

A COMPETENCY-BASED MODEL OF DEPRESSION IN CHILDREN:
SELF-PERCEIVED COMPETENCE AS A MEDIATOR OF THE
RELATIONS OF PARENTING AND NEGATIVE LIFE
EVENTS TO DEPRESSIVE SYMPTOMS

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CHAPTER I

INTRODUCTION

Depression represents a serious mental health problem in young people. Recent estimates of the 6-month prevalence of depressive disorders for community samples are 1 to 3% in school-age children and 5 to 6% in adolescents. In clinical samples, these rates increase to 8 to 15% for children and over 50% for adolescents (see Klein, Dougherty, & Olinio, 2005). In recent years, considerable research into the etiology and psychopathology of depression in children has been based on various cognitive models of depression. Many of these investigations have been based on the application of cognitive models of adult depression to younger populations, often without much consideration of developmental factors that may affect their applicability. Several of these adult models suggest that negative events activate previously established depressive self-schemas and this activation can lead to depressive symptoms (Abramson, Metalsky, & Alloy, 1986, 1989; Abramson, Seligman, & Teasdale, 1978; Beck, 1963). A major assumption of these models is that individuals have already established negative self-schemas that are available to be activated by the experience of negative life events. Research suggests that this assumption may not be viable in children as their self-schemas are still under construction (Cole, 1991; Felson, 1989; Zupan, Hammen, & Jaenicke, 1987).

In contrast to adult models, the competency-based model of depression (Cole, 1990, 1991) was designed specifically for children. It attempts to explain the processes underlying the construction of children's self-schemas as well as the role of these self-schemas in the development of depression. According to the competency-based model, childhood depression

can result when the typical developmental processes involved in the construction of self-perceived competence go awry (Cole, 1990, 1991; see also Blechman, McEnroe, Carrella, & Audette, 1986; Patterson & Stoolmiller, 1991). In healthy development, children are exposed to predominantly positive information about themselves from which they construct positive self-constructs, including feelings of competence. These positive self-constructs foster feelings of resilience and optimism. In contrast, when children are confronted with high levels of negative information about themselves, they are more likely to construct a negative sense of self, including feelings of incompetence. These negative self-constructs may engender feelings of pessimism and depression.

The information that children use in the construction of their sense of self comes from a variety of experiences, including parenting and negative life events. Children's experience of parenting is laden with self-competency relevant information. Developmental theories support this contention in that parents provide a context in which children learn about themselves, their abilities, and the world around them. Beck and Young (1985) suggested that a "child learns to construct reality through his or her early experiences with the environment, especially with significant others. Sometimes, these early experiences lead children to accept attitudes and beliefs that will later prove maladaptive" (p. 207). From a cognitive-developmental perspective, parenting consists of a collection of patterned behaviors that convey information to the child, which may then be internalized by the child during self-concept development. Parenting characterized by warmth, acceptance, allowance of autonomy, and high levels of positive reinforcement provides children with positive experiences and feedback that engender the development of positive views of self. In contrast, parenting characterized by criticism, rejection, over-control, and low levels of warmth and positive reinforcement conveys negative self-relevant

information, thereby engendering more depressogenic schemas (Cole, 1990; McCranie & Bass, 1984; see also Ainsworth, 1979; Bowlby, 1980, 1988).

Negative life events also convey information pertinent to the construction of a child's sense of self. Janoff-Bulman (1992) and Rose and Abramson (1992) suggested that people's views about themselves, the world, and the future are influenced by the experience of chronically aversive life circumstances and major traumatic life events. Abramson and colleagues (1989) suggested that the likelihood of developing depressogenic cognitions is even greater when the events are uncontrollable and result in multiple bad outcomes. Cole and Turner (1993) reminded us it is normative for young children to assume blame for negative life events, thereby constructing self-relevant information out of hardships for which they may have not had any real responsibility.

The primary focus of this paper is the relation of parenting and negative life events to depressive symptoms, and on the role of self-perceived competence as a mediator of this relation. First, we hypothesize that parenting and negative life events will predict changes in children's self-perceived competence over time. Second, we posit that children's self-perceived competence will be inversely related to changes in children's depressive symptoms over time. Third, we hypothesize that children's self-perceived competence will mediate the relations of parenting and negative life events to changes in depressive symptoms.

No study has examined this full mediational model but several studies have examined the individual bivariate relations inherent in this model. These include the following relations: 1) parenting and depressive symptoms; 2) negative life events and depressive symptoms; 3) parenting and self-perceived competence; 4) negative life events and self-perceived competence; and 5) self-perceived competence and depressive symptoms.

A large number of studies exist which examine relations between parenting behaviors and depression. An early literature review (Burbach & Borduin, 1986) suggested that several parenting characteristics, including low levels of care/affection, poor involvement, use of punitive child-rearing strategies, rejection, withdrawal, and criticism, show consistent relations with depression in offspring. Another review used meta-analytic techniques to examine the relations between parenting and depression (Gerlsma, Emmelkamp, & Arrindell, 1990). This review was somewhat limited in that it only included studies that used three specific measures of parenting and examined only two narrow dimensions of parenting, affection and control. The results were less consistent than the previous review, showing effects for both more and less parental control and both more and less parental affection, although the authors state that the largest effect sizes were found for low levels of affection and high levels of control. In more recent studies of parenting and depression, several trends are notable. First, there has been an increase in studies using younger samples (e.g., Dallaire et al., 2006; Finkenauer, Engels, & Baumeister, 2005). This permits an examination of the role of parenting earlier in the development of depression and relies less heavily on long-term retrospective reports of parenting behaviors. Second, more studies are relying on longitudinal approaches as they begin to examine the potentially causal role of parenting in the development of depression (e.g., Dearing, 2004; Kim et al., 2003; Liu, 2003). Unfortunately, relatively few of these studies have used data analytic strategies that control for prior levels of depression. The current study will use a longitudinal design and control for prior levels of depression. Finally, some studies use a global composite of parenting behaviors which includes both positive and negative parenting (e.g., Forgatch & DeGarmo, 1999). Dallaire and colleagues suggest that combining negative and positive parenting behaviors is unwarranted as these represent nearly orthogonal dimensions of

parenting, both of which show independent relations to depressive symptoms. The current study will examine these two dimensions separately.

Several excellent reviews of the relation between stress and depression have been written in recent years (e.g., Hammen, 2005; Kessler, 1997; Mazure, 1998; Paykel, 2003; Tennant, 2002). All of these reviews reach the same general conclusion: there is a consistent association between the experience of stressful life events and depression. Despite this consensus, the authors note several concerns with existing studies and provide suggestions for future research. One major concern is the inability of many studies to assess the directionality of the relation between stress and depression. In the current study we will employ a longitudinal design also in order to control for prior levels of depression. Also notable is that the majority of studies included in these reviews use adult samples. The current study will use a sample of children ranging from 7 to 16 years old allowing for an investigation of the relation of stress and depressive symptoms at younger ages. Not only do we expect stress and depression to be related in children (see Cole, Nolen-Hoeksema, Girgus, & Paul, 2006; Morales & Guerra, 2006), but by following children longitudinally, the current study will also allow us to assess change in this relation across childhood and early adolescence.

Some research on the role of parents in the development of children's self-perceived competence has focused on the relation between parents' and children's evaluations of the child's competence (e.g., Cole, Jacquez, & Maschman, 2001; Cole, Maxwell, & Martin, 1997). This assumes that parental evaluations are conveyed to the child either directly (i.e., parent's verbalize them) or indirectly (i.e., in the way they treat their child). In contrast, the current study focuses on the parenting to which children are exposed. Studies that examined relations between parenting behaviors and children's self-perceived competence generally found that high levels of

positive parenting (e.g., involvement, acceptance, warmth, support, positive communication) and low levels of negative parenting (e.g., hostility, physical coercion, neglect, demanding, rigid control) are related to higher levels of self-perceived competence in children (e.g., Callahan, Cornell, & Loyd, 1990; Coplan, Findlay, & Nelson, 2004; Laible & Carlo, 2004; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Richman & Rescorla, 1995; Wagner & Phillips, 1992).

Research examining the effects of negative life events on children's self-perceived competence is quite limited (Muldoon & Trew, 2000; Tram & Cole, 2000). In a sample of ninth graders, Tram and Cole found that stressful life events predict self-perceived competence in multiple domains even after controlling for prior levels of perceived competence. Muldoon and Trew employed a younger sample (ages 8 to 11); however they were mainly interested in the effects of political conflict in Northern Ireland on children's perceptions of behavioral competence. They found a relation between political conflict and perceived competence, and also found that non-conflict related events had no effect over and above the conflict related stress. Research is needed that focuses on a larger age range, examines a wider variety of stressors, and utilizes longitudinal methods in order to understand better the effects that stressful life events may have on children's development of their sense of competence. The current study will attempt to fill this gap in the literature.

The final relation inherent in the proposed mediational model is the relation between self-perceived competence and depression. This relation has received a great deal of attention with research consistently demonstrating a relation between children's perceptions of competence and depression. This relation has been demonstrated both cross-sectionally (e.g., McClure, Rogeness, & Thompson, 1997; Seroczynski, Cole, & Maxwell, 1997) and longitudinally, controlling for prior levels of depression (e.g., Jacquez, Cole, & Searle, 2004; Tram & Cole, 2000). Given the

role of self-perceived competence in the development of depression in children, it is important to understand the factors that contribute to children's beliefs about their competence.

The current study examines the relations of parenting and negative life events to depression, and the role of self-perceived competence as a mediator of these relations. We designed this study to extend the existing literature in several ways. First, we used a cohort-sequential longitudinal design following children longitudinally beginning at three different ages. This allows us to examine the proposed mediational model at different ages. The longitudinal design also permits us to control for prior levels of key variables including depression and competence, which are often confounds in testing mediation (Cole & Maxwell, 2003; Gollob & Reichardt, 1991). Second, we focus on the parenting to which children are exposed instead of parental beliefs about children's competence. Our parenting measure also permits a separate examination of positive and negative parenting, two dimensions which have been shown to be nearly orthogonal and make unique contributions to depression. Finally, by collecting data on parenting, negative life events, self-perceived competence and depression at all waves of the study, we can examine the full mediation model proposed by a competence-based model of depression. We hypothesize that the relations of parenting and negative life events to depression will be mediated by children's self-perceived competence.

CHAPTER II

METHOD

This study is part of a three-wave cohort sequential investigation of the developmental origins of depressive cognitions in children with one year separating adjacent waves. Although other papers have emerged from this investigation, this is the first to examine the mediating role of self-perceived competence in the relations of negative life events and parenting to depressive symptoms.

Participants

At the beginning of the study, we recruited participants from five elementary and two middle schools in a major southeastern metropolitan area. We distributed consent forms to parents of 1040 students in second, fourth, and sixth grade. Consent forms were returned by 660 parents with 526 parents agreeing to let their child participate. Eleven of the students for whom we had consent did not participate as a result of moving out of the school district or chronic absenteeism, leaving an initial sample of 515 students.

Repeated residential relocation was very common for our participants with some children moving as many as 6 times over the course of one year. School principals reported that only 30-40% of the students would finish an academic year in the school where they started. Tracking our participants over the course of this longitudinal study required repeated mailings and phone calls to parents as well as other family members and friends (whose names had been provided as contact people). We examined school records, conducted web searches, and consulted city and

school data bases in order to track participants. Although we collected 92% of the data at participating schools, we also provided cab fare to families to come to the university when they had moved to nonparticipating school districts.

Each year, we lost students primarily due to their moving out of the school district. Each year we also added students who had recently moved into the school district. This strategy resulted in approximately equal sample sizes for all waves. At the beginning of wave 1, students in cohorts A, B, and C were in third, fifth, and seventh grades respectively. A total of 755 students participated in at least one wave of the study (see Table 1 for numbers of students participating by wave and cohort). Over these three waves, missing data fell into two general patterns: 35% of students missed one of the three waves of data collection and 36% missed two of the three waves of data collection. The remaining 29% of students completed questionnaires at all three waves of data collection. We assessed the impact of “missingness” by comparing each of the two missing-data groups to participants who were present for all three waves. We examined group differences on several demographic variables and all study variables. Of 38 such comparisons, 2 were statistically significant at $p < .05$ (approximately as many as would be expected by chance).

Table 1
Numbers of Students Participating by Wave and Cohort

Cohort	Wave		
	1	2	3
A	194	175	150
B	168	193	160
C	156	162	98
Total	518	530	408

The sample was 55% female and 45% male and was ethnically diverse: 62% African American, 29% Caucasian, 5% Hispanic, 3% multi-ethnic, and 1% other (including Asian American and Native American). Participating children had an average of two siblings (range = 0 to 14). The children’s families were of relatively low socio-economic status, with an average family income between \$20,000 and \$30,000 per year.

In addition to collecting data from children, we also asked the participants’ parents or guardians to complete questionnaires about the target children. A total of 482 parents participated in at least one wave of the study (see Table 2 for numbers of parents participating by wave and cohort). In over 80% of the cases, the mother of the child completed the questionnaires. The remainder were completed by other guardians including fathers, grandparents, and stepparents. Of the responding adults, less than 40% reported being currently married. Parents reported their educational backgrounds as follows: 25% received less than high school education, 26% completed high school, 39% received some post-high school education, 6% completed a bachelor’s degree, and 3% received some post-baccalaureate education.

Table 2
Numbers of Parents Participating by Wave and Cohort

Cohort	Wave		
	1	2	3
A	115	93	69
B	99	114	74
C	91	85	36
Total	305	292	179

Measures

Parenting. We used both child- and parent-report measures of parenting. Children completed the Parent Perception Inventory (PPI), a questionnaire based upon Hazzard,

Christensen, and Margolin's (1983) Parent Perception Interview. The original interview inquired about children's perceptions of 18 parental behaviors (9 positive and 9 negative). We converted these 18 behaviors into a 36-item self-report questionnaire by generating two items designed to measure each of the 18 behaviors (see Appendix A). Children rate how often their mother or primary caregiver engages in particular behaviors on 5-point scales (1 = *not at all* to 5 = *all the time*). The original interview provided a two-factor solution that Hazzard and colleagues labeled positive and negative parenting behavior. Our own factor analysis of the PPI questionnaire with the current sample also resulted in a two-factor solution. Representative positive parenting items were "How often does this person say something nice about you?" and "How often does this person help you with a problem?" Representative negative parenting items were "How often does this person yell at you?" and "How often does this person nag you or tell you what to do over and over again?" Three items did not load highly onto either factor or had high cross-loadings and were therefore excluded from any analyses. This resulted in a 33-item self-report questionnaire, with 18 items tapping children's perceptions of positive parenting behaviors and 15 items tapping children's perceptions of negative parenting behaviors. With these exclusions, potential scores on the positive parenting scale range from 18 to 90 with higher scores representing more positive parenting. Potential scores on the negative parenting scale range from 15 to 75 with higher scores representing more negative parenting.

Two independent studies revealed the original PPI to have good internal consistency in samples of children ranging in age from 5 to 13 (Glaser, Horne, & Myers, 1995; Hazzard et al., 1983). An examination of our modified PPI using the current data set revealed good internal consistency. Across waves and cohorts, Cronbach's alphas ranged from .88 to .95 for positive parenting and .79 to .86 for negative parenting.

Parents completed the Parent Behavior Inventory (PBI; Lovejoy, Weis, O'Hare, & Rubin, 1999). The PBI is a 20-item self-report questionnaire in which parents rate the frequency of a variety of parenting behaviors using 6-point scales (0 = *never true* to 5 = *almost always true*) (see Appendix B). Based on a confirmatory factor analysis of this measure, Lovejoy and colleagues suggested that the measure contained two factors: supportive/engaged parenting and hostile/coercive parenting. Our own factor analysis using the current sample replicated this factor structure. Items representing the supportive/engaged factor included, "I listen to my child's feelings and try to understand them" and "I thank or praise my child." Items representing the hostile/coercive parenting factor included, "I lose my temper when my child doesn't do something I ask him/her to do" and "I threaten my child." Two items either had very weak factor loadings or very high cross-loadings. These items were excluded from analyses resulting in a supportive/engaged factor comprised of 10 items and a hostile/coercive factor comprised of 8 items. With these exclusions, potential scores on the supportive/engaged scale range from 0 to 50 with higher scores representing higher levels of supportive/engaged parenting. Potential scores on the hostile/coercive scale range from 0 to 40 with higher scores representing higher levels of hostile/coercive parenting.

Lovejoy and colleagues reported good internal consistency for the two factors in a sample of young children (Cronbach's alpha = .83 for supportive/engaged factor and .81 for the hostile/coercive factor). In our sample, reliabilities for both subscales were also adequate. Across waves and cohorts, Cronbach's alphas ranged from .80 to .89 for the supportive/engaged scale and .58 to .73 for the hostile/coercive scale.

Negative life events. We used both a child- and parent-report version of a life events checklist (LEC) consisting of 30 negative life events (e.g., "Your family had to move a lot" and

“A close family member was arrested or in jail”) (see Appendix C- child version, Appendix D- parent version). Items on this checklist range from moderate to major life events. Minor events (or daily hassles) are not included. Respondents indicate whether or not the child has been exposed to each of the events in the past 6 months using a *yes/no* format. We chose this life events measure because it was developed for inner city, low SES youth, and contained a high concentration of relevant items given the demographics of our sample. The specific items and the *yes/no* response format are the same as a life events checklist created by Work, Cowen, Parker, and Wyman (1990). We added an additional component to the checklist such that if the respondent endorsed an item, they were asked how upsetting the event was for the child using a 3-point scale (1 = *not much* to 3 = *very much*). By adding the upset score, we hoped to capture the degree to which different events impact children’s lives. However, to avoid individual bias in these upset ratings, we calculated a mean upset rating (nomothetic weight) for each event using data from the entire sample. We used these nomothetic weights in our analyses, such that if an individual reported that a specific event happened to them, their score for that event was equal to the mean upset score for the group. Potential scores range from 0 to 90 with higher scores reflecting large numbers of more upsetting events.

Self-perceived competence. Students completed Harter’s (1985) Self-Perception Profile for Children (SPPC). This self-report inventory contains 36 items measuring five domains of self-perceived competence (academic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct) and global self-worth (see Appendix E). For each item, children select one of two statements to indicate whether they are more like a child who is good or a child who is poor at a particular activity. Then they select statements indicating whether the selected statement is “sort of true” or “really true” about them. Items are scored on a

4-point rating scale such that high scores reflect greater self-perceived competence. The SPPC shows a highly interpretable factor structure and its subscales have good internal consistency (Harter, 1985).

In the current study, the correlations between the five domains of self-perceived competence were moderate (median = .38; range = .12-.53) and in the interest of reducing the number of analyses, we created a composite of the five domains. Cronbach's alpha for the composite ranged from .85 to .90 across waves and cohorts.

Depressive symptoms. We used both a child- and parent-report measures of children's depressive symptoms. Children completed the Child Depression Inventory (CDI; Kovacs, 1982), which is a 27-item self-report measure that assesses cognitive, affective, and behavioral symptoms of depression in children (see Appendix F). Each item consists of three statements graded in order of increasing severity from 0 to 2. Children select one sentence from each group that best describes themselves for the past two weeks (e.g., "I feel like crying once in a while," "I feel like crying many days," or "I feel like crying everyday"). In the current study, we omitted the suicide item due to concerns by school administration, resulting in a 26-item questionnaire. In nonclinic populations the CDI has demonstrated relatively high levels of internal consistency, test-retest reliability, predictive, convergent, and construct validity (Cole & Jordan, 1995; Craighead, Smucker, Craighead, & Ilardi, 1998; Smucker, Craighead, Craighead, & Green, 1986). Similar results have been found in clinic-referred samples (Timbremont, Braet, & Dreesen, 2004). In our sample, Cronbach's alphas ranged from .78 to .89 across waves and cohorts.

Parents completed the Child Depression Inventory - Parent Report (CDI-PR; Wierzbicki, 1987), which consists of the 26 items used in the child-report version of the CDI reworded so

that parents report on their children's depressive symptoms (see Appendix G). Parents were instructed to choose one of three sentences that best fit their child's behavior over the previous two weeks. Sentences are graded in order of increasing severity from 0 to 2 (e.g., "My child feels like crying once in a while," "My child feels like crying many days," or "My child feels like crying everyday"). In nonclinical samples the CDI-PR demonstrated good reliability and validity (Cole, Hoffman, Tram, & Maxwell, 2000; Cole, Truglio, & Peeke, 1997; Wierzbicki, 1987). In the current study reliability was high with Cronbach's alphas ranging from .82 to .90 across waves and cohorts.

We combined the child- and parent-report versions of this measure by taking the higher of the child- and parent-report scores on an item-by-item basis and then summing these "higher of" variables. The internal consistency of this combined measure was high (Cronbach's alpha ranged from .82 to .90 across waves and cohorts).

Procedure

Doctoral psychology students and advanced undergraduates received extensive training on all of the measures prior to data collection. Each year, we collected data in two separate 1-hour sessions scheduled during the regular school day within 1 month of each other. We counterbalanced questionnaires within each session. For students in third grade we administered questionnaires individually. Research assistants read all questions aloud and students could indicate their responses verbally or with graphic visual aids. Research assistants then recorded these responses on the questionnaire forms. For students in fourth grade, we administered the questionnaires in small groups of 3 to 4 students. For students in fifth grade and above, questionnaires were administered in groups of 20 to 30 students. For group administrations, a

research assistant read the questions aloud while students followed along and recorded their answers on the questionnaire forms. For larger groups, two or three additional research assistants circulated among the students ensuring correct completion of the items and answering questions as they arose. At the completion of each session, students received a candy bar, decorative pencil, or gift certificate, as tokens of appreciation. In cases where children were absent from school for one or both of the sessions, we scheduled makeup sessions during regular school hours.

To parents, we mailed questionnaires along with self-addressed stamped envelopes. We made follow-up calls to parents who did not return the questionnaires promptly. Questionnaires were then re-mailed or data was collected over the phone depending on the parent's preference. We sent \$15 to parents who completed questionnaires.

In cases where students had moved out of the participating school districts we contacted their caregiver and invited them to bring their child into our lab to complete both the parent- and child-report measures. We provided transportation for these families upon request.

CHAPTER III

RESULTS

In order to examine whether self-perceived competence mediates the relation between each of our predictors (negative life events, negative parenting, positive parenting) and depressive symptoms, we tested a series of 3-wave, 3-cohort, manifest variable structural equation models (see Figure 1).

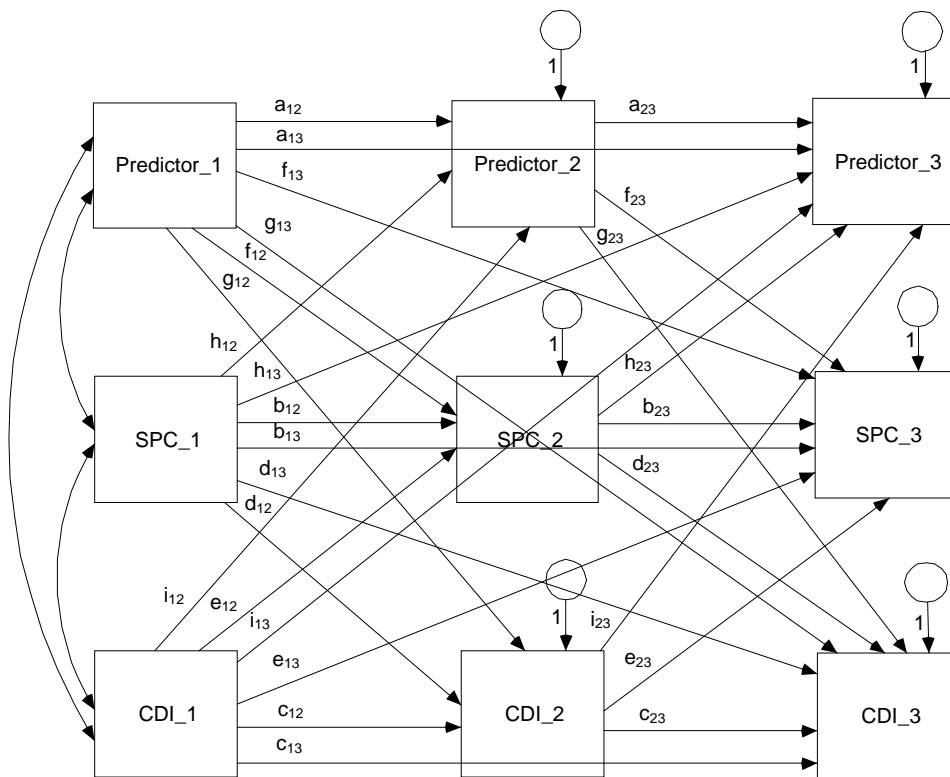


Figure 1. Generic path diagram of model. Predictor represents one of 6 predictor variables (parent-reported negative life events, child-reported negative life events, parent-reported negative parenting, child-reported negative parenting, parent-reported positive parenting, child-reported positive parenting). SPC = self-perceived competence. CDI = Children's Depression Inventory. In variable name, number after underscore represents wave of measurement. *same-wave residuals are correlated

The models were similar with the exception of which predictor variable was used in each. We collected parent- and child-report measures of each of our predictors. We therefore tested a total of 6 models using the following predictors: parent-reported negative life events (Model 1), child-reported negative life events (Model 2), parent-reported negative parenting (Model 3), child-reported negative parenting (Model 4), parent-reported positive parenting (Model 5), and child-reported positive parenting (Model 6). Cross-cohort equality constraints were applied in cases where the estimates did not significantly differ from each other, such that placing these constraints did not perturb the fit of the model.

Goodness-of-fit indices appear in Table 3. For all 6 models, the chi-square was statistically significant; however, with such large sample sizes, relatively small discrepancies between the model and the data can be statistically significant. Other indices, less sensitive to sample size, indicated that all 6 models provided an excellent fit to the data. The normed fit index (NFI), incremental fit index (IFI), and comparative fit index (CFI) were all larger than the .95 cutoff recommended by Hu and Bentler (1999), indicating that all models accounted for a very high proportion of the information contained in the data. Furthermore, for all models the root-mean-square error of approximation (RMSEA) was substantially below the .06 cutoff recommended by Hu and Bentler, indicating that the models failed to explain only a relatively small amount of information.

Table 3
Goodness-of-Fit Indices for Models

Model	$\chi^2(16)^a$	NFI	IFI	CFI	RMSEA (90% CI)
1	30.62	.963	.982	.979	.032 (.014-.049)
2	30.20	.969	.985	.983	.032 (.013-.049)
3	38.30	.955	.973	.969	.040 (.024-.056)
4	31.94	.967	.983	.981	.033 (.016-.050)
5	26.43	.971	.988	.986	.027 (.002-.045)
6	30.54	.971	.986	.984	.032 (.014-.049)

Note. NFI = normed fit index; IFI = incremental fit index; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

^a All chi-square values were significant ($p < .05$).

For each model, standardized path coefficients (broken down by cohort) are presented in Tables 4 through 9.

Table 4

Model 1 Path Coefficients, Broken Down By Age Cohort (Parent-Reported Negative Life Events → Self-Perceived Competence → Depressive Symptoms)

Path Label	Path Description	Cohort		
		A	B	C
a ₁₂	NLE_1 → NLE_2	0.315*	0.616***	0.774***
a ₂₃	NLE_2 → NLE_3	0.369***	0.413***	0.560***
a ₁₃	NLE_1 → NLE_3	0.275	0.430***	0.013
b ₁₂	SPC_1 → SPC_2	0.428***	0.487***	0.568***
b ₂₃	SPC_2 → SPC_3	0.362***	0.429***	0.444***
b ₁₃	SPC_1 → SPC_3	0.263***	0.349***	0.311***
c ₁₂	CDI_1 → CDI_2	0.477***	0.571***	0.498***
c ₂₃	CDI_2 → CDI_3	-0.010	0.108	0.135
c ₁₃	CDI_1 → CDI_3	0.461***	0.504***	0.468***
d ₁₂	SPC_1 → CDI_2	-0.166*	-0.183*	-0.166*
d ₂₃	SPC_2 → CDI_3	-0.219*	-0.197*	-0.220*
d ₁₃	SPC_1 → CDI_3	-0.093	0.037	-0.123
e ₁₂	CDI_1 → SPC_2	-0.192***	-0.234***	-0.194***
e ₂₃	CDI_2 → SPC_3	0.160	-0.094	0.123
e ₁₃	CDI_1 → SPC_3	-0.147	0.115	0.046
f ₁₂	NLE_1 → SPC_2	-0.053	0.088	-0.064
f ₂₃	NLE_2 → SPC_3	0.200	-0.166	-0.338
f ₁₃	NLE_1 → SPC_3	0.138	0.230	0.222
g ₁₂	NLE_1 → CDI_2	-0.075	-0.096	0.208*
g ₂₃	NLE_2 → CDI_3	-0.110	0.092	0.288
g ₁₃	NLE_1 → CDI_3	-0.030	-0.152	-0.705***
h ₁₂	SPC_1 → NLE_2	-0.172	0.184	-0.047
h ₂₃	SPC_2 → NLE_3	0.346	-0.103	0.469**
h ₁₃	SPC_1 → NLE_3	0.010	-0.199	-0.803***
i ₁₂	CDI_1 → NLE_2	-0.076	0.512***	0.086
i ₂₃	CDI_2 → NLE_3	0.056	0.151	-0.136
i ₁₃	CDI_1 → NLE_3	0.327	-0.402*	0.085

Note. NLE = negative life events (parent-report), SPC = self-perceived competence,

CDI = Children's Depression Inventory, number following underscore represents wave of data collection

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

Table 5

Model 2 Path Coefficients, Broken Down By Age Cohort (Child-Reported Negative Life Events → Self-Perceived Competence → Depressive Symptoms)

Path Label	Path Description	Cohort		
		A	B	C
a ₁₂	NLE_1 → NLE_2	0.586***	0.639***	0.502***
a ₂₃	NLE_2 → NLE_3	0.417***	0.451***	0.368***
a ₁₃	NLE_1 → NLE_3	-0.015	0.217*	0.109
b ₁₂	SPC_1 → SPC_2	0.450***	0.470***	0.583***
b ₂₃	SPC_2 → SPC_3	0.369***	0.448***	0.458***
b ₁₃	SPC_1 → SPC_3	0.239***	0.327***	0.289***
c ₁₂	CDI_1 → CDI_2	0.431***	0.523***	0.460***
c ₂₃	CDI_2 → CDI_3	0.006	-0.053	0.046
c ₁₃	CDI_1 → CDI_3	0.522***	0.563***	0.584***
d ₁₂	SPC_1 → CDI_2	-0.194**	-0.217**	-0.198**
d ₂₃	SPC_2 → CDI_3	-0.276**	-0.243**	-0.302**
d ₁₃	SPC_1 → CDI_3	-0.034	0.087	0.026
e ₁₂	CDI_1 → SPC_2	-0.170**	-0.208**	-0.174**
e ₂₃	CDI_2 → SPC_3	0.161	-0.056	0.028
e ₁₃	CDI_1 → SPC_3	-0.227	0.039	0.049
f ₁₂	NLE_1 → SPC_2	0.013	-0.061	-0.086
f ₂₃	NLE_2 → SPC_3	0.008	-0.023	-0.211
f ₁₃	NLE_1 → SPC_3	0.065	0.016	0.171
g ₁₂	NLE_1 → CDI_2	0.136	0.102	0.168
g ₂₃	NLE_2 → CDI_3	-0.022	-0.056	0.035
g ₁₃	NLE_1 → CDI_3	-0.095	0.361**	-0.322*
h ₁₂	SPC_1 → NLE_2	0.037	-0.228*	0.076
h ₂₃	SPC_2 → NLE_3	0.023	-0.118	0.135
h ₁₃	SPC_1 → NLE_3	-0.144	0.103	-0.345*
i ₁₂	CDI_1 → NLE_2	0.050	-0.296*	0.007
i ₂₃	CDI_2 → NLE_3	-0.245	-0.266	0.361
i ₁₃	CDI_1 → NLE_3	0.083	0.451**	-0.368*

Note. NLE = negative life events (child-report), SPC = self-perceived competence,

CDI = Children's Depression Inventory, number following underscore represents wave of data collection

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

Table 6

Model 3 Path Coefficients, Broken Down By Age Cohort (Parent-Reported Negative Parenting → Self-Perceived Competence → Depressive Symptoms)

Path Label	Path Description	Cohort		
		A	B	C
a ₁₂	NP_1 → NP_2	0.606***	0.613***	0.447***
a ₂₃	NP_2 → NP_3	0.340***	0.384***	0.419***
a ₁₃	NP_1 → NP_3	0.347*	0.204	0.439**
b ₁₂	SPC_1 → SPC_2	0.447***	0.480***	0.609***
b ₂₃	SPC_2 → SPC_3	0.441***	0.534***	0.558***
b ₁₃	SPC_1 → SPC_3	0.193**	0.261**	0.233**
c ₁₂	CDI_1 → CDI_2	0.446***	0.551***	0.496***
c ₂₃	CDI_2 → CDI_3	-0.033	0.041	0.060
c ₁₃	CDI_1 → CDI_3	0.545***	0.626***	0.592***
d ₁₂	SPC_1 → CDI_2	-0.189**	-0.214**	-0.194**
d ₂₃	SPC_2 → CDI_3	-0.217*	-0.206*	-0.230*
d ₁₃	SPC_1 → CDI_3	-0.048	0.031	0.332*
e ₁₂	CDI_1 → SPC_2	-0.166**	-0.201**	-0.170**
e ₂₃	CDI_2 → SPC_3	0.216	0.001	0.118
e ₁₃	CDI_1 → SPC_3	-0.227	-0.026	0.064
f ₁₂	NP_1 → SPC_2	-0.066	-0.026	0.136
f ₂₃	NP_2 → SPC_3	0.252	-0.128	-0.048
f ₁₃	NP_1 → SPC_3	-0.180	0.320**	-0.068
g ₁₂	NP_1 → CDI_2	0.180	-0.057	0.173
g ₂₃	NP_2 → CDI_3	0.007	-0.014	0.359**
g ₁₃	NP_1 → CDI_3	-0.030	-0.141	-0.431**
h ₁₂	SPC_1 → NP_2	-0.079	0.022	-0.169
h ₂₃	SPC_2 → NP_3	0.055	0.140	-0.345*
h ₁₃	SPC_1 → NP_3	-0.080	-0.277	-0.021
i ₁₂	CDI_1 → NP_2	0.098	0.014	0.109
i ₂₃	CDI_2 → NP_3	-0.126	-0.137	0.010
i ₁₃	CDI_1 → NP_3	0.088	0.218	-0.186

Note. NP = negative parenting (parent-report), SPC = self-perceived competence,

CDI = Children's Depression Inventory, number following underscore represents wave of data collection

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

Table 7

Model 4 Path Coefficients, Broken Down By Age Cohort (Child-Reported Negative Parenting → Self-Perceived Competence → Depressive Symptoms)

Path Label	Path Description	Cohort		
		A	B	C
a ₁₂	NP_1 → NP_2	0.434***	0.521***	0.539***
a ₂₃	NP_2 → NP_3	0.186**	0.258**	0.262**
a ₁₃	NP_1 → NP_3	-0.041	0.483***	0.263*
b ₁₂	SPC_1 → SPC_2	0.407***	0.463***	0.583***
b ₂₃	SPC_2 → SPC_3	0.414***	0.491***	0.523***
b ₁₃	SPC_1 → SPC_3	0.196**	0.262**	0.242**
c ₁₂	CDI_1 → CDI_2	0.445***	0.509***	0.492***
c ₂₃	CDI_2 → CDI_3	-0.030	-0.042	-0.178
c ₁₃	CDI_1 → CDI_3	0.582***	0.652***	0.681***
d ₁₂	SPC_1 → CDI_2	-0.177**	-0.192**	-0.185**
d ₂₃	SPC_2 → CDI_3	-0.198*	-0.187*	-0.225*
d ₁₃	SPC_1 → CDI_3	-0.114	0.092	-0.153
e ₁₂	CDI_1 → SPC_2	-0.191**	-0.227**	-0.198**
e ₂₃	CDI_2 → SPC_3	0.247	-0.004	-0.097
e ₁₃	CDI_1 → SPC_3	-0.133	-0.058	0.252
f ₁₂	NP_1 → SPC_2	-0.068	-0.017	-0.062
f ₂₃	NP_2 → SPC_3	0.040	0.009	0.078
f ₁₃	NP_1 → SPC_3	-0.166	0.011	-0.096
g ₁₂	NP_1 → CDI_2	0.124	0.216**	0.086
g ₂₃	NP_2 → CDI_3	0.057	0.181	0.083
g ₁₃	NP_1 → CDI_3	-0.237	0.034	-0.335*
h ₁₂	SPC_1 → NP_2	0.084	-0.039	-0.005
h ₂₃	SPC_2 → NP_3	-0.212	-0.258*	-0.248
h ₁₃	SPC_1 → NP_3	0.349*	0.277*	-0.027
i ₁₂	CDI_1 → NP_2	0.061	0.140	0.044
i ₂₃	CDI_2 → NP_3	-0.136	-0.280	0.199
i ₁₃	CDI_1 → NP_3	0.273	0.146	-0.491**

Note. NP = negative parenting (child-report), SPC = self-perceived competence,

CDI = Children's Depression Inventory, number following underscore represents wave of data collection

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

Table 8

Model 5 Path Coefficients, Broken Down By Age Cohort (Parent-Reported Positive Parenting → Self-Perceived Competence → Depressive Symptoms)

Path Label	Path Description	Cohort		
		A	B	C
a ₁₂	PP_1 → PP_2	0.489***	0.787***	0.736***
a ₂₃	PP_2 → PP_3	0.348***	0.490***	0.343***
a ₁₃	PP_1 → PP_3	0.496***	0.275	0.598***
b ₁₂	SPC_1 → SPC_2	0.431***	0.471***	0.617***
b ₂₃	SPC_2 → SPC_3	0.369***	0.447***	0.453***
b ₁₃	SPC_1 → SPC_3	0.227***	0.307***	0.272***
c ₁₂	CDI_1 → CDI_2	0.495***	0.592***	0.552***
c ₂₃	CDI_2 → CDI_3	-0.018	0.028	-0.003
c ₁₃	CDI_1 → CDI_3	0.455***	0.507***	0.470***
d ₁₂	SPC_1 → CDI_2	-0.152*	-0.166*	-0.159*
d ₂₃	SPC_2 → CDI_3	-0.275**	-0.251**	-0.274**
d ₁₃	SPC_1 → CDI_3	-0.084	0.053	-0.128
e ₁₂	CDI_1 → SPC_2	-0.205***	-0.250***	-0.213***
e ₂₃	CDI_2 → SPC_3	0.146	-0.031	-0.063
e ₁₃	CDI_1 → SPC_3	-0.219	-0.014	0.193
f ₁₂	PP_1 → SPC_2	-0.075	-0.071	-0.142
f ₂₃	PP_2 → SPC_3	-0.161	-0.345*	-0.527***
f ₁₃	PP_1 → SPC_3	0.117	0.121	0.514**
g ₁₂	PP_1 → CDI_2	0.051	-0.099	0.140
g ₂₃	PP_2 → CDI_3	0.076	0.383*	0.437*
g ₁₃	PP_1 → CDI_3	-0.177	-0.250	-0.317
h ₁₂	SPC_1 → PP_2	0.172	0.152	-0.045
h ₂₃	SPC_2 → PP_3	0.237	-0.147	0.131
h ₁₃	SPC_1 → PP_3	-0.245	0.128	-0.622***
i ₁₂	CDI_1 → PP_2	-0.011	0.249*	0.021
i ₂₃	CDI_2 → PP_3	0.186	0.038	0.104
i ₁₃	CDI_1 → PP_3	-0.286	-0.110	-0.210

Note. PP = positive parenting (parent-report), SPC = self-perceived competence,

CDI = Children's Depression Inventory, number following underscore represents wave of data collection

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

Table 9

Model 6 Path Coefficients, Broken Down By Age Cohort (Child-Reported Positive Parenting → Self-Perceived Competence → Depressive Symptoms)

Path Label	Path Description	Cohort		
		A	B	C
a ₁₂	PP_1 → PP_2	0.483***	0.519***	0.630***
a ₂₃	PP_2 → PP_3	0.220***	0.304***	0.314***
a ₁₃	PP_1 → PP_3	0.244*	0.268**	0.410***
b ₁₂	SPC_1 → SPC_2	0.439***	0.472***	0.598***
b ₂₃	SPC_2 → SPC_3	0.390***	0.463***	0.495***
b ₁₃	SPC_1 → SPC_3	0.223**	0.301**	0.274**
c ₁₂	CDI_1 → CDI_2	0.446***	0.555***	0.492***
c ₂₃	CDI_2 → CDI_3	-0.033	0.052	-0.136
c ₁₃	CDI_1 → CDI_3	0.522***	0.576***	0.603***
d ₁₂	SPC_1 → CDI_2	-0.185**	-0.210**	-0.187**
d ₂₃	SPC_2 → CDI_3	-0.220*	-0.195*	-0.242*
d ₁₃	SPC_1 → CDI_3	-0.009	-0.008	-0.063
e ₁₂	CDI_1 → SPC_2	-0.152**	-0.189**	-0.160**
e ₂₃	CDI_2 → SPC_3	0.105	-0.022	0.120
e ₁₃	CDI_1 → SPC_3	-0.183	-0.006	0.018
f ₁₂	PP_1 → SPC_2	0.203**	0.076	0.059
f ₂₃	PP_2 → SPC_3	-0.109	-0.039	-0.073
f ₁₃	PP_1 → SPC_3	0.012	0.067	0.034
g ₁₂	PP_1 → CDI_2	-0.137	0.016	-0.074
g ₂₃	PP_2 → CDI_3	-0.175	-0.223*	-0.169
g ₁₃	PP_1 → CDI_3	0.021	0.176	0.098
h ₁₂	SPC_1 → PP_2	0.182*	0.029	0.112
h ₂₃	SPC_2 → PP_3	-0.078	0.077	-0.075
h ₁₃	SPC_1 → PP_3	0.070	0.000	0.096
i ₁₂	CDI_1 → PP_2	0.020	-0.269*	-0.165
i ₂₃	CDI_2 → PP_3	0.170	-0.018	0.009
i ₁₃	CDI_1 → PP_3	-0.483**	-0.150	-0.055

Note. PP = positive parenting (child-report), SPC = self-perceived competence,

CDI = Children's Depression Inventory, number following underscore represents wave of data collection

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

Auto-Regressive Paths

In Tables 4 through 9, the *a*, *b*, and *c* paths represent the autoregressive paths for the predictor variables (negative life events, negative parenting, positive parenting), self-perceived competence and depressive symptoms, respectively. The majority of these auto-regressive paths were significant and in the expected direction. In a few cases, the wave-skipping autoregressive paths (i.e., wave 1 to wave 3) for the predictors were not significant. In a couple of other cases they were small and opposite to the expected direction. (Such paths represent the remaining relation between the predictor variable at wave 1 and wave 3 after controlling for the same variable at wave 2.) The autoregressive paths for wave 2 to wave 3 depressive symptoms were small and non-significant across models and cohorts.

Prediction of Depressive Symptoms from Self-Perceived Competence

In Tables 4 through 9, the *d* paths represent the relations of self-perceived competence to later depressive symptoms. In all cases, prior levels of depressive symptoms were statistically controlled. Across all models and cohorts, there was a significant relation between self-perceived competence at wave 1 and depressive symptoms at wave 2, after controlling for depressive symptoms at wave 1. Lower levels of self-perceived competence predicted higher levels of depressive symptoms. The same pattern of results emerged for the relation of self-perceived competence at wave 2 to depressive symptoms at wave 3, after controlling for depressive symptoms at wave 2. In contrast, the relation between self-perceived competence at wave 1 and depression at wave 3 was generally small and nonsignificant.

Prediction of Self-Perceived Competence from Depressive Symptoms

In Tables 4 through 9, the *e* paths represent the relations of depressive symptoms to later self-perceived competence. In all cases, prior self-perceived competence was statistically controlled. Across all models and cohorts, the relation between depressive symptoms at wave 1 to self-perceived competence at wave 2 was significant even after controlling for self-perceived competence at wave 1. Higher levels of depressive symptoms predicted lower levels of self-perceived competence. The paths for wave 2 to wave 3 and wave 1 to wave 3 were all non-significant.

Prediction of Self-Perceived Competence from Negative Life Events and Parenting

In Tables 4 through 9, the *f* paths represent the prospective relations of the predictors (negative life events, negative parenting, positive parenting) to self-perceived competence. In all cases, prior self-perceived competence was statistically controlled. Across waves and cohorts, the prospective relation of negative life events to self-perceived competence was nonsignificant. For the relation of negative parenting to self-perceived competence, out of 18 such paths, only 1 was significant and was in the unexpected direction. For positive parenting, 4 out of the 18 paths were significant (2 in the expected direction). In general, evidence of a prospective effect of negative life events and parenting on self-perceived competence was very weak.

Prediction of Depressive Symptoms from Negative Life Events and Parenting

In Tables 4 through 9, the *g* paths represent the prospective relations of the predictors (negative life events, negative parenting, positive parenting) to depressive symptoms. In all cases, prior depressive symptoms were statistically controlled. For the prospective relation of

negative life events to depressive symptoms, 4 out of 18 such paths were significant (2 in the expected direction). The same pattern of results emerged for the relation of negative parenting to depressive symptoms. For the relation of positive parenting to depressive symptoms, 3 out of 18 such paths were significant (1 in the expected direction). In general, there was weak evidence of a prospective effect of our negative life events and parenting on depressive symptoms.

Prediction of Life Events and Parenting from Self-Perceived Competence

In Tables 4 through 9, the *h* paths represent the prospective relations of self-perceived competence to our predictors (negative life events, negative parenting, positive parenting). In all cases, prior levels of the predictor were statistically controlled. For the relation of self-perceived competence to negative life events, 4 out of 18 such paths were significant (1 in the positive direction). For the relation of self-perceived competence to negative parenting, 4 of the 18 paths were significant with 2 in each direction. Finally, for the relation of self-perceived competence to positive parenting, 2 of the 18 paths were significant with 1 in each direction. Overall, there was weak evidence of a prospective effect of self-perceived competence on negative life events and parenting.

Prediction of Life Events and Parenting from Depressive Symptoms

In Tables 4 through 9, the *i* paths represent the prospective relations of depressive symptoms to our predictors (negative life events, negative parenting, positive parenting). In all cases, prior levels negative life events or parenting have been controlled.

For the relation of depressive symptoms to negative life events, 5 out of 18 such paths were significant, with 2 in the positive direction. For the relation of depressive symptoms to

negative parenting, only 1 of 18 such paths was significant (in the negative direction). Finally, for the relation of depressive symptoms to positive parenting, 3 of 18 such paths were significant with 1 in the positive direction. In general, evidence of a prospective effect of depressive symptoms on negative life events and parenting was weak.

Testing for Mediation

One of the goals of this paper was to examine whether self-perceived competence mediates the relations between our predictor variables (negative life events, negative parenting, positive parenting) and depressive symptoms. Inherent in such a model are three key relations. First, the predictor at wave 1 is related to self-perceived competence at wave 2. Second, self-perceived competence at wave 2 is related to depressive symptoms at wave 3. Third, the relation between the predictor at wave 1 and depressive symptoms at wave 3 is significantly diminished when wave 2 self-perceived competence is included in the model. In our data set, there were no significant relations between the predictor variables at wave 1 and self-perceived competence at wave 2, suggesting that a mediational model could not account for the pattern of observed data in our study. Additional analyses, such as Sobel's test were therefore not conducted.

CHAPTER IV

DISCUSSION

The overarching goal of this study was to examine the role of self-perceived competence as a mediator in the relations of three predictors (negative life events, negative parenting and positive parenting) to later depressive symptoms in children. Inherent in this model are three key relations: the relation of self-perceived competence to depression, the relation of the predictors to self-perceived competence, and the relation of the predictors to depressive symptoms. In the current study, strong evidence existed for the relation of self-perceived competence to later depressive symptoms with lower levels of self-perceived competence predicting higher levels of depressive symptoms. We found weak evidence of a relation between our predictors and later self-perceived competence or depressive symptoms. Negative life events, negative parenting, and positive parenting did not emerge as consistent predictors of either children's self perceived competence or depressive symptoms. Unanticipated results included a strong reciprocal effect of depressive symptoms on later self-perceived competence. We elaborate on each of these findings below.

First, in the current study, strong evidence emerged of a prospective relation between children's self-perceived competence and depressive symptoms. Lower levels of self-perceived competence predicted higher levels of depressive symptoms one year later, even after controlling for prior levels of depressive symptoms. This relation existed between waves 1 and 2 and between waves 2 and 3. This finding is consistent with the competency-based model of depression (Cole, 1990, 1991) which posits that children who have poor self-perceived

competence are more likely to develop depressive symptoms than children with more healthy perceptions of their competence. Previous research has provided support for this contention both cross-sectionally (e.g., Bruce et al., 2006; Jacquez et al., 2004) and longitudinally, controlling for prior levels of depressive symptoms (e.g., Cole et al., 2001; Tram & Cole, 2000). Given the high stability of depressive symptoms (Tram & Cole, 2006) over time, controlling for prior levels allows for a much more rigorous test of a causal effect of self-perceived competence on the development of depressive symptoms, as was found in the current study. Also notable is that many of the existing studies showing a relation between self-perceived competence and depression have focused specifically on perceptions of academic competence and social acceptance, ignoring other important domains such as behavior, athletics, and appearance (e.g., Cole, Martin, Peeke, Seroczynski, & Fier, 1999; Cole, Martin, Powers, & Truglio, 1996; McGrath & Repetti, 2002). In Harter's model of competence, she suggests that all five domains (academic, social, behavioral, athletic, and social) are relevant to children in third through eighth grade (Harter, 1982, 1986). In the current study, we found that a composite of all five domains predicted later depressive symptoms suggesting that poor perceptions of competence in each of these domains may be relevant in the development of depression.

Second, we found weak support for a prospective relation between each of our predictors (negative life events, negative parenting, and positive parenting) and self-perceived competence. Existing research on the relation of negative life events to children's self-perceived competence is very limited. In a sample of 9th graders, Tram and Cole (2000) found that negative life events in the preceding 6 months predicted self-perceived competence after controlling for prior levels of self-perceived competence. The only other relevant study examined the relation of one specific category of stress (political conflict) to one domain of competence (behavioral). Results

showed a relation between the experience of political conflict and perceptions of behavioral competence. After controlling for the effects of conflict-related stressors, there was no effect of non-conflict-related stressors on children's perceptions of their competence (Muldoon & Trew, 2000). Unlike our current study, Muldoon and Trew did not control for prior levels of self-perceived competence.

The majority of research examining the role of parents in children's development of competency beliefs has focused on parent's perceptions of their children's competence. Several studies have shown that there is indeed some degree of congruence between parent's and children's perceptions of the child's competence (Cole et al., 2001; Cole, Maxwell, & Martin, 1997). Inherent in this line of research is an assumption that parental evaluations are conveyed to the child, thereby affecting the child's feelings of competence. One possible way in which this information may be conveyed to children is through the way their parents treat them. Previous research has found a cross-sectional relation between parenting behaviors/styles and children's competency beliefs (e.g., Bruce et al., 2006; Coplan et al., 2004; Lamborn et al., 1991; Wagner & Phillips, 1992). In the current study, there was no predictive relation between either positive or negative parenting and self-perceived competence once prior levels of self-perceived competence were controlled.

Third, in the current study there was also weak support for the prospective relation of negative life events, negative parenting, and positive parenting to children's depressive symptoms. The lack of relation between negative life events and depressive symptoms is somewhat inconsistent with the existing literature. Several excellent reviews have reached the same general conclusion that that there is a consistent association between the experience of stressful life events and depression (e.g., Hammen, 2005; Kessler, 1997; Mazure, 1998; Paykel,

2003; Tennant, 2002). It is important to note that many of the studies included in these reviews were cross-sectional or did not control for prior levels of depression. Also, the majority used older samples than the one employed in the current study. A recent study using a younger sample did find an effect of stress on later depression (Cole et al., 2006). In contrast to the current study, the authors employed a relatively new modeling technique (trait-state-error) that allowed them to separate the stable-trait portion of depressive symptoms from the less stable-state portion. Stressful life events predicted the less stable-state portion of depressive symptoms. This new methodology is an important advance as the high temporal stability of depression makes it difficult to identify its predictors. By isolating the less stable-state components of depression, researchers can examine factors that account for changes in depression over time.

Research on the relation of parenting to children's depression has also relied heavily on cross-sectional analyses. These studies have found some support for the relation between parenting and children's depressive symptoms, with low levels of care and affection, and high levels of rejection, withdrawal, and criticism relating to higher levels of depressive symptom (see reviews by Burbach & Borduin, 1986; Gerlsma, et al., 1990). A more recent study compared groups of children who maintained high or low levels of depressive and/or conduct symptoms, or who showed increases or decreases in symptoms over a seven day period (Kim et al., 2003). Students who showed increases or maintained high symptom levels reported higher levels of harsh-inconsistent and hostile parenting at time 1 than students who maintained low levels of symptoms. Students whose symptoms got worse also reported higher levels of harsh-inconsistent and hostile parenting in addition to low levels of parental nurturance and warmth at time 2. Also notable is that students whose symptoms worsened from time 1 to time 2 experienced a parallel worsening of parenting with increases in harsh-inconsistent and hostile parenting and decreases

in nurturant-involved and warm parenting. The analytic technique used by Kim and colleagues did not allow a separation of the effects on depression vs. conduct symptoms but does suggest that parenting exerts an effect on these symptoms over a short time frame (one week). In the current study we examined these effects over a year long period and found that these effects do not persist this long. Future studies should examine this relation across a wider range of time intervals to determine the time course of these effects.

Fourth, we also found support for a prospective relation of depressive symptoms to self-perceived competence. Higher levels of depressive symptoms at wave 1 were associated with poorer perceptions of competence at wave 2 after controlling for self-perceived competence at wave 1. This raises the question of what is the specific relation between depression and self-perceived competence? Researchers often think of cognitive variables, such as self-perceived competence, as diatheses that increase the risk for the development of depression. Our finding of a prospective effect of self-perceived competence on depressive symptoms supports this contention. In addition, our finding of a reciprocal relation suggests that the reverse may also be true, that depression can cause changes in children's beliefs about their abilities. Several existing studies have also found support for this reciprocal relation. McGrath and Repetti (2002) found that depressive symptoms predicted changes in children's perceptions of both social and academic competence from fourth to fifth grade, fifth to sixth grade, and fourth to sixth grade. Similarly, Cole and his colleagues found that depressive symptoms predicted increases in children's underestimation of their competence (Cole, Martin, Peeke, Seroczynski, & Hoffman, 1998; Hofmann, Cole, Martin, Tram & Seroczynski, 2000). Taken together with studies showing the effects of self-perceived competence on later depressive symptoms, these findings suggest that the relation of competency beliefs to depressive symptoms may be both predictive and

reflective. If this is the case, it is likely that depressive symptoms and feelings of incompetence maintain each other over time and may represent a mechanism for recurrence. This is consistent with the scar hypothesis of depression, which proposes that certain characteristics of depression remain (like a scar) even after a depressive episode has resolved. These characteristics (or scars) increase the risk that a person will experience a recurrence of depression (Rohde, Lewinsohn, & Seeley, 1990; Zeiss & Lewinsohn, 1988). This hypothesis was put forth in an attempt to explain the high risk for recurrence in depression, although support for this theory has been minimal. The current study used a younger sample and a different “scar variable” (self-perceived incompetence) than previous research and suggests that reductions in self-perceived competence following depression may indeed act as a scar that increases the risk of future depression.

The results of this study have implications for both the prevention and treatment of depression in children. The strong predictive relation of self-perceived competence to depressive symptoms suggests that children with poor perceptions of their competence are at an increased risk of developing depressive symptoms. Targeting these children and working to improve their feelings of competence may reduce this risk and ultimately prevent the development of depression. These results also suggest that working on children’s perceptions of their competence is an important component of treatment once children have developed depression. Improving children’s self-perceived competence may not only help in reducing their depressive symptoms, but the prospective relation of competence beliefs to depressive symptoms suggests that increasing self-perceived competence may also reduce the risk for the recurrence of depression. Previous research on the development of self-perceived competence suggests several avenues for targeting children’s competency-beliefs. Research suggests that children are capable of using social comparison processes to determine how competent they are relative to others

(Ruble, Boggiano, Feldman, & Loebel, 1980; Guay, Boivin, & Hodges, 1999; Wheeler & Suls, 2005). Therefore children who are less competent than their peers and who are aware of these differences, may develop poor (but accurate) perceptions of their abilities. This implies that helping children to become as competent as possible is likely to improve their own feelings of competence. For example, tutoring for a child who is falling behind in school may result in academic improvements as well as concomitant changes in the child's feelings about their academic abilities. Children also use the feedback they receive from others (e.g., teachers, parents) in constructing their self-image (Cole, 1991; Cole, Martin, & Powers, 1997). Therefore, educating teachers and parents on the relations of this feedback to children's perceptions of competence and mental health more broadly is important. Research has also shown that recognizing a large repertoire of self-aspects (e.g., athletics, academics, social, etc.) is related to lower risk for the development of depression (Harter, 1986; Linville, 1985, 1987). This indicates the importance of working with children to recognize the broad range of domains that make them who they are. This is particularly important for children who struggle in one domain or another. Helping them to recognize other domains in which they can experience success will likely reduce the potential negative effects of their disappointments in other domains.

A major strength of the current study was the use of a longitudinal design. This design permits stronger statements about prospective relations by allowing an assessment of the temporal pattern of effects while controlling for previous levels of variables in the model. One challenge of longitudinal designs, however, is selecting the optimal time lag between waves of measurement. This is an important issue, as some factors may take only a short time to exert their influence while others may require longer intervals for their effects to be observed. In the current study, we used a one year lag between waves and found that over the period of the year,

self-perceived competence predicted depression and vice versa. We did not find such effects of either parenting or life events on either self-perceived competence or depression. This raises the question of whether these variables may predict competence and depressive symptoms over time intervals that are shorter or longer than in the current study. Other studies that have found longitudinal relations between these variables used shorter time frames suggesting that these effects may be more rapid. For example, Tram and Cole (2000) found a relation of negative life events to self-perceived competence 6 months later. Kim and her colleagues (2003) found that parenting style predicted changes in depressive symptoms over a short-time frame (one week). In a sample of adolescents, Morris, Ciesla, and Garber (2007) found that a 2-week lag produced the largest effect of stress on depression, with stress remaining a significant predictor for lags of up to 26 weeks. In order to understand better the temporal unfolding of such effects, we need to conduct studies that include more frequent measurements and compare the effects across different time lags.

Another strength of our study was the use of a broad age range. This allowed us to examine whether the effects that we observed were unique to specific age groups or were more generalizable. The results of the current study were consistent across our sample which included students in third through ninth grade. Future research should examine whether the observed relations between self-perceived competence and depressive symptoms persist into later adolescence and on into adulthood. The bulk of research examining self-perceived competence and its relation to depression has been focused on childhood, with far less research extending beyond early adolescence. Therefore, an extension of the investigated age range would represent a new contribution to the field.

The use of a large sample was also an important element of our study. Our relatively

large N gave us the power to detect even relatively small effects and thereby permitted increased confidence in our findings. Studies using small samples are often at risk of missing effects that are actually present, due to power limitations inherent in small samples.

Collecting data from a large sample often requires the use of time-efficient data collection techniques (e.g., group data collections at schools, mailing questionnaires to parents). All of the measures used in the current study were parent- or child-report questionnaires. Future examinations of the current model should incorporate behavioral- and interview-based assessments of parenting and negative life events. Observation-based assessments of parenting allow researchers to evaluate the actual behaviors that parents exhibit when interacting with their children and may reveal behavioral patterns not easily assessed by pencil-and-paper report measures. Similarly, interview-based measures of negative life events offer another approach to assessing stress and its effects and may reduce the effects of depressive bias (e.g., Brewin, Andrews, & Gotlib, 1993; Monroe & Depue, 1991). Combining data obtained from observational and interview-based assessments with parent- and child-report questionnaires permits a richer, more complete perspective.

In the current study, we assessed level of depressive symptoms as opposed to whether or not children met criteria for a depressive disorder. Future research should incorporate diagnostic interviews in order to extend this model beyond depressive symptoms to clinically diagnosable depression. This will allow for an examination of whether levels of self-perceived competence distinguish children with clinical depression from those without. Similarly, it will allow a more complete examination of our speculation that low levels of self-perceived competence may act as a scar that increases the risk for the recurrence of depressive episodes. Knowledge of diagnostic status will also permit research on the effectiveness of competency-based intervention.

Additionally, diagnostic interviews provide information that is relevant for determining if the proposed model is generalizable to children with co-morbid diagnoses such as anxiety or ADHD.

Finally, the reciprocal relation between self-perceived competence and depressive symptoms is worthy of further examination. Although a few studies have found a reciprocal relation between perceptions of competence and depressive symptoms, very little attention has been given to the specific nature of this relation. Studies that obtain more frequent assessments of these variables across a broad age range would permit a clearer examination of several relevant questions. One important question relates to the temporal pattern of the relation. What usually develops first, depressive symptoms or low self-perceived competence? What is the optimal time lag for observing the effects of depression on self-perceived competence and vice versa? Does the nature of the relation between depression and self-perceived competence change across development? Once the reciprocal pattern is set into motion, does treating one of the two areas result in improvements in the other? What factors account for, or mediate, the effect of depressive symptoms on self-perceived competence and vice versa? Answers to all of these questions will contribute greatly to our understanding of a competency-based model of depression as well as ways that we can incorporate such a model into prevention and intervention efforts.

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