples for the Variables of Gender and History of Depression/Intervention

		MAIN RESEARCH SAMPLE		FEMALE		MALE		NEVER DEPRESSED		HISTORY OF DEPRESSION-NO TREATMENT		HISTORY OF DEPRESSION-PSY/MED TX.	
STEP	POLY-NOMIAL	CHANGE IN R^2	n	CHANGE IN R^2	n	CHANGE IN R^2	n	CHANGE IN R^2	n	CHANGE IN R^2	n	CHANGE IN R^2	n
1	HS	.401***		.423***		.386***		.170***		.297***		.617***	
2	HS^2	.017**	410	.041***	274	.001ns	132	.001ns	81	.001ns	270	.058**	54
3	HS^3	.000ns		.000ns								.011ns	
1	MHS	.329***		.382***		.219***		.270***		.309***		.400***	
2	MHS^2	.025***	425	.026***	297	.001ns	125	.060**	84	.027**	288	.033ns	51
3	MHS^3	.004ns		.001ns				.029ns		.013*			
1	OQ-ED	.277***		.284***		.245***		.192***		.232***		.362***	
2	$OQ\text{-}ED^2$	.061***	838	.085***	574	.017*	257	.028*	166	.038***	561	.139***	104
3	$OQ\text{-}ED^3$	.001ns		.000ns		.002ns		.001ns		.001ns		.021*	
1	OQ-H	.240***		.236***		.231***		.203***		.182***		.293***	
2	$OQ\text{-}H^2$	.029***	837	.035***	573	.014*	257	.011ns	167	.015**	561	.061**	102
3	$OQ\text{-}H^3$	.000ns		.001ns		.001ns				.000ns		.027*	
1	OQ-WH	.160***		.159***		.135***		.119***		.111***		.220***	
2	$OQ\text{-}WH^2$	.026***	831	.033***	570	.007ns	256	.001ns	165	.009*	559	.093***	102
3	$OQ\text{-}WH^3$	.004*		.004ns						.003ns		.003ns	

BDI=Beck Depression Inventory, HS=Hopelessness Scale, MHS=Modified Hopelessness Scale, OQ-ED=OQ-Expected Dissatisfaction, OQ-H=OQ-Hopelessness, OQ-WH=OQ-Weighted Hopelessness, ns=not significant.

*=$p<.05$ **=$p<.01$ ***=$p<.001$

the main research sample are also included in Table 16. For each curvilinear regression analysis conducted, Table 16 provides the following information: a) the measure of hopelessness that served as the independent variable on which BDI scores were regressed, b) the highest power to which the independent variable was raised (i.e., degree of polynomial) in each step of the analysis, c) the incremental change in R^2 (i.e., $1/100^{th}$ of the increment in the percent of BDI variance accounted for) achieved at each step in the analysis, d) the degree of significance associated with each step, and e) the number of participants involved in each analysis.

In Table 16, for every instance where the quadratic regression line (i.e. corresponding to Step 2) was found to account for a significant increment in the BDI variance, the regression coefficient and visual inspection of the regression line was consistent with support for Hypothesis Two (see Appendix A). Similarly, for every instance where the cubic regression line (i.e. corresponding to Step 3) was found to account for a significant increment in the BDI variance, the extra curve in the line did not substantially detract from interpreting the line as generally representing depression as increasing at an accelerated rate with increases in hopelessness.

Analyses using the HS to operationalize hopelessness supported Hypotheses One and Two for females and those with a history of depression with treatment, but not for males, those who were never depressed and those with a history of depression without treatment. Analyses using the MHS to operationalize hopelessness supported Hypotheses One and Two for all but the subsamples representing males and those with a history of depression with treatment. Analyses using OQ-Expected Dissatisfaction as the independent variable supported Hypotheses One and Two across all tests, and analyses

using OQ-Hopelessness supported Hypotheses One and Two for all subsamples except for those who were never depressed. Analyses using OQ-Weighted Hopelessness supported Hypotheses One and Two for all subsamples except for males and those who were never depressed.

Discussion

When considered relative to the main research sample, the results of this study provide strong support for the general hypothesis that the relationship between concomitant levels of hopelessness and depression is curvilinear with level of depression increasing at a positively accelerated rate with respect to corresponding increases in the level of hopelessness. Restated, such curvilinearity simultaneously indicates that level of hopelessness increases at a negatively accelerated rate with respect to corresponding increases in the level of depression. These relative trends directly reflect the causal asymmetry of the postulate of the Hopelessness Theory of Depression (HTD) that hopelessness is a sufficient, but not a necessary cause of depression.

That is, since HTD represents hopelessness as an unnecessary cause of depression, it allows for depression in either the presence or absence of hopelessness. Conversely, since HTD represents hopelessness as a sufficient cause of depression, it allows for hopelessness only in the presence of depression – except for during an unspecified period of latency from the onset of hopelessness to the onset of hopelessness depression. The directly derivable condition that greater levels of hopelessness would be progressively less likely to be associated with relatively lower levels of depression is wholly consistent with the presently demonstrated curvilinear relationship between hopelessness and depression. Therefore, the corresponding results of this study are consistent with, though not

specifically confirming of, the postulate of the Hopelessness Theory of Depression (HTD) that hopelessness is a sufficient, but not a necessary cause of depression.

When tested using the main research sample, HTD-consistent curvilinearity in the relationship between hopelessness and depression was supported across all five operationalizations of hopelessness (i.e., scores on the HS, MHS, OQ-Expected Dissatisfaction, OQ-Hopelessness and OQ-Weighted Hopelessness).However, when the research sample was divided based on the demographic variables of gender or history of depression/intervention, some inconsistencies in the support for HTD-consistent curvilinearity were revealed. Further, these inconsistencies varied across measures of hopelessness. In order to give systematic attention to each facet of these inconsistencies, they will be considered from the perspectives of history of depression/intervention, gender, and type of measure of hopelessness, respectively.

History of Depression and the Relationship Between Hopelessness and Depression

All analyses using the re-coded interpretation of the demographic variable of history of depression/intervention are based on the assumption that there is a meaningful progression in the severity of participants' histories of depression from the reporting of no history of depression, to reporting of a history of depression with no treatment, to reporting of a history of depression treated with psychological counseling and/or medication. This assumption is supported by the finding that mean scores on the BDI and on all five measures of hopelessness show significant between groups differences that are characterized by increments that directly correspond with the progression across subgroups of severity of history of depression (see Table 15).

In that context, tests for HTD-consistent curvilinearity in the relationship between hopelessness and depression seem to be most strongly supported in the subgroup with the most severe history of depression (see Table 16). Such curvilinearity was supported across every measure of hopelessness except for the MHS (and in that instance, the MHS might have supported curvilinearity as well given a larger number of participants since the increment in BDI variance accounted for by the non-significant quadratic step in the curvilinear regression analysis was still 3.3%). Further, for the four measures of hopelessness that supported HTD-consistent curvilinearity in the history of depression with treatment subsample, the increment in BDI variance accounted for by quadratic step of the curvilinear regression analysis was greater in that subsample than in the main sample or any other subsample (ranging from a 5.8% increment accounted for by the HS, to a 13.9% increment accounted for by OQ-Expected Dissatisfaction).

Similar, although more moderate results were found in subsample reporting a history of depression without treatment. HTD-consistent curvilinearity in the relationship between hopelessness and depression was supported across all measures of hopelessness except for the HS. Within this subsample, and excepting the test using the HS, the quadratic step of the curvilinear regression analysis accounted for significant increments in BDI variance ranging from 0.9% in the case of OQ-Weighted Hopelessness to 3.8% in the case of OQ-Expected Dissatisfaction.

In the subsample reporting no history of depression, HTD-consistent curvilinearity in the relationship between hopelessness and depression was supported only when hopelessness was operationalized using the MHS or OQ-Expected Dissatisfaction. Therefore, while results varied across operationalizations of hopelessness, there is an

apparent trend for HTD-consistent curvilinearity in the relationship between hopelessness and depression to be most strongly associated with individuals reporting a more severe history of depression.

Some insight into the foundation of this relationship can be gained by looking at differences among these subgroups on the component scales of the OQ (i.e., the Want, Expect, Control and Care scales). Table 17 shows that the three subgroups defined by history of depression/intervention show no between group differences in the degree to which participants want positive outcomes to occur, or in the degree to which they want negative outcomes to occur.[4] Similarly, there are no between group differences in the degree to which participants care whether positive outcomes occur, or in the degree to which they care whether negative outcomes occur. There are however, significant and systematic between group differences indicating that as participants' histories of depression become more severe, they are less likely to expect positive outcomes to occur, more likely to expect negative outcomes to occur, and less likely to expect to be able to control the occurrence of positive and negative outcomes.

While this study did not assess whether participants' expectations for control were realistic, the results seem consistent with the findings of Alloy and Clements (1992), that students who were more susceptible to believing they had control in situations where they actually did not were less vulnerable to negative affect, discouragement and depressive symptoms following stressful experiences. Similarly, Dixon, Heppner and Rudd (1994) found that participant's appraisals of their own global problem-solving abilities had an indirect effect through hopelessness on the prediction of suicidal ideation. Also, Haaga, Fine, Terrill, Stewart and Beck (1995) found that viewing problems as manageable

Table 17

Mean Sum Scores for Positive and Negative Outcomes on the Component Scales of the Outlook Questionnaire Across the Demographic Variables of Gender and the Re-coded Interpretation of Subject's History of Depression/Intervention

	Mean Sums for WANT Scores: Positive Outcomes		Mean Sums for WANT Scores: Negative Outcomes		Mean Sums for EXPECT Scores: Positive Outcomes		Mean Sums for EXPECT Scores: Negative Outcomes	
	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	n(Sig.) Means	n
GENDER:	(.018)	(838)	(.021)	838	(.030)	838	(.001)	837
Female	54.7	577	3.8	577	42.0	577	27.4	577
Male	53.8	261	4.7	261	43.6	261	24.1	260
EVER DEPRESSED?	(.859)	838	(.824)	838	(.000)	838	(.000)	837
No	54.5	167	4.0	167	45.6	167	21.0	166
Yes, with no Tx:	54.3	566	4.1	566	42.3	566	27.4	566
Yes, with Tx:	54.7	105	3.8	105	39.1	105	29.1	105
[Sig.: Linearity]	[N/A]		[N/A]		[.000]		[.000]	
	Mean Sums for CONTROL Scores: Positive Outcomes		Mean Sums for CONTROL Scores: Negative Outcomes		Mean Sums for CARE Scores: Positive Outcomes		Mean Sums for CARE Scores: Negative Outcomes	
	(Sig.) Means	n	(Sig.) Means	n	(Sig.) Means	n	n(Sig.) Means	n
GENDER:	(.008)	834	(.351)	834	(.000)	832	(.000)	833
Female	40.2	575	35.3	575	50.6	573	47.8	575
Male	42.1	259	36.2	259	47.8	259	43.6	258
EVER DEPRESSED?	(.000)	834	(.000)	834	(.857)	832	(.629)	833
No	44.0	167	38.7	167	50.0	165	46.3	166
Yes, with no Tx:	40.5	564	35.3	564	49.6	562	46.4	562
Yes, with Tx:	37.7	103	32.5	103	49.7	105	47.6	105
[Sig.: Linearity]	[.000]		[.000]		[N/A]		[N/A]	

n = number, Tx = Treatment with psychological counseling and/or medication.

challenges was inversely related to depressive symptom severity (as well as dependency and anxiety). Together, these studies suggest that a future outlook involving expectations that problems will be manageable and that goals will be attainable tends to provide some resilience against depression in the face of stresses or challenges. Correspondingly, Kant, D'Zurilla and Maydeu-Olivares (1997) found that actual problem solving deficits mediated the relationship between everyday problems and depression in the middle-aged and elderly, suggesting that apart from "illusion of control," (Alloy & Clements, 1992; p.234), actual practical resources for exercising control are relevant to warding off the onset of depression.

As compared to the three OQ measures, The structure of the HS and the MHS do not lend so readily to examination of the bases for group differences in scores. So while these two measures functioned in dramatically different manners across subsamples defined by history of depression/intervention (i.e., differing within each subsample with regard to supporting the curvilinearity hypothesis or not), these differences suggest more about disparate discriminative properties of the two scales than they do about the bases of between group differences in scores on them. Therefore, consideration of the differential functioning of the HS and the MHS will be addressed in a later section that discusses the different operationalizations of hopelessness.

Because this study used a non-clinical sample, generalization of the above findings and interpretations as they relate to severity of depression history to individuals with clinical depression must be done cautiously. While the potential relevance of the findings are supported by the contention of Hill, Kemp-Wheeler and Jones (1987), who state that "although there are some differences of emphasis in relative symptom severity, subclinical

depression in students can be considered as offering a fairly accurate `model' of clinical depression," and that "we are inclined to conclude that analogue studies of depression using students are, to a reasonable extent, justifiable"(p. 119), further investigation in clinical samples is clearly warranted.

Gender and the Relationship Between Hopelessness and Depression

Among females, HTD-consistent curvilinearity in the relationship between hopelessness and depression was supported across all five measures of hopelessness. Among males, however, such curvilinearity was supported only when hopelessness was operationalized using OQ-Expected Dissatisfaction and OQ-Hopelessness scores – and in those two instances, the increment in BDI variance accounted for by the quadratic step of the curvilinear regression analysis was less than one third the size of the corresponding increment for females (see Table 16).

This pattern of results raises the question of whether the relationship between hopelessness and depression may be different for males and females. However, examination of this question first requires the examination of gender differences in hopelessness and depression separately. The incidence of depression among adult women is widely accepted and reliably reported to be about twice the incidence among adult men (cf. Nolen-Hoeksema, 1987, 1990; Weissman & Klerman, 1977). This relative prevalence of depression among females is consistent with the finding in this study of a significantly higher mean BDI score among females (9.0) than among males (7.5; $p = .005$).

In contrast to the well established relationship between gender and depression, the five measures of hopelessness used in this study showed inconsistent gender differences in mean scores. Table 15 shows that males scored significantly higher than females on the

HS, while no gender difference was found on the MHS. In further contrast, females scored significantly higher than males on the three OQ measures.

The lack of consistency in gender difference between the HS and the MHS is interesting because the two measures differ only with respect to the range of response that is offered to their identical items. This suggests that the forced choice format of the HS elicits a gender based response bias that is not elicited (or which is elicited to a significantly different degree) by the five-point Likert scale format of the MHS. Because of the simple structure of the HS and the MHS though, little data is available from within the scales that can shed light on possible explanations for their relative difference in gender based response bias. About all that can be reasonably speculated is that males are more likely than females to translate a moderately negative expectation to an extremely negative one when forced to communicate through a forced choice, true-false response format.

On the other hand, the multi-component structure of the OQ provides a means for considering how gender differences on the component scales of the OQ (i.e., the Want, Expect, Control and Care scales) contributed to females scoring significantly higher than males on OQ-Expected Dissatisfaction, OQ-Hopelessness and OQ-Weighted Hopelessness. Table 17 shows mean sums of the Want, Expect, Control and Care Scales for positive outcomes and negative outcomes items along the demographic variables of gender and history of depression/intervention. Uniformly, mean Want Scale scores are greater than mean Expect Scale scores for positive outcomes, and to a greater degree, mean Expect Scale scores are greater than mean Want Scale scores for negative outcomes. It is relative to these general differences that the gender differences on these scales must be interpreted. In this context, males show lower degrees of desire and greater

degrees of expectation for positive outcomes, and greater degrees of desire and lower degrees of expectation for negative outcomes, and therefore, at every front, seem to be moderating their vulnerability to hopelessness as measured by OQ-Expected Dissatisfaction (the level of OQ measure that first incorporates Want and Expect Scale scores). Further, males show greater mean Control Scale scores than females for positive outcomes, indicating that males show a smaller degree of expectation for uncontrollability about future positive outcomes. No gender difference is found for expected control for negative outcomes. Still, where there is a difference, it is of a nature that would serve to moderate the vulnerability of males to hopelessness as measured by OQ-Hopelessness (the level of OQ measure that first incorporates Control Scale scores). Finally, males show smaller Care Scale scores for both positive and negative outcomes, a difference which serves to moderate the vulnerability of males to hopelessness as measured by OQ-Weighted Hopelessness (the level of OQ measure that first incorporates Care Scale scores).

So on average, and as compared to females, males *want* positive outcomes less and negative ones more, they *expect* positive outcomes more and negative ones less, they expect to *control* positive outcomes more and negative ones no more or less, and they *care* less about the occurrence of positive or negative outcomes. Taken together, no matter whether viewed as males showing expectations that serve to moderate their vulnerability to hopelessness, or as females showing expectations that serve to increase their vulnerability to hopelessness, the pattern of gender differences on the composite scales of the OQ suggest a largely uniform basis for females showing higher hopelessness

scores on OQ-Expected Dissatisfaction, OQ-Hopelessness and OQ-Weighted Hopelessness.

Taking the preceding together then, the issue of considering the impact of gender on the relationship between hopelessness and depression must be done in view of a) a reliable and substantially greater incidence of depression among women than among men, b) disparate and conflicting estimates from different measures of hopelessness regarding whether males or females show higher levels of hopelessness, or whether there is no gender difference, and c) consistent results showing across measures of hopelessness that the curvilinearity hypotheses of this study are more strongly supported for females than for males, and that for the HS, the MHS and OQ-Weighted Hopelessness, the curvilinearity hypotheses were not supported for males.

Given this last point in particular, the question becomes *how* to explain why support for the curvilinearity hypotheses of this study seems to be so strong among the female subsample and either absent or tenuous among the male subsample. Two possible explanations stand out. First, it is possible that the combination of depression being about half as prevalent in men than in women, and the over two to one ratio of females to males in the present study, together served to render the male subsample too small to provide a robust test of the curvilinearity hypotheses. This possibility is supported by the fact that of the 105 participants who reported having a history of depression with treatment, only 22 were male. Therefore only 8.5% of the 259 males in the research sample reported a history of depression with treatment. This compares to 83 out of 576 females, or 14.4% reporting a history of depression with treatment. Given that the logic supporting the formulation of the curvilinearity hypotheses involved a consideration of the expectation that differential

concentrations of data points would systematically occur in the relatively *off-diagonal* regions of a scatter plot (i.e., in the regions *away* from the linear regression line), it seems plausible that male subsample was too small to reliably demonstrate such off-diagonal data points across all of the measures of hopelessness.

A second possible explanation is that the HTD postulate that hopelessness is a sufficient, but not a necessary cause of depression is more reliably true for females than it is for males. However, implicit in this explanation is the suggestion that females have a lower threshold for hopelessness than males, such that lower levels of hopelessness would be necessary to act as a sufficient cause of hopelessness depression. However, the gender differences on the component scales of the OQ suggest that rather than having a lower threshold for hopelessness, females tend to have wants, expectations, beliefs about control and cares about future outcomes that make them more vulnerable to experiencing higher levels of hopelessness than males.

Taken together, the above considerations allow for the possibility that gender may actually have *no impact* on the *relationship* between hopelessness and depression. That is, if the OQ operationalizations of hopelessness are accepted as accurately reflecting hopelessness as conceptualized by HTD (as opposed to the HS or the MHS), then based on the gender differences on the component scales of the OQ, it could be argued that gender actually has its impact through females showing a higher probability of experiencing hopelessness, and that this is then directly translated into a greater vulnerability of females to hopelessness depression. So the direct relationship between hopelessness and depression (i.e. the threshold for hopelessness as a sufficient cause of hopelessness depression) would be no different for males or females. Rather, it would be

just be a relationship more frequently exercised by females than by males. This interpretation is consistent with the finding of Johnson (1992), that attributional style and daily negative life events interacted to predict change in hopelessness levels for females but not for males.

However, this interpretation must be viewed as quite speculative. While it is derived from the available data, its validity rests on the assumption of the validity of the OQ measures of hopelessness (which is not yet fully established), and the assumption that the curvilinearity hypotheses of this study would be supported in a larger sample of males, or at least in a sizable sample of depressed males. It must also be cautioned that it is possible that gender differences in the general incidence of depression could be attributable to possible relationships between gender and the causes of non-hopelessness subtypes of depression.

Pursuit of an explanation for why females may show a pattern of desire, expectation, perceived control and caring about future outcomes that makes them more vulnerable to hopelessness than males might well consider the differences in the cultural forces that come to bear on males and females in American society. While indirectly relevant to the issue of gender, it is worth noting that Cross-cultural differences in pessimism have been identified between mainland Chinese and American sub-cultures (Lee & Seligman, 1997), as have differences in pessimism between a number of American sub-cultures (Chang, 1996; Lee & Seligman, 1997; Sethi & Seligman, 1993). While explanations for the differences found in these studies vary and do not relate directly to gender, when taken together with this study, it seems that a more comprehensive

examination of cultural, sub-cultural, and gender differences in hopelessness and its relation to depression is warranted and could prove quite illuminating.

Different Operationalizations of Hopelessness, and Their Implications for the Relationship Between Hopelessness and Depression

Among the more unexpected findings in this study are those showing the dramatic differences in the functioning of the HS and the MHS, even though the structure of the scales differ only with regard to the range of response they offer. First, males score significantly higher than females on the HS, while no gender difference is found on the MHS. Second, among the subsamples defined by history of depression/intervention, the HS supports the curvilinearity hypothesis only among those reporting a history of depression with treatment, while conversely, the MHS supports the curvilinearity hypothesis only among the remaining subsamples (i.e., history of depression without treatment and no history of depression). Adding to these opposing results is the finding that the quadratic step of the curvilinear regression analyses using the MHS accounts for a larger significant increment in BDI variance in the subsample reporting no history of depression (6.0%; $p < .01$) than it does for the main research sample or any other subsample.

Yet the HS and the MHS function similarly in other areas. For example, both the HS and MHS correlate comparably with the BDI. Also, the HS and MHS both support the curvilinearity hypotheses in the main research sample and in the female subsample, but neither support the curvilinearity hypotheses in the male subsample.

Some issues relevant to considering the inconsistent functioning of the HS and the MHS have been reported since the conceptualization and implementation of this study. In

contrast to the factor analyses conducted by Beck et al. (1974), Hill et al. (1988) and Nekanda-Trepka et al. (1983) which collectively support a three factor interpretation of the HS (see pp. 22-23 above), two later studies suggest that a one factor interpretation of the HS as a uni-dimensional assessment of pessimism is more conceptually sound (Chang, D'Zurilla & Maydeu-Olivares, 1994; Young, Halper, Clark, Scheftner & Fawcett, 1992). Both of these studies comment on the strong sensitivity of the HS at extreme levels of hopelessness as well as on the apparent insensitivity of the HS to more moderate levels of pessimism. A third study evaluating the HS implemented the scale using a five-point response format ranging from "strongly agree" to "strongly disagree" (i.e., similar, but not identical to the five-point response format ranging from "almost always true" to "never true" used for the MHS in this study), and concluded that the scale measures separate but related dimensions of optimism and pessimism (Marshall, Wortman, Kusulas, Hervig & Vickers, 1992). In comparing their studies, Chang et al. (1994, p. 158) comment on the Marshall et al. (1992) study stating that "it is possible that the 5-point Likert-type format changed the nature of the HS from a uni-dimensional to a bi-dimensional scale.... [and that] the original HS and the modified HS may be tapping somewhat different constructs."

Integrating the comments of Chang et al. (1994) with the results of this study, it could be argued that while the HS shows strong sensitivity at higher levels of hopelessness and weaker sensitivity at lower levels of hopelessness, the *reverse* may be true of the MHS. That is, by acting as a bi-dimensional measure of optimism as well as pessimism, the MHS may be sacrificing its sensitivity to the relatively more extreme levels of hopelessness expected to be associated with the most severe levels of depression. Such a reality would be consistent with the disparate functioning of the HS and the MHS across the subsamples

defined by history of depression/intervention in this study. However, this interpretation of the data does not explain how the HS and the MHS could both support the curvilinearity hypotheses in the female subsample but not in the male subsample. Also, the reinterpretation of the HS as a one factor measure has not achieved consensus. Dyce (1996), for example, argues for the three factor model of the HS because the factors are consistent across high and low scorers in a sample of outpatients divided into subsamples by a median split. So without further investigation, the preceding interpretation must be viewed as speculation.

Many facets of the similarities and differences in the functioning of the three OQ measures of hopelessness have already been addressed in the preceding discussions. However, even though the OQ is only being piloted in this study, the data allow for a preliminary consideration of the relative merits of the three OQ measures as successive approximations of hopelessness as conceptualized by HTD.

Of the three OQ measures, OQ-Expected Dissatisfaction appears to be the most powerful predictor of depression, both as it correlates directly with BDI scores, and as it functions in correlational regression analyses to test the curvilinearity hypotheses within the main research sample and across each of the demographically defined subsamples under consideration. Then, OQ-Hopelessness accounts for a greater degree of variance in BDI scores across tests than does OQ-Weighted Hopelessness, with the exception of the subsample defined by participants reporting a history of depression with treatment. With this one exception aside then, as the three OQ measures progress toward operationalizing hopelessness as it is conceptualized by HTD, the measures account for smaller portions of the variance in BDI scores (see Table 16).

Two explanations for this trend merit consideration. First, it is necessarily the case that as each successive OQ measure incorporates another component variable of the OQ (i.e., as Control Scale scores are incorporated into OQ-Hopelessness scores, and as Care Scale scores are incorporated into OQ-Weighted Hopelessness scores), that there will be a corresponding accumulation of measurement error. To the degree that increments in measurement error may outweigh the increments in new and relevant information associated with the incorporation of each additional component variable into the successive OQ measures of hopelessness, the predictive power of the resulting measure will be weakened.

A second possible explanation is that as the successive OQ measures of hopelessness more accurately reflect hopelessness as it is conceptualized by HTD, their true association with depression diminishes. Since HTD states that hopelessness depression is only one of many possible subtypes of depression, it is possible that as hopelessness as defined by HTD is more accurately operationalized and distinguished from more general operationalizations of hopelessness, that its relationship with depression in general may diminish as its specificity to hopelessness depression increases. This would mean that the measurement of hopelessness on the successive OQ measures become more refined, they would account for a smaller portion of the variance in depression in general, but would account for a greater proportion of the variance in hopelessness depression in particular. However, without a reliable and accepted standard for hopelessness as conceptualized by HTD to which measures can be compared, such explanations must for now remain speculative.

Even if the processes in the second explanation just described were true, they could not operate independently from the damaging effects of accumulated measurement error, so the issue of a trade-off between gains in useful information and the costs of accumulated measurement error would remain. Such a concurrent operation of both explanations could explain why the quadratic step of the curvilinear regression analyses using OQ-Weighted Hopelessness accounts for a *larger* significant increment in BDI variance in the subsample reporting a history of depression with treatment (i.e., 9.3%) than does the corresponding step in the analysis using the less complex OQ-Hopelessness, which accounts for only a 6.1 % increment in BDI variance. That is, while the predictive value of the conceptual accuracy of OQ-Weighted Hopelessness may be outweighed by accumulated measurement error when the measure is applied in the main research sample or other subsamples, the balance may shift when it is applied with participants who have a more severe history of depression. Again though, such explanations remain speculative.

Finally, all three of OQ measures account for a significant increment in BDI variance (ranging from 5.5% to 10.5%) beyond that accounted for by the HS, and all but OQ-Weighted Hopelessness account for a significant increment in BDI variance beyond that accounted for by the MHS. Therefore, the OQ measures seem clearly to be tapping into a unique and sizable aspect of depression relative to that accounted for by the HS, and to a lesser degree the MHS. Therefore, further research considering the differential properties and relative merits of all of the measures of hopelessness used in this study appears to be warranted.

The OQ, with its multi-faceted approach to assessing individuals' orientation to possible future outcomes, may also have utility in addressing concerns raised by other

studies about the differential influences that independent measures of future thinking have on research results (MacLeod & Byrne, 1996; MacLeod & Cropley, 1995). Specifically, MacLeod and Cropley (1995) state:

> The role played by future-directed thinking in emotional disturbance is an important but understudied area. General terms such as pessimism, negative expectancies, and even hopelessness may be useful in some contexts but it is clear that they mask different dimensions of future-thinking and that these dimensions may be differentially involved in emotional disturbances such as depression, parasuicide, and anxiety. Future research should try to map out some of the dimensions of future-thinking, using a variety of tasks and measures, and understand how these different dimensions relate to different forms of emotional disturbance (p. 49).

Practical Implications

Generally speaking, inasmuch as this study has supported the HTD postulate that hopelessness is a sufficient cause of depression, efforts to inoculate at-risk individuals against the onset of hopelessness depression through therapy and psycho-education geared toward reducing cognitive vulnerabilities to hopelessness (as delineated by HTD and an expanse of other relevant literature) are all the more justified. Similarly, for individuals who are suffering a depression with strong concurrent feelings of hopelessness, cognitive interventions aimed at patterns of unrealistic negative expectations about the future outcomes and their ability to control them also seem justified.

This study has more specific implications, however, about the practical and relevant use of different measures of hopelessness in research and in clinical settings. This

study provides support for the contention that the HS has poorer discriminative power at lower levels of hopelessness than at higher levels. However, except when applied to participants with less severe or no depression histories, each of the alternative measures of hopelessness accounts for a smaller portion of BDI variance than does the HS. While it is possible that the other measures are more accurately measuring an aspect of hopelessness (or in the case of the MHS, optimism) that correlates lower with depression than the HS, this is far from determined, and is therefore a consideration better left to future research than to clinical practice.

This is especially so when suicidality is a clinical issue. There are no data in this study to suggest that any of the alternative measures of hopelessness might be superior to the HS in predicting eventual suicide. Therefore, research on the utility of the OQ and the MHS in predicting suicide related ideation and behavior would most responsibly include the use of the HS as well.

Conversely, the OQ may have considerable potential as a clinical tool as a means to assess the foundation of an individual's future outlook. Specifically, the component Want, Expect, Control and Care Scales of the OQ, with their separate evaluation of orientation toward possible positive and negative outcomes, could assist in identifying which aspects of an individual's future outlook seem to be reasonable or irrational. This information could be helpful in focusing interventions on changing maladaptive aspects of future orientation while reinforcing aspects that seem healthy. While the estimation norms for the general population as well as for relevant clinically and demographically defined sub-populations would greatly increase the clinical utility of the OQ, but further refinement and validation of the measure will necessarily precede such an endeavor.

While the apparently weak sensitivity of the MHS to higher levels of hopelessness is a serious limitation, it may still have utility as a research and clinical measure. Marshall et al. (1992) identify separate optimism and pessimism factors in a similarly modified version of the HS. While appropriate research must precede the clinical use of this measure, the possible merits of using the MHS with individuals with either moderate levels of hopelessness or even manic-like symptoms seems to justify research in these areas.

Summary

The results of this study provide strong, but not uniform support for the hypotheses that the relationship between hopelessness and depression is best characterized as curvilinear, and that this curvilinearity reflects depression increasing in a positively accelerated manner with increases in hopelessness. This finding is viewed as consistent with, but not specifically confirming of the postulate of HTD that hopelessness is a sufficient, but not a necessary cause of depression.

While uniform support is found for the curvilinearity hypotheses in the main research sample and the female subsample across all five measures of hopelessness, support is mixed across measures of hopelessness in the male subsample and across participants' reported histories of depression/intervention. However, these areas of mixed supports are not viewed as specifically challenging the general support of the curvilinearity hypotheses. Rather, they are viewed as directing attention to areas where further research is needed to further clarify the relationship between hopelessness and depression.

Specifically, replication of this study in a large sample of depressed men and women would be expected to clarify the impact of gender on the relationship between hopelessness and depression. Investigation that considers other cross-cultural factors also

seems warranted. Also, use of the HS, MHS and the OQ in studies designed to specifically isolate instances of hopelessness depression could help clarify the relative merits of these measures in research on HTD. More generally, further investigation of the general research and clinical utility of the OQ and the MHS seems justified.

APPENDICES

APPENDIX A

APPENDIX A

SUMMARY OF RESEARCH HYPOTHESES

Hypothesis One: There is a curvilinear relationship between hopelessness and depression.

Hypothesis Two: The nature of this curvilinearity is consistent with the postulates of HTD in that depression increases in a positively accelerated manner with increases in hopelessness.

Hypothesis Three: MHS scores will correlate positively with BDI scores. Further, the size of this correlation will be qualitatively similar to that of the corresponding correlation between HS and BDI scores.

Hypothesis Four: As compared to the distribution of HS scores, the distribution of MHS scores will be characterized by: a) a smaller coefficient of variation, and b) a skewness value that is closer to zero. Further, though qualitatively, these differences will be of a sufficient size to suggest that they represent truly meaningful differences.

Hypothesis Five: Scores on each of the three OQ measures will correlate positively with scores on the HS.

Hypothesis Six: Scores on each of the three OQ measures will correlate positively with scores on the BDI. Further, the size of these correlations will be qualitatively similar to that of the corresponding correlation between HS and BDI scores.

Hypothesis Seven: Scores on each of the three OQ measures will correlate positively with scores on the MHS.

Hypothesis Eight: Scores on each of the OQ measures will account for a significant portion of the variance in BDI scores beyond that accounted for by their HS or MHS scores.

APPENDIX B

APPENDIX B

THE HOPE INDEX

INSTRUCTIONS

Read the item below and circle 0, 1, 2, 3, 4, or 5 on the left hand side to indicate the extent that you would want the item mentioned. Then circle 0, 1, 2, 3, 4, or 5 on the right hand side to indicate the extent to which you expect the thing mentioned to occur. You may add items for 17 & 18 if you wish.

To what extend would you want this? (0 = not at all, 5 = very much)		IN THE NEXT YEAR	To what extent do you expect this? (0 = not at all, 5 = very much)
0 1 2 3 4 5	1.	To do well in school or in job	0 1 2 3 4 5
0 1 2 3 4 5	2.	To have more friends	0 1 2 3 4 5
0 1 2 3 4 5	3.	To have good health	0 1 2 3 4 5
0 1 2 3 4 5	4.	To be competent	0 1 2 3 4 5
0 1 2 3 4 5	5.	To achieve long range goals	0 1 2 3 4 5
0 1 2 3 4 5	6.	To be happy	0 1 2 3 4 5
0 1 2 3 4 5	7.	To have money	0 1 2 3 4 5
0 1 2 3 4 5	8.	To have leisure time	0 1 2 3 4 5
0 1 2 3 4 5	9.	Other people to be helpful	0 1 2 3 4 5
0 1 2 3 4 5	10.	The crime rate to go down	0 1 2 3 4 5
0 1 2 3 4 5	11.	The country to be more productive	0 1 2 3 4 5
0 1 2 3 4 5	12.	Understanding my family	0 1 2 3 4 5
0 1 2 3 4 5	13.	Justice in the world	0 1 2 3 4 5
0 1 2 3 4 5	14.	Peace in the world	0 1 2 3 4 5
0 1 2 3 4 5	15.	Personal freedom	0 1 2 3 4 5
0 1 2 3 4 5	16.	Resources for all	0 1 2 3 4 5
0 1 2 3 4 5	17.		0 1 2 3 4 5
0 1 2 3 4 5	18.		0 1 2 3 4 5

APPENDIX C

APPENDIX C

THE EXPECTED BALANCE SCALE

This is a survey about how people expect to feel in the future. How will things go in the future? Indicate the degree which you expect to feel the following. Circle 1 if you do not expect to feel that way at all, circle 5 if you expect to feel that way a great deal, and 2, 3, or 4, to indicate a moderate amount.

How do you expect things to go in the next few weeks?

1	2	3	4	5	1.	Will you be annoyed with someone?
1	2	3	4	5	2.	Do you expect to feel lonely or remote from Other people?
1	2	3	4	5	3.	Will you feel that things are going your way?
1	2	3	4	5	4.	Do you expect to feel worried?
1	2	3	4	5	5.	Will you feel pleased because you have good Friends?
1	2	3	4	5	6.	Will you be afraid of what might happen?
1	2	3	4	5	7.	Will you feel particularly excited or interested in Something?
1	2	3	4	5	8.	Will you feel depressed or very unhappy?
1	2	3	4	5	9.	Do you expect to be full of energy?
1	2	3	4	5	10.	Do you expect to feel tired?
1	2	3	4	5	11.	Will you feel so restless that you can't sit long in a chair?
1	2	3	4	5	12.	Do you expect to feel that you are really enjoying yourself?
1	2	3	4	5	13.	Will you feel really cheerful?
1	2	3	4	5	14.	Do you expect to feel like crying?
1	2	3	4	5	15.	Do you think that you will feel like you're on top Of the world?
1	2	3	4	5	16.	Will you feel confident about the future?
1	2	3	4	5	17.	Will you ever feel bored?
1	2	3	4	5	18.	Will you feel pleased about having accomplished Something?

APPENDIX D

APPENDIX D

THE BECK DEPRESSION INVENTORY

BDI

This questionnaire consists of 21 groups of statement. After reading each group of statements carefully, choose the statement in each group which **best** describes the way you have been feeling the **past week**, including today.

Be sure to read all the statements in each group before making your choice.

1. a. I do not feel sad.
   b. I feel sad.
   c. I am sad all the time and I can't snap out of it.
   d. I am so sad or unhappy that I can't stand it.

2. a. I am not particularly discouraged about the future.
   b. I feel discouraged about the future.
   c. I feel I have nothing to look forward to.
   d. I feel that the future is hopeless and that things cannot improve.

3. a. I do not feel like a failure.
   b. I feel I have failed more than the average person.
   c. As I look back on my life, all I can see is a lot of failures.
   d. I feel I am a complete failure as a person.

4. a. I get as much satisfaction out of things as I used to.
   b. I don't enjoy things the way I used to.
   c. I don't get real satisfaction out of anything anymore.
   d. I am dissatisfied or bored with everything.

5. a. I don't feel particularly guilty.
   b. I feel guilty a good part of the time.
   c. I feel quite guilty most of the time.
   d. I feel guilty all of the time.

6. a. I don't fell I am being punished.
   b. I feel I may be punished.
   c. I expect to be punished.
   d. I feel I am being punished.

7. a. I don't feel disappointed in myself.
   b. I am disappointed in myself.
   c. I am disgusted with myself.
   d. I hate myself.

8. a. I don't feel I am any worse than anybody else.
   b. I am critical of myself for my weaknesses and mistakes.
   c. I blame myself all the time for my faults.
   d. I blame myself for everything bad that happens.

9. a. I don't have any thoughts of killing myself.
   b. I have thoughts of killing myself but I would not carry them out.
   c. I would like to kill myself.
   d. I would kill myself if I had the chance.

10. a. I don't cry anymore than usual.
    b. I cry more now than I used to.
    c. I cry all the time now.
    d. I used to be able to cry, but now I can't cry even though I want to.

11. a. I am no more irritated now than I ever am.
    b. I get annoyed or irritated more easily than I used to.
    c. I feel irritated all the time now.
    d. I don't get irritated at all by the things that used to irritate me.

12. a. I have not lost interest in other people.
    b. I am less interested in other people than I used to be.
    c. I have lost most of my interest in other people.
    d. I have lost all of my interest in other people.

13. a. I make decisions about as well as I ever could.
    b. I put off making decisions more than I used to.
    c. I have greater difficulty in making decisions than before.
    d. I can't make decisions at all anymore.

14. a. I don't feel any worse than I used to.
    b. I am worried that I am looking old or unattractive.
    c. I feel there are permanent changes in my appearance that make me look unattractive.
    d. I believe that I look ugly.

15. a. I can work about as well as before.
    b. It takes an extra effort to get started at doing something.
    c. I have to push myself very hard to do anything.
    d. I can't do any work at all.

16. a. I can sleep as well as usual.
    b. I don't sleep as well as I used to.
    c. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
    d. I wake up several hours earlier than I used to and cannot get back to sleep.

17. a. I don't get more tired than usual.
    b. I get tired more easily than I used to.
    c. I get tired from doing almost anything.
    d. I am too tired to do anything.

18. a. My appetite is no worse than usual.
    b. My appetite is not as good as it used to be.
    c. My appetite is much worse now.
    d. I have no appetite at all anymore.

19. a. I haven't lost much weight, if any, lately.
    b. I have lost more than 5 pounds.
    c. I have lost more than 10 pounds.
    d. I have lost more than 15 pounds.

20. a. I am no more worried about my health than usual.
    b. I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
    c. I am very worried about physical problems and it's hard to think of much else.
    d. I am so worried about my physical problems that I cannot think about anything else.

21. a. I have not noticed any recent change in my interest in sex.
    b. I am less interested in sex than I used to be.
    c. I am much less interested in sex now.
    d. I have interest in sex completely.

APPENDIX E

APPENDIX F

THE MODIFIED HOPELESSNESS SCALE

The Modified HS Scale

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is attached. Print your name and any other information requested by the examiner on the answer sheet, then finish reading these directions.

Read each statement and then blacken the appropriate number on the answer sheet to indicate the frequency with which the statement is <u>true</u> when applied to you. Use the following scale:

1. Almost always true
2. Often true
3. Sometimes true
4. Rarely true
5. Never true

This is a questionnaire to find out the way in which you view your expectancies for the future. Each item is a statement about the future. Please read each item and determine whether it is TRUE or FALSE as applied to you. This is a measure of personal belief: obviously there are no right or wrong answers.

22. I look forward to the future with hope and enthusiasm.

23. I might as well give up because I can't make things better for myself.

24. When things are going badly, I am helped by knowing they can't stay that way forever.

25. I can't imagine what my life would be like in 10 years.

26. I have enough time to accomplish the things I most want to do.

27. In the future, I expect to succeed in what concerns me most.

28. My future seems dark to me.

29. I expect to get more of the good things in life than the average person.

30. I just don't get the breaks, and there's no reason to believe I will in the future.

31. My past experiences have prepared me well for my future.

Read each statement and then blacken the appropriate number on the answer sheet to indicate whether the statement is true or false when applied to you. Use the following scale:

1. True
2. False

32. All I can see ahead of me is unpleasantness rather than pleasantness.

33. I don't expect to get what I really want.

34. When I look ahead to the future, I expect I will be happier than I am now.

35. Things just won't work out the way I want them to.

36. I have great faith in the future.

37. I never get what I want so it's foolish to want anything.

38. It is very unlikely that I will get any real satisfaction in the future.

39. The future seems vague and uncertain to me.

40. I can look forward to more good times than bad times.

41. There's no use in really trying to get something I want because I probably won't get it.

HS Scale by Beck, Weissman, Lester and Trexler, 1974.

APPENDIX G

APPENDIX G

THE OUTLOOK QUESTIONNAIRE

The Outlook Questionnaire

This is a questionnaire to find out your outlook regarding your future. Each page has 30 items that describe events that may or may not happen in the next 4 months. Each page asks a different question about the listed events, so please read the instructions at the top of every page. Please make your responses on the answer sheet that was provided to you. This questionnaire asks for your personal beliefs, so clearly, there are no right or wrong answers.

For items 42 to 71, read each statement and blacken the appropriate number to indicate the extent to which you **want** the event that is described to happen in the next 4 months.

Please use the following rating scale:

1	2	3	4	5
Not at all				**Very much**

Over the next 4 months, to what extent do you WANT ...

42. to have an exclusive relationship (boyfriend, girlfriend, spouse)
43. to feel annoyed with someone close to you
44. to do well in school
45. to feel particularly excited or interested in something
46. to feel like a failure
47. to do poorly on an exam or on a job evaluation
48. to feel pleased with the friends you have
49. to disappoint or let down someone close to you
50. to feel depressed or very sad
51. to feel confident about your future
52. to get along with your family
53. to feel rejected
54. to have good health
55. to feel really happy
56. to feel unmotivated or uninspired
57. to have too little time for your hobbies or leisure activities
58. to feel loved by someone important to you
59. to have fewer friends than you would like
60. to feel like crying
61. to feel pleased about having accomplished something
62. to be invited to a social event or party
63. to feel lonely or remote from other people
64. to have enough money
65. to feel full of energy
66. to feel overwhelmed
67. to put off doing something you think you should do
68. to feel popular
69. to be rejected in love or romance
70. to feel worried or anxious
71. to feel competent or skillful

For items 72 to 101, read each statement and blacken the appropriate number to indicate the extent to which you **expect** the event that is described to happen in the next 4 months.

Please use the following rating scale:

1	2	3	4	5
Not at all				**Very much**

Over the next 4 months, to what extent do you EXPECT ...

72. to have an exclusive relationship (boyfriend, girlfriend, spouse)
73. to feel annoyed with someone close to you
74. to do well in school
75. to feel particularly excited or interested in something
76. to feel like a failure
77. to do poorly on an exam or on a job evaluation
78. to feel pleased with the friends you have
79. to disappoint or let down someone close to you
80. to feel depressed or very sad
81. to feel confident about your future
82. to get along with your family
83. to feel rejected
84. to have good health
85. to feel really happy
86. to feel unmotivated or uninspired
87. to have too little time for your hobbies or leisure activities
88. to feel loved by someone important to you
89. to have fewer friends than you would like
90. to feel like crying
91. to feel pleased about having accomplished something
92. to be invited to a social event or party
93. to feel lonely or remote from other people
94. to have enough money
95. to feel full of energy
96. to feel overwhelmed
97. to put off doing something you think you should do
98. to feel popular
99. to be rejected in love or romance
100. to feel worried or anxious
101. to feel competent or skillful

For items 102 to 131, read each statement and blacken the appropriate number to indicate the extent of the **control** you have over whether the event that is described will happen in the next 4 months.

Please use the following rating scale:

1	2	3	4	5
Not at all				**Very much**

Over the next 4 months, how much CONTROL do you have over ...

102. having an exclusive relationship (boyfriend, girlfriend, spouse)
103. feeling annoyed with someone close to you
104. doing well in school
105. feeling particularly excited or interested in something
106. feeling like a failure
107. doing poorly on an exam or on a job evaluation
108. feeling pleased with the friends you have
109. disappointing or letting down someone close to me.
110. feeling depressed or very sad
111. feeling confident about your future
112. getting along with your family
113. feeling rejected
114. having good health
115. feeling really happy
116. feeling unmotivated or uninspired
117. having too little time for your hobbies or leisure activities
118. feeling loved by someone important to me
119. having fewer friends than you would like
120. feeling like crying
121. feeling pleased about having accomplished something
122. being invited to a social event or party
123. feeling lonely or remote from other people
124. having enough money
125. feeling full of energy
126. feeling overwhelmed
127. putting off doing something you think you should do
128. feeling popular
129. being rejected in love or romance
130. feeling worried or anxious
131. feeling competent or skillful

For items 132 to 161, read each statement and blacken the appropriate number to indicate how much you **care** whether the event that is described actually happens in the next 4 months.

Please use the following rating scale:

1	2	3	4	5
Not at all				**Very much**

Over the next 4 months, how much do you CARE whether you actually...

132. had an exclusive relationship (boyfriend, girlfriend, spouse)
133. felt annoyed with someone close to me
134. did well in school
135. felt particularly excited or interested in something
136. felt like a failure
137. did poorly on an exam or on a job evaluation
138. felt pleased with the friends you have
139. disappointed or let down someone close to me.
140. felt depressed or very sad
141. felt confident about your future
142. got along with your family
143. felt rejected
144. had good health
145. felt really happy
146. felt unmotivated or uninspired
147. had too little time for your hobbies or leisure activities
148. felt loved by someone important to me
149. had fewer friends than you would like
150. felt like crying
151. felt pleased about having accomplished something
152. were invited to a social event or party
153. felt lonely or remote from other people
154. had enough money
155. felt full of energy
156. felt overwhelmed
157. put off doing something you thought you should do
158. felt popular
159. were rejected in love or romance
160. felt worried or anxious
161. felt competent or skillful

APPENDIX H

APPENDIX H

DEMOGRAPHIC INFORMATION QUESTIONS

DEMOGRAPHIC INFORMATION

162. What is your gender?
1 = Female 2 = Male
163. What is your age?
1 = 19 years old or younger
2 = 20 - 25 years old
3 = 25 - 30 years old
4 = 30 - 40 years old
5 = Over 40 years old
164. What is your relationship
1 = Single and never married
2 = Married
3 = Divorced, separated or widowed
4 = Remarried
165. What is your class in college?
1 = Freshman
2 = Sophomore
3 = Junior
4 = Senior
5 = Graduate Student
166. Which applies to you?
1 = Full time student
2 = Part time student
167. Which applies to you?
1 = Work full time
2 = Work part time
3 = Not working currently
168. Have you received any medical treatment in the last year?
(e.g., for flu, sore throat, injury, illness, etc.)
1 = Yes 2 = No
169. Have you ever received psychological counseling?
1 = Yes 2 = No
170. Have you ever been depressed?
1 = No
2 = Yes, and received psychological counseling
3 = Yes, and received medication
4 = Yes, and received psychological counseling and medication
5 = Yes, but received no treatment
171. Are both of your parents living?
1 = Yes
2 = No, and one or both parents died in the past 5 years.
3 = No, but neither parent died in the past 5 years.

For items 172-177, please choose the number that best rates how you feel TODAY on each of the following scales.

172. I feel Depressed 1----2----3----4----5 I feel Cheerful
173. I feel Optimistic 1----2----3----4----5 I feel Pessimistic
174. I feel Hopeless 1----2----3----4----5 I feel Encouraged
175. I feel Lucky 1----2----3----4----5 I feel Unlucky
176. I feel Complacent 1----2----3----4----5 I feel Enthusiastic
177. I feel Hopeful 1----2----3----4----5 I feel Despairing

APPENDIX I

APPENDIX I

RESEARCH CONSENT STATEMENT

MICHIGAN STATE UNIVERSITY
Department of Psychology

RESEARCH CONSENT STATEMENT

1. **YOU INDICATE YOUR VOLUNTARY AGREEMENT TO PARTICIPATE BY COMPLETING AND RETURNING THIS QUESTIONNAIRE!**

   Please be sure to read this page carefully so that you understand the terms of your consent prior to completing and returning the questionnaire packet.

2. I have freely consented to take part in a scientific study being conducted by: Mark H. Wagner
   under the supervision of: Dr. Dozier Thornton
   Academic Title: Professor of Psychology
   Title of research project: The Mood Study

3. This research will require that I complete three questionnaires in class. The questionnaires measure various aspects of mood. The experimenter will compare group results for relationships between these measures in order to better understand the relationships between various aspects of mood.

4. Participation in this experiment usually takes __1__ hour.

5. I understand that my participation in this study is voluntary. I may choose not to participate. If I choose to participate, I may refuse to answer certain questions. Also I may discontinue my participation at any time without penalty.

6. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous in any report of research findings. On request, and within these restrictions, results of the study will be made available to participants.

7. I understand that my participation in the study does not guarantee any beneficial results to me.

8. I understand that upon the completion of data collection, a written (and when possible, a verbal) explanation of the specific purpose of this study will be provided to me.

9. I understand that if I have any concerns resulting from my participation in this study, I may freely contact Mark H. Wagner or Dozier W. Thornton through the graduate office of Psychology at Snyder Hall (355-9561).

APPENDIX J

APPENDIX J

PARTICIPANT DEBRIEFING FORM

PARTICIPANT DEBRIEFING FORM
for the Mood Study

The Mood Study is intended to address two issues. They are:

1. To help better understand the relationship between hopelessness and depression.

It has already been established that hopelessness and depression are highly related constructs. Measures of hopelessness have been shown to correlate very highly with measures of depression.

Of the many theories that try to explain depression, the Hopelessness Theory of Depression (HTD) makes some specific predictions about the relationship between hopelessness and depression. HTD states that hopelessness will always cause depression. HTD also states that there are other causes of depression and that depression can occur in the absence of hopelessness. Therefore, according to HTD, it would be reasonable to expect some people to show depressive mood without any feelings of hopelessness (since there are other causes of depression). However, according to HTD, there should be virtually no people who have substantial feelings of hopelessness who are not also showing some depressive mood (since hopelessness must cause depression).

This study is testing that hypothesis by measuring both hopelessness and depression, and examining whether the independent incidence and coincidence of hopelessness and depression match the patterns predicted by HTD.

2. To test the effectiveness of two new measures of hopelessness.

The measure of hopelessness that is by far the most often used in psychological research is the Beck Hopelessness Scale (HS). The HS was originally designed to help measure very extreme levels of hopelessness (for example, hopelessness so extreme that it is associated with effected suicide). The HS has proven to be a sensitive and effective tool in that area. However, the level of hopelessness expected to be associated with depression is less than that associated with suicide. The HS has been shown to be a less sensitive measure of these more moderate levels of hopelessness.

This study addressed this problem by having half of the participants fill out the HS and half fill out a modified version of the HS that offered participants a wider range of response to each question to make the measure more sensitive.

Another issue regarding the HS is that it defines hopelessness in a way that is slightly different than how HTD defines hopelessness. Therefore, a new measure (the Outlook Questionnaire) that was designed to measure hopelessness as it is defined by HTD was given to every participant. Tests regarding the sensitivity and the validity of both the Outlook Questionnaire and the modified version of the HS will be conducted.

If you are concerned about any feelings you have had during or resulting from your participation in this study, please contact Mark H. Wagner or Dozier W. Thornton through the graduate office of the Department of Psychology at Snyder Hall (355-9561)

APPENDIX K

APPENDIX K

INDIVIDUAL TESTS OF HYPOTHESIS ONE USING EACH MEASURE OF HOPELESSNESS ACROSS DEMOGRAPHIC SUBSAMPLES OF GENDER AND HISTORY OF DEPRESSION/INTERVENTION (TABLES K1 TO K25)

Because the Tables in Appendix K are in landscape orientation and require the full margin space available, their presentation begins on the next page.

Table K1
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (HS) for the Female Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.651	.423	.423	199.79	.000	1,272
2	HS^2	.681	.464	.041	20.49	.000	2,271
3	HS^3	.681	.464	.000	0.13	.722	3,270

Table K2
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (MHS) for the Female Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.618	.382	.382	182.50	.000	1,295
2	MHS^2	.639	.408	.026	12.90	.000	2,294
3	MHS^3	.639	.409	.001	0.25	.620	3,293

Table K3
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Expected Dissatisfaction) for the Female Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Expected Dissatisfaction	.533	.284	.284	227.34	.000	1,572
2	OQ-Expected Dissatisfaction^2	.607	.369	.085	76.46	.000	2,571
3	OQ-Expected Dissatisfaction^3	.607	.369	.000	0.08	.775	3,570

Table K4
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Hopelessness) for the Female Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Hopelessness	.486	.236	.236	176.50	.000	1,571
2	OQ-Hopelessness^2	.521	.271	.035	27.68	.000	2,570
3	OQ-Hopelessness^3	.522	.273	.001	1.06	.303	3,569

Table K5
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Weighted Hopelessness) for the Female Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Weighted Hopelessness	.399	.159	.159	107.69	.000	1,568
2	OQ-Weighted$_2$ Hopelessness^2	.439	.193	.033	23.35	.000	2,567
3	OQ-Weighted$_3$ Hopelessness^3	.444	.197	.004	3.05	.081	3,566

Table K6
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (HS) for the Male Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.621	.386	.386	81.65	.000	1,130
2	HS^2	.622	.386	.001	0.13	.718	2,129

Table K7
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (MHS) for the Male Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.468	.219	.219	34.56	.000	1,123
2	MHS^2	.469	.220	.001	0.08	.778	2,122

Table K8
Results of Hierarchical Curvilinear Regression of Depression (BDI)
on Hopelessness (OQ-Expected Dissatisfaction) for the Male Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Expected Dissatisfaction	.495	.245	.245	82.95	.000	1,255
2	OQ-Expected $Dissatisfaction^2$	.512	.263	.017	5.90	.016	2,254
3	OQ-Expected $Dissatisfaction^3$	.515	.265	.002	0.78	.377	3,253

Table K9
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Hopelessness) for the Male Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Hopelessness	.480	.231	.231	76.42	.000	1,255
2	OQ-Hopelessness^2	.494	.244	.014	4.63	.032	2,254
3	OQ-Hopelessness^3	.495	.245	.001	0.18	.668	3,253

Table K10
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Weighted Hopelessness) for the Male Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Weighted Hopelessness	.368	.135	.135	39.80	.000	1,254
2	OQ-Weighted$_2$ Hopelessness^2	.377	.142	.007	1.96	.162	2,253

Table K11
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (HS) for the Never Depressed Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.413	.170	.170	16.21	.000	1,79
2	HS^2	.414	.171	.001	0.08	.774	2,78

Table K12
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (MHS) for the Never Depressed Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.519	.270	.270	30.26	.000	1,82
2	MHS^2	.574	.330	.060	7.26	.009	2,81
3	MHS^3	.599	.359	.029	3.67	.058	3,80

Table K13
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Expected Dissatisfaction) for the Never Depressed Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Expected Dissatisfaction	.439	.192	.192	39.06	.000	1,164
2	OQ-Expected Dissatisfaction^2	.469	.220	.028	5.86	.017	2,163
3	OQ-Expected Dissatisfaction^3	.471	.221	.001	0.21	.644	3,162

Table K14
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Hopelessness) for the Never Depressed Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Hopelessness	.451	.203	.203	42.04	.000	1,165
2	OQ-Hopelessness^2	.462	.214	.011	2.34	.128	2,164

Table K15
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Weighted Hopelessness) for the Never Depressed Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Weighted Hopelessness	.345	.119	.119	22.06	.000	1,163
2	OQ-Weighted Hopelessness^2	.346	.120	.001	0.14	.709	2,162

Table K16
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (HS) for the History of Depression with No Treatment Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.545	.297	.297	113.11	.000	1,268
2	HS^2	.546	.298	.001	0.40	.529	2,267

Table K17
Results of Hierarchical Curvilinear Regression of Depression (BDI)
on Hopelessness (MHS) for the History of Depression with No Treatment Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.556	.309	.309	128.16	.000	1,286
2	MHS^2	.580	.337	.027	11.77	.001	2,285
3	MHS^3	.591	.350	.013	5.68	.018	3,284
4	MHS^4	.592	.350	.000	0.08	.775	4,283

Table K18
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (OQ-Expected Dissatisfaction)
for the History of Depression with No Treatment Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Expected Dissatisfaction	.481	.232	.232	168.54	.000	1,559
2	OQ-Expected $Dissatisfaction^2$	.520	.270	.038	29.27	.000	2,558
3	OQ-Expected $Dissatisfaction^3$	.520	.271	.001	0.66	.418	3,557

Table K19
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (OQ-Hopelessness)
for the History of Depression with No Treatment Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE R	R^2	CHANGE IN R^2 FOR STEP	F FOR CHANGE IN R^2	p	df
1	OQ-Hopelessness	.427	.182	.182	124.62	.000	1,559
2	OQ-Hopelessness^2	.444	.197	.015	10.57	.001	2,558
3	OQ-Hopelessness^3	.445	.198	.000	0.27	.605	3,557

Table K20
Results of Hierarchical Curvilinear Regression
of Depression (BDI)on Hopelessness (OQ-Weighted Hopelessness)
for the History of Depression with No Treatment Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE R	R^2	CHANGE IN R^2 FOR STEP	F FOR CHANGE IN R^2	p	df
1	OQ-Weighted Hopelessness	.333	.111	.111	69.51	.000	1,557
2	OQ-Weighted$_2$ Hopelessness^2	.346	.120	.009	5.56	.019	2,556
3	OQ-Weighted$_3$ Hopelessness^3	.351	.123	.003	2.01	.157	3,555

Table K21
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (HS) for the History of Depression
with Psychological Counseling and/or Medication Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	HS	.786	.617	.617	83.80	.000	1,52
2	HS^2	.822	.675	.058	9.14	.004	2,51
3	HS^3	.828	.686	.011	1.71	.197	3,50

Table K22
Results of Hierarchical Curvilinear Regression
of Depression (BDI) on Hopelessness (MHS) for the History of Depression
with Psychological Counseling and/or Medication Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	MHS	.632	.400	.400	32.65	.000	1,49
2	MHS^2	.658	.433	.033	2.78	.102	2,48

Table K23
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Expected Dissatisfaction) for the History of Depression with Psychological Counseling and/or Medication Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Expected Dissatisfaction	.601	.362	.362	57.82	.000	1,102
2	OQ-Expected Dissatisfaction^2	.706	.501	.139	28.08	.000	2,101
3	OQ-Expected Dissatisfaction^3	.722	.521	.021	4.35	.040	3,100
4	OQ-Expected Dissatisfaction^4	.728	.531	.009	1.94	.167	4,99

Table K24
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Hopelessness) for the History of Depression with Psychological Counseling and/or Medication Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Hopelessness	.542	.293	.293	41.53	.000	1,100
2	OQ-Hopelessness^2	.595	.354	.061	9.32	.003	2,99
3	OQ-Hopelessness^3	.617	.381	.027	4.22	.043	3,98
4	OQ-Hopelessness^4	.617	.381	.000	0.01	.942	4,97

Table K25
Results of Hierarchical Curvilinear Regression of Depression (BDI) on Hopelessness (OQ-Weighted Hopelessness) for the History of Depression with Psychological Counseling and/or Medication Sub-sample

STEP	COMPONENT OF POLYNOMIAL REGRESSION EQUATION ENTERED	CUMULATIVE *R*	R^2	CHANGE IN R^2 FOR STEP	*F* FOR CHANGE IN R^2	*p*	df
1	OQ-Weighted Hopelessness	.470	.220	.220	28.28	.000	1,100
2	OQ-Weighted$_2$ Hopelessness^2	.560	.314	.093	13.45	.000	2,99
3	OQ-Weighted$_3$ Hopelessness^3	.563	.317	.003	0.46	.501	3,98

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FOOTNOTES

FOOTNOTES

[1]The Hopelessness Theory of Depression (HTD; Abramson, Metalsky & Alloy, 1989; see also Abramson, Alloy & Metalsky, 1990 and Abramson, Alloy & Metalsky, 1995; and for earlier representations of the theory, see Abramson, Alloy & Metalsky, 1988; Abramson, Metalsky & Alloy, 1988; Alloy, Abramson, Metalsky & Hartlage, 1988; and Alloy, Hartlage & Abramson, 1988).

[2]There has been criticism of the HS that has claimed the scale is severely confounded by the degree to which it measures social desirability in addition to hopelessness (Holden & Mendonca, 1984; Holden, Mendonca & Mazmanian, 1985; Holden, Mendonca & Serin, 1989; Linehan & Nielsen, 1981, 1983; Mendonca, Holden, Mazmanian & Dolan, 1983; Strosahl, Linehan & Chiles, 1984). The debate has focused on high negative correlations between HS scores and measures of social desirability, and has been justified by concern over the effectiveness of the HS in predicting suicide and parasuicide. However, Nevid (1983) argues that the co-variation of two constructs can represent either a confound (when the constructs are theoretically unrelated) or can represent support for construct validity (when the constructs are theoretically related and can be shown to be distinct). Nevid (1983; p. 140) states "It seems conceivable that a theory of hopelessness might lead to the prediction that individuals who report feeling hopeless about their lives would be expected to be less concerned with the social impression they leave about themselves with others." Assessing the distinctiveness of

hopelessness and social desirability has been complicated by the fact that various scales of social desirability seem to measure slightly to markedly different constructs (Cole, 1988; Ellis, 1985; Strosahl et al., 1984; cf. Holden et al., 1989). In a comprehensive examination of this issue, Cole (1988) concluded that hopelessness, after being controlled for depression and social desirability, was related to parasuicide in clinical samples, but not in non-clinical samples. Cole (1988) therefore recommended the use of the Reasons for Living Inventory (Linehan, Goodstein, Nielsen, & Chiles, 1983) for suicidal risk evaluation in non-clinical populations because of its low correlation with social desirability and high correlation with suicide and parasuicide. While this debate may inspire pause in researchers who operationalize hopelessness via the HS, it does not logically constrain such use of the HS. The debate pivots on evaluating the HS as an operationalization of suicidal intent and not as a measure of feelings of hopelessness per se, therefore the criticism is less relevant in studies not addressing the issue of suicidality. That is, social desirability has been suggested to confound the relationship between HS scores and suicidality, but there has been no suggestion that social desirability confounds the relationship between HS scores and other indices of hopelessness or indices of depression. Again, the argument of Nevid (1983; above) regarding a logical relationship between social desirability and hopelessness is quite compelling. Further, the author is not convinced that the construct of social desirability has been operationalized with sufficient consistency and therefore questions the advantages of controlling for this factor when assessing hopelessness. For these reasons, the issue of social desirability will not be empirically addressed in this study.

[3]While the purpose of combining scores for expected dissatisfaction with scores for expected uncontrollability is to isolate an estimate of hopelessness, there are actually four

personal characteristics that can be defined by combining extremes on the satisfaction and controllability dimensions. As has been maintained, the degree of expected dissatisfaction that is believed to be uncontrollable is indicative of degree of expectations of hopelessness. Given the opposite situation, the degree of expected satisfaction that is believed to be controllable is indicative of degree of expectations of hopefulness. Along different lines, the degree of expected satisfaction that is believed to be uncontrollable is indicative of degree of expectations of fortuitousness (i.e., "feeling lucky"). Finally, the degree of expected dissatisfaction that is believed to be controllable is indicative of degree of expectations of complacency.

[4] Table 17 uses mean sums for positive vs. negative outcomes rather than mean sums for all items so as not to obscure relationships that are not detected by the mean sums for all scores. More specifically, on both the Want and Expect Scales, the mean sum for all items can mask important differences because higher scores on the positive outcome items tend to be counterbalanced by lower scores on negative outcome items. For example, on the Want scale, complementary gender differences are found for positive and negative outcomes, but when those scores are summed, the complementary differences negate each other resulting in nearly identical mean sums. Therefore, interpretation of total mean sums alone would erroneously suggest no gender differences in responding on the Want Scale. This relative negation of group differences across positive and negative outcomes on the Want and Expect Scales is not an issue in the calculation of OQ-Expected Dissatisfaction, OQ-Hopelessness or OQ-Weighted Hopelessness because these scores are calculated *within* each positive or negative outcome item first, and then summed across items.