

Self-Efficacy Pathways to Childhood Depression

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This prospective research analyzed how different facets of perceived self-efficacy operate in concert within a network of sociocognitive influences in childhood depression. Perceived social and academic inefficacy contributed to concurrent and subsequent depression both directly and through their impact on academic achievement, prosocialness, and problem behaviors. In the shorter run, children were depressed over beliefs in their academic inefficacy rather than over their actual academic performances. In the longer run, the impact of a low sense of academic efficacy on depression was mediated through academic achievement, problem behavior, and prior depression. Perceived social inefficacy had a heavier impact on depression in girls than in boys in the longer term. Depression was also more strongly linked over time for girls than for boys.

Childhood depression is a matter of major concern because of its prevalence and impairment of functioning. Moreover, it often is not a transient phenomenon that children outgrow. Depressive episodes are recurrent if the contributing factors remain unabated. Early depressive vulnerability is, therefore, predictive of frequency and severity of depression in adulthood (Petersen et al., 1993). Rates of depression vary by ethnicity and culture, but women are generally more prone to depression than men. However, gender differences do not begin to emerge until late adolescence (Culbertson, 1997; Nolen-Hoeksema & Girgus, 1994). Gender differences in susceptibility to depression have been attributed to a variety of factors, including sex role socialization, more stressors in women's lives, negatively biased self-systems, use of ruminative rather than active coping strategies, neurobiologic dysfunctions, and socio-structural constraints and impediments (Hammen, 1990; Nolen-Hoeksema, 1991; Petersen et al., 1993; Rehm, 1988).

Although theories of depression differ in the particular determinants they feature, they generally subscribe to the diathesis-stress model as the guiding metatheory. Within this

conceptual framework, external stressors constitute risk factors that act on personal predispositions to produce bouts of depression. Depending on theoretical orientation, the diathesis or predispositions may be primarily cognitive, constitutional, or a blend of these different types of susceptibilities. The diathesis-stress model is often combined with epidemiological risk-buffer models. Protective factors are posited as conditions that can buffer the adverse effects of stressors. This metatheory is heavily cast in reactive terms.

Social cognitive theory posits an agentic model of depression in which individuals play a proactive role in their adaptation rather than simply undergo experiences through environmental stressors acting on their personal vulnerabilities. Within an agentic perspective, positive contributors to successful adaptation represent enablement factors that operate proactively rather than just protective or sheltering factors. Protectiveness shields individuals from harsh realities or weakens their impact. Enablement equips them with the personal resources to select and structure their environments in ways that cultivate competencies and set a successful course for their lives. This is the difference between proactive recruitment of positive guidance and support for shaping one's life circumstances and reactive adaptation to them. At the intraindividual level, people are enabled rather than merely buffered by competencies and beliefs of personal efficacy.

Among the mechanisms of human agency, none is more central or pervasive than people's beliefs in their efficacy to regulate their own functioning and to exercise control over events that affect their lives (Bandura, 1997). *Perceived self-efficacy* refers to beliefs in one's capabilities to produce given attainments. A sense of personal efficacy is the foundation of human agency. Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of

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difficulties. Adolescents have to manage major biological, educational, and social role transitions concurrently. The success with which the risks and challenges of adolescence are managed depends, in no small measure, on the strength of adolescents' perceived self-efficacy. Children who enter adolescence beset by a disabling sense of inefficacy transport their vulnerability to stress and dysfunction to the new environmental demands and to the pervasive biopsychosocial changes they find themselves undergoing in this transitional phase of their lives (Allen, Leadbeater, & Aber, 1990; Bandura, 1997).

The findings of diverse lines of research show that efficacy beliefs regulate human functioning and emotional well-being through four major processes (Bandura, 1997): cognitive, motivational, affective, and selective processes. The present multifaceted longitudinal study centers on the impact of perceived self-efficacy on the affective aspects of functioning; specifically, it examined the direct and mediated impact of different facets of perceived self-efficacy on childhood proneness to depression.

A low sense of efficacy to exercise control over things one values can give rise to feelings of futility and despondency in at least three different ways. One pathway is through unfulfilled aspirations. The satisfactions people derive from what they do are largely determined by the standards against which they evaluate their attainments (Bandura, 1991; Locke & Latham, 1990). Depression is most likely to arise when personal standards of merit are set well above one's perceived efficacy to attain them (Kanfer & Zeiss, 1983). A sense of inefficacy to fulfill the valued standards gives rise to self-devaluation and depression. Indeed, perceived self-efficacy predicts the directional effects of failure experiences in valued cognitive activities that figure in academic pursuits (Bandura, 1991). Failure produces high motivation and low despondent mood when people believe they have the efficacy to fulfill difficult performance standards and continue to strive for them. In contrast, failure diminishes motivation and generates despondent mood when people judge they lack the efficacy to attain difficult standards but continue to demand those attainments of themselves for any sense of satisfaction and self-worth.

A second pathway to depression is through a low sense of social efficacy to develop social relationships that bring satisfaction to people's lives and enable them to manage chronic stressors. A secure sense of social efficacy fosters positive social relationships, whereas perceived social inefficacy tends to breed socially alienating behaviors (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996b). Social support reduces vulnerability to stress, depression, and physical illness, but social support is not a self-forming entity waiting around to buffer harried people against stressors. People have to go out and find, create, and maintain supportive relationships for themselves. These interpersonal attainments require a strong sense of social efficacy. The Holahans (Holahan & Holahan, 1987) showed that a low sense of social efficacy contributes to depression both directly and by curtailing development of social supports. Moreover, evidence indicates that supportive relationships reduce vulnerability to depression only to the extent that they raise perceived coping efficacy (Cutrona & Troutman, 1986; Major, Mueller, & Hildebrandt, 1985; Mueller & Major, 1989; Olioff & Aboud, 1991). An enhanced sense of coping efficacy is accompanied by low depressive reactions to taxing role demands and interpersonal strains. Perceived self-efficacy sim-

ilarly operates as the mediating mechanism in the beneficial effects of social support on other aspects of functioning (Duncan & McAuley, 1993).

Another efficacy pathway to depression is through the exercise of control over depressing thoughts themselves. All people experience despondency from time to time in response to rejections, losses, failures, and setbacks, but they vary in how quickly they get over them. Most rebound rapidly, whereas some sink into a deepening despondency that lasts for a long time. Nolen-Hoeksema (1990, 1991) has demonstrated, in a series of laboratory and field studies, that ruminative reactions to adversity and negative mood partly determine the severity and duration of depressive episodes. Recurrent rumination about dejecting life events and one's despondent state amplifies and prolongs depressive reactions, whereas engrossment in activities that command attention or improve one's life terminates depressive episodes. Research on enhancing perceived efficacy to control dejecting thought processes by cognitive restructuring showed that a low sense of efficacy to regulate ruminative thought contributed to the occurrence of depressive episodes, how long they lasted, and how often they recurred following treatment (Kavanagh & Wilson, 1989). Rumination may be a process through which depressive mood is converted to more pervasive depressive disorders in adolescence through its impairment of functioning and attendant aversive effects (Compas, Ey, & Grant, 1993).

Empirical tests of the contribution of perceived self-efficacy to depression have been essentially confined to adults. Few studies have examined the impact of perceived self-efficacy on childhood proneness to depression and the paths of influences through which it exerts its effects. McFarlane, Bellissimo, and Norman (1995) provided some evidence that perceived social efficacy plays a significant role in adolescent depression. As noted in the preceding discussion, depression can arise from diverse sources of perceived self-inefficacy and therefore requires multifaceted analyses. Moreover, beliefs of personal inefficacy contribute to the depression not only directly but also through their impact on other determinants in the multifaceted model posited by social cognitive theory (Bandura, 1986, 1997). The present prospective research was designed to further understanding of how different facets of perceived self-efficacy operate in concert within a network of sociocognitive influences in childhood depression. The proposed causal structure of the model is presented in Figure 1.

The roles of two factorally verified facets of perceived efficacy in depression were examined. They include perceived academic self-efficacy and social self-efficacy, both of which address important aspects of children's lives. Academic self-efficacy, which centers on perceived capability to fulfill academic demands, comprised children's beliefs in their efficacy to manage their own learning activities; to master different academic subjects; and to fulfill personal, parental, and teachers' academic expectations. Children's social efficacy included perceived capabilities to develop and maintain social relationships, work collegially with others, and manage socially conflictful situations.

In the conceptual model guiding this research, perceived academic efficacy affects depression both directly and through its effects on prosocial behavior, engagement in problem behavior, and academic achievement. Children who are assured in their academic efficacy would be less vulnerable to depression because they anticipate fewer academic stressors and substandard perfor-

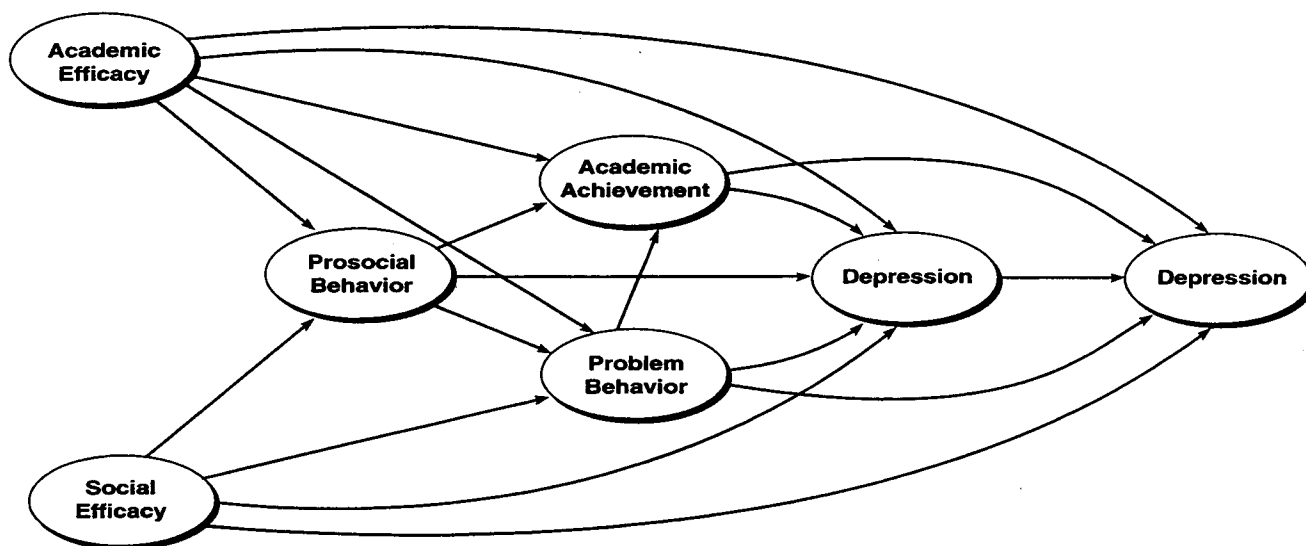


Figure 1. Posited causal structure of the paths of influence through which beliefs of personal efficacy operate in concert with sociocognitive factors to affect childhood depression.

mances. Moreover, for those who have a high sense of academic efficacy, failures, setbacks, and obstacles are viewed as surmountable and therefore spark redoubled effort rather than discouragement and despondency (Bandura, 1997; Schunk, 1989; Zimmerman, 1995). Perceived academic efficacy fosters not only engagement in academic pursuits but also involvement in a constellation of prosocial activities. Indeed, a secure sense of academic self-efficacy promotes academic attainments and prosocial relations and reduces involvement in problem behavior (Bandura et al., 1996b).

For reasons discussed earlier, a strong sense of social efficacy reduces vulnerability to depression both directly and by fostering supportive prosocial relationships and curtailing problem behavior. The following paths of influence were posited for the mediating factors in the conceptual model. Through a prosocial orientation of helpfulness, sharing, and cooperativeness, children bond themselves to their peers and are preferred by them in social and academic pursuits (Ladd & Price, 1987; Ladd, Price, & Hart, 1988). Such mutually supportive relationships create a more favorable school environment for academic attainment than if children behave in socially alienating ways that bring repeated rejection by their peers (Austin & Draper, 1984; Bandura, 1993; Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 1998).

The final pattern of influences in the conceptual model links the relevant mediating factors to depression. The enablement and supportive function of prosocial relationships has already been discussed. Schools operate as a primary setting for the development and social validation of cognitive competencies. It is here that children are continually tested, evaluated, and socially compared (Rosenholz & Rosenholz, 1981). Academic activities are infused with expectations and performance demands that beget self-devaluations, lowered peer status, and despondency if they are not fulfilled. Like academic failure, problem behavior can be a source of social devaluation and distress that gives rise to bouts of

depression. A secure sense of efficacy that promotes supportive relationships, academic accomplishments, and unencumberance with problem behavior not only reduces the likelihood of dejecting, self-deprecatory thoughts but also makes it easier to dismiss them should they occur (Bandura, 1997). Prior depression was also included as a contributor to variance in subsequent depression in the structural model that we evaluated.

In this longitudinal test of the proposed pattern of influences through which perceived self-efficacy affects childhood depression, the different facets of perceived efficacy, the relevant socio-cognitive factors, and prior depression served as predictors of level of depression measured 1 year and 2 years later.

Method

Participants

The participants in this study were 282 children with a mean age of 11.5 years in the initial phase of this longitudinal study. There were 148 males and 134 females.

The participants were drawn from two middle schools in a residential community located near Rome, Italy. This community represents a microcosm of the larger society, containing families of skilled workers, farmers, professionals, and local merchants and their service staffs. Fourteen percent were in professional or managerial ranks, 36% were merchants or operators of other businesses, 15% were skilled workers, 33% were unskilled workers, and 2% were retired. The socioeconomic diversity of the sample adds to the generalizability of the findings.

This community adheres to a stringent consent procedure for the conduct of research in the schools. A research proposal must gain approval from a school council composed of parent and teacher representatives as well as student representatives at the junior and high school levels. In addition, parents must give consent, and children are free to decline to take part if they so choose. Informed consent was obtained from 92% of the families.

The study was presented to the parents and children as a project designed to gain better understanding of how children develop. All of the children in two staggered cohorts, enrolled in the sixth grade in these schools, as well

as their teachers and peers, participated in the study. The severity of children's level of depressive reactions was reassessed 1 and 2 years later, with 93% of the children participating at this second time point.

Children were administered the sets of scales measuring the variables of theoretical interest in their classrooms by two female experimenters. The various sociocognitive measures were administered over a period of several days. In addition, data for the variables of interest were collected from the children's teachers and peers.

Perceived Self-Efficacy

Children's beliefs in their efficacy were measured by 37 items representing seven domains of functioning. For each item children rated, using a 5-point response format, their belief in their level of capability to execute the designated activities.

We assessed perceived self-efficacy for academic achievement by measuring the children's beliefs in their capabilities to master different areas of coursework, including mathematics, science, and reading and writing language skills. A second set of scales measured children's perceived self-efficacy for regulating their own learning (Zimmerman, Bandura, & Martinez-Pons, 1992). These scales assessed children's efficacy to structure environments conducive to learning, to plan and organize their academic activities, to use cognitive strategies to enhance understanding and memory of the material being taught, to obtain information and get teachers and peers to help them when needed, to motivate themselves to do their schoolwork, to get themselves to complete scholastic assignments within deadlines, and to pursue academic activities when there are other interesting things to do. The item "How well can you get teachers to help you when you get stuck on schoolwork?" measured perceived self-efficacy to enlist enabling social resources, and the item "How well can you study when there are other interesting things to do?" measured children's perceived efficacy to motivate themselves for academic pursuits in the face of competing attractions.

A third set of scales assessed efficacy for leisure and extracurricular activities involving mainly group activities. A fourth set of scales assessed children's self-regulatory efficacy to resist peer pressure to engage in high-risk activities involving alcohol, drugs, and transgressive behavior that can get them into trouble. For example, the following item assessed perceived self-regulatory efficacy to rebuff pressures exerted by peers to drink alcoholic beverages: "How well can you resist peer pressure to drink beer, wine or liquor?"

We assessed perceived social self-efficacy by measuring children's beliefs in their capabilities to form and maintain social relationships, work cooperatively with others, and manage different types of interpersonal conflicts. We assessed self-assertive efficacy by measuring children's beliefs in their capabilities to voice their opinions, stand up to mistreatment or harassment, and refuse unreasonable requests. "How well can you express your opinions when other classmates disagree with you?" is one of the items that assessed perceived self-assertive efficacy. We assessed perceived self-efficacy to meet others' expectations by examining children's beliefs in their capabilities to fulfill what their parents, teachers, and peers expect of them and to live up to what they expect of themselves. "How well can you live up to what your parents expect of you?" typifies items in the perceived-efficacy domain to fulfill others' expectations.

A principal-components factor analysis with varimax orthogonal rotation revealed a three-factor structure. The first factor, Perceived Academic Self-Efficacy, included high loading on items measuring perceived capability to manage one's own learning; to master academic subjects; and to fulfill personal, parental, and teachers' academic expectations. The predictive validity of this aspect of children's beliefs in their efficacy is supported by findings of prior research (Bandura et al., 1996b; Zimmerman et al., 1992). Perceived Social Self-Efficacy constituted the second factor. The items loading on this factor included perceived capability for peer relationships, for self-assertiveness, and for leisure-time social activities. The

third factor, Perceived Self-Regulatory Efficacy, was represented by items measuring perceived capability to resist peer pressure to engage in high-risk activities. The findings of previous research corroborate the predictiveness of the last two aspects of perceived efficacy as well (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996a; Bandura et al., 1996b; Caprara et al., 1998). These three factors constituted 15%, 10%, and 6% of the variance, respectively. This factor structure has been replicated cross-nationally with Italian, Hungarian, and Polish children (Pastorelli et al., 1998).

We assessed the reliability of the factors of perceived self-efficacy with squared multiple correlations of factor scores. Coefficients of .70 or better are indicators of stable factors (Tabachnik & Fidell, 1989). The estimated reliabilities were .89 for academic self-efficacy, .78 for social self-efficacy, and .75 for self-regulatory efficacy. Perceived academic and social self-efficacy were selected for the purposes of the present study because they have the most direct bearing on depressive reactions to stressors.

Social behavior. We obtained data on children's social behavior from different sources, using diverse methods of assessment. The sources included the children themselves, their teachers, and their peers. A total of 22 teachers rated the children who were enrolled in their classrooms. The methods of measurement included personality questionnaires, behavior ratings, and peer sociometric ratings.

Children rated their prosocial behavior on a scale containing 10 items developed by Caprara and his colleagues (Caprara & Pastorelli, 1993). The scale assessed degree of helpfulness, sharing, kindness, and cooperativeness. "I try to help others" is a sample item. To avoid a possible response bias, several control items were included in the scale. The factor structure and concurrent validity of this measure have been verified in studies relating children's self-ratings to level of prosocialness rated by parents, teachers, and peers (Caprara & Pastorelli, 1993). Children's level of prosocial behavior was rated by teachers on a subsample of 6 items drawn from the larger scale. Sociometric peer nominations served as another source of assessment of prosocial behavior. The children made their nominations from the roster of classmates in their particular classroom. Because this is a highly stable community, the children were thoroughly acquainted with each other. Children were presented with a booklet containing the names of children in their class. Each child selected three classmates who often share things, help others, and try to comfort them when they are sad. The alpha reliability coefficients were .80, .89, and .78 for self, teachers, and peer ratings, respectively. Because the different sets of scores were positively intercorrelated, we standardized, averaged, and aggregated them to provide a composite measure of prosocial behavior.

Problem behavior. Problem behavior was measured with 85 items from the Child Behavior Checklist developed by Achenbach and Edelbrock (1978). Both the reliability and predictive validity of this widely used measure of problem behavior are well established (Achenbach, McConaughy, & Howell, 1987). We deleted the items concerned with depression to eliminate the presence of depression items in the measure of problem behavior as a predictor of depression. The items dealt with a wide range of problem behaviors, including hyperactivity, aggressiveness, inattentiveness, transgressive conduct, anxiety and withdrawal, somatic complaints, and obsessiveness. The children rated which of the various problem behaviors they exhibit and, if they do, whether they do so only occasionally or often. The reliability coefficient for the total score was .89.

Academic achievement. The children were graded by their teachers for their level of academic achievement in the various subject matters both at mid-year and at the end of the academic term. The assessment comprised five gradations of academic achievement corresponding to academic grade levels. The two sets of academic grades were combined to provide a composite measure of academic achievement.

Depression. Children rated the severity of depression on the 27-item Children's Depression Inventory developed by Kovacs (1985). The items measure the constellation of features that characterize depression, such as despondency, hopelessness, loss of appetite and interest in pleasurable

activities, self-deprecation, and suicidal ideation. Children rated the degree to which they experienced the various aspects of depression using a 3-point response format. The alpha reliability coefficient was .84.

Teachers and peers also were included in the assessment. The children's depression was rated by teachers on a 10-item scale and assessed sociometrically by peers on a 3-item scale developed by Caprara. These scales measured children's depressive mood, disconsolateness, and hopelessness. Cronbach's alphas for the two scales were .88 and .86, respectively. Depression assessed 1 year and 2 years later served as the predicted variable. This interval was selected because it involved an important transition from elementary school to junior high school. The reliability coefficients for this second assessment were .88 for children, .92 for teachers, and .91 for peers. The three sets of Depression 1 scores were positively intercorrelated ($r = .30, p < .001$). The ratings of depression correlated more highly between teachers and peers ($r = .43, p < .001$) than between the children and their peers ($r = .29, p < .001$) and teachers ($r = .20, p < .001$). The pattern of relationships was similar for the Depression 2 and Depression 3 scores. The measures were taken as indexes of children's proneness to depressive reactions rather than as psychopathologic forms of depression.

Results

Table 1 presents the means and variances for the different sets of variables. It also includes the matrix of relationships among the various sociocognitive factors and depression at both longitudinal time periods. Significant sex differences were obtained on several of the assessed factors. Compared to boys, girls had a higher sense of academic efficacy, $F(1, 280) = 17.52, p < .0001$, but lower perceived social efficacy, $F(1, 280) = 5.78, p < .05$. They were also more prosocial, $F(1, 280) = 20.61, p < .0001$; exhibited fewer problem behaviors, $F(1, 280) = 13.86, p < .001$; and surpassed their male counterparts in scholastic attainments, $F(1, 280) = 10.86, p < .01$. Although girls were somewhat more depressed than boys in the second time period, the difference was small, and neither the main effect of age or sex, nor their interaction, attained significance. The emergence of gender differences in depression is more commonly found in late adolescence than in mid-adolescence (Nolen-Hoeksema & Girgus, 1994).

Network of Relationships

The patterns of relationships among the variables are described briefly and then we report the results of testing for the goodness of fit between the hypothesized causal structure and the empirical findings. In accord with prediction, children's beliefs in their academic and social efficacy were accompanied by prosocialness, high scholastic achievement, and low levels of depression at all three time periods. Those of high perceived academic efficacy were also less inclined to engage in problem behaviors.

Children who were high in prosocialness were more academically achieving, exhibited low problem behaviors, and were less prone to depression at the different time points. Success in academic activities was accompanied by low depression, whereas involvement in problem behaviors was accompanied by high depression. Prior depression was moderately related to level of depression 1 and 2 years later.

Paths of Influence

Accessibility to children's depressive reactions varied across informants because some of the affective and cognitive aspects of

Table 1
Correlation Matrix for Perceived Self-Efficacy, Sociocognitive Factors, and Depression at Three Time Points

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Academic efficacy	3.81	0.65	—											
2. Social efficacy	4.17	0.56	.11	—										
3. Self-report	24.60	3.72												
4. Standardized aggregate	3.08	0.79												
5. Academic achievement	53.85	16.74												
6. Problem behavior														
7. Self-report	9.68	6.53												
8. Standardized aggregate														
9. Self-report	8.61	6.75												
10. Standardized aggregate														
11. Self-report	9.15	7.47												
12. Standardized aggregate														

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

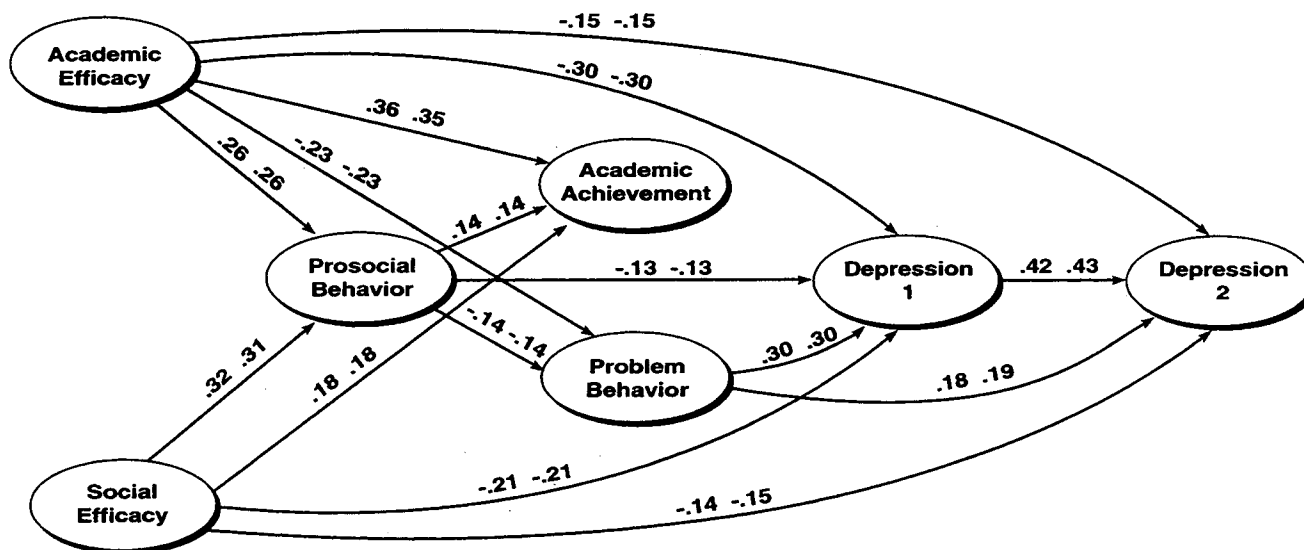


Figure 2. Path analysis of the direct and mediated paths of influence through which efficacy beliefs affect level of depression 1 year later. The first path coefficient on each of the structural links is for boys; the second coefficient is for girls. The causal structure was comparable across gender. All of the path coefficients are significant beyond the $p < .05$ level.

depression are accessible only to the child experiencing them. Some of the affective, behavioral, and verbalized features of depression are observable to teachers and peers, but the particular settings in which they routinely observe a given child's behavior are more circumscribed. Because children preside over their depressive reactions across all settings, modes of experience, and expression, we used their ratings of depression in the primary analysis. We tested the posited structural model on the covariance matrix using the EQS program (Bentler, 1995). Level of depression at Time 2 and Time 3 were the distal outcome variables. Although depression did not differ across sex in the age range studied, boys and girls differed on some of the variables, so gender was considered in the analysis.

We conducted analyses of the structural model using the multiple groups model approach, which estimated simultaneously the same pattern of relationships among variables in the two samples of boys and girls. In this approach, equivalence among different samples is evaluated by constraints that impose identical estimates for the model's parameters (Byrne, 1994; Scott-Lennox & Scott-Lennox, 1995). In EQS the plausibility of these equality constraints is examined by the Lagrange Multipliers (LM) test (Bentler, 1995). For each of the constraints specified, the LM test provides evidence that the constraint applies to the populations involved. In the present study the equality constraints were imposed on path coefficients across the gender groups.

Figure 2 presents the results of the path analysis using Time 1 predictors of Time 2 depression. All the posited structural links were verified except the direct link from academic achievement to depression at both time points and the paths linking problem behavior to perceived social efficacy and academic achievement. The link between perceived social efficacy and academic achievement, which was shown to be significant by the LM test, was added.

The path coefficients that are significant beyond the $p < .05$ level are shown in Figure 2. The results were equivalent across gender. A low sense of social self-efficacy and academic self-efficacy was accompanied by high depression both concurrently and 1 year later. The two forms of perceived self-efficacy also contributed to depression through their impact on prosocialness and problem behavior.

Children with strong beliefs in their efficacy to regulate their learning activities and to master their academic coursework achieved high academic performances, behaved prosocially toward others, and exhibited low levels of problem behaviors. Children of high perceived social efficacy also behaved prosocially, were academically achieving, and exhibited low levels of problem behaviors through the mediation of prosocialness. It is interesting that it was children's perceived academic self-efficacy rather than their actual academic achievement that accounted for depression both concurrently and over time. Perceived academic efficacy also contributed to depression through its impact on prosocial behavior and problem behavior. Some of the effect of perceived social efficacy on depression is similarly mediated through its impact on prosocial behavior. In addition, problem behavior contributed independently to depression 1 year later. Finally, Time 1 depression was linked to Time 2 depression.

The revised model provided an excellent fit to the data as revealed by all the fit indexes considered. These tests yielded a nonsignificant $\chi^2(23, N = 257) = 14.10$, a normed fit index (NFI) of .97, a non-normed fit index (NNFI) of 1.04, and a comparative fit index (CFI) of 1.0. The model accounted for 37% of the variance in Time 1 depression and 44% of the variance in Time 2 depression for boys, and 38% of the variance in Time 1 depression and 45% of the variance in Time 2 depression for girls. Figure 3 summarizes the results of the path analysis using Time 1 predictors of Time 3 depression.

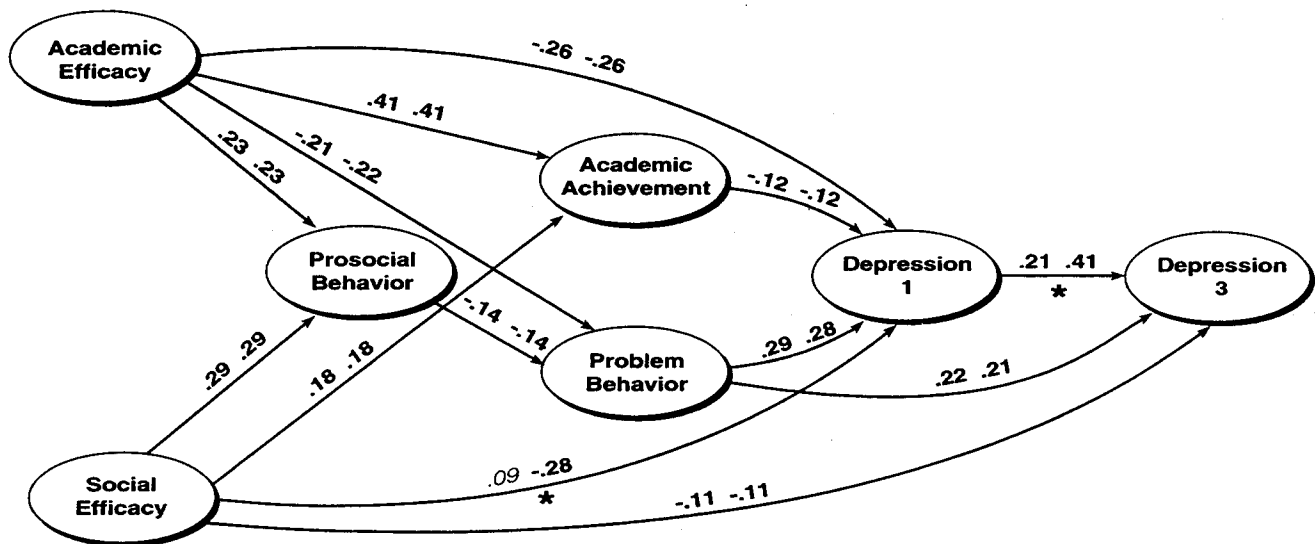


Figure 3. Path analysis of the direct and mediated paths of influence through which efficacy beliefs affect level of depression 2 years later. The first path coefficient on each of the structural links is for boys; the second coefficient is for girls. All of the path coefficients are significant beyond the $p < .05$ level, except that perceived social inefficacy is unrelated to Time 1 depression for boys. The coefficients with an asterisk on the paths differ significantly across gender.

The path coefficients in Figure 3 were equivalent across gender except two. A low sense of social efficacy was accompanied by high depression at Time 1 for girls but was nonsignificant for boys. The link between depression at Time 1 and Time 3 was significantly stronger for girls than for boys. The constraint related to these paths was relaxed, and the model was re-estimated. The goodness of fit of the revised model to the empirical data yielded a nonsignificant $\chi^2(23, N = 257) = 14.10$, an NFI of .99, an NNFI of 1.04, and a CFI of 1.0.

The pattern of relations among the sociocognitive factors in the structural model is the same as in the analysis of Time 2 depression except that prosocial behavior is linked to Time 1 depression through the mediation of problem behavior rather than directly. Perceived academic self-efficacy is linked to Time 1 depression directly and through its effects on academic achievement, prosocial behavior, and problem behavior. However, girls were more depressed over their beliefs of academic inefficacy than were the boys.

The impact of perceived academic self-efficacy and level of academic achievement on Time 3 depression is mediated through Time 1 depression. As in the analysis of Time 2 depression, problem behavior contributes to variance in Time 3 depression both directly and through Time 1 depression. A low sense of social efficacy contributes directly to Time 3 depression regardless of gender. However, two interesting gender differences emerge in the structural links at this more distal period. A low sense of social efficacy was accompanied by depression concurrently for girls but was unrelated for boys. In addition, the link between Time 1 and Time 3 depression was stronger for girls than for boys. The model accounted for 30% of the variance in boys' level of Time 1 depression, and 39% of the variance in girls, and 22% of the variance in Time 3 depression for boys and 43% for girls.

These are stringent tests of the structural model, because per-

ceived self-efficacy and the other sociocognitive factors account for some of the variance in prior depression. Thus, an unadjusted measure to control for prior depression also removes some of the effects of perceived self-efficacy and the other sociocognitive factors on subsequent depression.

We also conducted the multiple groups model analysis on depression aggregated across the child, peer, and teacher ratings. The scores were standardized, aggregated, and averaged to create a composite measure of depression at each of the three time points. Except for a few links, which are described below, the analyses using the aggregate measure replicated the pattern of relations among the sociocognitive variables that was obtained with self-reported depression. The significant direct and mediated paths from perceived social self-efficacy to depression at the three time points replicated those obtained with self-reported depression. The differential gender link from perceived social inefficacy to concurrent depression was similarly replicated; however, problem behavior was unrelated to depression 2 years later. Perceived social inefficacy had a direct impact on depression a year later only for girls, but it predicted depression 2 years later for both boys and girls. The strength of the link between prior and subsequent depression did not differ by gender either over the 1-year or 2-year interval.

The revised model for Time 2 depression fits the data very well, as corroborated by the various fit indexes considered. These tests yielded a nonsignificant $\chi^2(21, N = 256) = 14.97$, an NFI of .97, an NNFI of 1.02, and a CFI of 1.0. The model accounted for 39% of variance in Time 1 depression for boys, and 52% of the variance for girls, and 50% of the variance in Time 2 depression for boys and 61% of the variance for girls.

The corresponding fit tests for Time 3 depression yielded a nonsignificant $\chi^2(21, N = 282) = 22.46$, an NFI of .96, an NNFI of 0.99, and a CFI of .99. The model accounted for 35% of

variance in Time 1 depression for boys and 48% of the variance for girls, and 35% of the variance in Time 3 depression for boys and 40% of the variance for girls.

Discussion

The findings of this longitudinal research both verify the influential role played by beliefs of personal efficacy in childhood depression and clarify the paths through which they exert their effects. Perceived social and academic inefficacy contributed to concurrent and subsequent depression both directly and through their impact on academic achievement, prosocialness, and problem behaviors. The analysis of direct and mediated effects within the multivariate causal structure clarifies the paths of influence through which substandard academic performances with low perceived control (Hilsman & Garber, 1995) give rise to depression in children. In the shorter run, children were depressed over beliefs in their academic inefficacy rather than over their actual academic performances. In the longer run, however, the impact of a low sense of academic efficacy on depression was mediated through academic achievement, problem behavior, and prior depression. The contribution of problem behavior to depression also increased over the longer term.

Perceived social inefficacy contributed more heavily to depression in girls than in boys in the longer term. Although there was no gender difference in the direct link to distal depression at the two time points, a sense of social inefficacy was accompanied by depression concurrently in girls but not in boys. Moreover, girls' concurrent depression was more heavily linked to depression 2 years later. Research by Leadbeater, Blatt, and Quinlan (1995) provides supportive evidence for a greater role of social factors in depression in girls. Boys and girls both show some similar paths to depression, but it is more likely to arise from interpersonal estrangement for girls.

Two of the posited links involving the sociocognitive mediators in the structural model turned out to be mediated rather than direct. Perceived social self-efficacy was linked to problem behavior through prosocialness rather than directly. Children with a high sense of social efficacy were more prosocially oriented, which in turn was accompanied by low involvement in problem behavior. Apparently, it is mainly by fostering a contravening social style of behavior that a strong sense of social efficacy attenuates problem behaviors. Prosocialness was accompanied by low depression at both time points to the extent that it promoted avoidance of, or disengagement from, troublesome behavior.

In accord with a well-established finding (Clarizio, 1994), low to moderate relationships were obtained between ratings from different sources. This is hardly surprising given the number of dimensions on which the assessments differ. To begin with, they vary in the scope of depressive features assessed. Teachers and peers rated only expressions of dejection, whereas the children rated not only their depressive mood but also the full constellation of depressive manifestations, including self-deprecation, loss of interest, suicidal ideation, and vegetative disorders. The greater overlap in the facets of depression rated by teachers and peers yielded the higher correlation. The assessments also vary in the social contexts in which children's depression is observed. Teachers are most familiar with children's depressive reactions from classroom activities, and peers from social interactions both in and

outside the school setting, but children themselves have access to their depressive states in daily activities across all settings and time periods.

Raters vary as well in degree of accessibility to the different aspects of depression. Teachers and peers have access to children's overt manifestations of depressed mood, verbalized self-deprecation, and retardation in mental and physical activity. Although vegetative disorders, such as appetite loss and sleep disturbances, also are observable, teachers and peers have little opportunity to see these types of somatic manifestations. However, the children have continuous direct access not only to their own affective, cognitive, motivational, and vegetative disturbances but also to self-devaluations and preoccupation with morbid ideations that they may never voice. Moreover, raters differ in self-evaluative involvement in the assessment itself. Finally, the various measures of depression differ in the number of raters. The teacher's and children's assessments involve only a single rater, whereas the peer assessments represent the aggregate judgments of multiple raters.

The analyses based on the aggregate measure of depression essentially replicate the findings obtained with self-reported depression, including the mediational links in the structural model, the differential gender link of perceived social inefficacy to concurrent depression, and the robustness of the direct perceived social inefficacy link to subsequent depression. However, heavy involvement in problem behaviors had no effect on depression in the shorter run, and the link between prior and subsequent depression did not differ in strength between girls and boys in the longer run. The causal structure yielded by the aggregate measure of depression is disparate with what is known about the impact of these factors on depression as revealed by the children's ratings of their depressive moods and reactions. The fact that others lack access to the private aspects of depression may account, in large part, for the difference.

The present analysis of the self-efficacy pathways to depression was confined to children's beliefs in their capabilities to manage academic demands and interpersonal relationships. An extension of efforts to articulate the different ways in which beliefs of personal efficacy may contribute to depression centers on perceived efficacy for the self-regulation of affect. Affect regulation is an important aspect of people's emotional lives (Carstensen, 1992; Gross, 1998; Lazarus, 1991; Wegner & Pennebaker, 1993). Broadening the self-efficacy analysis to affect regulation may account for additional variance in depression.

In research now in progress, we have devised and tested scales measuring perceived self-efficacy to manage both positive and negative affect. The negative affect is linked to situations involving anxiety arousal, anger, rejection, embarrassment, and humiliation. The perceived self-efficacy to calm oneself in the face of provocations is included as part of the self-management of negative affect. The self-management of positive affect concerns perceived self-efficacy to express liking and affection toward others, to experience empathy and joy, and the efficacy to cheer oneself under discouraging circumstances.

The first validation attempt has yielded interesting findings (Caprara et al., in press). Emotional self-regulatory efficacy contributes to variance in depression and prosocial behavior independently of perceived social self-efficacy. A strong sense of efficacy to manage positive emotions is accompanied by high prosocialness

similarly for males and females. In contrast, a low sense of efficacy to manage negative emotions is highly depressing for females but not for males. An appropriate next phase for research in this area is to examine how perceived efficacy for the self-management of affect operates in concert with the other facets of self-efficacy and sociocognitive factors in the causal structure of depression.

The finding that perceived inefficacy to manage negative affect is depressing for females but not for males suggests another possible source of gender differences of depression. The heavier involvement of social and affective facets of perceived self-efficacy for girls may help to explain their greater proneness to depression in late adolescence and adulthood. Pre-existing perceived self-inefficacy in more aspects of their lives makes it more difficult to manage heightened transitional stressors and new role demands without experiencing despondency. Indeed, Nolen-Hoeksema and Girgus (1994) built a strong case that the interaction of pre-existing gender differences in sociocognitive depressogenic factors with more stressors linked to the female role accounts for the emergence of gender differences in late adolescence.

Nolen-Hoeksema's (1990) response styles theory of depression explains the self-perpetuation of depression and gender differences in depression in terms of ability to use engrossing action to turn off depressive rumination. Males are prone to work their way out of depressive episodes by immersing themselves in activities that distract them from their problems or alter them for the better. Women are more inclined to engage in ruminative thinking about their depressive condition that sustains or exacerbates it. It would be of interest to explore how perceived affective self-regulatory efficacy, as well as the social and academic facets of personal efficacy, are linked to proneness for ruminative or action-oriented models of reactions to depressive episodes. An agentic proactive style of coping, which requires a resilient sense of personal efficacy, would enable adolescents to manage difficult life events without suffering lingering bouts of depression.

In the present study we tested the structural model of the sociocognitive factors governing the severity of children's depressive reactions rather than clinical depression. Depressive reaction to stressors is, of course, a phenomenon of importance in its own right. Both children and adults commonly suffer bouts of depression from time to time, although not of the intensity and duration that the clinical forms take. Because this affective condition can impair psychological well-being and quality of functioning, there is much to be gained from a better understanding of its determinants, prevention, and reduction. Unlike anxiety, aggression, and other psychosocial dysfunctions, depression has become psychopathologized to the point where use of the term *depression* is considered inappropriate unless the affective condition is certified by clinical interview (Fristad, Emery, & Beck, 1997). The prescription of multiple diagnostic tools linked to clinical criteria is certainly warranted in research on clinical depression. However, psychopathology should not pre-empt the term *depression* for the less severe forms. It also has been suggested that nonclinical depression be labeled *distress* rather than *depression*. The non-descript term *distress* does not signify the explicit facets of depression that were measured. Children rated the extent to which they felt dejected, hopeless, and worthless; had lost their appetite; no longer found interest in things; and thought about killing them-

selves. Distress commonly implies agitation rather than dejection, self-deprecation, and psychomotor retardation.

The perceived inability to exercise control over events that affect one's life has been posited as a source of anxiety as well as depression. Studies in which self-beliefs of coping efficacy are systematically varied show that perceived inefficacy in managing potential threats is accompanied by subjective anxiety, autonomic arousal, and catecholamine and opioid activation (Bandura, Cioffi, Taylor, & Brouillard, 1988; Bandura, O'Leary, Taylor, Gauthier, & Gossard, 1987; Bandura, Reese, & Adams, 1982; Ozer & Bandura, 1990; Wiedenfeld et al., 1990). A low sense of perceived control over potentially injurious events has similarly been shown to be anxiety provoking (Geer, Davison, & Gatchel, 1970; Glass, Singer, Leonard, Krantz, & Cummings, 1973; Sanderson, Rapee, & Barlow, 1989).

A theory must specify when perceived inefficacy will produce anxiety and when it will produce depression. The nature of the outcomes over which personal control is sought is an important differentiating factor. People become anxious when they perceive themselves as ill equipped to manage potentially injurious events. Attenuation or control of harmful outcomes is central to anxiety. People are saddened and depressed by their perceived inefficacy to gain highly valued outcomes. Irreparable loss or failure to secure desired rewarding outcomes figures prominently in despondency.

Neither perturbing environmental events nor emotional states come packaged in neatly separable forms. Perceived inefficacy to secure and maintain what one values highly is often anxiety provoking, because a lack of control can have injurious effects. For example, when loss of a valued job has aversive consequences in one's everyday livelihood, a sense of powerlessness to control a vital aspect of one's life is both alarming and depressing. Because privation and threat commonly occur together, both anxiety and depression often accompany perceived inefficacy to exercise control over perturbing life circumstances.

Evidence verifying explanatory mechanisms of depression carries implications for how to prevent the development of depressive proclivities as well as how to alleviate suffering from it. Separate etiological theories and therapeutic approaches have been built around different sets of causal processes. Some of these approaches focus on interpersonal competencies (Coyne, 1990; Gotlib & Colby, 1987; Lewinsohn, Antonuccio, Steinmetz, & Teri, 1984), others on depressogenic styles of thinking (Alloy, 1988; Beck, 1984), and still others on dysfunctions in the evaluative self-system (Rehm, 1981). These different types of interventions have been adapted for the prevention and treatment of depression in young children and adolescents (Clarke, Lewinsohn, & Hops, 1990; Gillham, Reivich, Jaycox, & Seligman, 1995; Rehm, 1987; Stark, Rouse, & Kurouski, 1994). The more cognitively oriented theories share a common emphasis on the influential role of impairing self-referent cognitions in depression.

Research with clinically depressed individuals attests to the continuity of self-efficacy effects across levels of severity of depression (Cutrona & Troutman, 1986; Kavanagh & Wilson, 1989; Olioff & Aboud, 1991; Teti & Gelfand, 1991). Successful modification of depression requires people to engage in enabling styles of thinking and self-rewarding activities. This presents unique challenges, however, because a strong sense of inefficacy extends to the very skills taught in treatments to reduce proclivity to depression. The interventions include skills in how to identify

faulty thinking and supplant it with beneficial thinking, increase engagement in self-rewarding activities, and adopt ways of behaving that disconfirm faulty beliefs and provide accomplishments for enhancing personal efficacy and positive self-evaluation. At the outset of treatment, depressed people are beset by self-doubts in their ability to do the very things therapists are trying to persuade them to do (Ross & Brown, 1988). The deeper the despair, the lower the sense of efficacy to learn skills for alleviating depression. Therefore, before any progress can be achieved, therapists must alter clients' self-immobilizing beliefs about their ability to carry out the necessary therapeutic tasks. Otherwise, they will keep reaffirming their ineffectualness for the treatment itself. Mastery experiences are usually more persuasive than talk alone in eliminating inefficacious thinking. Guided mastery experiences can provide confirmatory self-efficacy tests that show that what seemed hopelessly difficult is quite achievable (Kavanagh & Wilson, 1989).

The structure of the obtained relationships suggests that efforts to reduce proneness to depression would do well to center on enhancing perceived self-efficacy and skill in academic and social domains, both in their own right, and as a way of abating dissocialness, academic underachievement, and other problem behaviors that breed despondency. In the academic source of depression, the problem is not just academic achievement but children's beliefs about their academic capabilities. This is especially true for girls who, in the aggregate analysis, were more likely than boys to get depressed over beliefs of academic inefficacy, even though they surpassed boys in actual academic achievement. A firm sense of intellectual efficacy creates resilience to the adverse effects of failure and sustains a high level of performance motivation (Bandura, 1991). Self-belittling habits in judging one's attainments can be altered through cognitive restructuring and mastery-oriented programs (Bandura, 1997). However, heightened vulnerability to depression is a social problem, not just a personal one. The solution partly lies in changing educational practices that undermine the perceived efficacy and aspirations of children (Levin & Lockheed, 1993; Rosenholz & Rosenholz, 1981). Diverse lines of research provide converging evidence of societal practices that undermine women's senses of efficacy in academic domains requiring quantitative skills (Bussey & Bandura, in press; Eccles, 1989; Hackett & Betz, 1981).

Reduction of depressive proclivities through the interpersonal source must also be extended beyond building social skills to the cognitive aspects. Social facility is not simply a matter of training in social skills. Schwartz and Gottman (1976) showed that the socially timid know what to do in social transactions, but they lack the efficacy to translate their knowledge into action. In semistructured situations, the socially anxious and nonanxious differ little in their actual social skills, but they differ substantially in their beliefs about their social efficacy (Glasgow & Arkowitz, 1975). Similarly, in some studies depressed and nondepressed people do not differ in social skills, but the nondepressed view themselves as much more adroit than they really are (Lewinsohn, Mischel, Chaplin, & Barton, 1980).

Efficacy beliefs affect not only the implementation of social skills but also how social successes and missteps are cognitively processed. People who doubt their social efficacy are more likely to view repeated successes as the product of favorable circumstances than as indicants of their capabilities, whereas those of

high perceived efficacy believe even more strongly in their capabilities following similar successes (Alden, 1987). Moreover, those of low perceived social efficacy readily accept failures as evidence of their personal deficiencies. Perceived self-efficacy predicts the level of aversive emotional arousal experienced and manifested in interpersonal transactions (Alden, 1986). Children at risk for depression that is due to perceived social inefficacy need to change their way of thinking about their capabilities and how they read their social experiences. Self-efficacy theory provides explicit guidelines on how to structure mastery experiences to enhance both social skills and resilient self-beliefs (Bandura, 1997).

Children should not be the sole locus of intervention in either the prevention or treatment of depression. Parental depression increases the likelihood of depression in offspring (Gotlib & Goodman, 1998; Hammen, 1991). The relative contributions of genetic predisposition, emotional and functional unresponsiveness of parents to their children, and impairment of family relationships by parental dejection have yet to be disentangled. Here, too, self-efficacy theory sheds some light on a possible mechanism underlying the observed relationship. Not all children of depressed parents suffer bouts of depression (Beardslee & Podorefsky, 1988). The source of this variability and resilience requires explanation. Observational studies by Teti and Gelfand (1991) of clinically depressed mothers interacting with their infants reveal that the adverse effects of depression on caretaking activities are mediated through mothers' beliefs in their parenting efficacy. Similarly, the effects of infants' temperamental difficulty and social support affects mothers' postpartum depression and are mediated entirely through their impact on perceived parenting efficacy (Cuirona & Troutman, 1986). The converging evidence from these diverse lines of research suggests that a persistent sense of personal inefficacy operates as a common contributor to both clinical and less severe forms of depression.

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