

A Daily Life Comparison of Sociotropy-Autonomy and Hopelessness Theories of Depression

Mathilde M. Husky · Carolyn M. Mazure ·
Paul K. Maciejewski · Joel D. Swendsen

Published online: 21 March 2007
© Springer Science+Business Media, Inc. 2007

Abstract The hopelessness theory and Beck's cognitive theory of depression were compared, controlling for other factors associated with mood change and stress reactivity. Using a high-risk design, 179 individuals were selected based on cognitive vulnerabilities and substance use frequency. Assessments of mood, daily events, and specific attributions were acquired using the Experience Sampling Method. Strong support was found for attributional style and sociotropy as indirect determinants of depressed mood, as well as for the notions of causal mediation and vulnerability specificity. Hopelessness theory explained a slightly larger portion of variance in depressed mood overall. The personality diatheses described by either theory were largely independent of each other and their mechanisms of action were not influenced by depression history or substance use.

Keywords Depression · Cognitive models · Hopelessness theory · Sociotropy/autonomy · Experience sampling method

Introduction

The hopelessness theory, developed by Abramson and colleagues (1989), and Beck's theory regarding the personality characteristics of sociotropy and autonomy (Beck, 1983, 1987) are among the most commonly cited cognitive models of depression. Although both formulations postulate that cognitive vulnerabilities interact with stressful events to cause depressive symptoms, they differ in terms of the nature of vulnerability expression. The hopelessness theory posits that depressogenic cognitive styles, including attributional style, act indirectly by increasing the

M. M. Husky (✉) · C. M. Mazure · P. K. Maciejewski
Department of Psychiatry, Yale University School of Medicine,
P.O. Box 208091, New Haven, CT 06520-8091
e-mail: mathilde.husky@yale.edu

J. D. Swendsen
Department of Psychology, University of Bordeaux,
France

likelihood that an individual will experience negative inferences about the self or about the causes and consequences of events. Consequently, these inferences, including specific causal attributions, increase the experience of hopelessness which, in turn, leads to depression symptoms. By contrast, sociotropy and autonomy are conceptualized as personality characteristics that interact directly with particular types of events. Highly sociotropic individuals would be therefore more likely to experience depressive reactions following interpersonal events, whereas highly autonomous individuals would be more vulnerable to depression following achievement-related stressors.

Investigations of the hopelessness theory generally provide strong support for the role of attributional style as a vulnerability factor for depressed mood and major depression (Alloy et al., 2000; Metalsky, Halberstadt, & Abramson, 1987; Metalsky & Joiner, 1992; Metalsky, Joiner, Hardin, & Abramson, 1993). Concerning Beck's theory, prospective studies have demonstrated that sociotropic individuals are more vulnerable to interpersonal events than other forms of stress, although the interaction between autonomy and achievement-related stressors appears less certain (Clark, Beck, & Brown, 1992; Coyne & Whiffen, 1995; Hammen, Marks, Mayol, & de Mayo, 1985; Lakey & Ross, 1994; Mazure, Bruce, Maciejewski, & Jacobs, 2000; Mazure, Maciejewski, Jacobs, & Bruce, 2002; Nietzel & Harris, 1990; Robins, 1990; Robins & Block, 1988; Rude & Burnham, 1993). In light of the conceptual similarities among cognitive theories of depression, a more limited literature has compared these or related perspectives to each other. Several investigations have concluded that the constructs described by Beck and Abramson et al. are best conceived as distinct pathways to depression (Gotlib, Lewinsohn, Seeley, Rohde, & Redner, 1993; Joiner & Rudd, 1996; Spangler, Simons, Monroe, & Thase, 1997). However, the comparative explanatory power of each theory and the independence of their respective constructs remain to be fully explored.

In addition to the need for direct comparisons of these theories, the literature has identified several methodological issues that have hindered past research and that should be considered in future studies. A first concern addresses the nature of the samples investigated, as it remains unclear whether the mechanisms influencing depressed mood are similar for individuals with or without a history of major depression. One perspective argues that the phenomenology of depression is dimensional (Flett, Vredenburg, & Krames, 1997; Ruscio & Ruscio, 2000), and therefore that core symptoms of depression, such as depressed mood, should be influenced by the same basic cognitive mechanisms in normal and clinical populations. It remains possible, however, that individuals remitted from major depression (or currently with the disorder) may possess cognitive vulnerabilities that are more severe or qualitatively different from individuals without a history of depression. Examining the effects of depression history on the cognitive mechanisms described by each theory should provide important insight into the continuity hypothesis, especially as high-risk designs in normal samples may over-select participants with a lifetime history of major depression (Abramson, Alloy, Hankin, Haefel, MacCoon, & Gibb, 2002; Depue et al., 1981). A second frequently cited issue concerns the need for investigations that control for other explanations of depressed mood variance, in particular psychiatric comorbidity. Although previous investigations have tested the role of anxiety in the etiologic chain leading to depression (Swendsen, 1997a, 1998; Swendsen et al., 1998; Waikar & Craske, 1997), very little work has examined the role of substance use or abuse. The comorbidity of depression and substance use disorders is well-established (Kessler et al., 1997; Merikangas et al., 1998), and many investigations indicate that depression may often result from substance use and abuse rather than the reverse (Brown & Schuckit, 1988; Davidson, 1995; Swendsen & Merikangas, 2000). As the severity of cognitive vulnerabilities for depression and the frequency of negative events are both increased in regular substance users and substance-dependent individuals (Goldstein, Abela, Buchanan, & Seligman, 2000; Robson, 1989), the integration of

substance use into investigations of cognitive theory should provide a more precise test of these perspectives.

Finally, a considerable portion of past investigations has examined the association of cognitive diatheses directly with depression diagnoses or syndrome severity. The limitation of this work is that cognitive vulnerabilities are conceptualized to be indirect risk factors, whereby their mechanisms of action is expressed only through the generation of specific negative cognitions such as attributions or through their interaction with discrete events. Notably fewer investigations have examined these more central elements of cognitive theory, a fact attributable to difficulties involved in assessing variables which fluctuate on a moment-to-moment basis. Advances on this issue have been made through diary studies which have shown significant within-subject associations between depressive symptoms and measures of dependency and interpersonal stress (Stader & Hokanson, 1998), as well as providing recent confirmation that cognitive vulnerabilities express themselves in a trait-like manner in daily life (Hankin, Fraley, & Abela, 2005). However, the reliance of diary studies on single observations acquired at the end of the day may increase memory biases, and reduce the possibility of assessing variables of interest in the natural contexts of their occurrence. A handful of investigations have applied the Experience Sampling Method (ESM; Csikszentmihalyi & Larson, 1987; deVries, Dijkman-Caes, & Delespaul, 1990) which uses portable electronic device to acquire information numerous times a day and across diverse contexts. This ambulatory monitoring technique increases the ecological validity of observations, reduces memory biases, and is adapted to assessing rapid fluctuations in minor negative events, specific cognitions, and mood states. Recent ESM studies have found considerable support for the basic tenets of hopelessness theory (Swendsen, 1997b, 1998; Swendsen & Compagnone, 2000) and for its cross-cultural validity (Swendsen & Compagnone, 2000). To date, however, ESM has not yet been applied to testing the sociotropy and autonomy perspective, and no study has compared these theories as models of depressed mood experience in daily life.

The present study uses ESM to provide a comparison of the hopelessness theory and Beck's theory to explain depressed mood in daily life. Consistent with the hopelessness theory, it is hypothesized that greater depressogenic attributional styles will predict more severe causal attributions relative to negative events experienced throughout the day, and that these specific attributions will be associated in turn with increases in depressed mood. Consistent with Beck's model, it is hypothesized that more sociotropic individuals will experience greater depressed mood following the occurrence of a negative interpersonal event, whereas those with higher autonomy scores will express greater increases in depressed mood after the occurrence of negative achievement-related events. The effects of depression history and recent substance use will be integrated into all tests of the theories' hypotheses. Finally, in order to examine the relative explanatory power and independence of each formulation, the percentage of variance in depressed mood explained by each theory and the degree of overlap of vulnerability status will be compared.

Method

Participants

One thousand nine hundred and eighty three students from diverse academic disciplines of the University of Bordeaux, France were screened for this investigation. As no academic selection criteria are required for admission into the first year of university studies in France, only freshmen were selected to increase the generalization of findings to other individuals in the same age group. Those under the age of 18 on the day of the screening ($n = 271$) were not

included in the study. The mean age of the final screening sample ($n = 1712$) was 19.5 years ($SD = 2.31$), and 72% were women. Using an at-risk design, eligible participants were identified based on the presence or absence of cognitive vulnerabilities (either elevated attributional style, or sociotropy/autonomy scores) as described below, and on their frequent or infrequent use of psychoactive substances which is also defined below. The final sample selected on this basis was composed of 179 individuals (68% women) with a mean age of 19.5 years ($SD = 1.19$).

Procedure

The procedures for assessment and data collection were divided into three phases. During the first phase, undergraduate university students were invited to participate in a study concerning thoughts, emotions and daily life experiences. After signing informed consent and being assigned a random identification number, participants completed a screening battery concerning demographic variables, recent substance use, and one of two cognitive vulnerability questionnaires (measuring either attributional style or sociotropy-autonomy). In order to reduce the burden imposed by this screening, participants completed either an attributional style ($n = 685$) or sociotropy-autonomy questionnaire ($n = 1027$), and the assignment to one of the two cognitive vulnerability questionnaires was randomized. Persons with high or low cognitive vulnerabilities on either questionnaire were defined as those having scores corresponding to the highest or lowest 30% of the screening sample. More participants completed the sociotropy-autonomy measure to allow for a sufficient pool of participants in four crossed risk groups: high sociotropy/high autonomy, low sociotropy/low autonomy, low sociotropy/high autonomy, high sociotropy/low autonomy. The 30th percentile was used to ensure each cell would contain enough eligible participants when the sociotropy and autonomy risk groups were crossed. To be consistent, the 30% cut-off used for sociotropy and autonomy was then applied to select those with high or low-risk attributional style. Using a Latin square design, all eligible groups were further divided to select individuals with high or low substance use. High-frequency users were defined as those who consumed alcohol or cannabis on at least a weekly basis over the previous month, or who consumed other illicit substances (cocaine, heroin, ecstasy, amphetamines, and hallucinogens) at least once during this 30-day period. While these selection criteria allowed for a relatively low frequency of use for some individuals, the average frequency of use in each group was considerably higher (high frequency users of alcohol reported an average of two to three drinks per week during the last month, and most cannabis users reported using cannabis almost everyday). Substance users were identified to include, in approximately equal proportions, consumers of alcohol, cannabis, and other illicit substances. Low-frequency substance users were defined as individuals having consumed no more than 1 alcoholic beverage over the previous 30 days, and no additional substance. This selection strategy led to the identification of 513 eligible participants based on the presence of high or low cognitive vulnerabilities and frequent or infrequent recent substance use.

Individuals in each eligibility subgroup were contacted by telephone to participate in the ESM phase of the study by members of the research team blind to the initial selection criteria. Subject inclusion continued until pre-determined cell sizes were obtained, identifying 99 individuals based on sociotropy and autonomy, and 80 based on attributional style. The average scores concerning cognitive vulnerabilities for participants in the second phase did not differ from the averages of the initial eligible groups. Eighteen individuals (8.78% of the contacted eligible participants) declined to participate. The other contacted individuals were scheduled for a 15-min interview during which they were given a brief training concerning the ESM phase of the study. During this session, participants were instructed to carry a hand-held computer Psion 'Revo' or 'Revo Plus' with them throughout the assessment week and to

complete a computerized questionnaire at each signal concerning their current affect, the experience of different types of daily events, the degree of negative impact of each event, and their attributions concerning the stability and globality of the causes of these events.

At the end of the training interview, participants were provided with a Psion and were asked to fill in self-report questionnaires relative to depressive symptomatology and trait anxiety. Over the next 7 consecutive days, the ESM signals occurred at fixed intervals (randomized across participants) within each of the following time periods: 8:00 am to 11:00 am; 11:00 am to 2:00 pm; 2:00 pm to 5:00 pm; 5:00 pm to 8:00 pm; and 8:00 pm to 11:00 pm. The duration of the electronic questionnaire administered after each signal was approximately 1 min 30 sec and each entry was time-stamped. All responses completed after a 45-minute delay were coded as missing data for that assessment. For reasons of confidentiality, responses entered by the participants were rendered inaccessible until each Psion was returned to the research center. The start day for the study was counterbalanced across the different workdays of the week, and all participants were contacted by telephone approximately halfway through the assessment period to monitor and encourage compliance. In the final phase of the study, the Psion was returned and its database was uploaded. Participants were then administered a structured diagnostic interview by a trained clinical psychologist. Following the interview, those who had been selected based on their attributional style completed the sociotropy and autonomy measure, and those selected based on the sociotropy and autonomy assessment completed the attributional style measure. A payment of 75 Euros (approximately \$100) was provided to participants at the end of the study.

Materials

Clinical and cognitive vulnerability measures

Depression syndrome

Depressive syndrome severity was assessed using the Center for Epidemiological Studies-Depression Scale (Radloff, 1977). This 20-item self-report questionnaire asks participants to indicate their experience of different depressive symptoms on a four-point scale over the previous week. The CES-D has been found to be internally consistent (alpha ranged from .84 to .90) and the French translation demonstrated alphas ranging from .85 in the general population to .90 in psychiatric samples (Führer & Rouillon, 1989). The present sample ($n = 179$) demonstrated an internal consistency for this instrument of $\alpha = .90$.

Trait anxiety

Trait anxiety was assessed using the trait version of the State-Trait Anxiety Inventory (Spielberger, 1983), which asked respondents to indicate how they 'generally feel' on a 4-point scale with respect to 20 different anxiety-related items. The STAI has been found to be reliable and internally consistent (alpha ranging from .86 to .95), and the French version has maintained its original psychometric properties (Bruchon-Schweitzer & Paulhan, 1993). The present sample ($n = 179$) demonstrated an internal consistency of $\alpha = .91$.

Cognitive vulnerabilities for depression

Attributional style was assessed by the Attributional Style Questionnaire-Extended (Alloy, Abramson, Metalsky, & Hartlage, 1988). The ASQ-E is a self-report questionnaire that asks

participants to rate the stability and globality of the causes of 12 hypothetical negative events, as well as to rate the importance of the event. The French validation of this instrument demonstrated satisfactory psychometric properties, with a Cronbach alpha of .78 for both stability and globality (Swendsen & Blatier, 1998). In the present screening sample ($n = 685$), stability and globality had satisfactory internal consistencies of .83 and .82, respectively. For the purposes of testing hypotheses concerning attributional style, and as commonly used (Abramson et al., 2002; Joiner & Metalsky, 1995) the generality index was computed by averaging all ratings of stability and globality across all 12 items.

Sociotropy and autonomy were measured using the Sociotropy Autonomy Scale (Beck, Epstein, Harrison, & Emery, 1983). This 60-item self-report questionnaire was designed to assess attitudes associated with the two dimensions using two 30-item subscales. The respondent indicates the percentage of time during which the item applies to him or her on a 5-point scale. The original SAS was translated and validated in French and demonstrated alpha coefficients similar to those obtained in the original instrument (Husky, Grondin, & Compagnone, 2004). In the screening sample ($n = 1027$), sociotropy and autonomy obtained Cronbach alphas of .87, and .78, respectively.

Substance use frequency

The frequency of substance use over the previous 30 days was assessed by a self-report questionnaire concerning 11 different psychoactive substances including tobacco, alcohol, cannabis, ecstasy, amphetamines, heroine, cocaine, LSD and other hallucinogens. For each one of these substances, respondents were asked to specify the frequency at which he or she had used the given substance during the past 30 days, with scores ranging from 1 (Never in the past 30 days) to 7 (Several times a day). For the purpose of the present investigation, a dichotomous variable was created to represent infrequent or frequent use (regardless of substance type) as noted in the procedure section.

Structured diagnostic interview

The MINI (Sheehan et al., 1998) is a brief structured screening interview similar to the SCID (Structured Clinical Interview for DSM-III diagnoses) and the CIDI (Composite International Diagnostic Interview) in design and developed to be used in non-clinical populations (Lecrubier et al., 1997). The reliability and validity of the MINI have been assessed in studies of psychiatric subjects in the US and in France (Sheehan, Lecrubier, Sheehan, Janavs, & Weiller, 1995), showing that the MINI diagnoses had high inter-rater and test-retest reliability. The modules administered included past and current major depression, dysthymic disorder, mania, anxiety disorders, and substance use disorders. Five individuals conducted the interviews. All were accredited clinical psychologists at the time of the study. All were blind to both the risk status of subjects as well as to their responses collected during the ESM phase of the study. The interviewers were trained by one of the psychologists in the Department of Psychology who had extensive prior training and experience using the MINI.

ESM repeated measures

Assessment of daily events

Participants were instructed to describe in a few words the event that affected them the most since the previous signal (covering the previous three hours, on average). The assessment of

the type of minor event was based on categories drawn from the Inventory of Small Life Events (Zautra, Guarnaccia, & Dohrenwend, 1986), and included the categories of family, work, education, health/illness, leisure, household, non-family social interactions, justice/crime, financial concerns, religion/spirituality, and transportation. Respondents were asked to select the category that best described the event experienced, or to use the 'other event' category should their event not be listed. Concerning the impact of events, participants were asked to rate each event on a 7-point Likert scale ranging from 1 (No negative impact) to 7 (Extremely negative impact). Daily stressors were defined as all events receiving a score of 2 or more on the negative impact variable. In order to examine the interaction of sociotropy and autonomy with congruent specific events, daily stressors in the 'Family' and the 'Non-Family' social interaction domains were combined into a single category labeled 'Interpersonal events'. Examples of such events include: 'Argument with sister,' and 'Boyfriend left for a week.' Similarly, daily stressors in the 'Education' and in the 'Work' categories were collapsed into a single category labeled 'Achievement events'. Examples in this category included: 'Work overload,' and 'Midterm results.'

Specific causal attributions

Participants were asked to identify the cause of the event, and to rate the stability and globality of its cause on 7-point scales. To rate stability, participants were asked to rate the extent to which the cause of the event would persist over time and generate similar events, ranging from 1 (Will not persist in time and cause similar events) to 7 (Will certainly persist in time and cause similar events). Globality of specific attributions was assessed asking participants whether the cause of the event affects only one area of their life or a diversity of areas, ranging from 1 (Just one area of my life) to 7 (All areas of my life). A generality of specific attributions score was computed by averaging stability and globality ratings for each given event.

Negative state affect

Depressive mood states were assessed in the electronic questionnaire by a 7-point Likert scale that asked participants to evaluate their mood at that moment, ranging from 1 (Not at all depressed) to 7 (Extremely depressed).

Overview of analyses

Means-as-outcomes and Intercept-and-slopes-as-outcomes analyses from the Hierarchical Linear Models program (Bryk & Raudenbush, 1992; Raudenbush, Bryk, Cheong, & Congdon, 2001) were used to test the main hypotheses of the theories as standard regression analyses are not able to simultaneously treat within-person and between-person variation in this hierarchical structure. As tests of the diathesis-stress component present in both cognitive theories necessitate interactions with stress, only events having an impact greater or equal to 2 were included in the models. HLM treats the multiple observations gathered for each participant as 'Level 1' data that are conceptualized as nested within individuals as 'Level 2.'

A 'means-as-outcomes' model was used to examine between-person differences in the average level of Specific Attributions. This model can be described at Level 1 by the following equation:

$$\text{Specific Attributions}_{ij} = \beta_{0j} + r_{ij} \quad (1)$$

where Specific Attributions_{*ij*} is the Specific Attributions score regarding a specific event at observation *i* for person *j*; the intercept β_{0j} is the individual's average Specific Attributions score; and r_{ij} is the error term associated with observation *i* for person *j*.

The intercept can be explained at level 2 by the following equation:

$$\begin{aligned} \beta_{0j} = & \gamma_{00} + \gamma_{01}(\text{Sex}_j) + \gamma_{02}(\text{Age}_j) + \gamma_{03}(\text{Attributional Style}_j) \\ & + \gamma_{04}(\text{Lifetime MDE}_j) + \gamma_{05}(\text{Substance Use}_j) + u_{0j} \end{aligned} \quad (2)$$

where γ_{00} is the overall intercept; γ_{01} is the main effect of sex on β_{0j} ; γ_{02} is the main effect of age on β_{0j} ; γ_{03} is the main effect Attributional Style on β_{0j} ; γ_{04} is the main effect of Lifetime MDE on β_{0j} ; γ_{05} is the main effect of Substance Use on β_{0j} ; and u_{0j} is the unique increment to the intercept associated with person *j*.

An 'intercepts-and-slopes-as-outcomes model' was performed to test the diathesis-stress components of each theory, one for the Hopelessness Theory, and another for the Beck's model. Depressed mood scores at level 1, in the case of the hopelessness model, can be described by the following equation:

$$\text{Mood}_{ij} = \beta_{0j} + \beta_{1j}(\text{Specific Attributions}_{ij}) + r_{ij} \quad (3)$$

where Mood_{ij} is the depressed mood score at observation *i* for person *j*; the intercept β_{0j} is the expected mood score for person *j* when the specific attributions scores is 0; the slope β_{1j} is the expected change in mood score for person *j* for an increase in the severity of specific attributions; Specific attributions_{*ij*} is the severity score of specific attributions at observation *i* for person *j*; and r_{ij} is the error term associated with observation *i* for person *j*.

The intercepts and slopes can be explained at level 2 by the following equations:

$$\begin{aligned} \beta_{0j} = & \gamma_{00} + \gamma_{01}(\text{Sex}_j) + \gamma_{02}(\text{Age}_j) + \gamma_{03}(\text{Attributional Style}_j) \\ & + \gamma_{04}(\text{Lifetime MDE}_j) + \gamma_{05}(\text{Substance Use}_j) + u_{0j} \end{aligned} \quad (4)$$

$$\begin{aligned} \beta_{1j} = & \gamma_{10} + \gamma_{11}(\text{Sex}_j) + \gamma_{12}(\text{Age}_j) + \gamma_{13}(\text{Attributional Style}_j) \\ & + \gamma_{14}(\text{Lifetime MDE}_j) + \gamma_{15}(\text{Substance Use}_j) + u_{1j} \end{aligned} \quad (5)$$

where γ_{00} is the overall intercept; γ_{01} is the main effect of sex on β_{0j} ; γ_{02} is the main effect of age on β_{0j} ; γ_{03} is the main effect Attributional Style on β_{0j} ; γ_{04} is the main effect of Lifetime MDE on β_{0j} ; γ_{05} is the main effect of Substance Use on β_{0j} ; and u_{0j} is the unique increment to the intercept associated with person *j*; and where γ_{10} is the overall main effect of specific attributions; γ_{11} is the cross level interaction term for sex and specific attributions; γ_{12} is the cross level interaction term for age and specific attributions; γ_{13} is the cross level interaction term for Attributional Style and specific attributions; γ_{14} is the cross level interaction term for Lifetime MDE and specific attributions; γ_{15} is the cross level interaction term for Substance Use and specific attributions; and u_{1j} is the unique increment to the slope associated with person *j*.

In the case of sociotropy and autonomy, in a similar equation to that described for the hopelessness theory was used. The equations are as follows.

$$\begin{aligned} \text{Mood}_{ij} = & \beta_{0j} + \beta_{1j}(\text{Negative Interpersonal Event}_{ij}) \\ & + \beta_{2j}(\text{Negative Achievement Event}_{ij}) + r_{ij} \end{aligned} \quad (6)$$

The intercepts and slopes can be explained at level 2 by the following equations:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Sex}_j) + \gamma_{02}(\text{Age}_j) + \gamma_{03}(\text{Sociotropy}_j) \\ + \gamma_{04}(\text{Autonomy}_j) + \gamma_{05}(\text{Lifetime MDE}_j) + \gamma_{06}(\text{Substance Use}_j) + u_{0j} \quad (7)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Sex}_j) + \gamma_{12}(\text{Age}_j) + \gamma_{13}(\text{Sociotropy}_j) \\ + \gamma_{14}(\text{Autonomy}_j) + \gamma_{15}(\text{Lifetime MDE}_j) + \gamma_{16}(\text{Substance Use}_j) + u_{1j} \quad (8)$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Sex}_j) + \gamma_{22}(\text{Age}_j) + \gamma_{23}(\text{Sociotropy}_j) \\ + \gamma_{24}(\text{Autonomy}_j) + \gamma_{25}(\text{Lifetime MDE}_j) + \gamma_{26}(\text{Substance Use}_j) + u_{2j} \quad (9)$$

In order to compare each model's predictive power, the percentage of depressed mood variance explained by both theories was calculated according to methods described by Bryk and Raudenbush (1992, pp. 65–70). Finally, the independence of each theory was examined by analyzing the concordance and colinearity of cognitive vulnerability scores assessed at screening with those of the alternative vulnerability assessed at the end of the study.

We conducted a power analysis using a standard regression analysis with five predictors. This analysis indicates that our statistical power is greater than .95 ($\alpha = 0.05$) to detect a change in depressed mood variance of $R^2 = 0.15$ (a medium effect size). This power estimate is based on the assumption of only one observation per person and thus can be considered an underestimate of the power provided by this high-risk and repeated-measures design.

Results

Characteristics of the sample and ESM compliance

Of the 187 participants who completed all phases of the study, eight were excluded from the sample for failing to complete at least 50% of the electronic interviews. These excluded individuals did not differ significantly from those who completed all phases concerning age, trait anxiety (STAI), depression (CES-D), attributional style, sociotropy or autonomy scores. The final sample of 179 individuals (68% women; mean age 19.5 years, $SD = 1.19$) did not differ on average from the initial sample ($n = 1712$) on any of the variables noted above. Descriptive statistics on the final sample are presented in Table 1. By design, the final sample did differ from the initial sample with respect to substance use frequency (52% vs. 34.7% for any substance, respectively). While women had substantially and significantly higher sociotropy scores ($t = -3.65$, $df = 97$, $p < 0.001$), their autonomy scores and their attributional style scores were not different from those of men. Concerning clinical variables, a substantial percentage of the sample (36%) met diagnostic criteria for a previous major depressive episode. Only a small portion was currently experiencing a major depressive episode (3%), and no participant met criteria for dysthymic disorder. In total, 57% of the sample met lifetime criteria for at least one additional form of mental disorder other than depression, notably substance abuse or dependence (31.8%).

When comparing high vs. low frequency substance users on several variables, we found that substance use status was not associated with higher CES-D depression scores, but it was associated with a higher rate of history of major depression ($X^2 = 4.001$, $df = 1$, $p < 0.05$). Those at high (vs. low) risk on the attributional style variable had significantly higher CES-D

Table 1 Means, standard deviations, and range of variables in the final sample

	Final participating sample		
	Mean	<i>SD</i>	Range
Screening variables			
Sociotropy ($n = 99$)	66.65	22.12	4–109
Autonomy ($n = 99$)	71.85	14.72	43–100
Attributional style ($n = 80$)	3.30	1.00	1.25–6
CES-D ($n = 179$)	16.62	9.81	1–45
STAI ($n = 179$)	44.66	10.73	24–73
ESM variables ^a			
Depressed mood	2.00	1.36	1–7
Negative impact of events	2.93	1.79	1–7
Generality of specific attributions	2.85	1.62	1–7

^aESM variable averages are computed across all valid assessments.

scores ($t = -2.727$, $df = 78$, $p < 0.01$). Attributional style risk status was, however, unrelated to major depression history. Similar analyses were conducted for high vs. low autonomy (regardless of sociotropy scores) and failed to indicate any difference in CES-D scores, or in depression history status. In the case of sociotropy, however, the results were similar to attributional style and indicated that those with high sociotropy scores (regardless of their level of autonomy) also had higher CES-D scores ($t = -3.827$, $df = 97$, $p < 0.001$), and with no difference in depression history status.

Relative to the ESM phase of the study, out of the 6265 possible entries (179 participants \times 35 assessments), 690 missing observations were obtained. On average, participants failed to respond to 3.85 assessments out of a maximum of 35. The final sample therefore generated a total of 5575 valid observations across diverse daily life contexts and time periods, of which 69.8% indicated the occurrence of a minor negative event. The ESM questionnaires were completed on average 3.74 minutes after the signal ($SD = 4.81$). Concerning the data distribution, work situations were cited as the most frequent type of daily negative event (16.1% of all stressors), followed by health/illness (15.2%), problems with extra-familial social relationships (15%), family relations (12.4%), transportation (7.2%), education (6.9%), leisure (6%), household (4.7%), financial problems (3.8%), religion/spirituality (0.5%) and justice/crime (0.3%). Stressors in the ‘Other events’ category represented 11.8% of all observations. The broad categories of negative interpersonal or achievement-related stressors represented 27.4% and 22.9% of all events, respectively.

Hopelessness theory and daily depressed mood

First, a ‘means-as-outcomes model’ was used to examine the main effects of attributional style on the severity of specific attributions to negative event causes (see Table 2, top). Consistent with the hypotheses, attributional style was a significant predictor of the severity of causal attributions assessed across diverse contexts of daily life ($\gamma_{03} = 0.274$, $t = 3.342$, $p < 0.01$). Lifetime major depression or recent substance use had no direct effect on the average severity of specific attributions (including when the analyses were conducted to examine the separate effects of alcohol, cannabis, or other substances), and their inclusion in the model did not alter the significant role of attributional style as a determinant of specific attributions.

An ‘intercept-and-slopes-as-outcomes’ model was then performed to examine depressed mood variance as a function of all variables included in the previous analysis (Table 2, bottom).

Table 2 Hopelessness theory and depressed mood in daily life

Fixed effect	Coefficient	SE	T-ratio
Means-as-outcomes model			
<i>Outcome variable: Specific attributions</i>			
Intercept, γ_{00}	3.187	0.211	15.125***
Sex, γ_{01}	-0.206	0.208	-0.990
Age, γ_{02}	-0.059	0.078	-0.753
Attributional style, γ_{03}	0.274	0.082	3.342**
Lifetime MDE, γ_{04}	0.081	0.193	0.421
Substance use, γ_{05}	-0.222	0.182	-1.225
Intercept and slopes-as-outcomes model			
<i>Outcome variable: Depressed mood</i>			
<i>For intercept, β_{00}</i>			
Intercept, γ_{00}	1.661	0.181	9.201***
Sex, γ_{01}	0.573	0.164	3.490**
Age, γ_{02}	0.143	0.085	1.692
Attributional style, γ_{03}	0.213	0.068	3.141**
Lifetime MDE, γ_{04}	-0.057	0.158	-0.358
Substance use, γ_{05}	0.220	0.155	1.420
<i>For specific attributions slope, β_{01}</i>			
Intercept, γ_{10}	0.147	0.066	2.238*
Sex, γ_{11}	-0.020	0.064	-0.307
Age, γ_{12}	0.014	0.029	0.477
Attributional style, γ_{13}	0.034	0.022	1.541
Lifetime MDE, γ_{14}	0.052	0.057	0.911
Substance use, γ_{15}	0.049	0.056	0.888

* $p < .05$. ** $p < 0.01$. *** $p < .001$.

As hypothesized, the severity of specific attributions in daily life explained significant increases in depressed mood, $\gamma_{10} = 0.147$, $t = 2.238$, $p < 0.05$. These effects remained uninfluenced by between-subject variance in lifetime major depression or substance use frequency. It is also notable that attributional style was not associated with changes in the average specific attribution-depressed mood association (or average within-person slope). By contrast, the results presented in Table 2 indicate that in addition to mediation through specific attributions, attributional style also had a direct influence on depressed mood severity, $\gamma_{03} = 0.213$, $t = 3.141$, $p < 0.01$.

Sociotropy-autonomy and daily depressed mood

A similar ‘intercept-and-slopes-as-outcomes model’ was conducted to examine the roles of sociotropy and autonomy (Table 3). As would be expected, these analyses confirmed that depressed mood increased in the context of both negative interpersonal events, $\gamma_{10} = 0.616$, $t = 2.318$, $p < 0.05$, and achievement events, $\gamma_{20} = 0.190$, $t = 2.160$, $p < 0.05$. These analyses demonstrated, as hypothesized, that greater sociotropy scores were associated with increases in depressed mood following the occurrence of negative interpersonal events, $\gamma_{13} = 0.014$, $t = 3.369$, $p < 0.001$. Consistent also with the notion of specificity, no effect was found when sociotropy was analyzed in interaction with achievement-related events, $\gamma_{23} = 0.001$, $t = 0.274$, $p > 0.05$. Adjusting for lifetime major depression or substance use frequency again had no effect on the significant role of sociotropy following interpersonal stressors, although past depression was associated with greater depressed mood in this subsample, $\gamma_{05} = 0.420$, $t = 2.490$,

Table 3 Sociotropy-autonomy and depressed mood in daily life

Fixed effect	Coefficient	SE	T-ratio
Intercept and slopes-as-outcomes model			
Intercept, γ_{00}	1.347	0.127	10.590***
Sex, γ_{01}	0.344	0.138	2.488*
Age, γ_{02}	-0.091	0.046	-1.991*
Sociotropy, γ_{03}	0.004	0.003	1.328
Autonomy, γ_{04}	-0.003	0.006	-0.577
Lifetime MDE, γ_{05}	0.420	0.169	2.490*
Substance use, γ_{06}	0.177	0.151	1.172
Interpersonal event-depressed mood slope			
Intercept, γ_{10}	0.616	0.266	2.318*
Sex, γ_{11}	-0.015	0.250	-0.058
Age, γ_{12}	0.005	0.069	0.079
Sociotropy, γ_{13}	0.014	0.004	3.369***
Autonomy, γ_{14}	0.002	0.006	0.282
Lifetime MDE, γ_{15}	0.064	0.159	0.405
Substance use, γ_{16}	0.042	0.163	0.262
Achievement event-depressed mood slope			
Intercept, γ_{20}	0.190	0.088	2.160*
Sex, γ_{21}	0.011	0.127	0.084
Age, γ_{22}	-0.001	0.049	-0.013
Sociotropy, γ_{23}	0.001	0.003	0.274
Autonomy, γ_{24}	-0.006	0.005	-1.316
Lifetime MDE, γ_{25}	0.148	0.130	1.145
Substance use, γ_{26}	0.020	0.136	0.144

* $p < .05$. *** $p < .001$.

$p < 0.05$. In contrast for the support found for sociotropy, Table 3 demonstrates that autonomy scores did not increase the impact of achievement events on depressed mood ($\gamma_{24} = -0.006$, $t = -1.316$, $p > .05$). The inclusion of lifetime major depression or substance use frequency (including by specific substance group) did not substantially alter the findings for autonomy.

Comparing the two theories

In order to compare the explanatory power of each theory, we first examined the percentage of variance in depressed mood explained by the different cognitive vulnerabilities. These analyses included discrete attributions or specific events in the model as previously noted. Attributional style accounted for 8.9% of the variance in depressed mood following the occurrence of any negative event. Sociotropy explained a greater percentage of variance in depressed mood (16.7%), but specifically following interpersonal events. As would be expected by previous findings, autonomy explained only 1.9% of the variance following achievement-related stressors. In order to provide a more equal comparison relative to depressed mood variance in daily life, sociotropy and autonomy were also examined relative to depressed mood following any negative event. These analyses confirm that despite the larger magnitude of variance explained for depressed mood following negative interpersonal stressors, the overall variance in depressed mood following negative events explained by sociotropy was 4.7%, and 0.7% for autonomy. Finally, an examination of concordance and colinearity of the different vulnerabilities was achieved by completing the initial screening vulnerability measure with scores from the alternative vulnerability acquired at the

end of the study. These analyses demonstrated that 50% of the participants identified at screening as being at high-risk for the trait sociotropy would have met criteria for high-risk attributional style, and conversely, 29% of the high risk attributional group would have met high risk status for sociotropy. An analysis of the independence of these constructs was conducted by including the three cognitive vulnerability scores within the same model, whether assessed at screening or at the end of the study. All previously-reported significant findings remained significant in these analyses. Finally, no major differences were observed when HLM analyses included a weighting variable to compensate for differences in the number of observations available for each person.

Discussion

The primary objective of this investigation was to compare two influential cognitive theories for their capacity to explain depressed mood in daily life. Three specific characteristics of its design were intended to address current questions in this domain. First, such comparisons are important not only from a clinical perspective as healthcare moves increasingly toward empirically-supported interventions, but also for understanding general mood experience and the potential overlap of diatheses described by different theories. Second, all tests of the theories' hypotheses controlled for substance use and depression history, variables which have not been systematically included in investigations of cognitive theory. The integration of substance use is important in light of evidence that it is associated with greater depressed mood and that it is often confounded with cognitive vulnerabilities. The inclusion of depression history in the statistical models also clarifies whether the cognitive mechanisms under study are similar in persons with and without a history of this disorder, an issue of particular importance for the generalization of cognitive theory across normal and clinical samples. Finally, the application of ambulatory monitoring techniques allowed for the examination of components of each theory for which limited empirical support is available, notably concerning the role of specific cognitions and minor daily events. The use of ESM therefore responds directly to the call for methods capable of providing frequent assessments over time and descriptions of moment-to-moment changes in the variables under study (Alloy, Kelly, Mineka, & Clements, 1990; Santor, 2003). While a few studies have been conducted using an ambulatory data collection approach, the use of state-of-the-art computerized assessments represents an advance through its capacity to verify that observations are collected at desired moments and for eliminating biases associated with retrospective reporting.

Concerning the hopelessness theory, support was found for most hypotheses presented by Abramson and colleagues (1989). Attributional style was found to predict the severity of specific attributions to the diverse negative events experienced in daily life, and these momentary cognitions in turn explained variance in depressed mood. These findings are consistent with previous studies that have tested each of these components in a single context (Metalsky et al., 1987, 1993) or relative to diverse situations experienced in daily life (Swendsen, 1997b, 1998). Although the observation that attributional style was not associated with changes in the within-person slope of specific attributions and depressed mood is not in itself inconsistent the theory, this cognitive vulnerability was associated directly with depressed mood severity, independent of evaluations concerning the stability and globality of negative event causes. This finding supports the conclusion that the effects of attributional style are partially, and not fully, mediated through specific attributions. In interpreting this finding with regards to the hopelessness theory, it is important to keep in mind that we focused on attributional style as opposed to all cognitive styles, thereby providing a partial test of the Hopelessness Theory,

although high intercorrelations have been found between the three inference styles described by this perspective (Abela & Seligman, 2000).

The findings for Beck's sociotropy-autonomy model represent the first test of this theory using ambulatory monitoring, and therefore provide novel insight into how these concepts may explain depressed mood in daily life. The results confirm that while the sample as a whole experienced increases in depressed mood when a negative social event was experienced, this association was much stronger for persons high in the personality characteristic of sociotropy. Furthermore, sociotropy did not have a direct effect on depressed mood in general, but did after the occurrence of a negative social event (no direct association between this characteristic and depressed mood was observed). As no interaction of sociotropy with achievement-related stressors was observed, its effects were specific to social events as hypothesized. Contrary to expectations and to the results of a limited number of studies (Brown, Juster, Heimberg, & Winning, 1998; Clark & Oates, 1995), no support was found for autonomy as a vulnerability factor for depressed mood following negative achievement-related events. This observation may be considered confirmation, through a novel method, of other previous nonsignificant or inconsistent findings regarding this concept (Clark et al., 1992; Robins & Block, 1988; Rude & Burnham, 1993).

The examination of different theories within the same investigation also allowed for a comparison of their respective explanatory power, as well as for an evaluation of the independence of their respective constructs. In the initial analyses, sociotropy explained twice as much variance as attributional style, but under more specific conditions of stress than which the hopelessness theory was tested. However, when both theories were compared relative to negative events of any type, the hopelessness theory explained a moderate but greater percentage of mood variance than sociotropy and therefore appears to be more broadly applicable as a model of overall depressed mood experience. The value of both attributional style and sociotropy were nonetheless supported by their independent contributions, as demonstrated by their weak concordance and continued statistical significance when analyzed jointly. From a clinical point of view, the independence of both theories indicates a need for a diversity of cognitive interventions that target both vulnerabilities. While the theories were not tested within the same individuals, there were no differences between the groups selected on either of the two models on all demographic and clinical variables.

A final comment is merited concerning two important covariates used in the analyses. Although cognitive vulnerabilities have been shown to be trait-like and stable over time for a given individual (Moore & Blackburn, 1996), it remains possible that their mechanisms of action may be qualitatively different across individuals. In particular, the comparability of clinical and nonclinical samples has been widely debated (Coyne, 1994; Enns, Cox, & Borger, 2001; Solomon, Haaga, & Arnow, 2001; Vredenburg, Flett, & Krames, 1993), and little information is available for directly assessing the role the cognitive mechanisms across these samples. In light of this issue, the present study examined the role of cognitive vulnerabilities in never-depressed individuals and in those having previously experienced a depressive episode. No differences were found in any analysis, thereby lending support to the continuity hypothesis for understanding certain psychological mechanisms implicated in the severity of depression symptoms. In addition, we re-ran all analyses controlling for CES-D scores. The results indicated that, while CES-D scores were significantly associated with the average level of depressed mood reported in the ESM assessment as expected, all the findings presented regarding the cognitive vulnerabilities still held true when adjusting for depressive symptomatology. A related issue concerns the potential role of substance use as a determinant of depressed mood, especially in light of evidence from clinical samples that depression may often result from substance abuse (Brown & Schuckit, 1988; Davidson, 1995; Swendsen & Merikangas, 2000; Swendsen et al., 2000) or that

heavy substance use may commonly co-occur with cognitive diatheses for depression (Goldstein et al., 2000). Similar to depression history, the results for both theories did not vary significantly when adjusting for frequency or type of substance use. These findings lend support to the conclusion that cognitive diatheses for depression, as well as specific attributions and events, may be largely independent of clinical or behavioral variables that commonly co-occur in vulnerable individuals. Finally, in order to refine the applicability statement of cognitive vulnerabilities to those with or without histories of depression as well as those with high or low substance use, we re-ran the presented models while adding the relevant interaction term (i.e. the interaction of attributional style by CES-D scores, by depression history, or by substance use status, as well as interactions of sociotropy and autonomy with these same variables). No significant interactions were observed, which supports the conclusion that the cognitive vulnerabilities have a similar effect in those with a history of major depression, in those who are actively using substances, and in those with higher CES-D scores.

These findings should be interpreted in light of several conceptual and methodological characteristics of this investigation. The sample is composed of young French adults identified through university settings. It is important to note that nearly 80% of French high school graduates pursue higher education (Lixi, 2003) and that no academic selection criteria exist for admission into the first year of university studies. Although the inclusion only of freshman students therefore increases generalizability to the broader population, the young age of the sample should be considered in drawing inferences to other populations. Second, although the analyses controlled for gender, they did not provide systematic comparisons between men and women in regard to the hypotheses being tested. The findings did indicate that the average level of depressed mood was significantly higher in women as compared to men, but that gender was not related to the severity of specific attributions or to the effect of specific cognitions and events on depressed mood. It would be useful in subsequent investigations to examine how men and women experience depressed mood in daily life, and whether the triggers that are associated with elevations in negative mood are similar for both. Concerning other aspects of the methodology, it is also possible that the use of global scores for sociotropy and autonomy instead of considering subfactors of each dimension (Bieling, Beck, & Brown, 2000), or the use of a different instrument for measuring the concept of autonomy (Burke & Haslam, 2001), could have resulted in different findings. The hopelessness theory also describes a specific vulnerability hypothesis whereby the locus of vulnerability depends on either interpersonal or achievement domain (Abramson, Alloy, & Hogan, 1997). This aspect of hopelessness theory was not tested in the present study and its comparability to Beck's formulation remains to be fully investigated. Concerning ESM, and despite the agreement between self-report and interview assessment techniques for the majority of personal stressors (Lewinshon, Rohde, & Gau, 2003), these assessments relied on the perceptions of participants and therefore cannot be considered as objective measures of minor life events. The use of repeated ambulatory assessments renders detailed questions of stress experience less feasible, but one solution for future investigations may involve the collection of additional information concerning events in a subsequent interview format in order to provide more precise details about information gathered through ESM. Finally, an important issue concerns the categorization of events into 'interpersonal' and 'achievement' domains. Our categories were based on the subject's appraisal of their nature, and we did not recode the events according to the descriptions they provided to the open-ended question. It remains possible that an event for instance 'Midterms results' may be reported as an event for the interpersonal consequences that the midterm results may have. There has been considerable debate over the notion of a dichotomy between the two domains (Blatt & Zuroff, 1992), and over how each person construes an event that has occurred given their personality characteristics and cognitive style (Beck, 1967). The reliance on the subject's appraisal may, therefore, require attention when interpreting the

results. This novel technique, nonetheless, provides rare information concerning the events and cognitions as they naturally occur in participants' lives, and thereby should provide clearer information concerning the temporal sequence of psychological variables implicated in the etiology of depression and depressed moods.

References

- Abela, J. R. Z., & Seligman, M. E. P. (2000). The Hopelessness Theory of depression: A test of the diathesis-stress component in the interpersonal and achievement domains. *Cognitive Behaviour Therapy*, *24*(4), 361–378.
- Abramson, L. Y., Alloy, L. B., Hankin, B. L., Haefffel, G. L., MacCoon, D. G., & Gibb, B. E. (2002). Cognitive vulnerability-stress models of depression in a self-regulatory and psychobiological context. In C. L. Hammen & I. H. Gotlib (Eds.), *Handbook of depression* (pp. 268–294). New York: Guilford Press.
- Abramson, L. Y., Alloy, L. B., & Hogan, M. E. (1997). Cognitive/Personality subtypes of depression: Theories in search of disorders. *Cognitive Therapy and Research*, *21*(3), 247–265.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, *96*, 358–372.
- Alloy, L. B., Abramson, L. Y., Hogan, M. E., Whitehouse, W. G., Rose, D. T., Robinson, M. S., et al. (2000). The Temple-Wisconsin Cognitive Vulnerability to Depression Project: Lifetime history of axis I psychopathology in individuals at high and low cognitive risk for depression. *Journal of Abnormal Psychology*, *109*(3), 403–418.
- Alloy, L. B., Abramson, L. Y., Metalsky, G. I., & Hartlage, S. (1988). The hopelessness theory of depression: Attributional aspects. *British Journal of Clinical Psychology*, *27*(1), 5–21.
- Alloy, L. B., Kelly, K., Mineka, S., & Clements, C. (1990). Comorbidity of anxiety and depressive disorders: A helplessness-hopelessness perspective. In J. D. Maser & C. R. Cloninger (Eds.), *Comorbidity of mood and anxiety disorders* (pp. 449–543). Washington, DC: American Psychiatric Press.
- Beck, A. T. (1967). *Depression: Clinical, experimental and theoretical aspects*. New York: Harper & Row.
- Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. Clayton & J. Barrett (Eds.), *Treatment of depression: Old controversies and new approaches* (pp. 265–290). New York: Raven Press.
- Beck, A. T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy: An International Quarterly*, *1*, 5–37.
- Beck, A. T., Epstein, N., Harrison, R. P., & Emery, G. (1983). Development of the Sociotropy-Autonomy Scale: A measure of personality factors in psychopathology. *Unpublished Manuscript*.
- Bieling, P. J., Beck, A. T., & Brown, G. K. (2000). The Sociotropy-Autonomy Scale: Structure and implications. *Cognitive Therapy and Research*, *24*(6), 763–780.
- Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review*, *12*, 527–562.
- Brown, E. J., Juster, H. R., Heimberg, R. G., & Winning, C. D. (1998). Stressful life events and personality styles: Relation to impairment and treatment outcome in patients with social phobia. *Journal of Anxiety Disorders*, *12*(8), 233–251.
- Brown, S. A., & Schuckit, M. A. (1988). Changes in depression among abstinent alcoholics. *Journal of Studies on Alcohol*, *49*, 412–417.
- Bruchon-Schweitzer, M., & Paulhan, I. (1993). *Manuel de l'inventaire d'anxiété état-trait forme Y (STAI-Y)*. Paris: Edition du Centre de Psychologie Appliquée.
- Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Newbury Park, CA: Sage.
- Burke, A., & Haslam, N. (2001). Relations between personality and depressive symptoms: A multimeasure study of dependency, autonomy, and related constructs. *Journal of Clinical Psychology*, *57*(7), 953–961.
- Clark, A. C., & Oates, T. (1995). Daily hassles, major and minor life events, and their interaction with sociotropy and autonomy. *Behaviour Research and Therapy*, *7*, 819–823.
- Clark, D. A., Beck, A. T., & Brown, G. K. (1992). Sociotropy, autonomy, and life event perceptions in dysphoric and non-dysphoric individuals. *Cognitive Therapy and research*, *16*, 635–652.
- Coyne, J. C. (1994). Self-reported distress: Analog or Ersatz depression? *Psychological Bulletin*, *116*(1), 29–45.
- Coyne, J. C., & Whiffen, V. E. (1995). Issues in personality as diathesis for depression: The case of sociotropy/dependency and autonomy/self-criticism. *Psychological Bulletin*, *118*, 358–378.
- Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the Experience-Sampling Method. *Journal of Nervous and Mental Disease*, *175*(9), 526–536.
- Davidson, K. M. (1995). Diagnosis of depression in alcohol dependence: Changes in prevalence with drinking status. *British Journal of Psychiatry*, *166*, 199–204.

- Depue, R. A., Slater, J. F., Wolfstetter-Kausch, H., Klein, D., Goplerud, E., & Farr, D. (1981). A behavioral paradigm for identifying persons at risk for bipolar depressive disorder: A conceptual framework and five validation studies. *Journal of Abnormal Psychology, 90*(5), 381–437.
- deVries, M., Dijkman-Caes, C., & Delespaul, P. (1990). The sampling of experience: A method of measuring the co-occurrence of anxiety and depression in daily life. In J. D. Maser & C. R. Cloninger (Eds.), *Comorbidity of mood and anxiety disorders* (pp. 707–726). Washington, DC: American Psychiatric Press.
- Enns, M. W., Cox, B. J., & Borger, S. C. (2001). Correlates of analogue and clinical depression: A further test of the phenomenological continuity hypothesis. *Journal of Affective Disorders, 66*(2–3), 175–183.
- Flett, G. L., Vredenburg, K., & Krames, L. (1997). The continuity of depression in clinical and nonclinical samples. *Psychological Bulletin, 121*(3), 395–416.
- Führer, R., & Rouillon, F. (1989). La version française de l'échelle CES-D. *Psychiatrie et Psychobiologie, 4*, 163–166.
- Goldstein, B., Abela, J. R. Z., Buchanan, G. M., & Seligman, M. E. P. (2000). Attributional style and life events: A diathesis-stress theory of alcohol consumption. *Psychological Reports, 87*, 949–955.
- Gotlib, I. H., Lewinsohn, P. M., Seeley, J. R., Rohde, P., & Redner, J. E. (1993). Negative cognitions and attributional style in depressed adolescents: An examination of stability and specificity. *Journal of Abnormal Psychology, 102*, 607–615.
- Hammen, C. L., Marks, T., Mayol, A., & de Mayo, R. (1985). Depressive self-schemas, life stress, and vulnerability to depression. *Journal of Abnormal Psychology, 94*, 308–319.
- Hankin, B. L., Fraley, R. C., & Abela, J. R. Z. (2005). Daily depression and cognitions about stress: Evidence for a traitlike depressogenic cognitive style and the prediction of depressive symptoms in a prospective daily diary study. *Journal of Personality and Social Psychology, 88*, 673–685.
- Husky, M. M., Grondin, O. S., & Compagnone, P. (2004). Validation de la version française du questionnaire de sociotropie-autonomie de Beck et al. (1983). *Canadian Journal of Psychiatry, 49*, 851–858.
- Joiner, T. E. J., & Metalsky, G. I. (1995). A prospective test of an integrative interpersonal theory of depression: A naturalistic study of college students. *Journal of Personality and Social Psychology, 69*, 778–788.
- Joiner, T. E. J., & Rudd, M. D. (1996). Toward a categorization of depression-related psychological constructs. *Cognitive Therapy and Research, 20*, 51–68.
- Kessler, R. C., Crum, R. M., Warner, L. A., Nelson, C. B., Schulenberg, J., & Anthony, J. C. (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the national comorbidity survey. *Archives of General Psychiatry, 54*(4), 313–321.
- Lakey, B., & Ross, L. T. (1994). Dependency and self-criticism as moderators of interpersonal and achievement stress: The role of initial dysphoria. *Cognitive Therapy and Research, 18*(6), 581–599.
- Lewinshon, P. M., Rohde, P., & Gau, J. M. (2003). Comparability of self-report checklists and interview data in the assessment of stressful life events in young adults. *Psychological Reports, 93*(2), 459–471.
- Lixi, C. (2003). *The number of students entering higher education: Observations from 2002 and predictions for 2003 and 2004 (French Language)*. Paris, France: Minister of Youth, Education, and Research.
- Mazure, C. M., Bruce, M. L., Maciejewski, P. K., & Jacobs, S. C. (2000). Adverse life events and cognitive-personality characteristics in the prediction of major depression and antidepressant response. *American Journal of Psychiatry, 157*(6), 896–903.
- Mazure, C. M., Maciejewski, P. K., Jacobs, S. C., & Bruce, M. L. (2002). Stressful life events interacting with cognitive/personality styles to predict late-onset major depression. *American Journal of Geriatric Psychiatry, 10*(3), 297–304.
- Merikangas, K. R., Mehta, R. L., Molnar, B. E., Walters, E. E., Swendsen, J. D., Aguilar-Gaziola, S., Bijl, R., Borges, G., Caraveo-Anduaga, J. J., Dewit, D. J., Kolody, B., Vega, W. A., Wittchen, H.-U., Kessler, R. C. (1998). Comorbidity of substance use disorders with mood and anxiety disorders: Results of the international consortium in psychiatric epidemiology. *Addictive Behaviors, 23*(6), 893–907.
- Metalsky, G. I., Halberstadt, L. J., & Abramson, L. Y. (1987). Vulnerability to depressive mood reactions: Toward a more powerful test of the diathesis-stress and causal mediation components of the reformulated theory of depression. *Journal of Personality and Social Psychology, 52*(2), 386–393.
- Metalsky, G. I., & Joiner, T. E. J. (1992). A prospective test of the diathesis-stress and causal mediation components of the hopelessness theory of depression. *Journal of Personality and Social Psychology, 63*, 667–675.
- Metalsky, G. I., Joiner, T. E. J., Hardin, T. S., & Abramson, L. Y. (1993). Depressive reactions to failure in a naturalistic setting: A test of the hopelessness and self-esteem theories of depression. *Journal of Abnormal Psychology, 102*, 101–109.
- Moore, R. G., & Blackburn, I. M. (1996). The stability of sociotropy and autonomy in depressed patients undergoing treatment. *Cognitive Therapy and Research, 20*(1), 69–80.
- Nietzel, M. T., & Harris, M. J. (1990). Relationship of dependency and achievement/autonomy to depression. *Clinical Psychology Review, 10*, 279–297.

- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385–401.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., & Congdon, R. T. (2001). *HLM 5 Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International Inc.
- Robins, C. J. (1990). Congruence of personality and life events in depression. *Journal of Abnormal Psychology, 99*(4), 393–397.
- Robins, C. J., & Block, P. (1988). Personal vulnerability, life events, and depressive symptoms: A test of a specific interactional model. *Journal of Personality and Social Psychology, 54*(5), 847–852.
- Robson, P. (1989). Psychological profile of social drinkers. *British Journal of Addiction, 84*, 1329–1336.
- Rude, S. S., & Burnham, B. L. (1993). Do interpersonal and achievement vulnerabilities interact with congruent events to predict depression? Comparison of DEQ, SAS, DAS, and combined scales. *Cognitive Therapy and Research, 17*, 531–548.
- Ruscio, J. R., & Ruscio, A. M. (2000). Informing the continuity controversy: A taxometric analysis of depression. *Journal of Abnormal Psychology, 109*(3), 473–487.
- Santor, D. A. (2003). Proximal effects of dependency and self-criticism: Conceptual and methodological challenges for depressive symptomatology. *Cognitive Behaviour Therapy, 32*, 49–67.
- Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Janavs, J., & Weiller, E. (1995). Comparison of the Mini-International Neuropsychiatric Interview (MINI) with the SCID-P and the CIDI: A validity study. *Psychopharmacological Bulletin, 31*, 616.
- Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Amorim, P., Janavs, J., Weiller, E., Hergueta, T., Baker, R., Dunbar, G. C. (1998). The Mini-International Neuropsychiatric Interview (MINI): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry, 59*(20), 22–33.
- Solomon, A., Haaga, D. A. F., & Arnow, B. A. (2001). Is clinical depression distinct from subthreshold depressive symptoms? A review of the continuity issue in depression research. *Journal of Nervous and Mental Disease, 189*, 498–506.
- Spangler, D. L., Simons, A. D., Monroe, S. M., & Thase, M. E. (1997). Comparison of cognitive models of depression: Relationships between cognitive constructs and cognitive diathesis-stress match. *Journal of Abnormal Psychology, 106*(3), 395–403.
- Spielberger, C. D. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Stader, S. R., & Hokanson, J. E. (1998). Psychosocial antecedents of depressive symptoms: An evaluation using daily experiences methodology. *Journal of Abnormal Psychology, 107*(1), 17–26.
- Swendsen, J. D. (1997a). Anxiety, depression, and their comorbidity: An experience sampling test of the helplessness-hopelessness theory. *Cognitive Therapy and Research, 21*, 97–114.
- Swendsen, J. D. (1997b). The Helplessness-Hopelessness theory and daily mood experience: An idiographic and cross-situational perspective. *Journal of Personality and Social Psychology, 74*(5), 1398–1408.
- Swendsen, J. D. (1998). The experience of anxious and depressed moods in daily life: An idiographic and cross-situational test of the Helplessness-Hopelessness theory. *Journal of Personality and Social Psychology, 74*, 1398–1408.
- Swendsen, J. D., & Blatier, C. M. (1998). Styles cognitifs et attributionnels dépressogènes: Validation d'un questionnaire traduit en langue française. *Revue Internationale de Psychologie Sociale, 1*, 89–97.
- Swendsen, J. D., & Compagnone, P. (2000). The expression of cognitive vulnerabilities for depression in daily life: A French-American study. *European Psychiatry, 15*(1), 22–28.
- Swendsen, J. D., & Merikangas, K. R. (2000). The comorbidity of depression and substance use disorders. *Clinical Psychology Review, 20*(2), 173–189.
- Swendsen, J. D., Merikangas, K. R., Canino, G. J., Kessler, R. C., Rubio-Stipec, M., & Angst, J. (1998). The comorbidity of alcoholism with anxiety and depressive disorders in four geographic communities. *Comprehensive Psychiatry, 39*(4), 176–184.
- Swendsen, J. D., Tennen, H., Carney, M. A., Affleck, G., Willard, A., & Hromi, A. (2000). Mood and alcohol consumption: An experience sampling test of the self-medication hypothesis. *Journal of Abnormal Psychology, 109*(2), 198–204.
- Vredenburg, K., Flett, G. L., & Krames, L. (1993). Analogue versus clinical depression: A critical reappraisal. *Psychological Bulletin, 113*, 327–344.
- Waikar, S. V., & Craske, M. G. (1997). Cognitive correlates of anxious and depressive symptomatology: An examination of the helplessness/hopelessness model. *Journal of Anxiety Disorders, 11*(1), 1–16.
- Zautra, A. J., Guarnaccia, C. A., & Dohrenwend, B. (1986). Measuring small events. *American Journal of Community Psychology, 14*, 629–655.