

Control-Related Beliefs and Self-Reported Depressive Symptoms in Late Childhood

John R. Weisz, Lynne Sweeney, Valerie Proffitt, and Tom Carr

Research thus far links depressive symptoms in children to one type of control-related belief: low levels of perceived personal competence. However, child research, unlike adult research, has not supported a linkage between depressive symptoms and another theoretically important control-related belief: perceived noncontingency of outcomes. Here we reexamined the issue, adjusting for limitations in previous methodology by using (a) psychometrically stronger measures of control beliefs, and (b) a general population sample rather than children being treated in mental health clinics. In contrast to previous results, we found that both perceived incompetence and perceived noncontingency were strongly related to children's depression, together accounting for 40% of the variance in Child Depression Inventory scores. We also found, as in previous research, that depressive symptoms were correlated with uncertainty as to the causes of outcomes, especially successes. The findings suggest that children may be susceptible to both "personal helplessness" and "universal helplessness" forms of depression.

Several major theories hold that depression involves a perceived lack of control. Research with adults has provided moderate support for this notion (see Coyne & Gotlib, 1983; Peterson & Seligman, 1984), but relatively little is known about children (see Hammen, 1991; Weisz, 1990). Child research has linked depressive symptoms to self-blame for negative events (Moyal, 1977; Seligman et al., 1984), low self-esteem and negative self-perceptions (Haley, Fine, Marraige, Moretti, & Freeman, 1985; Kaslow, Rehm, & Siegel, 1984), and a sense of helplessness regarding the future (Kazdin, Esveldt-Dawson, Sherick, & Colbus, 1985). Such findings suggest indirectly that childhood depression may be associated with a perceived lack of control. Moyal (1977) generated more direct evidence, reporting that depressive symptoms were correlated with external locus of control among normal school children.

The internal-external (I-E) scale used by Moyal (1977) generated a single locus of control score. Recent conceptualizations, however, depict control as a multidimensional construct. A particularly relevant model of control cognition, developed by Weisz and others (Weisz, 1983, 1986b; Weisz & Stipek, 1982) construes control as a joint function of two factors: outcome contingency and personal competence. The contingency of a

desired outcome—say, solving a problem—is defined as the degree to which that outcome depends on the behavior of relevant individuals—in the case of a child, "kids" in general. The individual's competence with respect to that outcome is defined as that individual's level of ability to produce the behavior on which the desired outcome is contingent.¹

This two-dimensional model of control beliefs may be especially relevant to the study of depression. There is a potentially significant connection between the two-dimensional model and Abramson, Seligman, and Teasdale's (1978) reformulated learned helplessness model. Abramson et al. distinguished between two forms of depression. One form involves *personal helplessness*, a belief that one cannot produce responses that will lead to desired outcomes but that relevant others can do so; such beliefs may lead to self-blame and low self-esteem. The

¹ As noted elsewhere, this model draws from the work of several earlier theorists (e.g., Abramson, Seligman, & Teasdale, 1978; Bandura, 1977; Crandall, 1971). Bandura (1977, 1986), for example, distinguished outcome expectations from efficacy expectations. An outcome expectation is an individual's estimate that a particular behavior will lead to a desired outcome; this resembles a contingency belief as we have defined it. An efficacy expectation is the belief that one can successfully execute the behavior that produces the desired outcome; this seems similar to a competence belief as we have defined it. Bandura's assessment procedures, however, do not consistently differentiate contingency and competence beliefs as we construe them. For example, in one of Bandura's assessment procedures, people are given "self-efficacy scales representing tasks varying in difficulty, complexity, stressfulness, or in some other dimension" and are asked "which tasks they judge they can do and their degree of certainty that they can execute them" (Bandura, 1986, p. 422). Although this procedure may work well for Bandura's purposes, it would pose a potential interpretive problem from the perspective of our model: If people predict that they cannot succeed at a task, it may remain unclear whether they perceive success as noncontingent, their own competence as low, or both. This illustrates why our model emphasizes separate assessment of contingency and competence beliefs.

John R. Weisz and Lynne Sweeney, Department of Psychology, University of California, Los Angeles; Valerie Proffitt, Department of Psychology, University of North Carolina at Chapel Hill; Tom Carr, Grady Brown Elementary School, Hillsborough, North Carolina.

The research was conducted while John R. Weisz was supported by Grants R01 MH38240 and R01 MH49522 from the National Institute of Mental Health. We are grateful to the teachers, staff, and students of the Grady Brown and E. K. Powe Elementary Schools, to Blair Paley and Karen Rudolph for their thoughtful comments on an earlier draft of this article, and to three anonymous reviewers for their useful conceptual and data analytic suggestions.

Correspondence concerning this article should be addressed to John R. Weisz, Department of Psychology, Franz Hall, University of California, 405 Hilgard Avenue, Los Angeles, California 90024-1563.

other form involves *universal helplessness*, the belief that desired outcomes are not contingent on behavior that either the individual or relevant others might produce; such beliefs may lead to hopelessness but will not necessarily cause self-blame or lowered self-esteem. Personal helplessness appears to entail a belief that one is low in competence; universal helplessness appears to entail a belief that the contingency of desired outcomes is at a low level. Thus, depression—at least in adults—may involve either a belief that personal competence is low or that outcome contingency is low, with the two beliefs related to rather different forms of depression (i.e., forms entailing either personal or universal helplessness).

Might this be the case for children as well as adults? To answer this question, it is necessary to investigate whether depressive symptoms in children are related to their beliefs about personal competence and about outcome contingency in personally significant situations. Such investigation requires (a) an empirically acceptable measure of depressive symptoms as experienced and reported by children themselves, (b) separate assessment of children's contingency and competence beliefs, and (c) a focus on outcomes in personally significant situations rather than on global locus of control.

Two recent studies of children in clinical settings satisfied all three requirements. Weisz, Weiss, Wasserman, and Rintoul (1987) studied control-related beliefs and self-reported depressive symptoms among child outpatients in mental health clinics. To meet requirement (a), the Children's Depression Inventory (CDI; Kovacs, 1983; Kovacs & Beck, 1977) was used to assess depressive feelings. To meet requirement (b), Weisz et al. used a set of contingency, competence, and control (CCC) probes, with questions focused on children's beliefs about the solution of problems at home and at school. In these probes, children were asked how contingent they believed solutions to these problems were on "kids and what they do," how competent they themselves were to perform solution-relevant behavior, and how likely it was that they could exert control (i.e., solve the problems if they tried). To complement these focused CCC probes, Weisz et al. also used Connell's (1985) Multidimensional Measure of Children's Perceptions of Control (Multi). Unlike most perceived control and I-E scales, it distinguishes between external and unknown causes of events, and this feature proved important to the findings.

Weisz et al. (1987) included three samples of outpatient children. In each sample, low levels of perceived competence and of perceived control on the CCC probes were significantly correlated with CDI depression scores. However, in none of the samples was perceived contingency correlated with CDI depression. Notably, in all three samples, CDI scores were positively correlated with attributions of success and failure (on the Multi) to unknown causes. Taken together, the findings linked depressive symptomatology to perceived incompetence and to contingency uncertainty, but not to perceptions of noncontingency. The findings with regard to perceived competence suggested that children may be more susceptible to forms of depression involving personal helplessness than to forms involving universal helplessness. The findings with regard to perceived contingency suggested that child depressive symptoms were related not so much to a firm belief that outcomes are noncontingent as to an inability to figure out what the contingencies are.

In a second, closely related study, Weisz et al. (1989) used three samples of inpatient children from three different psychiatric hospitals. The same measures used by Weisz et al. (1987) were employed, and very similar findings were obtained. In all three samples, CDI scores were negatively correlated with perceived competence and control on the CCC probes, but CDI scores were not consistently correlated with perceived contingency on the CCC probes. Moreover, in all three inpatient samples, CDI scores were positively correlated with contingency uncertainty for successes on the Multi. So, the inpatient study, like its outpatient counterpart, suggested that children's depressive symptoms may be associated with low levels of perceived competence, and thus with personal helplessness, but that child depression is not reliably associated with low levels of perceived contingency or with universal helplessness.

The findings of these outpatient and inpatient studies are suggestive but not definitive. To determine how robust and generalizable the findings are, it is important to address two limitations of the research thus far. (a) The fact that only clinical samples have been used makes it difficult to know whether the findings apply to school-aged children in the general population; depressive symptoms in children being treated in clinics may be more entrenched, more linked to stable self-perceptions (e.g., competence) than to variations in beliefs about the environment (e.g., contingency), and this may be less true among children in the general population. (b) The fact that the most important findings are derived from a brief set of general questions (CCC probes) rather than more fully developed questionnaires leaves open the possibility that the findings may be artifacts of a particular measurement approach. To address the first limitation, we focused in the present study on a general population sample of fourth and fifth graders drawn from elementary schools rather than clinics. To address the second limitation, we included not only those measures used in the two clinic-sample studies (i.e., the CDI, Multi, and CCC probes; see Weisz et al., 1987, 1989) but also two full questionnaires designed to assess perceived contingency and perceived competence. We thus sought to assess the extent to which previous findings on relations between control-related beliefs and depressive symptoms would prove to be robust across changes in the nature of the sample and changes in the measures used to assess control-related beliefs.

Method

Subjects and Measures

The initial sample included 121 children drawn from two public elementary schools. Two were dropped for incomplete data, 3 because of extreme scores (more than 3 standard deviations above the mean) on the CDI; the final sample thus numbered 116. The sample was 49% male; 110 of the children were fourth graders, and 6 were fifth graders from a combined fourth- and fifth-grade class. The mean age was 9.5 years ($SD = 0.7$; range = 8–12). English was the primary language for all the children. In one school, 48% of fourth-grade parents ($n = 39$ out of 81) and 46% of fifth-grade parents ($n = 6$ out of 13) gave consent for their children to participate in the study. In the other school, 42% of the fourth-graders' parents ($n = 76$ out of 180) gave permission. We sought information on how children who had parental consent might have differed from those who did not. This was difficult to arrange,

partly because of school staff's confidentiality concerns regarding children whose parents had not consented. However, in the school with the larger sample (76), we were given data on the number of consent and no-consent children who had, during the school year, been (a) identified as learning disabled, (b) reprimanded for fighting or disruptive behavior, (c) seen for counseling, and (d) admitted to the gifted-and-talented (GT) program. There was no significant group difference on the first three variables, but the consent group contained a higher percentage of GT children than the no-consent group, $\chi^2(1, N=180) = 13.2, p < 0.01$. GT children, in general, were disproportionately likely to participate in extra school activities (apparently including research). Thus, to the extent that high intelligence and social involvements (e.g., extracurricular activities) may be protective factors for children at risk for depression, our sample may have been at lower risk than a true random sample. A truncated range of depression risk may have reduced the strength of our findings and reduced their applicability to high-risk child populations.

Children's Depression Inventory. Each child filled in the CDI (Kovacs, 1983; Kovacs & Beck, 1977). This 27-item self-report questionnaire is designed to survey depressive symptoms of children and adolescents. We deleted one item pertaining to suicidal intent, out of concern that we not suggest suicide to children who might not otherwise seriously consider it. Reliability and validity of this widely used scale have been documented in several studies, with Cronbach's alphas ranging from .84 to .94 (Kaslow et al., 1984; Kovacs, 1983; Seligman et al., 1984; Smucker, Craighead, Craighead, & Green, 1986), and test-retest reliability over periods of 1–6 weeks ranging from .38 to .87 (Kovacs, 1980/1981; Smucker et al., 1986).

Multidimensional Measure of Children's Perceptions of Control. Children's control-related beliefs were assessed, in part, via the 24-item Personal Experience—Form A of Connell's (1980, 1985) Multi. This self-report measure was used in our earlier studies of control beliefs and depression in clinic samples of children (i.e., Weisz et al., 1987, 1989). The items involve either internal causal attributions, external attributions, or attributions to unknown causes (e.g., "When I get a good grade in school, I usually don't understand why I did so well."). Half the items involve successes, half failures. Children's ratings of how true each item is are summed to form six perceived control scores: internal success and failure, powerful other success and failure, and unknown success and failure. Validity of the Multi scales is supported by findings linking scores to other control-related constructs, such as perceived and actual competence (Connell, 1985; Connell & Tero, 1982). Test-retest reliability of the various scales over periods of 9 and 17 months ranged from means of .32 to .34 (Connell, 1985). As for internal consistency, Connell (1985) reported Cronbach's alphas separately for different content domains (i.e., cognitive, social, and physical) but not separately for positive and negative outcomes. For two different samples, Connell (1985) reported the following values: (a) in the cognitive domain, alphas were .68 and .67 for unknown success and failure, .65 and .59 for powerful other success and failure, and .62 and .56 for internal success and failure; (b) in the social domain, alphas were .60 and .52 for unknown success and failure, .70 and .59 for powerful other success and failure, and .62 and .39 for internal success and failure; and (c) in the physical domain, alphas were .66 and .61 for unknown success and failure, .68 and .64 for powerful other success and failure, and .52 and .61 for internal success and failure. The small number of items in each subscale limit the expected alpha; nonetheless, findings from subscales with very low alphas (especially .39) must certainly be offered tentatively, for heuristic and exploratory research purposes, and interpreted with caution.

Contingency, Competence, and Control Probes. Concurrent with the Multi, children answered the 12-question CCC probes, which are based on Weisz et al.'s (Weisz, 1983, 1986b; Weisz & Stipek, 1982) two-dimensional model of perceived control. The probes were used in our

two previous studies, involving clinical samples of children (i.e., Weisz et al., 1987, 1989). The probes included 4 questions concerning perceived contingency (e.g., "When kids have problems at home, solving the problems depends on the kids and what they do."), 4 questions on perceived competence (e.g., "When I have problems at home, I am better than most kids at helping to solve the problems."), and 4 questions on perceived control, that is, the ability to cause intended outcomes (e.g., "When I have problems at home, I can solve them if I try."). Within each set of questions, half concerned problems at home and half concerned problems at school.

Children's ratings of how true each statement is are summed to form separate scores for perceived contingency, competence, and control. High internal consistencies were not expected because of the brevity (i.e., 4 items) and substantial situation difference within each scale; that is, the contingency of outcomes at home and at school would not necessarily correlate highly even in reality. Weisz et al. (1987, 1989) have reported Cronbach's alphas for two different samples, with a range similar to that reported for the Multi (Connell, 1985); alphas for the two samples were .60 and .39 for contingency, .39 and .50 for competence, and .65 and .66 for control. Test-retest reliability over a 10-day interval was .55 for contingency, .51 for competence, and .61 for control. Construct validity was supported by the fact that, in harmony with the theory on which it is based, CCC control scores in both outpatient and inpatient samples (Weisz et al., 1987, 1989) were moderately correlated with contingency and competence, whereas contingency and competence were weakly correlated with one another. Predictive validity was supported by the finding that reductions in problem behavior by children in psychotherapy were significantly correlated with the children's contingency scores ($r = .48$) and control scores ($r = .41$), with 29% of the outcome variance accounted for by the two scores (Weisz, 1986a).

Perceived Contingency Scale for Children. The P-Contingency scale (Weisz, Proffitt, & Sweeney, 1991) includes 30 self-report items, all focused on perceived contingencies for children in general (e.g., "Kids who do their work well get good grades."). Half the items are expressed in the negative, half in the positive. Children's ratings of how true each item is are summed to form three subscales: Academic, Behavioral, and Social Contingency. For the present initial sample, alpha for the full scale was .86, and subscale alphas for the 10-item Academic, Behavioral, and Social Contingency subscales were .69, .75, and .74, respectively. Test-retest reliability over a 10-day interval was .80 for the full scale and .78, .48, and .70 for the Academic, Behavioral, and Social Contingency subscales, respectively.

Self-Perception Profile for Children. Children's perceived competence was assessed with the Self-Perception Profile for Children (Profile; Harter, 1985), a revision of Harter's (1982) earlier Perceived Competence Scale for Children. This 36-item, self-report measure is designed to survey children's perceived competence across five specific domains—academic, social, behavioral, athletic, and physical appearance—as well as the general domain of global self-worth. In each item, children are given two contrasting descriptions and asked which is more true of them (e.g., "Some kids often *forget* what they learn BUT other kids can remember things *easily*"). Half the items present the more competent option first, half the less competent option first. For the present study, only the academic (*scholastic*) is the term used by Harter (1985), social, and behavioral domains were used. Harter (1982) reported test-retest reliabilities for the earlier form of her scale, with 3-month reliabilities for the subscales ranging from .70 to .87 and 9-month reliabilities ranging from .69 to .80. For the current version, Harter (1985) reported internal consistency alphas for the various scales, for four different samples: .80, .85, .82, and .80 for the academic domain; .80, .80, .75, and .75 for the social domain; and .75, .77, .73, and .71 for the behavioral domain.

Teacher mood ratings. As a rough index of teachers' perceptions of

the children's moods, we had teachers rank-order their pupils (whose names were typed on strips of card-stock paper) on a scale ranging from *always smiling* to *always down in the dumps*. Although these teacher ratings involved only a single response per child and certainly did not provide a comprehensive measure of depressive symptomatology, they were nonetheless correlated with CDI scores ($r = -.38$), and their correlations with the control belief measures resembled the CDI correlations with those measures, as detailed in the Results section.

Data Collection

In both schools the measures were group-administered during two 45-min sessions (which included breaks and stretching exercises), 2 days apart. To minimize the influence of individual differences in reading ability, the questionnaires were read aloud to the children, who followed along and answered on their own copies. Additional experimenters were present during the group administration to ensure that children understood the questionnaire formats and that they worked independently.

Results

As noted previously, the initial distribution of CDI scores included three outliers (children who scored more than 3 standard deviations above the mean); the initial mean was 8.64 ($SD = 7.98$), the range was 0–48, and the distribution was not perfectly normal (skewness = 1.86; kurtosis = 4.98). After we dropped the three outliers (with information on each one provided to the school counselor), the mean was 7.76 ($SD = 6.23$), the range was 0–25, and the distribution was acceptably normal (skewness = 0.88, kurtosis = 0.05).

We checked on whether relations between the control belief measures and CDI scores differed as a function of gender. We computed correlations, separately for boys and girls, between CDI scores and the 17 primary measures of control-related beliefs (i.e., from the Multi, CCC probes, Profile, and P-Contingency). Of the 17 pairs of correlations, only 2 differed significantly. Because these 2 differences were similar to chance expectancy (see Field & Armenakis, 1974), we analyzed all data from the full sample rather than conduct separate analyses for boys and girls.

Correlation Between Control-Related Belief Measures and CDI Scores

Our primary analyses involved tests of the extent to which control-related belief measures accounted for the variability in CDI scores. Table 1 shows Pearson correlations between CDI scores and the nine control belief measures used in our previous research on this topic (i.e., in Weisz et al., 1987, 1989). To protect against chance findings, we applied a Bonferroni correction to the matrix; this set alpha at .006. Coefficients with asterisks in Table 1 are those that met conventional statistical criteria and survived the Bonferroni correction. The pattern of correlations is similar to that seen in the two previous studies, except that, on the CCC probes, perceived contingency was significantly related to CDI scores, and perceived competence was not; both coefficients were modest.

Table 2 shows relations between CDI scores and the Profile and the P-Contingency control-related belief measures. Applying the Bonferroni correction to this matrix produced a .006

Table 1
Control-Related Belief Scores from the Multidimensional Measure of Children's Perceptions of Control (Multi) and the Competence, Contingency, and Control (CCC) Probes, as Correlates of CDI Scores

| Measure | r |
|------------------|--------|
| Multi | |
| Internal success | -.33** |
| Internal failure | -.30* |
| Other success | .09 |
| Other failure | .15 |
| Unknown success | .28* |
| Unknown failure | .23 |
| CCC probes | |
| Contingency | -.28* |
| Competence | -.23 |
| Control | -.46** |

Note. Asterisks indicate variables that met conventional criteria for statistical significance and survived a Bonferroni adjustment ($p < .006$). CDI = Children's Depression Inventory.
* $p < .006$. ** $p < .001$.

significance criterion; however, Table 2 shows that all four of the Profile measures (i.e., the three subscales and the summary score) and all four of the P-Contingency measures were significantly related to CDI scores at $p < .001$.

Checking findings against teacher-report data. As a check on whether the relationships shown in Tables 1 and 2 might be dependent on the self-report nature of the child measures, we carried out a supplementary analysis using the teachers' mood ratings described previously. As noted, these ratings were correlated with CDI scores ($r = -.38$) and with control belief measures in a logically appropriate manner. On the CCC probes, teachers' mood ratings correlated .31 with contingency, .22 with competence, and .35 with control (all $ps < .01$). Among the Multi measures, teachers' mood ratings correlated .43 with unknown success, .40 with other success, and .36 with other failure (all $ps < .0001$). On the Profile, teachers' mood ratings

Table 2
Control-Related Belief Scores From the Self-Perception Profile for Children (Profile) and the Perceived Contingency Scale for Children (P-Contingency) as Correlates of CDI Scores

| Measure | r |
|-----------------------|------|
| Profile | |
| Academic competence | -.55 |
| Social competence | -.32 |
| Behavioral competence | -.49 |
| Total competence | -.61 |
| P-Contingency | |
| Academic competence | -.45 |
| Social competence | -.39 |
| Behavioral competence | -.31 |
| Total competence | -.46 |

Note. All correlations were significant at $p < .001$, and all coefficients thus survived a Bonferroni adjustment that set alpha at .006. CDI = Children's Depression Inventory.

correlated .34 with the summary score and .22 with academic competence, .24 with social competence, and .33 with behavioral competence (all $ps < .01$). Finally, among the P-Contingency measures, teachers' mood ratings correlated .24 with the summary score, .22 with the Behavioral Contingency score, and .25 with the Academic Contingency score (all $ps < .01$). This pattern of correlations with teacher reports, which is quite similar to that obtained with CDI scores, suggests that the correlations shown in Tables 1 and 2 are not dependent on the self-report nature of the child measures.

Comparing correlations with old versus new measures. We compared the magnitude of the correlations between CDI scores and the contingency and competence probes (Table 1), on the one hand, and the more comprehensive measures of contingency and competence beliefs (Table 2), on the other. In both cases, the more comprehensive measures showed significantly stronger relations with CDI scores than did the CCC probes. The correlation between CDI scores and the contingency probe score ($-.28$) was significantly smaller than the correlation between CDI scores and (a) the P-Contingency total contingency score ($-.46$, p for difference $< .01$) and (b) the P-Contingency Academic Contingency score ($-.45$, $p < .05$) and was marginally smaller than the correlation between CDI scores and the P-Contingency Social Contingency score ($-.39$, $.10 > p > .05$). The correlation between CDI scores and the competence probe score ($-.23$) was significantly smaller than the correlation between CDI scores and (a) the Profile summary competence score ($-.61$, $p < .01$), (b) the Profile academic competence score ($-.55$, $p < .01$), and (c) the Profile behavioral competence score ($-.49$, $p < .01$).

Multiple Regression Findings

The Pearson correlations in Tables 1 and 2 were complemented by three multiple regression analyses, each predicting CDI scores from a somewhat different set of predictors: (a) To replicate previous procedures (i.e., those used in Weisz et al., 1987, 1989), one analysis used as predictors all the significant CDI correlates from among the control belief measures used in our two previous studies (i.e., in Table 1, internal success, internal failure, and unknown success from the Multi, and contingency and control scores from the CCC probes); (b) to assess the predictive power of the psychometrically stronger control belief measures, a second analysis used as predictors the two summary scores for perceived contingency and competence from the P-Contingency and the Profile; and finally, (c) to assess the predictive power of the specific subscales from the psychometrically stronger measures, a third analysis used as predictors all the significant CDI correlates among subscale scores in Table 2 (i.e., all the subscale scores from both the Profile and the P-Contingency). All the regression analyses used stepwise procedures, stopping with the last predictor to account for a significant increment in CDI variance. Regression results are shown in Table 3.

Table 3 shows that predictors from the Multi and the CCC probes together accounted for 21% of the variance in CDI scores, after correction for the number of predictors (see adjusted R^2 value) and that the control score from the CCC probes and the internal success score from the Multi were the only

predictors contributing significantly to the prediction of CDI scores when relationships among predictors were controlled for (see β column). Table 3 also shows that the two summary scores from the psychometrically stronger control belief measures together accounted for 40% of the variance in CDI scores, with both summary scores contributing significantly. Finally, the table shows that subscales from the two psychometrically stronger measures accounted for 35% of the CDI variance; academic competence beliefs predicted most powerfully, with academic contingency adding a significant increment (see standardized β weights).

Discussion

As suggested by several theories, children's control-related beliefs were related to their depressive symptom scores on the CDI. However, the nature of the relationships—that is, the particular control-related beliefs that accounted for the most substantial independent variance in CDI scores—differed somewhat from earlier findings and changed with the array of measures used. Two previous studies (Weisz et al., 1987, 1989) had suggested that children's depressive symptoms were correlated with low levels of perceived control and perceived competence but generally not with low levels of perceived contingency. This, in turn, had suggested that children might be likely to experience forms of depression associated with personal helplessness but not universal helplessness (see Abramson et al., 1978) because the latter appears to be based on the view that personally relevant events occur noncontingently. These previous findings required another look, however, because they were derived from (a) brief measures lacking in strong psychometric properties and (b) clinical samples only.

In the present study, using measures that were stronger psychometrically and a nonclinical, general population sample of school children, the relationships between control-related beliefs and self-reported depressive symptoms took a somewhat different shape than in previous studies. Retaining the same measures as in previous research, but changing to a nonclinical sample, we found that control and contingency beliefs were significantly related to CDI scores. When we performed a stepwise multiple regression analysis including all the previously used control belief measures that were significantly correlated with CDI scores in this study, perceived control from the CCC probes and internal success from the Multi emerged as significant independent predictors of CDI scores. None of the other control-related belief measures used in the previous studies proved to be a significant predictor of CDI scores independently of shared relationships with the perceived control and internal success measures.

When we shifted the focus to psychometrically stronger measures of control-related beliefs—Harter's (1985) measure of perceived competence and Weisz et al.'s (1991) new measure of perceived contingency—strong relationships emerged between both dimensions and CDI scores. CDI scores were strongly correlated with total competence and total contingency scores and with academic, social, and behavioral subscores for competence and contingency. A multiple regression analysis that included the two summary scores for contingency (academic + social + behavioral) and competence (academic + social + be-

Table 3
*Multiple Regression Results for the Prediction of CDI Scores
 From Measures of Control-Related Beliefs*

| Primary predictors | Standardized β | Predictor p value | R^2 | Adjusted R^2 |
|----------------------------------|----------------------|---------------------|-------|----------------|
| Multi and CCC probes | | | | |
| Control probe | -.44 | .0001 | .19 | .18 |
| Internal success | -.22 | .0316 | .23 | .21 |
| Profile and P-Contingency scores | | | | |
| Total competence | -.61 | .0001 | .37 | .37 |
| Total contingency | -.22 | .0272 | .41 | .40 |
| Academic competence | -.55 | .0001 | .31 | .30 |
| Academic contingency | -.26 | .0070 | .36 | .35 |

Note. Standardized betas reflect the unique relationship between CDI scores and the predictor in question, controlling for the other predictors in the equation. Adjusted R^2 reflects the CDI variance accounted for after a correction for the number of predictors employed. CDI = Children's Depression Inventory; CCC = Competence, Contingency, and Control; P-Contingency = Perceived Contingency Scale for Children.

havioral) as predictors accounted for 40% of the variance in children's CDI scores. A subsequent regression analysis that focused on the contingency and competence subscales showed that two of these—academic competence and academic contingency—together accounted for 35% of the variance in CDI scores. Such findings suggest that competence and contingency beliefs may play an important role in childhood depression. The special predictive power of perceived academic contingency and competence bears close scrutiny. It may be that academic outcomes have particular salience for nonclinic children at this age; alternatively, the apparent salience of academics in this study may derive from the fact that the questionnaires were administered in a school setting. Such possibilities should be addressed in future research; they may have significant implications for the etiology and treatment of childhood depression.

A particularly significant aspect of these findings is the resur-rection of perceived noncontingency as a possible correlate of depressive symptoms in childhood. This underscores the possible relevance of universal helplessness (Abramson et al., 1978) to the dynamics of childhood depression, and it runs counter to earlier reasoning regarding the relative unimportance of perceived noncontingency (see Weisz et al., 1987, 1989). The research that led to that reasoning involved clinical samples only and relied on contingency probes (four questions) rather than a more fully developed questionnaire. In the present study, we found that a change from clinical samples to a general population sample of school children was associated with a shift in findings such that perceived noncontingency predicted children's depressive symptoms. When we shifted measures as well, using the Profile to assess competence beliefs and the P-Contingency scale to assess contingency beliefs, we found that both competence beliefs and contingency beliefs alone provided rather strong prediction of depression and that the two types of beliefs in combination provided particularly strong prediction.

Why this difference between the present findings and the results of earlier studies? The shift in findings with the shift in samples suggests that there may have been something about the previous clinical samples that undermined the predictive power of contingency beliefs. It is possible, for example, that

youngsters referred to clinics have problems, including depression, that are more entrenched and more linked to relatively stable self-perceptions (e.g., competence beliefs) than to variations in beliefs about the world (e.g., perceived noncontingency). This possibility and others should be addressed in future research. The shift in findings with the shift in measures suggests, in addition, that the relatively brief series of probes designed to assess contingency beliefs in the two earlier studies may not have been sufficiently sensitive. Whatever the reason for the shift, the current findings certainly suggest that depressive symptomatology in childhood is closely linked to both contingency and competence beliefs, the two principal elements of perceived control according to the two dimensional model of Weisz and colleagues (e.g., Weisz, 1986b, 1990; Weisz & Stipek, 1982).

The findings leave open the question of whether personal and universal helplessness are distinct causal pathways to a common form of depression or whether the two forms of helplessness are associated with different forms of depression (i.e., different symptom constellations). One way of addressing the question in a preliminary way is to explore whether beliefs about contingency and personal competence are highly correlated. If so, one might suspect that the two patterns of belief are perhaps not so distinct and perhaps do not lead to very different forms of depression. We know little about this issue in adult samples. However, for the present sample, we computed correlations among the P-Contingency and Profile subscale scores. The coefficients ranged from .15 to .46, with a mean of .33; 10 of the 12 coefficients were statistically significant. This pattern indicates at least a moderate relation between contingency and competence beliefs and thus weakens the case somewhat for both distinct causal pathways and distinct forms of depression. What the findings suggest, overall, is that both perceived contingency and perceived competence are related to self-reported depressive symptoms in children but that the two belief dimensions are not entirely orthogonal.

One significant finding sustained from previous research to the present was the significant relationship between unknown contingency or contingency uncertainty for success and depres-

sive symptoms. With previous (Weisz et al., 1987, 1989) and present findings taken together, this finding has proven robust across three outpatient child samples, three inpatient child samples, and the present nonclinical child sample. Descriptively, the finding indicates that children's depressive symptoms are associated with an inability to figure out what causes personal successes to occur. One might speculate that such an inability would be pronounced to the extent that a child believes that personal outcomes are not contingent on his or her behavior and that he or she is not competent to produce good outcomes anyway. Because such contingency and competence beliefs now appear to be associated with children's depressive symptoms, perhaps the robust finding regarding contingency uncertainty should not be surprising.

The pattern of findings may be helpful heuristically, particularly for theorists and researchers interested in the etiology of child depression. One etiologic possibility suggested by the findings is that perceived incompetence and perceived noncontingency stimulate depression in children. This, in turn, might indicate that social environments likely to be depressogenic are those in which children repeatedly receive feedback that makes them doubt their competence, or in which the outcomes children experience at the hands of adults and others appear to occur noncontingently or capriciously, or both. Contingency uncertainty might enter the picture because of the caprice with which outcomes occur; alternatively, because the uncertainty associated with depression appears to be specific to successful outcomes, it could be the case that because depressed children doubt their competence, they find their successes puzzling and inexplicable.

Such reasoning proceeds from the premise that depression results from cognitive patterns that, in turn, are shaped by experience in the social environment. It is possible, of course, that the causal arrow points in the opposite direction. Depressed mood may well lead to perceptions of personal incompetence or of environmental noncontingency or to confusion over just what causes the outcomes one experiences. Alternatively, both depressive symptoms and the control-related beliefs described here may be provoked by some third causal factor not yet identified. Biological vulnerability must certainly be considered a viable causal candidate. To sort out the etiologic possibilities and assess their relative plausibility will require longitudinal research in which depression and control-related cognitions are assessed across time in children at differing levels of biological risk.

Another task awaits future research: The extent to which the perceptions of incompetence and noncontingency associated with children's depressive symptoms are distortions, as opposed to accurate perceptions of reality, also needs to be assessed. To the extent that such cognitions are distortions, etiologic models may need to focus on the primary problem of dysfunctional information processing by the child. On the other hand, it is possible that depressed children (like the depressed adults studied by Lewinsohn, Mischel, Chaplin, & Barton, 1980) are relatively accurate in their assessments of personal competence and environmental contingency. There is evidence (e.g., Lefkowitz & Tesiny, 1985; Strauss, Forehand, Frame, & Smith, 1984) that depressed children show relatively low levels of social and cognitive competence; moreover, consid-

erable clinical lore suggests that depressed children often come from rather chaotic environments in which the contingencies are inconsistent. Thus, it is possible that the most appropriate etiologic models for many depressed children may include environmental and other factors that lead to (a) low levels of actual child competence in psychologically significant domains of living and (b) truly inconsistent or difficult-to-discern contingencies of feedback, reward, and punishment.

Discerning whether the cognitions associated with children's depressive symptoms are accurate or distorted could contribute significantly to intervention. For example, if a depressed child's perceptions of incompetence and noncontingency are, in fact, misperceptions of an able self and a fair environment, then the appropriate intervention may well be one that encourages a more accurate view of reality and discourages self-defeating cognitive distortions. On the other hand, if the depressed child's perceptions of personal incompetence or environmental noncontingency are in fact accurate, then skills training may be needed to address the child's competence deficits, and work with the child's parents and teacher may be needed to address environmental contingencies.

It is possible, of course, that there are two broad pathways to depressive symptoms and depressed states—a *cognitive distortion* pathway involving underestimates of personal competence and environmental contingency and a *depressive realism* pathway involving accurate appraisals by children of their own competence deficits or the noncontingency of events in their lives. The manifest content of depression might be similar in these two cases, but, as suggested earlier, the etiologic and maintaining processes would not, nor would the same interventions be called for. Thus, whether the child's cognitions about self and surroundings are realistic or negatively biased may figure importantly in the understanding of etiologic pathways and in efforts to set a therapeutic agenda. Although the present findings suggest a strong linkage between children's depressive symptoms and their control-related beliefs, the findings do not indicate the extent to which those beliefs reflect or distort reality. Thus, the findings cannot differentially support either a cognitive distortion pathway, a depressive realism pathway, or the parallel operation of both with different subgroups of children. Testing these causal possibilities remains an important task for future research.

References

- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Connell, J. P. (1980). *A multidimensional measure of children's perceptions of control* [Manual]. Denver, CO: University of Denver.
- Connell, J. P. (1985). A new multi-dimensional measure of children's perception of control. *Child Development, 56*, 1018-1041.
- Connell, J. P., & Tero, P. F. (1982, May). *Aspects of continuity and change in children's self-related cognition and affects within the academic domain*. Paper presented at meetings of the Developmental Psychobiology Group, Estes Park, CO.

- Coyne, J. C., & Gotlib, I. H. (1983). The role of cognition in depression: A critical appraisal. *Psychological Bulletin*, *94*, 472-505.
- Crandall, V. C. (1971, September). Discussant's comments. In *Developmental aspects of locus of control expectancies*. Symposium conducted at the 79th Annual Convention of the American Psychological Association, Washington, DC.
- Field, H. S., & Armenakis, A. A. (1974). On use of multiple tests of significance in psychological research. *Psychological Reports*, *35*, 427-431.
- Haley, G. T., Fine, S., Marraige, K., Moretti, M. M., & Freeman, R. J. (1985). Cognitive bias and depression in psychiatrically disturbed children and adolescents. *Journal of Consulting and Clinical Psychology*, *53*, 535-537.
- Hammen, C. (1991). Cognitive approaches to depression in children: Current findings and new directions. In B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology* (Vol. 11). New York: Plenum Press.
- Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development*, *53*, 87-97.
- Harter, S. (1985). *Manual for the Self-Perception Profile for Children*. Denver, CO: University of Denver.
- Kaslow, N. J., Rehm, I. P., & Siegel, A. W. (1984). Social-cognitive correlates of depression in children. *Journal of Abnormal Child Psychology*, *12*, 605-620.
- Kazdin, A. E., Esveldt-Dawson, K., Sherick, R. B., & Colbus, D. (1985). Assessment of overt behavior and childhood depression among psychiatrically disturbed children. *Journal of Consulting and Clinical Psychology*, *53*, 201-210.
- Kovacs, M. (1980/1981). Rating scales to assess depression in school-aged children. *Acta Paedopsychiatrica*, *46*, 306-315.
- Kovacs, M. (1983). *The Children's Depression Inventory: A self-rated depression scale for school-aged youngsters*. Unpublished manuscript, University of Pittsburgh, School of Medicine.
- Kovacs, M., & Beck, A. T. (1977). An empirical-clinical approach toward a definition of childhood depression. In J. G. Schulerbrandt & A. Raskin (Eds.), *Depression in childhood: Diagnosis, treatment, and conceptual models* (pp. 1-25). New York: Raven.
- Lefkowitz, M. M., & Tesiny, E. P. (1985). Assessment of childhood depression. *Journal of Consulting and Clinical Psychology*, *48*, 43-50.
- Lewinsohn, P., Mischel, W., Chaplin, W., & Barton, R. (1980). Social competence and depression: The role of illusory self-perceptions. *Journal of Abnormal Psychology*, *89*, 203-212.
- Moyal, B. R. (1977). Locus of control, self esteem, stimulus appraisal and depressive symptoms in children. *Journal of Consulting and Clinical Psychology*, *45*, 951-952.
- Peterson, C., & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression. *Psychological Review*, *91*, 347-374.
- Seligman, M. E. P., Peterson, C., Kaslow, N. J., Tannenbaum, R. L., Alloy, L. B., & Abramson, L. Y. (1984). Attributional style and depressive symptoms among children. *Journal of Abnormal Psychology*, *93*, 235-238.
- Smucker, M. R., Craighead, W. E., Craighead, L. W., & Green, B. J. (1986). Normative and reliability data for the Children's Depression Inventory. *Journal of Abnormal Child Psychology*, *14*, 25-39.
- Strauss, C. C., Forehand, R., Frame, C., & Smith, K. (1984). Characteristics of children with extreme scores on the Children's Depression Inventory. *Journal of Consulting and Clinical Psychology*, *13*, 227-231.
- Weisz, J. R. (1983). Can I control it? The pursuit of veridical answers across the life span. In P. B. Baltes & O. G. Brim (Eds.), *Life span development and behavior* (Vol. 5, pp. 233-300). San Diego, CA: Academic Press.
- Weisz, J. R. (1986a). Contingency and control beliefs as predictors of psychotherapy outcomes among children and adolescents. *Journal of Consulting and Clinical Psychology*, *54*, 789-795.
- Weisz, J. R. (1986b). Understanding the developing understanding of control. In M. Perlmutter (Ed.), *Cognitive perspectives on children's social and behavioral development: The Minnesota Symposia on Child Psychology* (Vol. 18, pp. 219-285). Hillsdale, NJ: Erlbaum.
- Weisz, J. R. (1990). Development of control-related beliefs, goals, and styles in childhood and adolescence: A clinical perspective. In J. Rodin, C. Schooler, & K. W. Schaie (Eds.), *Self-directedness: Cause and effects throughout the life course* (pp. 103-145). Hillsdale, NJ: Erlbaum.
- Weisz, J. R., Proffitt, V., & Sweeney, L. (1991). *The Perceived Contingency Scale for Children: Development and validation*. Unpublished manuscript, University of California at Los Angeles, Department of Psychology.
- Weisz, J. R., Stevens, J. S., Curry, J. F., Cohen, R., Craighead, W. E., Burlingame, W. V., Smith, A., Weiss, B., & Parmelee, D. X. (1989). Control related cognitions and depression among inpatient children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *28*, 358-363.
- Weisz, J. R., & Stipek, D. J. (1982). Competence, contingency, and the development of perceived control. *Human Development*, *25*, 250-281.
- Weisz, J. R., Weiss, B., Wasserman, A. A., & Rintoul, B. (1987). Control-related beliefs and depression among clinic-referred children and adolescents. *Journal of Abnormal Psychology*, *96*, 58-63.

Received August 29, 1991

Revision received December 22, 1992

Accepted December 22, 1992 ■