Excessive Reassurance Seeking, Hassles, and Depressive Symptoms in Children of Affectively Ill Parents: A Multiwave Longitudinal Study

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The current study examined whether excessive reassurance seeking serves as a vulnerability factor to depression in a sample of high-risk youth using a multiwave longitudinal design. At Time 1, 140 children (aged 6–14) of affectively disordered parents completed measures assessing reassurance seeking and depressive symptoms. In addition, every 6 weeks during the following year, children and parents completed measures assessing depressive symptoms and the occurrence of hassles. In line with hypotheses, the results of contemporaneous analyses indicated that children with high levels of reassurance seeking reported greater elevations in depressive symptoms following elevations in either hassles or parental depressive symptoms than children with low levels. At the same time, the results of time-lagged analyses indicated that both these relationships were moderated by age with excessive reassurance seeking being associated with greater elevations in depressive symptoms following elevations in either hassles or parental depressive symptoms in older but not younger children.

KEY WORDS: excessive reassurance seeking; depression; contagious depression; high-risk.

Coyne's (1976) interpersonal theory of depression posits that depressed individuals perpetuate a cycle of negative interpersonal exchanges that triggers increases in their depressive symptoms. More specifically, Coyne proposes that initially nondepressed but mildly dysphoric individuals seek reassurance from others in order to alleviate their doubts about their own worth and lovability. Others initially respond with genuine concern and support. However, the individual perceives this initial support as inadequate and consequently escalates his or her symptoms in an effort to secure more reassurance and acceptance. Although others continue to provide support, they begin

to experience feelings of irritation and guilt, leading to a separation between the content and affective quality of their reassuring statements. This discrepancy increases the individual's fear of rejection, which in turn leads to a further escalation of symptoms in order to restore the feeling of security. This downward spiral continues until either others withdraw from the individual or the individual seeks treatment.

Joiner and colleagues posit that individual differences exist in the tendency to seek reassurance from others (e.g., Joiner, Metalsky, Katz, & Beach, 1999a, p. 270). Excessive reassurance seeking is defined as "a relatively stable tendency to excessively and persistently seek assurances from others that one is loveable and worthy, regardless of whether such assurances have already been provided." According to Joiner and colleagues (e.g., Joiner, Metalsky et al., 1999a, p. 270), excessive reassurance seeking constitutes the central feature of Coyne's (1976) theory, as it serves as the vehicle through which the "distress and desperation of depression is transmitted

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from one person to another," triggering negative outcomes for all.

Although Coyne's (1976) model was originally intended to explain how the transactional relationship between reassurance seeking and depressive symptoms serves to maintain pre-existing depressive symptoms, Joiner and colleagues (e.g., Joiner, Katz, & Lew, 1999) have proposed an extension of Coyne's model in which they conceptualize "excessive reassurance seeking" as a maladaptive interpersonal style that serves as a vulnerability factor to depression. More specifically, Van Orden, Wingate, Gordon, and Joiner (2005, p. 149) posit that excessive reassurance seeking behaviors are driven by highly accessible, maladaptive, cognitive–interpersonal scripts (e.g., "If I feel bad, then I ask my parents if they love me") that become activated when individuals experience concerns about their self-worth and/or future. As such concerns are likely to be activated following the occurrence of stressors, Joiner and colleagues conceptualize the relationship between excessive reassurance seeking and depressive symptoms within a diathesis–stress framework. In other words, excessive reassurance seeking is hypothesized to serve as a vulnerability factor (e.g., diathesis) that interacts with the occurrence of stressors to predict increases in depressive symptoms.

Joiner (1994a) also posits that excessive reassurance seeking is likely to play a role in the "contagion" of depression. In a meta-analytic review of 36 studies examining contagious depression, Joiner and Katz (1999) concluded that findings provided robust support for the hypothesis that depressive symptoms in one person predict the development of depressive symptoms in others in his or her environment. Joiner posited that individuals who possess high levels of reassurance seeking are likely to be more susceptible to "contagious depression" than are their low reassurance seeking counterparts. More specifically, Joiner hypothesizes that the experience of depressive symptoms is likely to lead individuals to withdraw from their social environment. As individuals who possess excessive reassurance seeking tendencies rely on significant others to assuage their concerns about their own degree of lovability and others' degree of dependability, they are likely to experience increases in depressive symptoms when significant others become less available to assuage such doubts.

Research with adult populations has generated support for many of the hypotheses derived from Joiner and colleagues' extension of Coyne's (1976) interpersonal theory. First, reassurance seeking has been demonstrated to be a valid, replicable, and cohesive construct, distinct from other interpersonal variables such as general dependency, doubt in others' sincerity, and dependence on close others (Davila, 2001; Joiner & Metalsky, 2001). Second, individuals who exhibit high levels of reassurance seeking have been shown to exhibit higher levels of depressive symptoms than individuals who exhibit low levels (e.g., Joiner, 1994a; Joiner & Schmidt, 1998). Third, excessive reassurance seeking has been shown to interact with stressors to predict increases in depressive symptoms (e.g., Katz, Beach, & Joiner, 1999; Joiner & Metalsky, 2001). Finally, reassurance seeking has been found to play a role in the contagion of depression, with individuals who exhibit high levels of reassurance seeking being more likely than their low reassurance seeking counterparts to develop depressive symptoms when interacting with a depressed partner or roommate (Joiner, 1994a; Katz et al., 1999).

Far less research has examined the relationship between excessive reassurance seeking and depressive symptoms in children. Preliminary research has shown that excessive reassurance seeking is associated with depressive symptoms (Joiner, 1999) and depressive disorders (Joiner, Metalsky, Gencoz, & Gencoz, 2001) among youth psychiatric inpatients. Although such findings are consistent with hypotheses from Joiner and colleagues' extension of Coyne's interpersonal theory of depression (Joiner, 1994a; Joiner et al., 1999; Joiner, Metalsky et al., 1999a), several limitations should be noted. First, both studies have been conducted with youth psychiatric inpatient samples, and while providing preliminary support for the applicability of Joiner and colleagues' model to younger populations, exclusive use of inpatient samples may be a limitation due to the lack of generalizability to community samples and the greater depressive severity and comorbidity levels observed among psychiatric inpatient youth (Newman, Moffitt, Caspi, & Silva, 1998). Second, both studies utilized cross-sectional designs. Consequently, although such studies illustrate that excessive reassurance seeking is a correlate of depressive symptoms, they do not provide a direct test of the hypothesis that excessive reassurance seeking serves as a vulnerability factor to depressive symptoms. Finally, given the relatively small sample sizes (i.e., $n = 68$–72) and wide age ranges (i.e., 7–17 years of age) utilized in both studies, the authors were unable to provide a powerful examination of whether the relationship between excessive reassurance seeking and depressive symptoms is moderated by age.

The goal of the current study was to provide a prospective test of the vulnerability and contagion hypotheses of Joiner and colleagues' extension of Coyne's (1976) interpersonal theory of depression (Joiner, 1994a; Joiner et al., 1999; Joiner, Metalsky et al., 1999a) in a sample of children and early adolescents. Given that the transition from childhood to early adolescence represents a time characterized by immense change in school

environment, social relationships, academic activities, cognitive development, and physiological development, it is likely that age-related differences in the relationship between excessive reassurance seeking and depressive symptoms emerge during this transition period. One possible reason for the emergence of such differences is that the cognitive–interpersonal scripts hypothesized to drive excessive reassurance seeking behavior do not become consolidated until early adolescence after repeated learning experiences have reinforced them (Hammen & Zupan, 1984). Providing indirect support for such a hypothesis, several researchers have found that cognitive vulnerability factors such as negative self-complexity (e.g., Abela & Veronneau-McArdle, 2002) and a depressogenic attributional style (e.g., Abela, 2001; Nolen-Hoeksema, Girgus, & Seligman, 1992) do not begin to moderate the relationship between stress and increases in depressive symptoms until early adolescence.

A second possible reason for the emergence of such age-related differences is that reassurance seeking behaviors may become less normative during the transition from childhood to early adolescence. It is important to note that in order for reassurance seeking behavior to be considered excessive, one must compare rates of such behavior to rates that would be expected given an individual's age. As the normative base rates of reassurance seeking behaviors may become increasingly lower during this transition, such behaviors may be more likely to be viewed as developmentally atypical, which may consequently increase the likelihood that others respond to such requests with rejection rather than with reassurance. Providing indirect support for such a hypothesis, research examining whether dependency, a similar yet distinct cognitive–interpersonal construct, confers vulnerability to depression in youth suggests that elevated levels of dependency may be both normative and adaptive in children. More specifically, although elevated levels of dependency have been found to serve as a vulnerability factor to depressive symptoms in both adolescents and adults (see Zuroff, Santor, & Mongrain, in press), dependency has not been found to confer vulnerability to depression in children (e.g., Abela, Sakellaropoulo, & Taxel, in press; Abela & Taylor, 2003). Further, although elevated levels of dependency have been found to be associated with impairment in social functioning in adolescents and adults (e.g., see Zuroff et al., in press), elevated levels of dependency have been found to be positively associated with social functioning in children (Fichman, Koestner, & Zuroff, 1996). Last, research using child and early adolescent samples reports a significant association between dependency and age (e.g., $r = -.38$, $p < .001$, Abela & Taylor, 2003) with early adolescents reporting lower levels of dependency than children.

In order to provide a powerful test of the vulnerability and contagion hypotheses of Joiner and colleagues' extension of Coyne's (1976) interpersonal theory of depression, we utilized a sample of parents with a history of major depressive episodes and their children. Such a sample is advantageous for several reasons. First, children of parents with a history of major depressive episodes are four to six times more likely than other children to develop depressive symptoms (Goodman & Gotlib, 2002). Consequently, the use of such a sample is likely to maximize the number of children who experience increases in depressive symptoms during the course of the study. Second, a past history of major depressive episodes is one of the best predictors of future depressive symptoms (e.g., Belsher & Costello, 1988). Consequently, the use of such a sample is likely to maximize the number of parents who experience depressive symptoms during the course of the study. Last, previous research has demonstrated that there is a temporal association between mother and child depressive symptoms (Hammen, Burge, & Adrian, 1991). Consequently, parents with a history of major depressive episodes and their children represent an ideal group in which to examine the contagion hypothesis.

The procedure involved an initial laboratory assessment in which children completed measures assessing reassurance seeking and depressive symptoms. The procedure also involved a series of follow-up assessments, every 6 weeks during the following year, in which children completed measures assessing depressive symptoms and the occurrence of hassles. During each assessment, parents completed measures assessing depressive symptoms. The use of a multiwave longitudinal design allowed us to take an idiographic approach toward examining Joiner and colleagues' vulnerability and contagion hypotheses. More specifically, we examined whether the slope of the relationship between hassles and depressive symptoms within children varied across children as a function of excessive reassurance seeking. In addition, we examined whether the slope of the relationship between children's depressive symptoms and their parents' depressive symptoms varied across children as a function of excessive reassurance seeking. One advantage of utilizing such a multiwave idiographic approach is that by obtaining repeated assessments of levels of hassles and depressive symptoms within individuals over an extended period of time, we are able to gather a relatively reliable estimate of each child's degree of stress reactivity (e.g., his or her slope of the relationship between hassles and depressive symptoms). Given that vulnerability–stress theories are essentially theories of differential stress-reactivity, such an idiographic approach represents an ideal way to test their vulnerability hypotheses. A second advantage of

utilizing an idiographic approach is that for each child, high levels of hassles can be operationalized in reference to his/or her own mean level of hassles. Similarly, for each parent, high levels of depressive symptoms can be operationalized in reference to his or her own mean level of depressive symptoms. Such an approach toward operationalizing each of these variables is likely to minimize the impact of individual differences in the reporting of hassles and parental depressive symptoms on findings.

We hypothesized that children who exhibit high levels of reassurance seeking would report greater elevations in depressive symptoms following elevations in hassles than children who exhibit low levels of reassurance seeking. In addition, we hypothesized that children who exhibit high levels of reassurance seeking would report greater elevations in depressive symptoms following elevations in their parents' levels of depressive symptoms than children who exhibit low levels of reassurance seeking. Hypotheses were tested using both contemporaneous and time-lagged analyses. The use of time-lagged analyses allowed for a powerful examination of the direction of the effects obtained in our contemporaneous analyses. In other words, such analyses allowed us to distinguish between (1) a vulnerability–stress model in which excessive reassurance seeking moderates the association between elevations in hassles/parental depressive symptoms at Time $n - 1$ and elevations in children's depressive symptoms at Time n and (2) a differential exposure model in which excessive reassurance seeking moderates the association between elevations in children's depressive symptoms at Time $n - 1$ and elevations in hassles/parental depressive symptoms at Time n (e.g., Bolger & Zuckerman, 1995). In all analyses, we examined whether associations were moderated by children's age and/or gender.

METHOD

Participants

Participants were recruited through ads placed in local newspapers as well as through posters displayed throughout the greater Montreal area (additional details are provided in Abela, Skitch, Auerbach, & Adams, 2005). The final sample consisted of 140 children (69 boys and 71 girls) and one of their parents (88 mothers and 14 fathers). In all cases, the participating parent met criteria for either a current ($n = 48$) or past ($n = 54$) major depressive episode as assessed using the Structured Clinical Interview for the DSM-IV (First, Gibbon, Spitzer, & Williams, 2001). Participating parents had a mean age of onset of their first major depressive episode at 20.8

years ($SD = 10.5$). Of the parents, 13.7% reported going through too many depressive episodes to count, and 15.7% reported having gone through a single episode. The remaining 70.6% of parents with a history of major depressive episodes reported having gone through a mean of 6.1 episodes ($SD = 8.0$).

Children's ages ranged from 6 to 14 (mean = 9.8, $SD = 2.3$, median = 10). Parents' ages ranged from 27 to 53 (mean = 40.3, $SD = 6.4$, median = 41). The sample was 84.3% Caucasian. The mother tongue of the participants included English (68.7%), French (9.8%), Spanish (2.9%), and other languages (18.6%). At the same time, all of the participants were fluent in English. Of the parents, 14.7% were single, 43.1% were married, 9.8% were separated, 27.5% were divorced, 1.0% was widowed, 3.9% were none of the above. The median family income ranged from $30,000 to $45,000.

Procedure

Phase 1 of the study involved an initial laboratory assessment. Two research assistants met with one parent–child pair at a time. Parents completed a consent form and a demographics form. Children were told that their participation was voluntary and they could choose not to participate. All children decided to participate. A research assistant read the Reassurance-Seeking Scale for Children (RSSC; Joiner, 1999) and the Children's Depression Inventory (CDI; Kovacs, 2003) aloud to the child while the child followed along and responded to questions using his/her own copy. Verbal administration was chosen to ensure that children understood the instructions for each questionnaire, to prevent children from moving too quickly through questionnaires, and to build rapport with the children so that they would feel comfortable asking questions. Parents completed the Beck Depression Inventory (BDI; Beck & Steer, 1987).

Phase 2 of the study involved a series of eight telephone follow-up assessments. Assessments occurred every 6 weeks during the year following the initial assessment. At each assessment, a research assistant verbally administered the following questionnaires to children: (1) CDI and (2) Hassles Scale for Children (CHAS; Kanner, Feldman, Weinberger, & Ford, 1987). In addition, a research assistant verbally administered the Beck Depression Inventory (BDI; Beck & Steer, 1987) to parents. One hundred and thirty-three children and their participating parents completed the Phase 2 assessments. The average number of follow-up assessments completed by participants was 4.79 ($SD = 2.13$). The number of follow-up assessments completed was not significantly associated

with the following Time 1 variables: parental depressive symptoms ($r = .11$, ns), children's depressive symptoms ($r = .09$, ns), children's age ($r = -.17$, ns), and children's gender ($r = -.01$, ns). At the same time, higher levels of reassurance seeking were associated with the completion of a greater number of follow-up assessments ($r = .18$, $p < .05$). The seven children who did not complete any Phase 2 assessments did not significantly differ from the 133 children who completed assessments on any Time 1 child or parent variables.

Phase 3 of the study occurred 1 year after Phase 1 and involved a final laboratory assessment. A research assistant read the RSSC and CHAS aloud to the child while the child followed along and responded to questions using his/her own copy. In order to examine the accuracy of children's recall of hassles, parents also completed a CHAS. At the end of the assessment, participants were fully debriefed. Parents and children were compensated $180 for time lost and expenses incurred while participating in the current study. One hundred and six children and their participating parents completed the Phase 3 follow-up assessment. The 34 children who did not complete the Phase 3 follow-up assessment did not differ significantly from the 106 children who completed this assessment on any Time 1 child or parent variables.

Measures

The Structured Clinical Interview for the DSM-IV (SCID-I; First et al., 2001). The SCID-I is a semistructured clinical interview designed to arrive at current and lifetime DSM-IV diagnoses. The current study employed the affective disorders module and the psychotic screen in order to allow for the diagnosis of all DSM-IV mood disorders. The SCID-I has been shown to yield reliable diagnoses of depressive disorders (Zanarini et al., 2000) and is frequently used in clinical studies of depression in adults. SCID-I interviews were conducted by the principal investigator, doctoral students in clinical psychology, and the project coordinators. All diagnosticians completed an intensive training program for administering the SCID-I and K-SADS interviews and for assigning DSM-IV and RDC diagnoses. The training program consisted of attending approximately 80 hr of didactic instruction, listening to audiotaped interviews, conducting practice interviews, and passing regular exams (85% or above). The principal investigator (PI) held weekly supervision sessions for the interviewers. The PI also reviewed interviewers' notes and tapes in order to confirm the presence or absence of a diagnosis. Discrepancies were resolved through consensus meetings and best estimate procedures.

Beck Depression Inventory (BDI; Beck & Steer, 1987). This 21-item self-report inventory assesses the severity of depressive symptoms present within the past 2 weeks. Each item is rated on a 0–3 scale with higher scores indicating more severe depressive symptoms. The BDI has shown good concurrent validity when compared with psychiatric ratings of depression in clinical populations (Beck & Steer, 1987). We obtained alphas ranging from .89 to .93 (mean $= 0.91$) across administrations, indicating high internal consistency.

Children's Depression Inventory (CDI; Kovacs, 2003). The CDI is a 27-item self-report questionnaire that measures the cognitive, affective, and behavioral symptoms of depression. For each item, children are asked whether it described how they were thinking and feeling in the past week. Items are scored from 0 to 2 with a higher score indicating greater symptom severity. The CDI possesses a high level of internal consistency and distinguishes children with major depressive disorders from nondepressed children (Saylor, Finch, Spirito, & Bennett, 1984). We obtained alphas ranging from .79 to .87 (mean $= 0.83$) across administrations, indicating moderate to high internal consistency.

The Reassurance-Seeking Scale for Children (RSSC; Joiner, 1999). The RSSC is a modified version of the Reassurance-Seeking Scale (RSS; Joiner & Metalsky, 1995) reworded for use with children. The revised scale consists of four questions (e.g., I always need to ask my parents and friends if they really care about me). Items are scored from 0 to 3 with a higher score indicating higher reassurance seeking. RSSC scores exhibit moderate to high levels of internal consistency (Joiner, 1999; Joiner, Metalsky, Gencoz et al., 2001). Regarding validity, higher RSSC scores have been found to be associated with, yet distinct from, similar interpersonal constructs such as loneliness ($r = .48$, $p < .01$; Joiner, Metalsky, Gencoz et al., 2001) and dependency ($r = .30$, $p < .001$; Abela et al., 2005). In addition, RSSC scores have been found to be not associated with insecure attachment to parents ($r = .11$, ns) and peers ($r = .08$, ns; Abela et al., 2005), suggesting that RSSC scores are not confounded with the assessment of interpersonal variables indicative of a maladaptive interpersonal environment.

In order to examine the psychometric properties of the RSSC in the current study, we first examined item–total correlations.[4] All four items exhibited item–total

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[4] Given that the RSSC has not been used previously with 6- and 7-year-old children, we examined whether similar internal consistencies and test–retest reliability were obtained in this age group ($n = 28$). We obtained mean interitem correlations of .51 and .49 and alphas of .81 and .76 at Times 1 and 2, respectively. Test–retest reliability over the 1-year interval was .46 ($p < .05$), suggesting that reassurance

correlations greater than .72 at Time 1 (mean = 0.78) and .69 at Time 2 (mean = 0.77). In order to examine the factor structure of the RSSC, we conducted an exploratory principal axis factor analysis with promax rotation on children's responses to the four items of the RSSC. Consistent with findings from studies using adult samples (e.g., Joiner & Metalsky, 2001), a one-factor solution emerged. All four items exhibited factor loadings greater than 0.57 at Time 1 (mean = 0.69) and 0.49 at Time 2 (mean = 0.67). We obtained mean interitem correlations of .47 and .45 and alphas of .78 and .77 at Times 1 and 2, respectively, indicating moderate internal consistency. Test–retest reliability over the 1-year interval was 0.37 ($p < .001$), suggesting that reassurance seeking exhibited a moderate degree of stability in the current sample over the 1-year follow-up interval.

Hassles Scale for Children (CHAS; Kanner et al., 1987). The CHAS is a list of 39 hassles that children may experience. Children rate how often each event happened to them during the past 6 weeks on a scale of 0 (never) to 4 (all the time). A total score is obtained by summing responses on all items with higher scores indicating a greater number of hassles. The majority of items focus on specific external hassles so as to prevent confounding the assessment of hassles and depressive symptomatology (Kanner et al., 1987). High CHAS scores have been found to be associated with increases in depressive symptoms over time in both third- and seventh-grade school children, both on their own and in interaction with vulnerability factors (e.g., Abela, 2001; Abela & Veronneau-McArdle, 2002). The mean test–retest reliability across the 1-year follow-up interval was 0.66, suggesting that children's levels of hassles exhibited moderate stability.[5]

In order to examine the validity of children's reports, both parents and children completed the CHAS at the final follow-up assessment. Parents are likely to be aware of the occurrence of many of the items reported on the CHAS (e.g., "Your mother and father were fighting" or "Your mother or father were mad at you for getting a bad school report," etc.). Consequently, we would expect

parent and child reports to be associated with one another. At the same time, there are several items on the CHAS that parents may not be able to report accurately on (e.g., "Kids at school teased you" or "You didn't know the answer when the teacher called on you,"). Consequently, we would expect the strength of the association between parent and child reports only to be moderate. As expected, parents' and children's scores were moderately associated with one another ($r = .45$, $p < .001$).

RESULTS

Descriptive Data

Means, standard deviations, and Pearson correlations between Time 1 measures and children's age and gender are presented in Table I. Pearson point biserial correlations between children's gender and all Time 1 measures are also included in Table I.

As age was significantly associated with reassurance seeking, we computed means and standard deviations for the RSSC separately for each age group. The pattern of results suggested that normative levels of reassurance seeking behaviors decline during the transition from childhood to adolescence.[6] Thus, what may constitute excessive levels of reassurance seeking for a 14-year-old is likely to represent normative levels for a 6-year-old. As the hypotheses of the current study center around the relationship between "excessive" reassurance seeking and depressive symptoms, we consequently computed standardized RSSC scores (ST_RSSC) for each age group. Thus, high ST_RSSC scores reflect high levels of reassurance seeking in comparison to the average level of reassurance seeking exhibited by same age peers. ST_RSSC scores rather than raw RSSC scores are utilized in all subsequent analyses.

The Diathesis–Stress Hypothesis

To test our hypothesis that children who demonstrate high levels of reassurance seeking would report greater elevations in depressive symptoms following elevations in hassles than children who exhibit low levels of reassurance seeking, we utilized multilevel modeling. Analyses were carried out using the SAS (version 8.1) MIXED procedure and maximum likelihood estimation. Our dependent variable was within-subject fluctuations in CDI scores during the follow-up interval (FU_CDI). As FU_CDI is a within-subject variable, CDI scores were centered at each

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seeking exhibited a moderate degree of stability over the 1-year follow-up interval. Thus, the psychometric properties of the measure appeared similar in the 6- and 7-year-olds to those obtained in the sample as a whole.

[5] Given that the CHAS has not been used previously with 6- and 7-year-old children, we examined whether similar internal consistencies and test–retest reliabilities were obtained in this age group ($n = 28$). The mean test–retest reliability across the 1-year follow-up interval was .54, suggesting children's levels of hassles exhibited moderate stability. Parents' and children's scores were significantly associated ($r = .66$, $p < .01$) at the Phase 3 assessment. Thus, the psychometric properties of the measure appeared similar in the 6- and 7-year-olds to those obtained in the sample as a whole.

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[6] Details on these specific analyses are available by contacting the first author.

Table I. Means, Standard Deviations, and Pearson Correlations Between Time 1 Measures

	1	2	3	4	5	6	7
1. CDI	—						
2. RSSC	0.31***	—					
3. ST_RSSC	0.45***		—				
4. BDI	0.26**	0.12	0.13	—			
5. AGE	0.07	−0.45***	0.00	0.00	—		
6. Child gender	−0.06	0.15	0.16	0.09	−0.12	—	
7. Parent gender	0.19*	0.11	0.12	−0.01	0.10	0.03	
Mean	10.08	1.52	0.00	23.94	9.82	0.50	0.86
SD	6.74	2.11	0.97	10.70	2.37	0.50	0.35

Note. Pearson Point Biserial Correlations between Children's Gender, Parent's Gender, and Time 1 Measures. CDI = Children's Depression Inventory; RSSC = Reassurance-Seeking Scale for Children; ST_RSSC = Reassurance-Seeking Scale for Children, Scores standardized separately for each age; AGE = Children's age; GENDER = Coded variable (1 = girl and 0 = boy).
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

participant's mean such that FU_CDI reflects upward or downward fluctuations in a child's level of depressive symptoms as compared to his or her mean level of depressive symptoms. Our primary predictors of FU_CDI were AGE, reassurance seeking (ST_RSSC), and fluctuations in CHAS scores during the follow-up interval (FU_HASSLES). As AGE and ST_RSSC scores are between-subject predictors, AGE, and ST_RSSC scores were standardized prior to analyses. As FU_HASSLES is a within-subject predictor, CHAS scores were centered at each participant's mean prior to analyses such that FU_HASSLES reflects upward or downward fluctuations in a child's level of hassles as compared to his or her mean level of hassles.

For all analyses presented, preliminary models were first examined testing whether GENDER exhibited a main effect or served as a moderator of any relationships. No significant effects involving GENDER were obtained. In addition, for all analyses presented, preliminary models were also tested examining whether Time 1 CDI scores served as a moderator of any relationships (Joiner, 1994b). No significant interactions involving Time 1 CDI scores were found. Last, for all analyses presented, preliminary models were also tested examining whether Time 1 parental diagnostic status served as a moderator of any relationships. No significant interactions involving parental diagnostic status were found. Consequently, for the sake of simplicity, results are presented only for models including AGE, ST_RSSC, and FU_HASSLES.

When fitting hierarchical linear models, one must specify appropriate mean and covariance structures. It is important to note that mean and covariance structures are not independent of one another. Rather, an appropriate covariance structure is essential in order to obtain valid inferences for the parameters in the mean structure.

Overparametrization of the covariance structure can lead to inefficient estimation and poor assessment of standard errors (Altham, 1984). On the other hand, too much restriction of the covariance structure can lead to invalid inferences when the assumed structure does not hold (Altham, 1984).

In our first set of analyses, we were interested in examining the effects of AGE, ST_RSSC, and FU_HASSLES on children's CDI scores during the follow-up interval. Consequently, in line with Diggle, Liang, and Zeger's (1994) recommendation that one use a "saturated" model for the mean structure while searching for an appropriate covariance structure, we chose a mean structure that included AGE, ST_RSSC, FU_HASSLES, and all two- and three-way interactions. Four additional effects were also included in this initial mean structure. First, in order to control for individual differences in baseline levels of depressive symptoms, children's Time 1 CDI scores (T1_CDI) were included in the model. Second, in order to account for the possible correlation in response variables between siblings from the same family, random effects for children (RE_CHILD; random intercept) nested within families (RE_FAMILY; random intercept) were included in the model. Finally, given that FU_HASSLES is a within-subject predictor whose effect is expected to vary from participant to participant, a random effect for slope (RE_SLOPE) was included in the model.

Commonly used covariance structures in studies in which multiple responses are obtained from the same individual over time (and consequently within-subject residuals over time are likely to be correlated) include compound symmetry, first-order autoregressive, heterogeneous autoregressive, and banded Toeplitz. In order to select one of these covariance structures for our analyses, we fitted models utilizing each structure and chose the "best" fit

based on Akaike information criterion (AIC and AICC) and Schwarz Bayesian criterion (BIC). In all cases, the best fit was a heterogeneous autoregressive structure.

After choosing the appropriate covariance structure, we next examined the random-effects component of our model. Nonsignificant random-effect parameters were deleted from the model prior to examining the fixed-effects component. The one exception was RE_FAMILY. Regardless of this parameter's level of significance, it was retained in the model to account for any nonindependence of data resulting from the inclusion of siblings in the study. With respect to random effects, the ARH(1) parameter ($r = .25$, $p < .001$) and RE_CHILD ($p < .001$) were significant and thus were retained in the model. RE_SLOPE was not significant and consequently was deleted from the model prior to examining the fixed effects.

When examining the fixed-effects component of the model, we used a process of backward deletion. More specifically, we first examined the AGE × ST_RSSC × FU_HASSLES interaction. Given that this three-way interaction was not significant, it was deleted and the model was re-estimated. We next examined the two-way interactions. Two of the three two-way interactions were not significant: AGE × ST_RSSC ($\beta = -0.219$, $SE = 0.380$, $F(1,127) = 0.33$, *ns*) and AGE × FU_HASSLES ($\beta = 0.004$, $SE = 0.010$, $F(1, 601) = 0.14$, *ns*). Consequently, these interactions were deleted and the model was re-estimated.

Results with respect to the fixed-effects component of the model are presented in the top panel of Table II. Of

primary importance, a significant two-way, cross-level interaction emerged between ST_RSSC and FU_HASSLES. [7] In order to examine the form of this interaction, the model summarized in the top panel of Table II was used to calculate predicted CDI scores for children exhibiting either low or high levels of reassurance seeking (plus or minus 1.5 *SD*) who are experiencing either low or high levels of hassles in comparison to their own average level of hassles (plus or minus 1.5 × mean within-subject *SD*). The results are presented in the upper panel of Fig. 1. As both FU_CDI and FU_HASSLES are within-subject variables centered at each participant's mean, slopes are interpreted as the increase in a child's CDI score that would be expected, given that he or she scored one point higher on the CHAS.

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[7] Given that follow-up CDI and HASSLES scores were obtained from children at eight different time points over a 1-year interval, we examined whether the effect of FU_HASSLES on FU_CDI varied as a function of TIME. In order to select a covariance structure, we assumed a mean structure that included T1_CDI, TIME, FU_HASSLES, and the TIME × FU_HASSLES interaction. In addition, RE_CHILD, RE_FAMILY, and RE_SLOPE were included in the model. With respect to the random effects component of the model, the ARH(1) parameter ($r = .23$, $p < .001$) and RE_CHILD ($p < .01$) were significant. Although RE_FAMILY was not significant, it was retained in the model to control for any nonindependence of data. Last, RE_SLOPE was not significant and thus was deleted from the model prior to examining the fixed-effects component. Regarding the fixed-effects component of the model, the TIME × FU_HASSLES interaction was not significant ($\beta = 0.03$, $SE = 0.04$, $F(8, 602) = 0.43$, *ns*), indicating that the effect of hassles on depressive symptoms did not vary as a function of the timing of the follow-up assessment.

Table II. Age, Standardized Reassurance Seeking Scores, and FU_HASSLES Predicting Depressive Symptoms

Predictor	β	SE	F	df
Simultaneous				
Time 1 CDI	2.353	0.415	32.15****	1, 128
AGE	0.532	0.375	2.01	1, 128
ST_RSSC	0.515	0.415	1.54	1, 128
FU_HASSLES	0.042	0.009	19.41****	1, 603
ST_RSSC × FU_HASSLES	0.025	0.009	7.74**	1, 603
Lagged				
Time 1 CDI	2.337	0.479	23.85****	1, 111
AGE	0.308	0.420	0.54	1, 111
ST_RSSC	0.806	0.490	2.70	1, 111
FU_HASSLES	0.045	0.014	10.79**	1, 296
AGE × ST_RSSC	−0.009	0.431	0.00	1, 111
AGE × FU_HASSLES	0.016	0.014	1.21	1, 296
ST_RSSC × FU_HASSLES	0.028	0.012	1.91	1, 296
AGE × ST_RSSC × FU_HASSLES	0.03	0.011	6.57*	1, 296

Note. Time 1 CDI = Time 1 Children's Depression Inventory; ST_RSSC = Reassurance-Seeking Scale for Children, Scores standardized separately for each age; FU_HASSLES = Fluctuations in Hassles Scale for Children Scores.
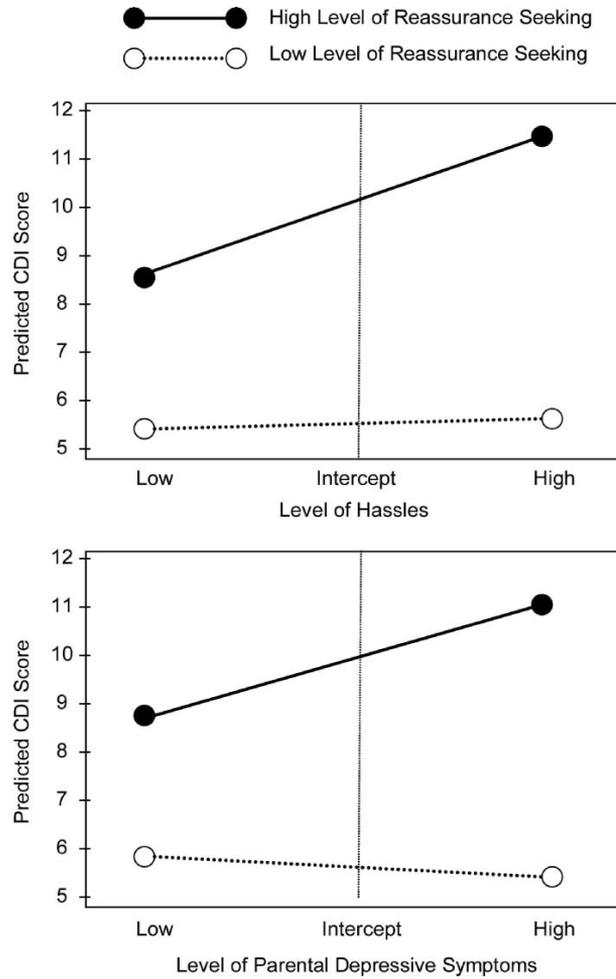*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$. ****$p < 0.0001$.

Fig. 1. Predicted slope of the relationship between hassles and depressive symptoms (upper panel) and between child depressive symptoms and parental depressive symptoms (lower panel) for children possessing low and high levels of reassurance seeking (as compared to children of the same age).

Analyses were conducted for each ST_RSSC condition examining whether the slope of the relationship between hassles and depressive symptoms significantly differed from 0. Analyses indicated that children exhibiting high levels of reassurance seeking reported higher levels of depressive symptoms when experiencing high levels of hassles than when experiencing low levels of hassles, $t(602) = 5.03$, $p < .001$. At the same time, level of depressive symptoms did not vary as a function of level of hassles for children exhibiting low levels of reassurance seeking, $t(602) = 0.25$, ns. Planned comparisons of the slopes of the relationship between hassles and depressive symptoms revealed that the slope was significantly greater in children exhibiting high levels of reassurance seeking (slope = 0.080) than in children exhibiting low levels

of reassurance seeking (slope = 0.004; $t(602) = 2.78$, $p < .01$).

In order to provide a stringent test of our hypothesis that high levels of reassurance seeking would be associated with greater elevations in depressive symptoms following elevations in hassles, we also examined two additional models. First, we conducted time-lagged analyses examining whether AGE, ST_RSSC, and/or their interaction moderated the relationship between fluctuations in hassles at Time $n - 1$ and fluctuations in depressive symptoms at Time n.[8] With respect to the random-effects

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[8] It is important to note that lagged analyses were chosen as a secondary rather than a primary data analytic approach due to the large loss of data, and consequently the drop in statistical power that results

Table III. Predicted Slope of the Relationship Between Hassles at Time $n - 1$ and Depressive Symptoms at Time n, by Age, for Children Possessing Low and High Levels of Reassurance Seeking

| | Low ST_RSSC | | | | High ST_RSSC | | | | |
| | | | Predicted CDI | | | | Predicted CDI | | |
Age	Slope	$t(296)$	Low CHAS	High CHAS	Slope	$t(296)$	Low CHAS	High CHAS	Difference Between Slopes $t(296)$
6	0.06	1.41	3.53	5.96	−0.02	−0.65	9.45	8.51	−1.36
7	0.05	1.42	3.79	5.79	0.00	−0.02	9.35	9.33	−0.98
8	0.04	1.38	4.02	5.59	0.02	0.91	9.27	10.17	−0.40
9	0.03	1.21	4.25	5.40	0.05	2.20*	9.16	10.99	0.47
10	0.02	0.79	4.51	5.22	0.07	3.64***	9.08	11.84	1.58
11	0.01	0.28	4.74	5.02	0.10	4.52****	9.00	12.68	2.43*
12	0.00	−0.12	5.00	4.85	0.12	4.76****	8.89	13.50	2.84**
13	−0.02	−0.38	5.23	4.66	0.15	4.68****	8.81	14.34	2.99**
14	−0.03	−0.55	5.46	4.46	0.17	4.51****	8.71	15.16	3.01**

Note. ST_RSSC = Reassurance-Seeking Scale for Children, Scores standardized separately for each age; CDI = Children's Depression Inventory; CHAS: Children's Hassles Scale.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$. ****$p < 0.0001$.

component of the model, RE_CHILD ($p < .01$) was significant. Neither RE_FAMILY nor RE_SLOPE, however, was significant.

Results with respect to the fixed-effects component of the model are presented in the bottom panel of Table II. A significant three-way cross-level interaction was obtained between AGE, ST_RSSC, and FU_HASSLES. In order to examine the form of the three-way interaction, the model summarized in the bottom panel of Table II was used to calculate predicted CDI scores for children (ages = 6, 7, 8, 9, 10, 11, 12, 13, or 14) demonstrating either low or high levels of reassurance seeking (plus or minus 1.5 *SD*) who are experiencing either low or high levels of hassles in comparison to their own average level of hassles (plus or minus 1.5 × mean within-subject *SD*). The results of such calculations are presented in Table III.

Analyses were conducted for each AGE × ST_RSSC condition examining whether the slope of the relationship between hassles at Time $n - 1$ and depressive symptoms at Time n significantly differed from 0. Analyses indicated that children between the ages of 9 and 14 who exhibited high levels of reassurance seeking reported higher levels of depressive symptoms 6 weeks following the experience of a high level of hassles than 6 weeks following the experience of a low level of hassles. At the same time, level of depressive symptoms at Time n did not vary as a function of level of hassles at Time

$n - 1$ for either (1) children between the ages of 6 and 14 who exhibited low levels of reassurance seeking or (2) children between the ages of 6 and 8 who exhibited high levels of reassurance seeking.

For each AGE (ages = 6, 7, 8, 9, 10, 11, 12, 13, or 14), we conducted planned comparisons of the slopes of the relationship between hassles at Time $n - 1$ and children's depressive symptoms at Time n for children demonstrating high and low levels of reassurance seeking. For children between the ages of 11 and 14, the slope was significantly greater in children exhibiting high levels of reassurance seeking than in children exhibiting low levels of reassurance seeking. For children between the ages of 6 and 10, the slopes for children exhibiting high and low levels of reassurance seeking did not significantly differ.

Second, we conducted time-lagged analyses examining whether AGE, ST_RSSC, and/or their interaction moderated the relationship between fluctuations in depressive symptoms at Time $n - 1$ and fluctuations in hassles at Time n. With respect to the random-effects component of the model, RE_FAMILY ($p < .01$) was significant. Neither RE_CHILD nor RE_SLOPE was significant. Thus, both effects were deleted from the model prior to examining the fixed-effects component. With respect to the fixed-effects component of the model, significant effects were not obtained for any variables.

Thus, the pattern of results obtained when examining the two time-lagged models suggests that children between the ages of 11 and 14 who showed high levels of reassurance seeking exhibited elevations in depressive symptoms following elevations in hassles rather than

when utilizing this approach. Such data loss occurs because in lagged analyses, each "observation" consists of data from two consecutive follow-up assessments rather than data from one follow-up assessment.

exhibited elevations in hassles following elevations in depressive symptoms.

The Contagion Hypothesis

Similar analyses were conducted in order to test our hypothesis that high reassurance seeking would be associated with greater elevations in children's depressive symptoms following elevations in their parents' level of depressive symptoms. As fluctuations in parental depressive symptoms is a within-subject variable, BDI scores were centered at each parent's mean prior to analyses such that FU_BDI reflects upward or downward fluctuations in a parent's level of depressive symptoms as compared to his or her mean level of depressive symptoms.

Once again, for all analyses presented, preliminary models were first examined testing whether GENDER exhibited a main effect or served as a moderator of any relationships. No significant effects involving GENDER were obtained. In addition, for all analyses presented, preliminary models were also tested examining whether Time 1 CDI scores served as a moderator of any relationships (Joiner, 1994b). No significant interactions involving Time 1 CDI scores were found. Last, for all analyses presented, preliminary models were tested examining whether Time 1 parental diagnostic status served as a moderator of any relationships. No significant interactions involving parental diagnostic status were found. Consequently, for the sake of simplicity, results are presented only for models including AGE, ST_RSSC, and FU_BDI.

Similar to our previous analyses, we chose a mean structure that included AGE, ST_RSSC, BDI, and all two- and three-way interactions as the initial model for selecting the (residual) covariance structure. Once again, T1_CDI, RE_CHILD, RE_FAMILY, and RE_SLOPE were included in the model. In all cases, the best fit was a heterogeneous autoregressive structure.

With respect to random effects, the ARH(1) parameter ($r = .22, p < .001$) and RE_CHILD ($p < .01$) were significant. Neither RE_FAMILY nor RE_SLOPE, however, was significant. With respect to the fixed-effects component of the model, the AGE $\times$ ST_RSSC $\times$ FU_BDI interaction was not significant ($\beta = -0.009, SE = 0.021, F(1, 587) = 0.19, ns$). Consequently, it was deleted and the model was re-estimated. Two of the three two-way interactions were not significant: AGE $\times$ ST_RSSC ($\beta = -0.377, SE = 0.388, F(1, 126) = 0.76, ns$) and AGE $\times$ FU_BDI ($\beta = 0.027, SE = 0.020, F(1, 588) = 1.94, ns$). Consequently, they were deleted and the model was re-estimated.

Results with respect to the fixed-effects component of our model are presented in the top panel of Table IV. A significant two-way cross-level interaction was obtained between ST_RSSC and FU_BDI.[9] In order to examine the form of the two-way interaction, the model summarized in the top panel of Table IV was used to calculate predicted CDI scores for children showing either low or high levels of reassurance seeking (plus or minus $1.5 \times$ between-subject SD) whose parents are experiencing either low or high levels of depressive symptoms in comparison to their average level of depressive symptoms (plus or minus $1.5 \times$ mean within-subject SD). The results of such calculations are presented in lower panel of Fig. 1. As both FU_CDI and FU_BDI are within-subject variables centered at each participant's mean, slopes are interpreted as the increase in a child's CDI score that would be expected given that his or her parent scored one point higher on the BDI.

Analyses were conducted for each ST_RSSC condition examining whether the slope of the relationship between hassles and depressive symptoms significantly differed from 0. Analyses indicated that children exhibiting high levels of reassurance seeking reported higher levels of depressive symptoms when their parents were experiencing high levels of depressive symptoms than when their parents were experiencing low levels of depressive symptoms, $t(589) = 4.17, p < .0001$. At the same time, level of depressive symptoms did not vary as a function of level of parental depressive symptoms for children exhibiting low levels of reassurance seeking, $t(589) = -0.44, ns$. Planned comparisons of the slopes of the relationship between parental depressive symptoms and children's depressive symptoms revealed that the slope was significantly greater in children exhibiting high levels of reassurance seeking (slope $= 0.138$) than in children exhibiting low levels of reassurance seeking (slope $= -0.017; t(589) = 2.65, p < .001$).

In order to provide a stringent test of our hypothesis that high levels of reassurance seeking would be associated with greater elevations in children's depressive symptoms following elevations in parents'

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[9] Given that follow-up CDI and BDI scores were obtained from children and their parents at eight different time points over a 1-year interval, we examined whether the effect of FU_BDI on FU_CDI varied as a function of TIME. In order to select a covariance structure, we assumed a mean structure that included T1_CDI, TIME, FU_BDI, and the TIME $\times$ FU_BDI interaction. In addition, RE_CHILD, RE_FAMILY, and RE_SLOPE were included in the model. With respect to the random effects component of the model, the ARH(1) parameter ($r = 21, p < .01$), RE_CHILD, ($p < .05$), RE_FAMILY ($p < .01$), and RE_SLOPE ($p < .05$) were significant. Regarding the fixed-effects component of the model, the TIME $\times$ FU_BDI interaction was not significant ($\beta = 0.19, SE = 0.12, F(8, 578) = 1.58, ns$), indicating that the effect of parental depressive symptoms on children's depressive symptoms did not vary as a function of the timing of the follow-up assessment.

Table IV. Age, Standardized Reassurance Seeking Scores, and BDI Predicting Depressive Symptoms

Predictor	b	SE	F	df
Simultaneous				
Time 1 CDI	2.263	0.422	28.73****	1, 127
AGE	0.387	0.384	1.02	1, 127
ST_RSSC	0.547	0.422	1.68	1, 127
FU_BDI	0.061	0.020	8.91**	1, 590
ST_RSSC × FU_BDI	0.052	0.020	7.04**	1, 590
Lagged				
Time 1 CDI	2.511	0.445	31.82****	1, 109
AGE	0.298	0.545	0.30	1, 109
ST_RSSC	−0.482	0.639	0.57	1, 109
FU_BDI	0.054	0.023	5.39*	1, 329
AGE × ST_RSSC	−1.031	0.568	3.29	1, 109
AGE × FU_BDI	−0.002	0.024	0.01	1, 329
ST_RSSC × FU_BDI	0.059	0.024	6.06*	1, 329
AGE × ST_RSSC × FU_BDI	0.060	0.025	5.50*	1, 329

Note. Time 1 CDI = Time 1 Children's Depression Inventory; ST_RSSC = Reassurance Seeking Scale for Children, Scores standardized separately for each age; FU_BDI = Fluctuations in BDI scores.
*$p < 0.05$. **$p < 0.01$. *** $p < 0.001$. ****$p < 0.0001$.

levels of depressive symptoms, we also examined two additional models. First, we conducted time-lagged analyses in which we examined whether AGE, ST_RSSC, and/or their interaction moderated the relationship between fluctuations in parental depressive symptoms at Time $n − 1$ and fluctuations in children's depressive symptoms at Time n[6]. With respect to the random-effects component of the model, RE_CHILD was significant ($p < .01$). Neither RE_FAMILY nor RE_SLOPE, however, was significant.

Results with respect to the fixed-effects component of the model are presented in the bottom panel of

Table IV. A significant three-way cross-level interaction was obtained between AGE, ST_RSSC, and FU_BDI. In order to examine the form of the three-way interaction, the model summarized in the bottom panel of Table IV was used to calculate predicted CDI scores for children (ages = 6, 7, 8, 9, 10, 11, 12, 13, or 14) demonstrating either low or high levels of reassurance seeking (plus or minus 1.5 *SD*) whose parents are experiencing either low or high levels of depressive symptoms in comparison to their own average level of depressive symptoms (plus or minus 1.5 × mean within-subject *SD*). The results of such calculations are presented in Table V.

Table V. Predicted Slope of the Relationship Between Child Depressive Symptoms at Time n and Parental Depressive Symptoms at Time $n − 1$, by Age, for Children Possessing Low and High Levels of Reassurance Seeking

	Low ST_RSSC				High ST_RSSC				Difference between
			Predicted CDI				Predicted CDI		
Age	Slope	t(329)	Low BDI	High BDI	Slope	t(329)	Low BDI	High BDI	t(329)
6	0.11	1.24	1.85	2.55	0.00	0.02	7.31	7.35	−0.74
7	0.08	1.00	2.66	4.35	0.04	0.55	7.49	7.87	−0.30
8	0.04	0.61	3.78	4.44	0.08	1.33	7.32	8.70	0.39
9	0.00	−0.04	4.75	4.71	0.11	2.40*	7.35	9.38	1.42
10	−0.04	−0.99	5.75	5.00	0.15	3.49***	7.35	10.06	2.68**
11	−0.08	−1.81	6.73	5.28	0.19	3.95***	7.37	10.74	3.47***
12	−0.12	−2.22*	7.70	5.55	0.22	3.87***	7.39	11.43	3.65***
13	−0.16	−2.34*	8.67	5.83	0.26	3.63***	7.41	12.11	3.56***
14	−0.20	−2.36*	9.64	6.10	0.30	3.40***	7.44	12.80	3.42***

Note. ST_RSSC = Reassurance-Seeking Scale for Children, Scores standardized separately for each age; CDI = Children's Depression Inventory; BDI = Beck Depression Inventory.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$. ****$p < 0.0001$

Analyses were conducted for each AGE × ST_RSSC condition examining whether the slope of the relationship between child depressive symptoms at Time n and parent depressive symptoms at Time $n - 1$ significantly differed from 0. Analyses indicated that children between the ages of 9 and 14 who exhibited high levels of reassurance seeking reported higher levels of depressive symptoms 6 weeks following their parents experiencing high levels of depressive symptoms than 6 weeks following their parents experiencing low levels of depressive symptoms. Further, children between the ages of 12 and 14 who exhibited low levels of reassurance seeking reported lower levels of depressive symptoms 6 weeks following their parents experiencing high levels of depressive symptoms than 6 weeks following their parents experiencing low levels of depressive symptoms. At the same time, children's level of depressive symptoms at Time n did not vary as a function of parents' levels of depressive at Time $n - 1$ for either (1) children between the ages of 6 and 8 who exhibited high levels of reassurance seeking or (2) children between the ages of 6 and 11 who exhibited low levels of reassurance seeking.

For each AGE (ages = 6, 7, 8, 9, 10, 11, 12, 13, or 14), we conducted planned comparisons of the slopes of the relationship between parental depressive symptoms at Time $n - 1$ and children's depressive symptoms at Time n for children showing high and low levels of reassurance seeking. For children between the ages of 10 and 14, the slope was significantly greater in children exhibiting high levels of reassurance seeking than in children exhibiting low levels of reassurance seeking. For children between the ages of 6 and 9, the slopes did not significantly differ as a function of reassurance seeking.

Second, we conducted time-lagged analyses examining whether AGE, ST_RSSC, and/or their interaction moderated the relationship between fluctuations in children's depressive symptoms at Time $n - 1$ and fluctuations in their parents' levels of depressive symptoms at Time n. With respect to the random-effects component of the model, RE_FAMILY ($p < .01$) was significant. Neither RE_CHILD nor RE_SLOPE was significant. With respect to the fixed-effects component of the model, significant effects were not obtained for any variables.

Thus, the pattern of results obtained when examining the two time-lagged models suggests that children between the ages of 11 and 14 who showed high levels of reassurance seeking exhibited increases in depressive symptoms following elevations in their parents' levels of depressive symptoms rather than that parents experienced elevations in depressive symptoms following elevations in their children's depressive symptoms.

Finally, given that it is possible that excessive reassurance seeking in children is simply associated with elevations in depressive symptoms following elevations in parental depressive symptoms because elevations in parental depressive symptoms are associated with elevations in hassles, we examined whether either the ST_RSSC × FU_BDI interaction or the AGE × ST_RSSC × FU_BDI continued to be significantly associated with FU_CDI scores after adding FU_HASSLES into the models summarized in the top and bottom panels of Table IV. Results indicated that following the inclusion of FU_HASSLES into the models, the ST_RSSC × FU_BDI interaction continued to be significantly associated with FU_CDI scores in the contemporaneous analysis ($\beta = 0.043$, $SE = 0.019$, $F(1, 574) = 4.75$, $p < .05$) and the AGE × ST_RSSC × FU_BDI interaction continued to be significantly associated with FU_CDI in the lagged analysis ($\beta = 0.060$, $SE = 0.025$, $F(1, 329) = 5.50$, $p < .05$).

DISCUSSION

The results of the current study provide partial support for the applicability of the vulnerability–stress hypothesis of Joiner and colleagues' extension of Coyne's (1976) interpersonal theory of depression (Joiner, 1994a; Joiner et al., 1999; Joiner, Metalsky et al., 1999a) to youth. More specifically, in line with Joiner and colleagues' hypothesis that excessive reassurance seeking represents a relatively stable individual difference, children's levels of reassurance seeking exhibited moderate stability over the 1-year follow-up interval. Further, in line with Joiner and colleagues' hypothesis that excessive reassurance seeking confers vulnerability to the development of depressive symptoms following the occurrence of negative events, the results from our contemporaneous analyses indicated that children who exhibited high levels of reassurance seeking reported greater elevations in depressive symptoms following elevations in hassles than did children who exhibited low levels of reassurance seeking. At the same time, results from our time-lagged analyses indicated that the strength of this association varied as a function of age. More specifically, such analyses indicated that reassurance seeking was associated with increases in depressive symptoms at Time n following increases in hassles at Time $n - 1$ only in children between the ages of 9 and 14. In addition, such analyses indicated that the slope of the relationship between depressive symptoms at Time n and hassles at Time $n - 1$ was significantly greater in high as opposed to low reassurance seeking youth only for children between the ages of 11 and 14.

The results of the current study also provide partial support for Joiner's (1994a) hypothesis that individuals who exhibit high levels of reassurance seeking are more vulnerable to the contagion effect than individuals who exhibit low levels of reassurance seeking. More specifically, in line with past research examining the timing of the emergence of depressive symptoms in parents with a history of major depressive episodes and their children (e.g., Hammen et al., 1991), elevations in parents' levels of depressive symptoms were associated with subsequent elevations in their children's levels of depressive symptoms. Further, in line with work by Joiner, the results of contemporaneous analyses indicated that this relationship was moderated by excessive reassurance seeking with children who showed high levels of reassurance seeking reporting greater elevations in depressive symptoms following elevations in their parents' depressive symptoms than did children who showed low levels of reassurance seeking. At the same time, once again, results from our time-lagged analyses indicated that the strength of this association varied as a function of age. More specifically, such analyses indicated that children's levels of reassurance seeking were associated with increases in their levels of depressive symptoms at Time n following increases in their parents levels of depressive symptoms at Time $n - 1$ only in children between the ages of 9 and 14. In addition, such analyses indicated that the slope of the relationship between children's levels of depressive symptoms at Time n and parents' levels of depressive symptoms at Time $n - 1$ was significantly greater in high as opposed to low reassurance seeking only for children between the ages of 10 and 14.

Several factors may account for the emergence of age-related differences in our time-lagged analyses. First, the results of the current study indicated that reassurance seeking behaviors were significantly associated with age, with younger children reporting higher levels of reassurance seeking behaviors than older children. Such a finding suggests that reassurance seeking behaviors decline during the transition from childhood to early adolescence. As base rates of reassurance seeking behaviors decline during this transition period, elevated levels of reassurance seeking behaviors may begin to be increasingly perceived as developmentally atypical and consequently may become increasingly more apt to be responded to in a negative manner. Second, Joiner and colleagues (Van Orden et al., 2005) have recently posited that excessive reassurance seeking behavior is driven by highly accessible, maladaptive, cognitive–interpersonal scripts (e.g., "If I feel bad, then I ask my parents if they love me") that become activated when individuals experience concerns about their self-worth and/or future. It is possible that the cognitive–

interpersonal scripts hypothesized to drive excessive reassurance seeking behavior do not become consolidated until early adolescence after repeated learning experiences have reinforced them (Hammen & Zupan, 1984). Finally, it is possible that age-related differences emerge during the transition from childhood to early adolescence with respect to whom youth turn when they seek reassurance. Peer relationships become increasingly important during the transition from childhood to early adolescence (e.g., Rubin, Bukowski, & Parker, 1998), and children may then be more apt to turn to their peers than their parents for reassurance. Parents and peers, however, may vary in the manner in which they respond to reassurance seeking behaviors with parents displaying a higher level of tolerance than peers. Although no past research has examined the relationship between reassurance seeking behavior and peer rejection, past research has indicated that high levels of immaturity–dependency are associated with peer rejection (Schwartz, McFadyen-Ketchum, Dodge, Petit, & Bates, 1999). Peers consequently may be more apt than parents to respond negatively to excessive reassurance seeking behaviors.

A similar pattern of age-related findings has been obtained in past research examining other interpersonal vulnerability factors to depression in children. For example, although dependency has been found to serve as a vulnerability factor to depressive symptoms in adults (e.g., Zuroff et al., in press), research using child samples has yielded less supportive results (e.g., Abela & Taylor, 2003; Fichman et al., 1996). Consequently, researchers have hypothesized that dependency needs are normative and adaptive in children leading dependency to emerge as a vulnerability factor to depression only in adolescence when lower levels of dependency become more normative (Fichman et al., 1996). Future longitudinal studies are needed following children through the transition from childhood to early adolescence in order to prospectively examine the impact of developmental factors on levels of reassurance seeking. For example, the emergence of a global sense of self-worth (Harter, 1990) may result in less need to seek reassurance from others as to one's self-worth. In addition, parent and peer socialization processes may discourage high levels of reassurance seeking. Future research should also examine whether high levels of reassurance seeking are less likely to lead to depressive symptoms in younger children because reassurance seeking is less likely to lead to interpersonal rejection. In other words, if reassurance seeking behavior is normative in children, significant others may be less likely to respond to such behavior in children in a rejecting manner.

It is important to note that the results of our time-lagged analyses suggest that the results from our

contemporaneous analyses are best interpreted within a vulnerability–stress as opposed to a differential exposure framework. More specifically, the analyses indicated that, in line with a vulnerability–stress framework, excessive reassurance seeking was associated with increases in depressive symptoms following increases in children's levels of stress. At the same time, contrary to a differential exposure model, excessive reassurance seeking was not associated with increases in children's levels of hassles following increases in their levels of depressive symptoms. Similarly, strong support was obtained for a vulnerability–stress as opposed to a differential exposure model when examining the contagion hypothesis. As the current study was able to demonstrate that a pre-existing interpersonal vulnerability factor interacted with subsequently occurring stressors to predict subsequent changes in depressive symptoms, results provide perhaps the strongest support to date for the applicability of vulnerability–stress models of depression to younger populations.

It is also important to note that the contagion effect observed in both our contemporaneous and time-lagged analyses was independent of the level of hassles occurring in children's lives. In other words, excessive reassurance seeking continued to be associated with elevations in depressive symptoms in older children following elevations in their parents' depressive symptoms even after controlling for children's levels of hassles. Joiner (1994a) has hypothesized that depressive symptoms in a significant other may represent a unique stressor that is not adequately assessed by hassles inventories. Future research examining the contagion hypothesis is likely to benefit from examining the biological and/or psychosocial mechanism through which the contagion process occurs in older children who exhibit high levels of reassurance seeking (see Joiner & Katz, 1999 for a description of potential mediating mechanisms).

Several limitations of the current study should be noted. First, self-report measures were used to assess depressive symptoms. Although both the CDI and the BDI possess high degrees of reliability and validity, one cannot draw conclusions about clinically diagnosed depression based on self-report questionnaires. Second, self-report measures were used to assess stress. Although measures of life events that require participants only to indicate whether or not an event occurred are probably less likely to be influenced by informant bias than those that ask subjects to rate the subjective impact of each event, more sophisticated methods of analysis such as interviewing procedures that assess contextual threat may provide better assessments of stress (Brown & Harris, 1978). Third, the current study only examined the relationship between excessive reassurance seeking and depressive symptoms.

Thus, we were unable to identify whether excessive reassurance seeking served as a vulnerability factor specifically to depressive symptoms. Future research should assess a broader range of psychological symptoms in order to examine the specificity of excessive reassurance seeking to depressive symptoms in early adolescents. Fourth, the current study did not control for additional variables that could potentially account for the relationship between reassurance seeking and depressive symptoms. Consequently, we cannot rule out the possibility that a third variable could account for the pattern of findings obtained. At the same time, it is important to note that research with adult populations has obtained support for the relationship between reassurance seeking and depressive symptoms even after controlling for self-esteem (e.g., Joiner, Alfano, & Metalsky, 1992), interpersonal difficulties (e.g., Potthoff, Holahan, & Joiner, 1995), attachment insecurity (Davila, 2001), and neuroticism (Joiner, Metalsky, Katz, & Beach, 1999b). Finally, the current study utilized a sample of self-identified, high-risk parents (predominantly mothers) and their children. Although such a design leads to a powerful test of both the vulnerability and contagion hypotheses, results cannot be generalized to other populations (e.g., samples not recruited specifically on the basis of parental depression). Future research is needed examining whether similar results are obtained using a community sample of children and their parents. In addition, future research should include a greater proportion of fathers in order to rule out the possibility that the contagion effect observed in the current study is limited to mothers and their children.

Thus, the results of the current study provide partial support for the applicability of Joiner and colleagues' expansion of Coyne's (1976) interpersonal theory (e.g., Joiner, 1994a; Joiner et al., 1999) to a youth sample. At the same time, results suggest that high levels of reassurance seeking may be normative in younger children and consequently that excessive reassurance seeking may only emerge as a vulnerability factor to depression during the transition from childhood to early adolescence. Discovering that excessive reassurance seeking confers vulnerability to depression in youth is important as such a finding is likely to inform the development of effective interventions for use with younger populations. For example, Van Orden et al. (2005) highlight that individuals who engage in excessive reassurance seeking are likely to benefit from interventions such as Cognitive Behavioral Analysis System Psychotherapy (CBASP; e.g., McCullough, 2003) which focus on helping clients to become aware of interpersonal situations in which they act in maladaptive ways in order to learn more adaptive interpersonal behaviors (i.e., new cognitive–interpersonal scripts). As research

examining the role of excessive reassurance seeking in the etiology of depression in youth accumulates, a deeper understanding of the interpersonal processes that underlie the onset of this disorder in younger populations will emerge. Such knowledge will ultimately provide greater insight into potential avenues for the treatment and prevention of depression in youth.

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