Control-Related Cognitions and Depression among Inpatient Children and Adolescents

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Abstract. In previous studies, children with numerous depressive symptoms have shown two patterns of control-related cognition: (1) low levels of perceived personal competence, and (2) "contingency uncertainty"—confusion regarding the causes of significant events. The generality of these findings was tested for more seriously disturbed children. Three child inpatient samples, from separate psychiatric hospitals, completed the Children's Depression Inventory (CDI) plus measures of control-related beliefs. In all three samples, the findings resembled those of previous studies: CDI scores were significantly related to low perceived competence and to contingency uncertainty; by contrast, CDI scores were only weakly related to perceived noncontingency. The findings suggest that depressive symptoms in children may be (1) more closely linked to "personal helplessness" than to "universal helplessness," and (2) more closely linked to uncertainty about the causes of events than to firm beliefs in noncontingency. The findings carry implications for etiology and treatment of child depression. *J. Am. Acad. Child Adolesc. Psychiatry*, 1989, 28, 3:358-363. **Key Words:** depression, control, cognitions.

Although biological factors and life events may often set the stage for depression, clinicians who treat depressed people often find that much of their work focuses on the depressed individuals' cognitions. Indeed, some of the most prominent models of etiology and treatment (Beck et al., 1979; Peterson and Seligman, 1984; Rutter et al., 1986) now hold that certain characteristic cognitions are associated with depression, and that modifying those cognitions may help to ameliorate the depression.

One of the cognitions often thought to underlie depression is the belief that one lacks control (e.g., Seligman, 1975; Abramson et al., 1978). There is some research support for this idea among adults (Peterson and Seligman, 1984). Research with children and adolescents (herein referred to as *children*) is not conclusive, but several findings seem consistent with the proposed linkage. Depressed children have been found to be more likely than their nondepressed peers to show self-blame for negative events (Moyal, 1977; Seligman et al., 1984); low self-esteem and negative self-assessments (Haley et al., 1985; Kaslow et al., 1984); external locus of control (Moyal, 1977); a depressive attributional style that includes internal, stable, and global attributions for failure (Kaslow et al., 1984; Seligman et al., 1984), and external, unstable, and specific attributions for positive events (Curry and Craighead, manuscript submitted, 1988); and hopelessness regarding the future (Kazdin et al., 1983).

Such findings suggest that child depression may be negatively related to perceived control, construed globally. However, if we are to understand the etiology and dynamics of child depression and develop effective interventions, we may need information about which *dimensions* of perceived control are most closely linked to depressive symptoms in children. A relevant two-dimensional model of control cognition has been developed by Weisz and colleagues (Weisz, 1983, 1986b; Weisz and Stipek, 1982). In this model, control is defined as the capacity to cause an intended outcome. Control, thus defined, is construed as a joint function of two factors: outcome contingency and personal competence. The contingency of an outcome, such as 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 the outcome is defined as that individual's capacity to produce the behavior on which the outcome is contingent. Research based on the model indicates that children can think about contingency and competence as separate factors, and that each dimension is related to children's perceived control (Weisz, 1986b).

As noted elsewhere (e.g., Weisz, 1986b), the model builds on the work of several earlier theorists (e.g., Abramson et al., 1978; Bandura, 1977, Crandall, 1971). Bandura (1977, 1982, 1986) distinguishes outcome expectations from efficacy expectations. An outcome expectation is a person's estimate that a given behavior will lead to a desired outcome; this seems similar to a contingency belief, as defined above. An efficacy expectation is the belief that one can successfully

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execute the behavior that produces the desired outcome; this seems similar to a competence belief as defined above. However, Bandura's assessment procedures do not consistently differentiate contingency and competence beliefs. For example, in one of Bandura's measurement 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). This procedure may be quite appropriate for Bandura's purposes. However, from the present perspective, there is a potential problem: If people predict that they can not succeed at certain tasks, it may remain unclear whether they perceive task completion as noncontingent, their own competence as low, or both. This illustrates why the Weisz et al. two-dimensional model emphasizes separate assessment of contingency and competence beliefs.

A particularly important connection between the two-dimensional model and earlier theory on depression involves the reformulated learned helplessness model, in which Abramson et al. (1978) described two forms of depression. One form involves "personal helplessness," a belief that one cannot produce responses that will lead to personally valued outcomes, but that relevant others can do so; self-blame and low self-esteem may result. Personal helplessness appears to hinge on the belief that one is less *competent* than others at performing significant outcome-relevant behavior (see also Beck et al., 1979). The second form of depression involves "universal helplessness," a belief that desired outcomes are not contingent on behavior that either the individual or relevant others might produce; the individual may feel hopeless and depressed, but often without self-blame. Universal helplessness appears to hinge on the belief that *outcome contingency* is at a very low level (see also Seligman, 1975). So, 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.

Might this model apply to children as well as adults? To find out, we need to explore whether depressive symptoms in children are related to their beliefs about personal competence and about outcome contingency in personally significant problem situations. This will require (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 of personally significant problem situations, rather than on global locus of control.

Two recent studies of outpatient children satisfied all three requirements. In one, Weisz et al. (1987) studied control-related beliefs and self-reported depression among children aged 8 to 17 who were outpatients in mental health clinics. To satisfy requirement (a) above, the Children's Depression Inventory (CDI) (Kovacs, 1983; Kovacs and Beck, 1977) was used to assess depressive feelings. To meet requirement (b), the investigators used a set of contingency, competence, and control (CCC) probes, with questions focused on children's beliefs about solution of problems at home and at school. Home and school problems had special significance for these children because all had been referred to clinics for treatment of such problems. In the probes, children were asked how contingent they believed solutions to these problems were on "kids and what they do," how competent they themselves were at solution-relevant behavior, and how likely it was that they could exert control—that is, solve the problems if they tried. To complement the focused probes, the study also included Connell's (1985) Multidimensional Measure of Children's Perceptions of Control (MMCPC). Unlike most perceived control scales, it distinguishes between external and "unknown" causes of events, and this feature proved important in the Weisz et al. (1987) study.

Weisz et al. (1987) sampled three groups of outpatient-clinic children. In each sample, low levels of perceived competence and of perceived control (on the CCC probes) were significantly correlated with CDI scores. Perceived contingency, though, was not correlated with CDI scores in any sample. Finally, in all three samples, CDI scores were correlated with attributions of success and failure to "unknown" causes. Overall, the findings linked children's depressive symptoms to perceived incompetence and to "contingency uncertainty" but not to perceptions of noncontingency. This suggested that children may be more susceptible to forms of depression involving "personal helplessness" than to forms involving "universal helplessness."

Very similar findings resulted when Rintoul and Weisz (manuscript submitted, 1988) conducted a similar study with a nonclinic sample of school-aged children. The findings differed only in that Rintoul and Weisz did not find depressive symptoms to be related to contingency uncertainty for positive outcomes. The findings of both studies suggested that children may be more susceptible to forms of depression involving "personal helplessness" than to forms involving "universal helplessness." Also, both studies linked depressive symptoms to contingency uncertainty for positive events.

The implications of these two studies are potentially significant. However, both the school sample and the outpatient samples tested thus far provide evidence on children who are not severely disturbed. In fact, this limitation characterizes most research on child and adolescent depression (Curry and Craighead, manuscript submitted, 1988). In the present study, the extent to which previous findings would generalize to children whose problems were so severe that they were hospitalized as inpatients was assessed. It seemed possible that the severity of these inpatients' disturbance, or their hospital environment, might be associated with different correlates of depressive symptomatology than those identified in the mildly- and nondisturbed samples tested thus far. To provide a test of generality, three samples from three different inpatient settings were included.

Method

The children were drawn from hospitals in three different communities, and multiple therapists were involved; this diversity helped ensure that findings would not reflect idiosyncratic characteristics of a particular community or treatment setting. The authors sought information about the correlates of depression under *naturally occurring* clinical conditions,

among children with a normal range of referral problems and diagnoses; thus, the focus was on children who had been referred spontaneously by family members, school staff, or courts, and selection was not for depressive diagnoses.

Sample A included 70 children (60 white), aged 8 to 17 years, in a state-operated regional psychiatric hospital in rural North Carolina. Sample B included 76 children (50 white), aged 8 to 15, in a state-operated, university-affiliated child psychiatric hospital in urban Virginia. Sample C included 37 children (30 white), aged 12 to 18, in a private, university-affiliated hospital in urban North Carolina.

As is typical in child inpatient hospitals, the children were referred for a variety of problems at home and school, and *DSM-III* diagnoses varied greatly. Of the 70 children in Sample A, 19% were given primary diagnoses of major depression or dysthymic disorder, 51% one of the five conduct disorders (including undifferentiated); diagnoses for the remaining 30% were scattered across nine *DSM-III* categories. In Sample B, 48% were diagnosed with major depression or dysthymic disorder, 12% with one of the conduct disorders; the remainder reflected 17 other diagnostic categories. In Sample C, 41% were diagnosed with major depression or dysthymic disorder, 41% one of the conduct disorders; the remainder were distributed across four other *DSM-III* categories. In none of the hospitals was reliability of the diagnoses known. Nonetheless, the diversity of diagnoses suggests that findings should be construed not as indicating characteristics of depressed children, per se, but rather as indicating which cognitive characteristics are associated with depressive symptoms in rather heterogeneous samples of child inpatients. Appropriate to the purposes of this study, the range of CDI scores was broad, as suggested by Table 1.

Children in all three samples completed three measures, within 30 days of admission.

Children's Depression Inventory

One measure was the CDI (Kovacs, unpublished manuscript, 1983; Kovacs and Beck, 1977). Reliability and validity of this widely used scale have been documented in several studies (Kovacs, 1981; Kaslow et al., 1984; Seligman et al., 1984; Smucker et al., 1986).

Multidimensional Measure of Children's Perceptions of Control

Children's control-related beliefs were assessed via two approaches. One was the 24-item Personal Experience-Form A of Connell's 1980; 1985) MMCPC. 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 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, other success and failure, and unknown success and failure. Internal consistency and validity data are provided by Connell (1985) and Connell and Tero (1982).

TABLE 1. *Characteristics of the Three Samples*

Characteristic	Sample A	Sample B	Sample C
Sample size	70	76	37
Age (in years)	14.16 (2.36)	12.51 (2.06)	15.72 (1.37)
Percent boys	57	58	46
SES (Hollingshead)	3.82 (1.87)	3.59 (2.70)	2.43 (1.64)
CDI score	11.16 (8.81)	14.99 (8.77)	13.54 (8.17)

Note. Standard deviations are shown in parentheses.

Contingency, Competence, and Control (CCC) Probes

Concurrent with the MMCPC, children answered the 12-question CCC probes, based on Weisz's (1983; 1986b) two-dimensional control model. Four questions concerned perceived contingency (e.g., "When kids have problems at home, solving the problems depends on the kids and what they do."), four perceived competence (e.g., "When I have problems at home, I am better than most kids at helping to solve the problems."), and four perceived control—i.e., 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 four items, half dealt with problems at home, half with problems at school.

Children's ratings of how true each statement is were summed to form separate scores for perceived contingency, competence, and control. High internal consistencies were not expected, given the substantial situation difference within each scale; i.e., the contingency of outcomes at home and at school would not necessarily correlate highly even in reality. Weisz et al. (1987) assessed internal consistencies via Cronbach's alphas for a sample of 216 outpatient children aged 8 to 17; the alphas were 0.39 for contingency, 0.50 for competence, and 0.66 for control (see Weisz et al., 1987)—a range similar to that found for the MMCPC. Individual item ratings were available for Sample B in the present study; alphas for this sample were 0.60 for contingency, 0.39 for competence, and 0.65 for control.

Construct validity is supported by the fact that, in harmony with the theory, CCC control scores in the outpatient sample were moderately correlated with contingency ($r = 0.43$) and competence ($r = 0.37$), whereas contingency and competence were weakly correlated ($r = 0.15$). Similarly, for the combined inpatient samples used here, CCC control scores were moderately correlated with contingency ($r = 0.58$) and competence ($r = 0.42$), but contingency and competence were weakly correlated ($r = 0.19$). Predictive validity of the probes is supported by a recent finding that children's reductions in problem behavior during therapy were significantly correlated with contingency scores ($r = 0.48$) and control scores ($r = 0.41$), with 29% of the variance accounted for by the two scores combined (Weisz, 1986a).

Results

Table 2 shows the degree to which CDI scores were correlated with the control belief measures (from the CCC probes and the MMCPC), and with age and sex, for each of the three samples. The overall significance of the table was evaluated by counting the number of coefficients significant at or beyond 0.05 and computing the binomial distribution probability (Hayes, 1981) of finding this many significant correlations by chance. This probability value, the overall significance

level of the matrix, was significant beyond the 0.01 level. Next, we protected against chance findings within each sample by using the multi-stage Bonferroni procedure (Larzelere and Mulaik, 1977). Coefficients with asterisks in Table 2 are those that met conventional statistical criteria *and* survived the Bonferroni correction.

Table 2 shows three robust correlates of CDI scores—i.e., three variables significantly correlated with CDI in all three samples: Competence and control beliefs, from the CCC probes, and unknown success, from the MMCPC. Within each sample, we tested whether relations between CDI scores and the three robust correlates might differ as a function of age or sex (again using the multistage Bonferroni). General linear models tests of (a) the interaction of age with the robust predictor; and (b) the effect of the robust predictor with age eliminated (i.e., controlled statistically; see Appelbaum and Cramer, 1974) were carried out first for each robust correlate, in each sample. Parallel procedures were used to test the effect of sex.

The age analyses revealed no interactions with any of the robust predictors in any sample. Moreover, effects of all the robust predictors remained significant with age controlled via eliminating tests. The sex analyses revealed only one significant interaction, in only one of the samples: sex × unknown success was significant in Sample A, F (1,66) = 8.07, $p <$ 0.01; here, unknown success was more strongly related to CDI for girls than boys. Across all eliminating tests, effects of all the robust predictors remained significant with sex controlled. Thus, the findings in Table 2 do not appear to be qualified by age or sex effects.

Multiple Regression Findings

Because the three robust predictors were not completely uncorrelated, the Pearson *r*s in Table 2 were complemented with multiple regression analyses (one for each sample), using the combined robust predictors to predict CDI scores. This allowed determination of how well the three variables as a whole predicted depression and each variable's unique contribution to the prediction. Table 3 shows that the combined control belief measures accounted for just under one fourth of the variance in CDI scores in Sample A, and just under half the variance in Samples B and C, after correction for the number of predictors (see adjusted R^2 values). The beta column in Table 3 notes those predictors that added significantly to the predictability of the model with all other predictors included in the comparison model; the only predictor significant in all three samples was perceived competence from the CCC probes.

TABLE 2. *Control Belief and Demographic Measures as Correlates of CDI Scores*

	Sample A	Sample B	Sample C
CCC probe measures			
Contingency	−0.32**	−0.33**	−0.31
Competence	−0.37**	−0.48***	−0.62***
Control	−0.38***	−0.66***	−0.59***
MMCPC measures			
Internal success	−0.26	−0.39***	−0.58***
Internal failure	−0.04	−0.09	0.13
Other success	0.20	−0.02	0.08
Other failure	0.26	0.16	0.03
Unknown success	0.44***	0.39***	0.54***
Unknown failure	0.40***	0.09	0.34
Demographic variables			
Age	−0.36**	−0.17	0.15
Sex[a]	0.08	0.03	0.02

[a] Point-biserial correlation coefficients; 1 = male; 2 = female.
** $p < 0.01$; *** $p < 0.001$.

Discussion

Are depressive symptoms in childhood associated with a perceived lack of control? The present findings suggest that the answer may be yes, particularly for the perceived competence dimension of control. In three rather diverse samples from three rather different inpatient settings, children with high CDI scores tended to perceive themselves as low in personal competence and low in capacity for control; relations between CDI scores and perceived contingency were less substantial—in fact, nonsignificant in one sample. This pattern of findings is strikingly similar to that reported for three samples of child outpatients (Weisz et al., 1987) and for a general school sample (Rintoul and Weisz, manuscript submitted, 1988). In fact, contingency beliefs and CDI scores were not significantly related in any of the three Weisz et al. (1987) samples, but in all four samples of the two previous studies, CDI scores have been strongly related to both perceived control and perceived competence.

This pattern of findings, across the various studies, should be viewed in the light of reformulated helplessness theory (Abramson et al., 1978). The findings suggest that the condition labeled "personal helplessness"—in which people perceive themselves as less competent than others to produce significant outcome-relevant behavior—may well be associated with depressive symptomatology in childhood. The findings are less supportive of a linkage between child depressive symptoms and a "universal helplessness" rooted in perceived noncontingency. Perhaps the notion of noncontingency is too abstract and impersonal to have serious affective consequences for children. Children may feel a sense of personal responsibility for their competence and for their level of

TABLE 3. *Multiple Regression Results for Prediction of CDI Scores in the Three Samples*

Primary Predictor	Standardized Beta[a]	Predictor *p*-value	R^2	Adjusted R^2
Sample A (N = 70)				
Unknown success	0.30	0.0156	0.27	0.24
Competence	−0.20	0.0840		
Sample B (N = 76)				
Control	−0.48	0.0001	0.51	0.49
Competence	−0.24	0.0114		
Unknown success	0.20	0.0303		
Sample C (N = 37)				
Competence	−0.45	0.0033	0.53	0.49
Control	−0.39	0.0153		

[a] Standardized beta reflects the unique relationship between CDI scores and the predictor, controlling for the two other predictors in the regression equation.

control over events, but not for the contingency of events—which, after all, they do not determine. Certainly children are often reinforced by parents and others for competence (e.g., being good at school work, or sports) and control (i.e., producing good outcomes by trying) but not for contingency. This could serve to reduce the salience, or importance, of contingency concerns for children. Alternately, children's cognitive limitations may make it difficult for them to understand noncontingency and its implications (for supporting evidence, see Weisz, 1980, 1981; Weisz et al., 1982).

In all three samples CDI scores were positively correlated with unknown success on the MMCPC. This finding, too, replicates a relationship found in previous research with the general population sample (Rintoul and Weisz, manuscript submitted, 1988) and with three outpatient samples (Weisz et al., 1987). The finding may have significant implications both for helplessness theory and for our understanding of contingency beliefs. Endorsement of the "unknown" MMCPC items appears to be equivalent to stating that one cannot determine what contingencies govern success, or even whether reliable contingencies exist at all. Such contingency uncertainty may actually be a more powerful contributor to depressive symptoms than would a clear perception of noncontingency. A firm belief that events are noncontingent might at least enhance a child's sense of understanding cause and effect, or "how the world works." Contingency uncertainty, by contrast, might leave children floundering—confused about how to achieve successes and discouraged at their inability to figure it out.

The present report brings to seven the number of separate samples in which depressive symptoms in childhood have been found to be related to (1) low levels of perceived competence, and (2) high levels of contingency uncertainty for success. Given the apparent generality of these findings, it may now be worthwhile to consider possible implications for clinical research and clinical practice.

Implications for Etiology of Child Depression

First, implications regarding the etiology of depressive symptoms in children is considered. One possibility suggested by the findings is that perceived incompetence stimulates child depressive symptoms. It is also possible, however, that depressed mood leads to lowered levels of perceived competence, or that a third factor (perhaps some other maladaptive cognitive pattern) stimulates both depressive symptoms and low levels of perceived competence in children. To understand which of these causal possibilities is most plausible, we will need longitudinal research tracking perceived competence and depressive symptoms, and relations between the two, across time.

The same general issue will need to be addressed regarding the relation between contingency uncertainty and depressive symptomatology. Does an ongoing inability to figure out the causes of events cause children to feel depressed? If so, then family or school environments in which the contingencies or rules are unclear, or continually shifting, may pose a risk of depression. Indeed, considerable clinical lore suggests that depressed children often come from chaotic environments where contingencies are inconsistent or otherwise difficult to discern. On the other hand, it is possible that depressed states lead to confusion about the causes of events, or that some third factor stimulates both depressive symptoms and causal confusion. Here, too, longitudinal research will be helpful.

It will also be important to explore the extent to which the low levels of perceived competence found to correlate with depressive symptoms are distortions, as opposed to accurate perceptions. There is some evidence that high levels of depressive symptomatology are related to low levels of actual child competence in the cognitive and social realms (Strauss et al.; 1984; Lefkowitz and Tesiny, 1985). And research with adults suggests that depressed individuals are actually *more accurate* judges of their competence than are nondepressed people (e.g., Lewinson et al., 1980). It is possible, then, that children lacking in cognitive or social skills observe their own incompetence and that this provokes depressive symptoms. Alternatively, depressive symptoms may interfere with cognitive and social behavior, producing low levels of actual efficacy in these areas. Here, too, longitudinal research could enrich our understanding.

Implications for Psychotherapy with Depressed Children

The findings also suggest a number of therapeutic implications. One is that it may be important for therapists treating children who have numerous depressive symptoms to focus, in part, on the children's self-perceptions of competence. In cases where a child's perceived competence is at a low level, it will be important to assess the extent to which the perception reflects reality. If the child's actual competence in certain domains is low, then an important part of therapy may be skills training, designed to enhance actual competence and thereby enhance the child's self-perception. By contrast, in cases where children are significantly underestimating their actual competence, a key therapeutic task may be that of enhancing realism in self-perception.

The findings regarding contingency uncertainty raise another therapeutic possibility. If uncertainty about the causes of life events is closely linked to depressive symptoms in children, then another important goal for therapy may be clarification of causal processes. If, for example, certain positive events are directly caused by the child's own behavior, then clarifying the causal connection may help enhance the child's self-esteem and reduce depression. On the other hand, where positive outcomes are, in fact, *not* contingent on the child's behavior, a recognition of this fact may well help the child avoid feeling responsible for reproducing the same outcome in the future (and thus avoid self-blame when the outcome cannot be repeated). In general, clearly identifying causal processes may help children distinguish between appropriate targets for *primary control coping* (i.e., trying to alter or influence events) and appropriate targets for *secondary control coping* (i.e., trying to understand and accept the uncontrollable—see Weisz et al., 1984a,b).

Overall, the findings suggest that depressive symptoms in childhood may well be associated with a characteristic pattern of control-related cognitions. The pattern has now been found in samples from the general population, outpatient clinics, and inpatient hospitals, and it appears robust. The present findings, and others in the literature, suggest a tentative con-

clusion: To fully understand depressive symptomatology in childhood, we may need to understand not only the role of biological factors and life events, but also the role of cognitive processes by which children evaluate themselves and construe their world.

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