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A Cognitive-Interpersonal Approach to Depressive Symptoms in Preadolescent Children

Karen D. Rudolph,[1,3] Constance Hammen,[2] and Dorli Burge[2]

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Cognitive and interpersonal aspects of depressive symptoms were investigated in a community sample of children. Eighty-one 8- to 12-year-olds completed scales assessing cognitive representations of social relationships and symptoms of depression and anxiety. Teachers provided ratings of peer rejection. Children with elevated levels of depressive symptoms displayed increased negativity in their beliefs about self, family, and peers, as well as distinct patterns of interpersonal information processing. Anxiety symptoms did not make a unique contribution beyond depression to negative representations of family and peers; in contrast, symptom-specific profiles of self-representations were found. Structural equation analysis supported a model linking negative interpersonal representations, peer rejection, and depressive symptoms. The findings suggest that future studies may benefit from approaches that incorporate both cognitive and interpersonal variables as predictors of child depression.

KEY WORDS: Depression; children; interpersonal; cognitions.

Contemporary conceptualizations of childhood depression increasingly are taking the form of multidimensional, developmental models, which highlight the ongoing interplay among cognitive, interpersonal, and affective functioning (Cicchetti & Schneider-Rosen, 1984; Hammen & Rudolph, 1996). To date, however, empirical efforts largely have involved the separate examination of intrapsychic or interpersonal aspects of depression, rather than the interface between these two domains. Cognitive models have figured prominently in child depression research (reviewed in Weisz, Rudolph, Granger, & Sweeney, 1992). Studies of community and psychiatric samples consistently have revealed maladaptive cognitions in depressed children, including poor self-concept and diminished self-esteem (e.g., Kaslow, Rehm, & Siegel, 1984; Marton, Connolly, Kutcher, & Korenblum, 1993; McCauley, Mitchell, Burke, & Moss, 1988), hopelessness (McCauley et al., 1988), irrational beliefs (Robins & Hinkley, 1989), low perceived competence and contingency (Weisz, Sweeney, Proffitt, & Carr, 1994), dysfunctional attitudes, and negative automatic thoughts (Garber, Weiss, & Shanley, 1993; Laurent & Stark, 1993). Furthermore, depressed youngsters have been found to manifest idiosyncratic patterns of cognitive appraisal and systematic distortions in the processing of self-referent information (Kaslow et al., 1984; Leitenberg, Yost, & Carroll-Wilson, 1986; Lewinsohn et al., 1994; Nolen-Hoeksema, Girgus, & Seligman, 1992; Zupan, Hammen, & Jaenicke, 1987).

Interpersonal theories of depression also have been extended to children. This work is based primarily on two conceptual models. First, Lewinsohn's (1974) behavioral perspective holds that depression stems from reduced external reinforcement due to a lack of social skills and an ensuing inability to elicit positive responses from others. Second, researchers have elaborated on this process to emphasize the transactional influences among depression, social im-

[1]Department of Psychology, University of Illinois, Champaign, Illinois 61820.

[2]Department of Psychology, University of California at Los Angeles, Los Angeles, California 90095.

[3]Address all correspondence to Karen D. Rudolph, University of Illinois, Department of Psychology, 603 E. Daniel St., Champaign, Illinois 61820.

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pairment, and interpersonal rejection. For example, Coyne (1976) has posited that depressive symptoms and maladaptive behavioral styles of depression-prone individuals may contribute to interpersonal dysfunction, which in turn exacerbates depressed affect.

In support of interpersonal models, studies of depressed children have demonstrated disturbance within the family context (e.g., Cole & McPherson, 1993; Cole & Rehm, 1986; Kobak, Sudler, & Gamble, 1991; reviewed in Kaslow, Deering, & Racusin, 1994) and the peer group (e.g., Altmann & Gotlib, 1988; Jacobsen, Lahey, & Strauss, 1983; Larson, Raffaelli, Richards, Ham, & Jewell, 1990). Evidence has supported bidirectional influences between social impairment and depression. On the one hand, interpersonal difficulties with family (Asarnow, Goldstein, Tompson, & Guthrie, 1993; Hops, Lewinsohn, Andrews, & Roberts, 1990) and peers (e.g., Goodyer, Wright, & Altham, 1990; Wierzbicki & McCabe, 1988) have been found to predict onset and course of depression. On the other hand, depressive symptoms and associated impairment may interfere with adaptive social functioning (e.g., Kazdin, Esveldt-Dawson, & Matson, 1982) and may evoke negative responses from peers (Rudolph, Hammen, & Burge, 1994).

Complementing the recent conceptual shift toward integrative models, researchers have examined the interplay among cognitions, interpersonal adjustment, and depression. Two studies of pure-depressed, comorbid-depressed, and normal control youngsters (Sanders, Dadds, Johnston, & Cash, 1992; Stark, Humphrey, Laurent, Livingston, & Christopher, 1993) revealed that diagnostic groups could be discriminated best by considering composite profiles of cognitive, behavioral, and family variables. Attempting to discern the precise mechanism underlying the joint effect of cognitions and competence on depression, investigators have put forth moderator and mediator models. Moderator, or diathesis-stress, models predict that maladaptive cognitions will lead to depression in children with stressful social relationships, but not in children without social difficulties. Mediator models predict that negative cognitions contribute to social difficulties or that social difficulties contribute to negative cognitions, which then may lead to depression.

In an empirical comparison of these models, Cole and Turner (1993) reported that the impact of low peer-rated competence on depression was mediated by children's self-cognitions (depressive attributional style and negative cognitive errors). They suggested that aversive competence-based evaluations may be internalized in the form of self-critical cognitions, which then induce depression. Little support was obtained for a diathesis-stress model—neither attributional style nor cognitive errors interacted with competence in the prediction of depression. In contrast, Panak and Garber (1992) found that depressive attributional style increased children's risk for subsequent depression in the face of stress (increases in peer rejection). Harter, Marold, and Whitesell (1992) demonstrated that lack of social support from family and peers partially mediated the relation between negative judgments about one's competence and depression.

These investigations have paved the way for researchers interested in linkages among cognitions, interpersonal competence, and depression, but they leave several unanswered questions. Most importantly, cognitive theories of child depression have focused almost exclusively on self-cognitions. Yet several lines of evidence attest to the importance of expanding models beyond the level of self-representation. For instance, studies have revealed a higher likelihood of depressive cognitions in the *social* arena than in other competence domains (Leitenberg et al., 1986; Robins & Hinkley, 1989), and researchers have noted the potent role of *interpersonal* stress in child depression (Hammen & Goodman-Brown, 1990; Renouf & Harter, 1990).

The interpersonal context of depression also has implications for the *emergence* of maladaptive cognitions. Researchers have speculated about the process by which early family socialization may influence the formation of children's belief systems. For instance, theorists have postulated that experiences are internalized in the form of "working models" (Bowlby, 1980; Main, Kaplan, & Cassidy, 1985) or "interpersonal schemas" (Baldwin, 1992; Safran, 1990). These internal knowledge structures presumably contain assumptions and expectations about self and others in a social context and regulate the processing of information about interpersonal events and relationships. Over time, cognitive representations of the family are believed to generalize to other close relationships, such as those with peers, and to guide the unfolding of general patterns of social relatedness.

This backdrop of dysfunctional interpersonal cognitions and social impairment may set the stage for future depression (Cummings & Cicchetti, 1990;

Hammen & Rudolph, 1996). Indeed, preliminary data have linked depression to negative reports and memories of parent-child relationships characterized by diminished involvement, cohesion, expressiveness, support, communication, affection, and nurturance, and heightened guilt induction, authoritarianism, conflict, intrusiveness, and overprotection (e.g., Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; Hops et al., 1990; Lizardi et al., 1995; Pappini, Roggman, & Anderson, 1991; Parker, 1981). Findings in the peer domain have been equivocal, with some investigators finding a positive relation between depression and negative appraisals of peers (e.g., Armsden et al., 1990; Lewinsohn et al., 1994) and others observing an inverse relation (e.g., Barrera & Garrison-Jones, 1992).

Prior investigations are limited by their primary focus on retrospective accounts of adolescents or young adults, a restricted range of interpersonal cognitions, and perceptions of the family rather than peers. The first goal of the present study was to extend these findings to school-age children and to a wider array of cognitive representations. Theoretical conceptualizations of the structure and content of working models and interpersonal schemas (e.g., Baldwin, 1992; Westen, 1991) have distinguished three aspects of internal representations: (a) generalized knowledge or impressions about relationships, (b) situation-specific formulations of interpersonal events, and (c) social-information-processing mechanisms. Mapping onto these hypothesized features of representations, we used self-report questionnaires and memory-based measures to assess (a) global perceptions of self, family, and peers, (b) prototypical expectancies as to the outcomes of specific interpersonal encounters, and (c) schematic processing of interpersonal information. We expected that children with higher levels of depressive symptoms would possess more negative representations of self and others in an interpersonal context than would nonsymptomatic children and would demonstrate biased interpersonal information processing (i.e., greater *relative* recall of negative interpersonal information when presented with equivalent amounts of negative and positive information).

Second, we sought to address an unresolved issue in the study of depressive cognitions. Research has indicated that negative cognitions may be nonspecific correlates of internalizing psychopathology rather than unique characteristics of depressed youngsters (Garber et al., 1993; Laurent & Stark, 1993). Thus, we explored the relative contributions of depressive and anxiety symptoms to children's negative representations.

Our third goal was to evaluate a cognitive-interpersonal model of child depression that hypothesizes linkages among cognitive representations of family and peers, peer rejection, and depressive symptoms. In line with theory and empirical data described earlier (Cummings & Cicchetti, 1990; Hammen & Rudolph, 1996; Harter et al., 1992), we predicted that the link between cognitive representations and symptoms may be explained through two pathways: (a) a *direct* path, whereby negative cognitive representations of family and peer relationships predict depressive symptoms and (b) an *indirect*, mediational path, whereby negative cognitive representations of peers undermine peer relationships and increase the likelihood of peer rejection, which then intensifies depression.

To examine whether the hypothesized pathways constitute a better model than feasible alternatives, we also tested two other models. First, we examined whether the proposed relations could be explained by the opposite direction of influence—that is, could depressive symptoms and peer rejection lead to negative cognitive representations? Although comparison of the original model with this alternative implies a determination as to a temporal and perhaps causal sequence, the models were tested within a cross-sectional design, which provides a useful foundation for early model development (Cole & Turner, 1993). Second, we evaluated whether it was important to distinguish between domain-specific versus generalized cognitive representations. To address this question, we incorporated family and peer representations into a single composite factor, which was used to predict peer rejection and depression.

METHOD

Participants

The 81 participants were recruited from elementary schools in Los Angeles and comprised a subgroup of 161 children who have been described in previous reports (Rudolph et al., 1994; Rudolph, Hammen, & Burge, 1995). Participants were selected from the larger sample based on the availability of teacher data. This subsample was 40% male and the mean age was 9.65 years (SD = 1.22). The ethnic

composition was 65% Caucasian, 11% Asian American, 10% African American, 6% Latino, and 8% of mixed ethnicity. Children came from lower- to upper-middle socioeconomic backgrounds and 29% lived in single-parent households.

Procedures

Consent forms were distributed in classrooms and were brought home for parent signatures. Children were asked to sign assent forms at the time of testing. The participation rate was 50%. Measures of cognitive representations and symptoms were individually administered by a clinical psychology graduate student and trained undergraduates. Each form was read aloud while children provided written responses. Interviews ranged from 60 to 90 min; when testing exceeded 1 hour, questionnaires were administered in two sessions.

Measures

Children's Depression Inventory (CDI; Kovacs, 1980/81). The CDI is the most widely used self-report measure of depressive symptoms in children. For each of 27 items, children endorse one of three symptom descriptions, graded in severity from *none* (0) to *severe* (2). Adequate internal consistency and test-retest reliability have been established (Kovacs, 1980/81; Smucker, Craighead, Craighead, & Green, 1986).

Revised Child Manifest Anxiety Scale (RCMAS; Reynolds & Richmond. 1978). The RCMAS surveys the presence of anxiety symptoms and yields an anxiety score ranging from 0 to 28. Sound psychometric properties have been documented, with reliability coefficients > .80 (Reynolds & Richmond, 1978).

Perceptions of Peers and Self Questionnaire (POPS; Rudolph et al., 1995). The POPS consists of 27 items that reflect general appraisals of peers, friendships, and self in the context of peer relationships. The 12 peer items pertain to social attributes such as empathy, loyalty, and dependability (e.g., "Friends will usually stick up for you when you're in trouble"). The 15 self items pertain to two dimensions of self-concept: beliefs about specific social competencies (e.g., "I am good at making other kids laugh") and beliefs about social self-worth or ability to be a good friend (e.g., "It's a waste of other kids' time to be friends with me"). Each item is rated on a scale of 1 (*not at all true*) to 4 (*very much true*). Internal consistency coefficients in the current sample were .78 (peer), .87 (self), .74 (self-competence), and .80 (self-worth). One- and 5-month test-retest reliabilities range from .55 to .69. Construct validity has been established through correlations with other measures of peer representations and social competence (Rudolph et al., 1995).[4]

Child's Report of Parental Behavior Inventory—Revised (CRPBI; Margolies & Weintraub, 1977). The CRPBI examines children's perceptions of their parents' child-rearing styles. The Maternal Acceptance subscale (alpha = .94) only was administered due to its conceptual similarity to the other measures of mother/family representations included in this study. Children rate their mothers on a scale of 0 (*not at all true*) to 2 (*very true*) for 24 items reflecting acceptance of the child (e.g., "My mom seems proud of the things I do"). One- and 5-month test-retest reliabilities of .77 and .73 have been reported (Rudolph et al., 1995).

Social Support Appraisals Scale (APP; Dubow & Ullman, 1989). Children provide a rating of 1 (*never true*) to 5 (*always true*) for 31 questions reflecting perceived social support provided by their family, peers, and teachers (e.g., "Do you feel like your family is there when you need them?" "Can you count on your friends for help or advice when you have problems?"). In this sample, Cronbach's alphas were .87 (family) and .90 (peer); the Teacher scale was not included. One-and 5-month test-retest reliabilities range from .55 to .87 (Rudolph et al., 1995). The scale was recoded so that its direction would be parallel to the other cognitive measures.

Children's Expectations of Social Behavior Questionnaire (CESBQ; Rudolph et al., 1995). The CESBQ examines children's predictions about the outcomes of interpersonal encounters. Thirty vignettes describe hypothetical transactions between children and their mother or peers. Each item is followed by three alternatives reflecting either *supportive, indifferent,* or *overtly hostile* interpersonal responses by others (scored as 0, 1, and 2, respectively). The 15 mother items (alpha = .72) and 15 peer items (alpha = .83)

[4]The POPS was added to the protocol after data from 12 of the children had already been collected. In order to include the entire sample in our analyses, these children were assigned the mean score on the peer and self subscales for their respective symptom groups. Results were parallel for analyses conducted on the POPS with and without these 12 subjects.

are summed separately to form two scores that represent children's expectations in these two domains. A sample item is as follows: "You're on the playground at lunchtime and one of the older kids comes up and starts to pick on you. What do you think the kids in your class might do? (a) They might stick up for me and tell the older kid to leave me alone [*supportive*], (b) They might just walk away so that they don't get picked on also [*indifferent*], or (c) They might join in with the older kid and start teasing me [*hostile*]." Development and validation of this measure have been previously reported. One- and 5-month reliability coefficients range from .68 to .91 (Rudolph et al., 1995).

Story Task (Rudolph et al., 1995). Designed to examine the processing of interpersonal material, this task is based on the assumption that incoming information is filtered through cognitive schemas. Thus, children presumably will more readily encode and recall material that is consistent with their preexisting schemas. Children are read a story, written in the first person, about daily interactions between a hypothetical mother and child. Nine positive (e.g., helpful, comforting) and nine negative (e.g., upset, grouchy) maternal attributes are mentioned in the context of typical mother–child transactions. At the end of the story, subjects are asked unexpectedly how the child described the mother. The negativity of children's maternal schemas was computed as a proportion score representing the number of negative descriptions recalled divided by the total number of descriptions recalled. Scores on the Story Task have been found to be associated with other measures of mother/family representations (Rudolph et al., 1995).

Levels-of-Processing Task (LOP; Rudolph et al., 1995). The LOP Task, adapted from past studies of self-schemas in children (e.g., Hammen & Zupan, 1984), also examines schematic organization and processing of information. Cognitive schemas are presumed to guide attention and memory, resulting in the enhanced encoding and/or selective retrieval of schema-congruent information. In the present study, maternal cognitive schemas are activated by prompting children to evaluate whether or not particular interpersonal attributes are descriptive of their mothers. Processing of mother-related information on this task has been linked to other measures of maternal representations (Rudolph et al., 1995).

Children are presented with 22 positive (e.g., *loving, patient*) and 22 negative (e.g., *strict, mean*) interpersonal attributes. The interviewer asks in randomized order one of two questions about each adjective: (a) Does this word describe your mother? [*mother-referent*] or (b) Is this word in capital letters? [*structural*]. Responding to the mother-referent probe is presumed to require a deeper level of processing than the structural probe, which requires only a decision about superficial structural characteristics of the word. After completing the ratings, children are asked unexpectedly to recall as many adjectives as possible. Four scores were computed: proportions of yes-rated negative and positive mother-referent adjectives recalled and proportions of yes-rated negative and positive structural adjectives recalled.

Peer Rejection. Classroom teachers rated children's level of peer rejection on a scale of 1 (*not at all rejected*) to 5 (*to a large degree rejected*).

RESULTS

Two symptoms groups were created based on a cutoff score of 9 on the CDI, which has been found to be an indicator of mild depressive symptomatology. The low-symptom group was composed of 51 children who scored below 9 ($M = 3.73$; $SD = 2.31$) and the high-symptom group was composed of 30 children who scored at or above 9 ($M = 13.87$; $SD = 4.63$). No significant differences between symptom groups were found in gender, $\chi^2(1) = .60$, n.s., age, $t(79) = .26$, n.s., or ethnicity, $\chi^2(5) = 3.48$, n.s.

Effects of Demographic Variables on Cognitive Representations and Peer Rejection

We first explored whether cognitive representations differed as a function of gender, age, or the interaction between these factors and depression. The nine measures of representations (CESBQ-Mother, CRPBI, APP-Family, Story Task, LOP Task composite score, CESBQ-Peer, POPS-Peer, APP-Peer, POPS-Self) were subjected to a 2 × 2 × 2 [Gender × Age × Symptom Group] multivariate analysis of variance (MANOVA). Only a significant multivariate effect of symptom group was found, $F(1, 72) = 20.31$, $p < .0001$. Cognitive representations did not differ as a function of ethnicity (Caucasian vs. Non-Caucasian) or family structure (single- vs. two-parent household). Likewise, demographic groups did not differ on ratings of peer rejection (*ps* > .05).

Table I. Comparisons of Low-Symptom and High-Symptom Groups on Negativity of Cognitive Representations[a]

	Low-symptom (n = 51)	High-symptom (n = 30)	t-Value	p-Value[b]
Mother/family	2.80 (2.68)	6.70 (3.57)	5.57	.0000
Expectations (CESBQ)	6.90 (7.70)	11.93 (10.21)	2.51	.0070
Perceptions (CRPBI)	16.57 (5.89)	21.70 (7.42)	3.44	.0005
Social Support (APP)	.59 (.24)	.69 (.17)	2.14	.0180
Story Task—negativity index				
Peer				
Expectations (CESBQ)	2.71 (3.76)	5.70 (5.22)	2.99	.0020
Perceptions (POPS)	9.00 (4.87)	14.57 (4.61)	5.07	.0000
Social Support (APP)	26.73 (8.47)	33.63 (9.55)	3.38	.0005
Self (POPS)	8.41 (5.77)	14.03 (7.16)	3.87	.0000

[a]CESBQ = Children's Expectations of Social Behavior Questionnaire; CRPBI = Child's Report of Parental Behavior Inventory; APP = Social Support Appraisals Scale; Story Task—negativity index = proportion of negative descriptions recalled; POPS = Perceptions of Peers and Self Questionnaire. Higher scores indicate more negative cognitive representations.
[b]One-tailed significance levels.

Comparisons Between Symptom Groups on Cognitive Representations

The significant multivariate effect for symptom group was explored further with a series of univariate t tests. Table I shows that high-symptom children reported significantly more negative representations in each domain than did low-symptom children. These results indicate that symptomatic children (a) viewed their mother/family and peers as less accepting, trustworthy, and supportive, (b) had more pessimistic expectancies regarding outcomes of interpersonal transactions, and (c) perceived themselves as less competent and worthy in the context of peer relationships than did nonsymptomatic children.

To test whether low- and high-symptom children showed distinct patterns of cognitive processing, groups were compared on their incidental recall on the memory tasks. Analyses for the Story Task indicated significantly greater relative recall of negative maternal attributes in the high- than low-symptom group (see Table I). Following prior research with the Levels-of-Processing Task, which has suggested that the variable of interest may be the *relative* recall of negative versus positive information (Hammen, Miklowitz, & Dyck, 1986; Hammen & Zupan, 1984), planned comparisons were conducted to examine the relative recall of positive and negative adjectives within each symptom group. Low-symptom children recalled significantly more yes-rated positive (M = .25; SD = .17) than negative (M = .14; SD = .24) mother-referent adjectives, $t(49) = 3.14$, $p < .005$. This group did not differ in recall of yes-rated positive (M = .16; SD = .18) versus negative (M = .13; SD = .11) structurally encoded adjectives, $t(49) = 1.17$, n.s. High-symptom children showed no significant difference in their recall of positive (M = .21; SD = .11) versus negative (M = .17; SD = .25) mother-referent adjectives, $t(29) = .75$, n.s., or positive (M = .12; SD = .17) versus negative (M = .12; SD = .12) structurally encoded adjectives, $t(29) = .14$, n.s. Thus, relatively depressed children were more "even-handed" in their access to positive and negative views of the mother, whereas nonsymptomatic children were predominantly positive. The nondifferentiated recall of positive and negative *structural* adjectives in nonsymptomatic children discounts the possibility that this group merely demonstrated a general tendency to more readily recall positive material.

Relative Contribution of Depression and Anxiety to Negative Cognitive Representations

Our second goal was to test whether negative cognitive representations were related more strongly to depressive than anxiety symptoms. First, we conducted a series of hierarchical multiple regressions in which CDI scores were entered at the first step and RCMAS scores were entered at the second step. This procedure provided information about (a) the

Table II. Multiple Regressions for Predicting Negativity of Cognitive Representations from CDI and RCMAS Scores[a]

Criterion	Predictors	Standardized beta	Predictor *p*-value at final step[b]	Cumulative adjusted R^2
Mother/family				
Expectations (CESBQ)	CDI	.56	.0000	.33
	RCMAS	.02	n.s	.32
Perceptions (CRPBI)	CDI	.34	.0206	.13
	RCMAS	.04	n.s.	.12
Social Support (APP)	CDI	.41	.0038	.22
	RCMAS	.11	n.s.	.22
Story Task—negativity index	CDI	.33	.0360	.03
	RCMAS	-.18	n.s.	.03
Peer				
Expectations (CESBQ)	CDI	.51	.0002	.32
	RCMAS	.09	n.s.	.32
Perceptions (POPS)	CDI	.39	.0028	.31
	RCMAS	.24	.0578	.33
Social Support (APP)	CDI	.43	.0025	.23
	RCMAS	.08	n.s.	.22
Self (POPS)				
Total	CDI	.19	n.s.	.18
	RCMAS	.35	.0111	.23
Self-competence	CDI	.03	n.s.	.12
	RCMAS	.47	.0011	.22
Self-worth	CDI	.31	.0272	.19
	RCMAS	.20	n.s.	.21

[a]CDI = Children's Depression Inventory; RCMAS = Revised Child Manifest Anxiety Scale; CESBQ = Children's Expectations of Social Behavior Questionnaire; CRPBI = Child's Report of Parental Behavior Inventory; APP = Social Support Appraisals Scale; Story Task—negativity index = proportion of negative descriptions recalled; POPS = Perceptions of Peers and Self Questionnaire.

[b]Values reflect the level of significance for beta weights based on two-tailed *t* tests at the final step.

extent to which anxiety contributed to negative representations after partialing out the effects of depression and (b) the relative predictive power of depressive and anxiety symptoms when considered together. Table II shows that anxiety symptoms failed to make a contribution to mother/family or peer representations beyond depression, as reflected in the lack of change in cumulative R^2 and the nonsignificant *t* tests at the final step. Greater recall of negative maternal descriptions on the Story Task also was accounted for by depression alone, suggesting that anxiety did not make a unique contribution to children's processing of mother-relevant information.

For self representations, only anxiety contributed significantly to total scores on the POPS at the final step. When the two dimensions of self representations—social competence and social self-worth—served as outcome variables, an interesting pattern emerged: Anxiety, but not depression, contributed significantly to the prediction of low appraisals of competence. Conversely, depression, but not anxiety, contributed significantly to the prediction of low perceived self-worth within peer relationships.[5]

[5]To examine the unique contribution of depressive symptoms after controlling for anxiety, we also conducted a parallel set of analyses in which the order of entry of predictors was reversed. For mother/family representations, depression accounted for an increment in variance ranging from 4% (Story Task) to 16% (CESBQ). For peer representations, depression accounted for an increment in variance ranging from 7% (POPS) to 13% (CESBQ). Depression accounted for an additional 1% of variance in total self-representations, no additional variance in social self-competence, and an additional 5% of variance in social self-worth. Once depression had been entered, anxiety dropped from the equation for all measures, with the exception of the total self-representations and self-competence scores. Because questions of specificity similarly apply to the differentiation of depression from externalizing behavior problems, we also conducted a series of hierarchical multiple regressions to examine the relative contributions of depressive and externalizing symptoms (Conners' Abbreviated Teacher Rating Scale; Conners, 1973). After controlling for depression, externalizing symptoms made a significant contribution only to the prediction of greater recall of negative maternal descriptions on the Story Task.

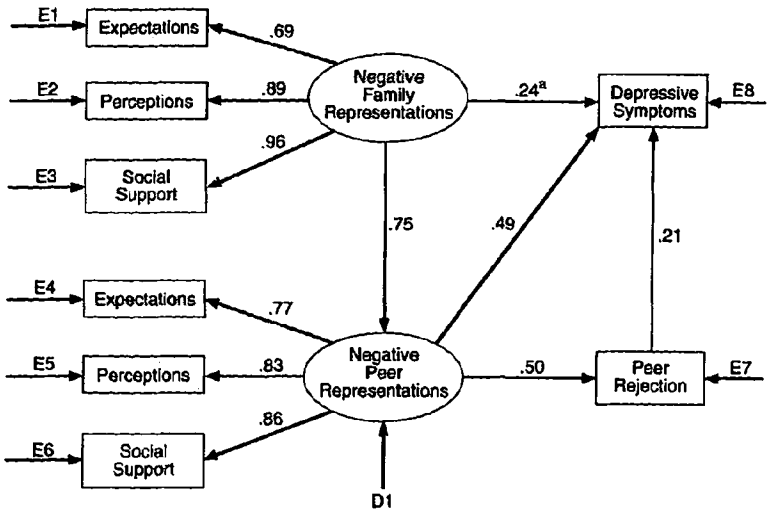

Fig. 1. Standardized solution using the generalized least-squares method under the arbitrary distribution theory (AGLS). Numbers adjacent to arrows represent standardized beta coefficients. Path labeled [a] was nonsignificant. All other effects were significant ($ps < .05$).

Integrative Cognitive-Interpersonal Model of Depression

Finally, we tested our integrative model linking negative cognitive representations, peer rejection, and depression. The hypothesized model is shown in Fig. 1.

Mother/family representations were represented by a latent variable composed of the following indicators: expectations of mother (CESBQ), perceptions of maternal acceptance (CRPBI), and appraisals of family social support (APP). Peer representations were represented by a latent variable composed of parallel peer indicators: expectations of peers (CESBQ), perceptions of peers (POPS), and appraisals of peer social support (APP). Depressive symptoms and peer rejection were observed variables, assessed directly with CDI and teacher ratings, respectively. Based on a multivariate analysis for outliers, one case was deleted. Table III displays the correlation matrix for the eight measured variables for the remaining 80 cases.

The hypothesized model was evaluated using Bentler's (1989) EQS program for structural equation analysis. Examination of the kurtosis estimates revealed that some of the variables deviated from multivariate normality (Mardia's normalized multivariate kurtosis = 7.6). Thus, the model was evaluated using the generalized least-squares method under the arbitrary distribution theory (AGLS), which makes no prior assumptions about the multivariate normality of the data. The goodness-of-fit chi-square statistic was nonsignificant, $\chi^2(17, N = 80) = 25.69, p = .08$ (normed fit index (NFI) = .85, nonnormed fit index (NNFI) = .90, comparative fit index (CFI) = .94), suggesting that the estimated covariance matrix did not differ significantly from the actual sample covariance matrix and that the proposed model adequately fit the data. Fit indexes derived under the AGLS method specifically for nonnormal data had values of .96 (Fit index) and .91 (Adjusted Fit index). The model accounted for 67% of the overall variance in depressive symptoms. Standardized path coefficients are presented in Fig. 1. Each of the parameters was significant ($ps < .05$), with the exception of the direct path between family representations and depressive symptoms. Contrary to predictions, therefore, family representations had only an *indirect* relation with depression. Decomposition of the effects of negative family representations on peer rejection revealed that the total effect of the family representations factor on rejection was identical to the indirect effect, thereby indicating the absence of a direct path between the family factor and rejection.[6]

[6]When anxiety was substituted for depression, the model accounted for 35% of the variance in symptoms.

Table III. Intercorrelations Among Negative Mother/Family and Peer Representations, Depressive Symptoms, and Peer Rejection[a]

	Mother/family			Peer				
	1	2	3	4	5	6	7	8
1. Expectations (CESBQ-M)	–	.43	.53	.52	.45	.32[d]	.58	.26[c]
2. Perceptions (CRPBI)		–	.85	.37	.47	.49	.37	.24[b]
3. Social Support (APP-F)			–	.48	.51	.54	.48	.29[d]
4. Expectations (CESBQ-P)				–	.58	.61	.64	.26[c]
5. Perceptions (POPS-P)					–	.62	.62	.39
6. Social Support (APP-P)						–	.50	.36
7. Depressive symptoms (CDI)							–	.40
8. Peer rejection								–

[a]CESBQ-M = Children's Expectations of Social Behavior Questionnaire—Mother; CRPBI = Child's Report of Parental Behavior Inventory; APP-F = Social Support Appraisals Scale—Family; CESBQ-P = Children's Expectations of Social Behavior Questionnaire—Peer; POPS-P = Perceptions of Peers and Self Questionnaire—Peer; APP-P = Social Support Appraisals Scale—Peer; CDI = Children's Depression Inventory. All *ps* < .001 unless otherwise noted.
[b]$p < .05$.
[c]$p < .01$.
[d]$p < .005$.

We then tested our two alternative models. First, we evaluated a model in which negative cognitive representations were presumed to be a consequence of depressive symptoms and peer rejection. We reversed the paths linking depressive symptoms with negative mother/family and peer representations, the path linking peer rejection with negative peer representations, and the path linking depressive symptoms with peer rejection. Using the AGLS method, the goodness-of-fit statistic was $\chi^2(17, N = 80) = 25.70$, $p = .08$ (NFI = .85, NNFI = .90, CFI = .94, Fit = .96, Adjusted Fit = .91). These parameters demonstrated a fit equivalent to our original model, but the pattern of significance of specific pathways differed. First, the direct path from depressive symptoms to negative mother/family representations was significant (standardized beta = .68), due to the reversal of the arrow between depressive symptoms and negative peer representations. This reversal eliminated the *indirect* effect of family representations on symptoms, causing this relation to be reflected in the *direct* path. Second, when the direction of the arrow between negative peer representations and rejection was reversed, this path was no longer significant (standardized beta = .11). All other parameters remained significant (*ps* < .05).

The second alternative model was designed to assess the importance of discriminating between family and peer representations. A single latent variable, reflecting generalized negative cognitive representations, was constructed from all six family and peer measures. The model included this composite factor as a predictor of depressive symptoms and peer rejection, as well as rejection as a predictor of symptoms. Under arbitrary distribution theory, the chi-square statistic was $\chi^2(19, N = 80) = 35.55$, $p = .01$ (NFI = .79, NNFI = .83, CFI = .88, Fit = .94, Adjusted Fit = .89). These results indicate a generally inadequate fit, suggesting that family and peer representations played distinct roles in the determination of peer rejection and depression.

DISCUSSION

The present study provided empirical validation of a cognitive-interpersonal formulation of depressive symptoms in a community sample of children. Combined results from univariate analyses and structural equation modeling were consistent with an integrative model of linkages among negative cognitive representations of self and the social world, poor peer relations, and depression.

Negative beliefs about the self in the context of peer relationships were evident in children with elevated symptom levels. Symptomatic children also manifested markedly negative impressions of their family and peers and they tended to make pessimistic predictions about the interpersonal responses of others. These results underscore the need to supplement assessments of self-referent cognitions with the examination of interpersonal cognitions in depressed youth. Our finding that symptomatic children regarded their peers less favorably than nonsymptomatic children was inconsistent with one prior study of *adolescents* (Barrera & Garrison-Jones, 1992). As

youngsters individuate from their families and as the peer group becomes a haven for comfort, depressed teens may begin to actively seek peer support and thus to perceive their peers in a more positive light. Resolving this difference in findings and clarifying the significance of family versus peer representations across the life span await further examination. Because the absence of age effects in the present study may have resulted from the use of a constricted age range, possible developmental trajectories need to be explored in samples that include both preadolescents and adolescents.

Distinct patterns of information processing further confirmed the operation of negative interpersonal schemas. On the Story Task, high-symptom children showed enhanced retrieval of negative maternal descriptions and behaviors, suggesting that this group may be more likely to attend to and/or recall aversive interpersonal experiences. The LOP Task revealed that symptomatic children were distinguished by their mixed maternal schemas, whereas low-symptom children recalled significantly more positive than negative mother-referent information. Thus, although depressed children did not demonstrate greater absolute recall of negative mother-referent adjectives as might be expected, they did show *proportionately* greater recall of negative versus positive information when compared to the low-symptom group, which showed a positivity bias. The pattern observed here mirrors that obtained in studies of self-schemas in depressed children (Hammen & Zupan, 1984) and adults (Hammen et al., 1986), and extends schema-based models of depression to include the processing of *interpersonal* information. Because memory measures may be less subject to reporting biases, these findings represent an important complement to self-report data. Yet the results provided information only about cognitive processing of hypothetical mother-child transactions and isolated interpersonal attributes, leaving open the question of whether similar phenomena occur in the processing of *in vivo* social encounters.

When the relative influences of depression and anxiety were considered, anxiety did not provide a unique contribution to negative representations of mother/family and peers. In contrast, symptom-specific profiles were found for representations of self in peer relationships: Anxiety contributed to low perceived social self-competence, whereas depression contributed to low perceived social self-worth. Anxious and depressed children therefore may possess negative beliefs about different aspects of their relationships. Additional research is needed to examine cognitions in subgroups of children with internalizing problems, as well as the specificity of negative self and other representations to internalizing versus externalizing psychopathology.

Finally, structural equation analysis upheld the validity of an integrated model of cognitive, interpersonal, and affective functioning, with one exception: The direct path between negative family representations and depressive symptoms was nonsignificant. Thus, the family's contribution to depression was mediated by negative peer representations. Failure of our second alternative model to adequately explain the data substantiated the importance of discriminating between representations of family and peers in the prediction of functioning.

Previous multifaceted formulations of child depression often have been presented as unidirectional models. The test of our first alternative model revealed the importance of explicitly examining directions of influence—a model in which depressive symptoms lead to negative cognitive representations and peer rejection fit the data equally well. However, the nonsignificant path from peer rejection to negative peer representations was not consistent with a model in which rejection precipitates negative beliefs about peers.

It is essential to note that the cross-sectional nature of the data precludes conclusions about causal linkages or temporal relationships. Thus, decisions about the directionality of pathways in the current study were theoretically driven, and comparison of alternative models is of heuristic value only. In fact, several etiological mechanisms could explain the observed relations (see Weisz et al., 1992). According to a cognitive-distortion model, negative cognitive representations would reflect depressogenic biases or faulty information-processing systems. In contrast, a deficit model would hold that children's negative representations reflect veridical appraisals of their own incompetence and the negativity of their social worlds. Even more complex models may apply. Depressed children may manifest cognitive distortions above and beyond true deficits. Alternatively, negative representations may engender actual impairment or may perpetuate prior incompetence. Or early exposure to aversive family relationships may disrupt both cognitive and interpersonal functioning, thereby augmenting children's vulnerability to depression. Clearly, disentangling this intricate network of interlocking relations can be accomplished only in the context of prospective studies that account for reciprocal and synergistic pathways across development.

This study expands previous research on multidimensional models of psychosocial functioning and depression by examining children's cognitive representations of relationships. The strength of the structural equation modeling approach lies in its ability to examine simultaneously a network of complex relations rather than merely zero-order correlations between pairs of measures. Nonetheless, several caveats deserve mention regarding our model. First, because of the predominance of self-report measures, shared method variance may have caused inflated estimates of the relations among constructs (see Cole, 1990). Ideally, each of the constructs would have been tapped using at least two separate sources of information, although cognitions are subjective experiences/processes that inherently are difficult to assess through multiple informants. Second, the use of single operationalizations of depressive symptoms and peer rejection may have led to an underestimation of true relations (see Cole, 1990). Substantiating hypotheses concerning the link between depression and social impairment will therefore require models that include more comprehensive measures of psychopathology and interpersonal competence.

The current study also was limited in terms of its generalizability. Because data involved self-report of depressive symptoms in a community sample, the relevance of these findings to clinical depression remains unclear. Finally, our structural model inevitably was constrained by the selection of variables and should be viewed as a foundation on which to build more complex cognitive-interpersonal models of depression, which incorporate other important predictors, such as coping resources, stressful life events, genetic/biological vulnerabilities, and family psychopathology (see Hammen & Rudolph, 1996). Critical advances in the field also would be achieved by investigations directed at comparing moderator versus mediator models (e.g., Cole & Turner, 1993). The time seems ripe for child depression research to progress beyond isolationist approaches, which focus on separate domains of adjustment, and to proceed toward more systematic efforts to develop and validate multifaceted, theoretically driven models.

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