The Childrens Depression Scale: Review of Australian and Overseas Experience

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Since the publication of the research editions of the Children's Depression Scale (Lang & Tisher, 1978, 1983), research evaluating its properties has been carried out in the USA, Canada, and Australia as well as in non-English speaking countries: Japan, India, Italy, Holland, and Spain. The published literature is reviewed. Comparative data for norms are reported and studies of reliability and validity are reviewed. Studies indicate that the scale has good reliability and discriminates between depressed, clinical, and normal samples as well as between depressed and sad children. The subscales are not supported by the psychometric evidence and some items do not show good item–total correlation. Sex, age, socioeconomic, and parent–child data are reviewed. The clinical and social implications of the scale are interpreted within a family systems orientation.

The Childrens Depression Scale (CDS) was published as a research edition in 1978 (Lang & Tisher, 1978) in a climate where depression in children was not a recognised phenomenon. As clinicians and therapists, the authors had been aware of depression in children, but there was no recognised psychiatric diagnosis for childhood depression, and debate in the theoretical literature centered around whether or not children could be depressed (e.g., Rie, 1966).

The scale was published because it had proved to be useful in therapy with children and with families and because a study of severe school-refusal indicated that the scale was potentially useful for diagnostic and research purposes also (Lang, 1982; Tisher, 1983).

Since the publication of the research edition of the CDS (Lang & Tisher, 1978), the issue of childhood depression has emerged as a significant concern. Several other measures, primarily questionnaires and interviews, have since been devised to assess childhood depression (Kazdin, 1987) and the *Diagnostic Statistical Manual* (DSM–III) (American Psychiatric Association, 1980) included depression as a category for children for the first time.

Additional data on the CDS was reported in 1981 (Tisher & Lang, 1981) and in 1983 a second research edition of the CDS was published on the basis of preliminary evidence of the validity and clinical usefulness of the CDS (Lang & Tisher, 1983). Since 1983, further valuable research has been done and the first nonresearch edition of the scale is being planned. All published literature on the CDS known to the authors is reviewed in this paper.

The CDS has been translated into Japanese, Dutch, Spanish, Hindi, and Italian, and research has been conducted in countries where these languages are spoken (Gori-Savellini & Morino-Abbele, 1984a, 1984b; Kodaki, personal communication, 1980; Kodaki, 1985; Luteijn, 1981; Seisdedos, 1983). The CDS has also been published in North America, Brazil, Holland, Italy, and Spain and some local norms have been provided.

There has been research conducted on the CDS in English-speaking countries. In Australia, where the scale originated, Bath and Middleton (1985), Frydenberg (1982), Gardiner (1980), Knight, Hensley, and Waters (1988), Rotundo and Hensley (1985), and Tonkin and Hudson (1981) have reported studies on the CDS. In the USA and Canada, Fine, Moretti, Haley, Fraser, and Marriage (1984), Kazdin (1987), Marriage, Fine, Moretti, and Haley (1986), and Moretti, Fine, Haley, and Marriage (1985) have reported studies and/or reviews of studies of the CDS.

The CDS was developed from an empirical definition of childhood depression by summarising the features which were reported in the literature until the mid-1970s as consistent with signs of depression in children. The CDS contains 66 items, scored as two major scales, Depression (48 items) and Positive (18 items), and 6 subscales (Affective Response, Social Problems, Self-Esteem, Preoccupation With own Sickness and Death, Guilt, Absence of Pleasure). A Parent's Questionnaire is available for use with parents, permitting comparison of the child's self-reports about his or her depression with parents' reports about the child's depression. Each of the items is "posted" by the child into one of five boxes and is scored on a range of 1–5, 1 being *Very Wrong*; 2 being *Wrong*; 3 being *Don't Know/Not Sure*; 4 being *Right*; and 5 being *Very Right*. The format for the CDS Adult Form is similar, but in paper and pencil format.

NORMS

The results of all the samples that have been reported in the literature or made available to the authors by the researchers have been put together for comparative purposes (Table 1). Total depression scores only are reported and scores for boys and girls where available are reported separately.

Of the 13 studies reported, 4 have Australian normal samples (Bath, 1982; Frydenberg, 1982; Gardiner, 1980; Tonkin & Hudson, 1981). Mean depression scale scores range from 132.5 (boys in Tonkin & Hudson's sample) to 146.1 (boys in Frydenberg's sample).

A further 3 studies reported on Australian samples and include clinical and nonclinical (normal) samples (Knight et al., 1988; Lang & Tisher, 1978; Rotundo & Hensley, 1985). Mean depression scale scores for the normal groups range from 106.3 (boys in Lang & Tisher's sample) to 126.0 (Knight et al.'s sample).

Two studies report on the use of the CDS in Japan (Kodaki, 1980, 1985). In one study (Kodaki, 1980), only a normal group is studied and the mean depression scale scores for boys and girls

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Table 1 Studies of the CDS showing mean and standard deviation D-scale scores

Study	Groups	*N*	Total D	
			X	*SD*
Knight, Hensley, & Waters (1988)	(1) normal control	15	126.0	32.6
	(2) clinical	42	142.8	24.6
	a. depressed	13	172.2	17.2
	b. sad/not depressed	15	142.1	24.8
	c. not sad/not depressed	14	114.1	31.6
Rotundo & Hensley (1985)	(1) normal control	24	107.1	32.4
	(2) clinical	60	*	*
	a. depressed	22	189.9	21.6
	b. sad/not depressed	*	161.6	30.3
	c. not sad/not depressed	22	138.6	22.8
	d. clinical not depressed	*	148.3	28.3
Fine et al. (1984)	clinical	35	*	*
	(1) major affective disorders	8	166.1	*
	(2) dysthymic disorders	9	141.9	*
	(3) other	18	119.1	*
Kazdin (1987)	clinical	185	137.1	34.9
	(1) depressed	*	150.7	*
	(2) not depressed	*	138.1	*
Kodaki (1985)	(1) normal control			
	a. boys	30	112.2	23.9
	b. girls	30	116.2	27.5
	c. total	60	114.2	25.8
	(2) clinical	13	135.9	35.6
Kodaki (1980)	normal			
	(1) boys	195	123.1	21.4
	(2) girls	194	127.6	24.8
	(3) total	389	*	*
Tonkin & Hudson (1981)	normal			
	(1) boys	33	132.5	24.2
	(2) girls	27	141.3	25.9
	(3) total	60	136.9	*
Gardiner (1980)	normal			
	(1) boys	88	145.8	32.2
	(2) girls	102	144.2	27.9
	(3) total	190	*	*
Frydenberg (1982)	normal			
	(1) boys	36	146.1	26.9
	(2) girls	23	141.4	38.1
	(3) total	59	144.3	31.5
Bath (1982)	normal			
	(1) boys	133	134.6	32.9
	(2) girls	123	141.2	33.1
	(3) total	256	137.8	33.1
Marriage et al. (1985)	clinical	60	*	*
	(1) major depression	11	173.8	*
	(2) dysthymic disorder	11	130.4	*
	(3) conduct and affective disorder	11	167.7	*
	(4) conduct disorder	11	121.1	*
	(5) other disorder	16	122.1	*
Moretti et al. (1984)	clinical	60	*	*
	(1) major depression	*	173.5	*
	(2) dysthymic disorder	*	136.4	*
	(3) conduct disorder	*	140.1	*
	(4) other disorder	*	122.8	*
Lang & Tisher (1978)	normal			
	(1) boys	22	106.3	36.5
	(2) girls	15	132.5	30.3
	experimental			
	(1) boys	25	153.6	25.3
	(2) girls	15	162.6	31.9
	clinical	19	134.5	23.9

* indicates data not available

are 123.1 and 127.6, respectively. In the second study (Kodaki, 1985), a normal and a clinical group are compared and the mean depression scale score is 114.2.

The consistent pattern is that in studies which report on normal samples only, mean depression scores are higher than in studies which report on normal samples in comparison with clinical samples.

This pattern occurs both in the Australian work and in the Japanese work.

It is likely that normal groups approached as control groups are advised that they are being approached as a normal group and therefore the set with which children approach the testing is one of "normality"; this would presumably predispose respondents to report lower levels of depression than might otherwise be the case. It may also be that the design whereby the normal groups are selected is one in which children with lower levels of depression are more likely to take part.

Conversely, when testing of school populations is carried out, mean depression scores are higher. This would suggest that there is a higher level of depression in the general community than might be expected on the basis of results of studies comparing normal and clinical populations.

The range of mean scores reported on the depression scale for clinical depressed groups ranges from 150.7 (Kazdin, 1987, reporting on a North American sample) to 189.9 (Rotundo & Hensley, 1985, reporting on an Australian sample).

For clinical nondepressed samples, mean depression scale scores range from 114.1 (Knight et al., 1988) to 148.3 (Rotundo & Hensley, 1985).

Table 2 Reliability: Cronbach alpha across various studies

Study	Children total score	Children D score	Children P score	Parent D score	Parent P score
Bath & Middleton (1985)	0.94	*	*	*	*
Tonkin & Hudson (1981)	0.92	*	*	*	*
Knight et al. (1988)	*	0.94	0.82	0.95	0.82
Kazdin (1987)	*	0.94	0.85	0.92	0.84

* indicates data not available

In interpreting the results, age is a variable which should be noted; some studies such as Rotundo and Hensley (1985) include adolescents in their samples, whilst others (Knight, Hensley, & Waters, 1988) only report on prepubertal children. Insofar as levels of reported depression increase with age (Izard & Schwartz, 1986), age of sample needs to be taken into account in interpreting results.

The variation in scores across samples is important in that it suggests the following conclusions.

Firstly, levels of depression of children in the general community are comparable with those of clinical nondepressed samples.

Secondly, levels of depression reported by normal samples in studies where normal samples are used as controls are considerably lower than levels reported in the general community.

Thirdly, results reported in Australia, Canada, Japan, and North America are comparable.

A summary and review of literature on the psychometric properties of the CDS follows.

RELIABILITY

The original research into the reliability of the CDS (Lang & Tisher, 1978) focused on the internal consistency of the CDS. Scores on the CDS and CDS parent's questionnaire on the 48 items of the depressive scale were combined for this analysis. Cronbach alpha was found to be high (0.96) (Lang & Tisher, 1983).

Subsequent research confirms these initial reports and indicates an acceptable level of internal consistency for both child and parent versions of the CDS.

Tonkin and Hudson (1981) provided some data on test–retest reliability. Tonkin and Hudson (1981) administered the CDS twice to each of their subjects (Australian schoolchildren aged 9–13 years), the interval between test and retest ranging from 7 to 10 days ($r = .74$). These are the only test–retest data available to date and further research in this area is required. Cronbach alpha (Cronbach, 1949) for samples reported in the literature (Bath & Middleton, 1985; Kazdin, 1987; Knight et al., 1988; Tonkin & Hudson, 1981) continue to be in the range 0.82 to 0.95 (Table 2).

CONTENT VALIDITY

Content validity of the CDS was considered in two ways (Lang & Tisher, 1978, 1983). In developing the items of the CDS, an empirical definition of childhood depression was developed based on the literature. Features reported as part of the symptomatology of childhood depression were identified. An attempt was then made to include items pertinent to all the features of the definition of depression given. Children who were attending for treatment at the time were asked to rewrite, modify, add items, or to indicate which items were not relevant. As a result, the final scale represents a universe of items which is not fully consistent with the given definition of childhood depression, but which is appropriate to the experience of a sample of children in treatment.

Content validity was further evaluated as part of the process of scale development by utilising expert judges (child psychiatrists) who were required to rate items in terms of whether they reflect depression, anxiety, or neither. CDS items were interspersed with items from standardised anxiety measures. Four judges agreed that a further 80% of the items were consistent with depression (Lang & Tisher, 1978, 1983).

A number of writers have examined the performance of individual items. It was found that 35 of the 48 "depressive" items, and 11 of the 18 "positive" items discriminated between depressed and nondepressed children (Lang & Tisher, 1978). Bath and Middleton (1985), reporting on a sample of 256 normal children, found that 10 of the 66 items were found to have item–total correlations of below .30. Two of these items (item 17 and 31, both from the miscellaneous pleasure subscale) actually correlated negatively with the total. Factor analysis confirmed that these items were inconsistent with the rest of the scale and Bath and Middleton (1985) suggested that they should be dropped. In a factor-analytic study of 84 children, Rotundo and Hensley (1985) also found negative loadings for items 17 and 31, and for items 45 and 64.

Although the CDS items were developed to be consistent with available definitions of childhood depression in the early 1970s, definitions have become more refined since that time — for example, publication of the *Diagnostic Statistical Manual* (DSM–III) (American Psychiatric Association, 1980) and the *Diagnostic Statistical Manual — Revised Edition* (DSM–III–R) (American Psychiatric Association, 1987).

One of the important issues in childhood depression is whether definitions such as those of the DSM–III and DSM–III–R, which are predicated on definitions of depression in adults, are appropriate to children.

The CDS scale was not derived from adult definitions, but was constructed on the basis of definitions of childhood depression.

The interest in the DSM–III and DSM–III–R postdates the publication of the scale, and therefore content validation of the CDS, according to current definitions of childhood depression may yield a different perspective.

However, recent criticisms of the DSM–III and DSM–III–R approach to childhood depression as being "too much too soon" (Rey, 1988, p. 173) or insufficiently sensitive to developmental factors (Rutter, Izard, & Read, 1986) may suggest that the

approach to validate the scale on the basis of available information about children may be appropriate.

Revision of the CDS needs to take into account items which correlate negatively or poorly; these items need to be omitted from the scale.

CRITERION VALIDITY

In the first research edition (Lang & Tisher, 1978) it was reported that the CDS discriminated between a group of severe school-refusing children, a general clinical group, and a matched normal group. It was argued that the severe school-refusing group represented a depressed sample and, on the basis that the CDS discriminated between the samples, criterion validity for the CDS as a measure of depression was reported. Some writers (Bath, 1982; Kazdin & Petti, 1982; Rotundo & Hensley, 1985) have questioned the use of school refusers as the depressed group in that study. It is argued that there are probably school refusers who are not depressed, and depressed children who attend school, that is, the two disorders should not be equated.

The authors agree that school refusal should not be seen as synonymous with depression. At the time of publication of the research edition, the school-refusing group was one which it was believed, on the basis of theoretical considerations and clinical experience, would include a large number of depressed children and therefore was a good starting point for the development of a depression scale for children (Tisher, 1983). Research since that time has provided definitions of depression in children and it is now possible to identify clinical depressed groups for research purposes.

Various studies have assessed criterion validity of the CDS in discriminating between children diagnosed as depressed (where the diagnosis is based on the DSM–III, or Research Diagnostic Criteria [RDC]) and various other groups. Rotundo and Hensley (1985) looked at an Australian sample of four groups of children aged 12 to 16 years — a normal control group ($N = 24$) and three clinical groups ($N = 60$): (a) depressed, (b) sad/not depressed, and (c) not sad/not depressed (Table 1). The authors concluded that the CDS discriminated significantly between normal and clinical group youngsters, as well as between independently diagnosed depressed youngsters and those judged to have other clinical diagnoses. The CDS also discriminated between clinically depressed and sad children, and between sad and nonsad children.

Knight et al. (1988) reported on a sample of Australian children aged 8 to 12 years, including 42 outpatient and 15 normal children. Knight et al. (1988) reported that the depressed children endorsed more of the depressive items than did their nondepressed counterparts. The CDS also discriminated between depressed and dysphoric children. Fine et al. (1984) reported on a Canadian sample of 35 children aged 8 to 17 years who were suspected of being depressed. The sample was divided into three clinical groups: major affective disorder, dysthymic disorder, and other disorders (including a conduct disorder). The CDS differentiated between major affective and dysthymic and other disorders.

Kazdin (1987) reported on an American sample of 185 psychiatric inpatients aged 7 to 12 years. He compared a depressed clinical group and a nondepressed clinical group, and found that the CDS discriminated significantly between the two groups. Moretti et al. (1985) reported on a Canadian sample of 60 children aged 8 to 17 years who were referred for psychiatric evaluation of depression. They examined clinical groups diagnosed as major affective disorder, dysthymic disorder, conduct disorders, and other disorders, and found that children in the major depression group rated themselves as significantly more depressed on the CDS than others. Similarly, Marriage et al. (1986) reported on an 8- to 17-year-old Canadian sample of 60 consecutive referrals from an outpatient team. They compared clinical groups diagnosed as a variety of depressive and other disorders, and found that the CDS discriminated between depression and other disorders.

Kazdin, Colbus, and Rodgers (1986) reported on a sample of 170 American hospitalised inpatient children aged 7 to 13 who had a diagnosis of depressive disorder and a matched sample of patients whose diagnosis excluded depression.

Children with a diagnosis of depression obtained higher scores on the CDS than did children without a diagnosis of depression.

The results of research to date indicate that the CDS has good criterion validity. In all studies reviewed, the CDS discriminated between children diagnosed as depressed, children with other disorders, and normal control groups. Furthermore, a number of studies showed the ability of the CDS to make finer discriminations between clinically depressed and sad children. A diverse range of studies carried out in different countries, with samples of different ages and different clinical and nonclinical populations, indicates that the CDS has good criterion validity.

CONVERGENT DISCRIMINANT VALIDITY

In the first research edition (Lang & Tisher, 1978) the relationship between children's performance on the CDS, the High School Personality Questionnaire (HSPQ) and the Children's Personality Questionnaire (CPQ) (Institute for Personality and Ability Testing [IPAT]), and the Eysenck Personality Questionnaires (EPQ) were evaluated. The CDS scores correlated highly and significantly both with the IPAT and with the EPQ subscales which may be expected to be consistent with depression.

Kazdin and Petti (1982) concluded that, although modest, this pattern of results suggests convergent and discriminant validity for the CDS. Psychiatric ratings along a continuum of happy–unhappy were also compared with CDS scores. In 82.5% of cases, high/low CDS scores agreed with high/low depression ratings (Lang & Tisher, 1983).

The Children's Depression Inventory (CDI) is perhaps the most widely used scale of childhood depression. The relationship between the CDS and CDI is therefore particularly important.

Comparison of the CDS and the CDI

The Children's Depression Inventory (CDI) (Kovacs, 1981) was developed from the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and is a 27-item scale designed for use with children aged 8–14 years. Each item consists of three statements that describe the absence, presence, and severity of the symptom within the last 2 weeks. For each item, the child's score (0, 1, or 2) is in the direction of the depression. The children read the items themselves or have the items read to them.

Derived conceptually from the Beck Depression Inventory, the CDI has been used in many studies (Carlson & Cantwell, 1980b; Fauber, Forehand, Long, & Burke, 1987; Finch, Saylor, & Edwards, 1985; Fine et al., 1984; Helsel & Matson, 1984; Hodges, Siegel, Mullins, & Griffin, 1983; Kazdin, French, Unis, & Esveldt-Dawson, 1983; Kovacs & Beck, 1977; Marriage et al., 1986; Moretti et al., 1985; Preskorn, Weller, & Weller, 1982; Rotundo & Hensley, 1985).

The reliability and validity of the CDI are well established and norms for prepubertal children have been developed (Smucker, 1982).

The CDI has been shown to discriminate between depressed and nondepressed children (Carlson & Cantwell, 1980a; Helsel & Matson, 1984; Knight, 1985; Rotundo & Hensley, 1985). Its internal reliability is high (Helsel & Matson, 1984; Saylor, Finch, Spirito, & Bennett, 1984).

In comparing item content and factor analysis components of the CDI and CDS, depressive affect, "personal/social adjustment" and "self-esteem" are common to both scales. Guilt and Absence of Pleasure are tapped in the CDS but not in the CDI and "oppositional behaviour" is tapped in the CDI but not in the CDS.

Researchers reporting correlation levels between the CDS and the CDI include: Kazdin (1987), reporting $r = .48$; Knight et al. (1988), reporting $r = .76$; and Rotundo and Hensley (1985), reporting $r = .84$.

The correlation level between the CDS and CDI reported by Rotundo and Hensley (1985) is particularly high ($r = .84$), but it

should be remembered that Rotundo and Hensley's sample is an adolescent one, whilst the other studies report correlations for prepubertal samples. If guilt is more characteristic of adolescent and adult depression than of prepubertal depression (McConville, Boag, & Purohit, 1973; Cicchetti & Schneider-Rosen, 1986; Izard & Schwartz, 1986) then it may be expected that the correlation between the CDS and CDI will increase after adolescence.

Comparison of the CDS and Other Measures

Rotundo and Hensley (1985) reported high correlations between the CDS, CDI (Kovacs 1981), and the Piers Harris Children's Self-Concept Scale (Bentler, 1972) suggesting that the three scales are measuring very similar constructs. Whilst supporting convergent validity of the CDS, these results do not indicate discriminant validity.

Kazdin (1987), reporting on an American hospitalised sample of one hundred and eighty-five 7- to 12-year-olds, found that the depression scores on the CDS correlated significantly with other measures of depression (the CDI, the Bellevue Index of Depression–Revised [BID–R]), and with scales of related symptoms (Hopelessness scale and Self-Esteem Inventory). It is interesting to note that the correlations between the CDS and the Self-Esteem Inventory are generally higher than those between the CDS and the two other measures of depression. Again these results support convergent validity of the CDS, but do not indicate discriminant validity. Kazdin et al. (1986) reported that although the CDS discriminated between depressed and nondepressed hospitalised inpatient children aged 7 to 13 (total N = 170), the CDS, along with other depression scales, was not reliable in delineating children with major versus minor and intermittent depression. Knight et al. (1988) in a sample of 57 clinical and normal children, also found strong correlations between the CDS and CDI scores, as well as between the CDS and the Piers Harris Self-Concept Scale.

Evidence indicates convergent validity for the CDS in that it correlates highly with other measures of depression (the CDI, BID–R) and with scales of related symptoms (Hopelessness Scale, Self-Esteem Inventory, Piers Harris Self-Concept Scale). However, the high correlations between the CDS and the self-esteem and self-concept scales suggest that they may all be measuring a similar construct. The discriminant validity of the CDS requires further investigation.

THE STRUCTURE OF THE CDS

The Depression and the Positive Scales

The CDS begins and ends with positive items and the positive items are interspersed with the depression items throughout the scale. The decision to include positive items was based on both test process and theoretical considerations. Positive items were introduced to reduce and assess the occurrence of response set, increase variation and interest of the scale, and decrease the likelihood that completing the CDS would have a depressing effect on the child. Theoretically, positive items were introduced so as to assess whether inability to experience pleasure is a component of depression (Sandler & Joffe, 1965). In this way the relevance of the empirical findings regarding the positive scale extend beyond the CDS and reflect on the understanding of the nature of depression itself.

Some writers have welcomed the inclusion of the positive scale, from a theoretical perspective (e.g., Hollon, 1980; Kodaki, 1985), arguing that the inability to experience pleasure may be a critical compound in childhood depression.

The empirical findings regarding the validity of the positive scale are contradictory; researchers who reported factor-analytic solutions (see below) identified two main factors, the first corresponding to depression and the second to inability to experience pleasure (Bath & Middleton, 1985; Rotundo & Hensley, 1985). Others (Tonkin & Hudson, 1981) reported only one main factor (depression).

The validity of the Positive (P) scale is also assessed in terms of its discrimination between various diagnostic groups, that is, its criterion validity.

Table 3 shows the criterion validity of the P scale in discriminating between different diagnostic groups as found in various

Table 3 D scale, P scale and subscale criterion validity

Study	D SCORE	AFF	SOC	EST	SICKNESS /DTH	GUILT	P SCORE	PL/ENJ
Lang & Tisher (1978)								
depressed vs. normal	x	x	x	x	x	x	x	x
depressed vs. clinical	x	x	x	x	.06	*NS*	x	x
normal vs. clinical	x	*NS*	x	*NS*	x	x	x	x
Moretti et al. (1985)								
major depression vs. other disorders	x	x	x	x	*NS*	*NS*	*NS*	*NS*
Kazdin (1987)								
depression vs. other disorders	x	x	x	x	x	*NS*	x	x
Knight et al. (1988)								
depressed vs. not depressed	x	x	x	x	*NS*	x	x	x
depressed vs. sad/not depressed	x	x	x	*NS*	*NS*	*NS*	*NS*	*NS*
Rotundo & Hensley (1985)								
normal vs. clinical	x						x	
depressed vs. not depressed	x						x	
depressed vs. sad/not depressed	x						x	
sad/not depressed vs. not sad/not depressed	x						x	
Kodaki (1985)								
control vs. clinical	x	x	x	*NS*	x	*NS*	x	x
Fine et al. (1984)								
affective disorders vs other disorders	x	x	x	x	x	*NS*	x	x

x discriminates between the groups at < .05 level of significance

studies. In addition to research reported in the manual (Lang & Tisher, 1978, 1983), Kazdin (1987), Rotundo and Hensley (1985), Kodaki (1985), and Fine et al. (1984) reported evidence which supports the criterion validity of the P scale. Furthermore, Rotundo and Hensley (1985) found that the P scale also makes the finer discrimination between depressed and sad children. In contrast Moretti et al. (1985), found that the P scale did not discriminate between major depression and other disorders. Knight et al. (1988) found that whilst the P scale discriminated between depressed and nondepressed children, it did not discriminate between depressed and sad children.

Kodaki (1985) suggested that the comparison between Depression (D) scale and P scale scores may be useful in discriminating between depressed and manic depressed syndromes.

Most studies indicate that the P scale discriminates between various diagnostic groups. However, in none of the research to date does the P scale discriminate between diagnostic groups, when the D scale does not. Thus the question arises as to whether the P scale enhances the discriminative power of the CDS beyond that provided by the D scale.

The Subscales

Within the two main scales of the CDS, certain items that refer to similar features of childhood depression have been grouped together as subscales. The depressive scale contains five such subscales and the positive scale contains one such subscale. The subscales of the CDS are Affective Response, Social Problems, Preoccupation with Sickness or Death, Guilt, Self-Esteem and Pleasure/Enjoyment. The CDS items were grouped into subscales on theoretical or logical grounds, such that they represent different areas of depression and therefore give the clinician a clearer understanding of the nature of the child's depression. Kazdin (1987) welcomed the subscales suggesting that they reflect core symptom areas and also correspond to alternate diagnostic criteria (e.g., Research Diagnostic Criteria [RDC]).

The validity of the subscales has been evaluated in a number of ways and research to date has produced equivocal findings. The subscales generally correspond to the features of depression as defined in the CDS and as consistent with definitions of depression developed in the DSM–III and DSM–III–R. However, there are no reports in the literature of statistical support for the subscales (Bath & Middleton, 1985; Gori-Savellini, Lucarelli, Morino, & Tomada, 1983; Rotundo & Hensley, 1985; Tonkin & Hudson, 1981).

Bath and Middleton, (1985) outlined alternative factors related to adult depression measures and diagnostic symptom listing and suggested that the subscales could be refined by regrouping items, adding new items, and dropping those that are weak or shared between several factors. The Dutch version of the CDS has constructed four subscales; Lability, Listlessness, Guilt, and Positive (Luteijn, 1981).

Rotundo and Hensley (1985) examined the convergent validity of the subscales by correlating subscale scores with therapist's ratings of the child's functioning in the six areas assessed by the subscales. The correlations were all significant at the .05 level and thus can be interpreted as providing some support for the validity of the subscales; none of the factor-analytic solutions reported supports the subscale differentiation (see below).

The subscales may also be evaluated in terms of their criterion validity. Table 3 shows the validity of the subscales in discriminating between different diagnostic groups in various studies. The table indicates that the affective response and social problems subscales discriminate consistently across the studies, including the fine discrimination between depressed and sad children (Knight, 1985). The self-esteem, sickness and death, and pleasure/enjoyment subscales discriminate significantly in approximately 50% of studies reviewed. It is important to note that none of these subscales discriminates between depressed and sad children. Finally, the guilt subscale emerges as the weakest in terms of its criterion validity. Whilst the guilt subscale seems to discriminate between depressed and normal children, it does not discriminate between depression and other disorders. In this context it has been reported in the CDS manual that, among the depression subscales, guilt shows the lowest correlation with the D scale (Lang & Tisher, 1978).

Kazdin (1987) in correlating the subscales with each other reported that, whilst the various subscales were significantly interrelated, the shared variance between any two subscales was in the low to moderate range. Kazdin (1987) concluded that "although there is overlap, the subscales do not appear to be redundant" (p. 33).

On the basis of reported research it appears that the subscales of the CDS need to be reviewed.

Factor Analysis

Simple factor analysis of the CDS with a sample of 226 respondents indicated that the first general factor accounted for 32% of the variance (Lang & Tisher, 1978). This suggests that the items of the CDS were tapping a fairly consistent factor with most items showing an acceptable level of loading on the general factor.

Bath and Middleton (1985) reported on an Australian sample of 267 Grade 5 or 6 schoolchildren, aged 10 to 13 years. They carried out extensive factor-analytic studies, beginning with a principal factor solution. As the first factor accounted for what was considered a relatively modest 24% of the variance, and many other factors were contributing, these researchers considered that a multifactorial solution might be more appropriate than a principal factor one. A nine-factor solution, accounting for 50.1% of the scales variance, emerged as the optimal one. Bath and Middleton (1985) considered that the first two strongest factors parallel the two major scales of the CDS, depression, and inability to experience pleasure, and as such support this subdivision. Thus Factor 1 correlates significantly at .98 with the total depression score and Factor 2 has a correlation of .86, with the total pleasure score.

However, Bath and Middleton (1985) concluded that the factor analysis does not provide support for the validity of the subscales designated. Whilst providing some support for both the depression and inability to experience pleasure factors, these researchers concluded that the D score appears to be the soundest feature of the CDS in its present form, this score correlating strongly with the main extracted factor.

Rotundo and Hensley (1985) using a clinical and normal sample of 84 Australian children aged 12 to 16 years, performed a simple principal component analysis and a varimax rotation of factors. This resulted in a strong general factor which accounted for 71.3% of the variance and had significant loading for 47 of the 66 items. The second factor loaded on 27 of the 48 depressive items and the authors considered that it may be regarded as the group factor for the depressive scale. The only other clustering of significantly high factor loadings occurred on Factor 4 which appeared to correspond to the pleasure and enjoyment subscale, rather than the factor representative of the total P scale. No empirical support was forthcoming regarding the subscales.

Gori-Savellini et al. (1983) examined the applicability of the CDS in preadolescents attending Italian secondary schools. Overall, in a sample of 132 males and 132 females, a factor analysis yielded two main factors. Savellini et al. relate these two factors to two different typologies of preadolescent tending towards depressive reactions. The first is consistent with feelings of inadequacy and difficulties in relationships with oneself and with the external world, whilst the second is associated with family difficulties and a sense of guilt (also Gori-Savellini & Marino-Abbelle, 1984).

Kazdin (1987), in a sample of 185 clinical children, found significant yet small negative correlations between total depression and total pleasure scores, $r = -.36$ and $r = -.53$, for children's and parents' scores respectively. The relatively small proportion of shared variance (13% for children and 28% for adults) between depression and positive experience suggests that depressed affect and the ability to experience pleasure are not merely opposite ends of the same continuum, but may represent two distinct aspects of the construct of depression.

Tonkin and Hudson (1981) using scores of a sample of 60 Australian schoolchildren aged 9 to 13 years, carried out a factor analysis using a principal factor solution. They found that the principal factor accounted for only 20.2% of the total variance, and found no clustering of items to provide empirical support for the subscales.

Most studies have reported a principal general factor which can be interpreted to indicate that the test is tapping a consistent homogeneous dimension. Whilst some studies (Bath & Middleton, 1985; Rotundo & Hensley, 1985) have suggested support for division of the scale into depression and inability to experience pleasure factors, none of the studies have provided factor-analytic support for the subscale divisions. This general conclusion is supported by results of factor analyses reported for diverse samples and cross-culturally.

Summary: Structure of the CDS

The finding that there is no or little statistical support for the subscales of the depression scale raised the question of whether the components of the definition of childhood depression, low self-esteem, social problems, preoccupation with sickness and death, guilt, and inability to experience pleasure, are not in fact subsets of depression. Alternatively, it may be that these different facets of depression may not be sufficiently differentiated to emerge as separate factors in a statistical solution.

Studies of the criterion validity indicate that while some subscales discriminate across diagnostic groups, the total D score discriminates more consistently across a wider range of diagnostic groups. Thus there seems to be general agreement that users of the scale should give greatest weight to the D score and not give great weight to the subscales.

Whilst there is general agreement in the literature that there is no statistical support for the subscale structure, some writers have reported that the subscales are useful in a clinical, qualitative, or descriptive context (e.g., Harper & Kelly, 1985).

It is difficult to think of depression without reference to its components, that is, self-concept, affect, energy level, and so forth. In fact, definitions of childhood depression (e.g., DSM–III) contain these components. On present available evidence it may be appropriate to retain the subscales for clinical use with a warning to users to exercise appropriate caution in view of the empirical evidence. It may be that the subscales of the CDS should be revised.

SEX

Developmental differences are important in patterns of symptoms. Depressive symptoms may be organised differently for each sex and at different ages. (Kazdin, 1990. p. 137).

In the sample reported in the manual it was found that normal group girls scored higher than boys on all scales and subscales, whilst the depressed group girls scored higher on the depressive scale and subscales; on the positive scale this trend was reversed (Lang & Tisher, 1978). It should be noted that the sample included children aged 9–16 years, thus including adolescents as well as prepubertal children.

Bath and Middleton (1985) and Tonkin and Hudson (1981), reporting on normal prepubertal samples, found that girls scored significantly higher on the total D score than boys. Bath and Middleton (1985) noted that it is unclear whether the sex difference in D scores indicates that females are more depressed than males, or that females admit to more depression than males. Writers reporting no significant sex differences in prepubertal samples include Frydenberg (1982), Kazdin (1987), Knight et al. (1988), Kodaki (1985), Lang and Tisher (1983), Luteijn (1988), and Seisdedos (1983). However Izard and Schwartz (1986) and Kovacs (1984) have reported that sex is a variable in depression.

It may be important to consider age groups separately when investigating sex differences.

AGE

Age has been reported as important in childhood depression by Butler (1983), Cyrtryn and McKnew (1972, 1974), Helsel and Matson (1984), Kovacs (1977), Malmquist (1971), McConville, Boag, and Purohit (1973), Puig-Antich (1986), Renshaw (1974), and Smucker, Craighead, Craighead, and Green (1986).

In the 1983 manual, Lang and Tisher (1983) noted some trends for age differences. In the normal group there was a clear tendency for younger children to obtain higher scores on all depression scales and lower scores on positive scales. In the depressed group a similar yet weaker trend was found; that is, younger children scored higher on depression and lower on positive scales than older children. Parents of older children in both depressed and normal groups tended to obtain higher scores on both depression and positive scales, as compared to parents of younger children.

Tonkin and Hudson (1981), using an Australian sample of schoolchildren aged 9–15 years, found no significant age differences. However they urged caution regarding this finding, given the small sample numbers within each age group. Kazdin (1987), reporting on a sample of American psychiatric inpatients aged 7–12 years, found no significant age differences for child report scores. However, mothers' scores showed an increase in depression and a decrease in positive affective experience as a function of increasing age. Seisdedos (1983), reporting on a Spanish sample, found a tendency for scores on depressive subscales to decrease with age, whilst scores on positive ones increase. Kodaki (1985), reporting on a Japanese sample, found a decrease in scores on positive scales and an increase in scores on the self-esteem subscale for 14-year-olds as compared to 13-year-olds.

It is important to provide separate decile tables for different age groups. It may be important also to look at samples from different countries separately.

SOCIOECONOMIC STATUS

Only a few researchers have studied the possibility of socioeconomic status (SES) differences. No clear differences between the scores of depressed children of professional, trade, and unskilled fathers were reported in the manual (Lang & Tisher, 1978, 1983). Regarding control group children, children of higher SES fathers obtained higher depression and positive scale scores than children of lower SES fathers. In respect to parent questionnaires, no clear SES differences emerged (Lang & Tisher 1978, 1983). Frydenberg (1982) found a trend reflecting an inverse relationship between SES and depression. She speculated that if her sample size ($N = 59$) was increased, this relationship may reach statistical significance. No other data are available regarding a possible relationship between CDS scores and SES differences.

RELATIONSHIP BETWEEN CHILD REPORT AND PARENT CDS

The CDS includes a parent questionnaire which is intended for use with parents, siblings, teachers, and relatives of the child, to yield another index of the child's depression.

Various studies have focused on the relationship between child report and parent reports, and the relative criterion validity of those reports. Early research indicated that both child and parent questionnaires discriminated between a normal and depressed group. Whilst child and parent reports are fairly similar, there was a trend for parents of both experimental and control group children to obtain lower scores than their children (Lang & Tisher, 1978).

Kazdin et al. (1986), reporting on 185 American psychiatric inpatients aged 7–13 years, found that both child and parent ratings differentiated depressed and nondepressed children. Furthermore, his results indicated that parent reports permitted finer diagnostic discriminations and revealed age and gender differences not evident from the children's scores. They also reported that parent ratings of severity of depression were higher than the children's ratings. This latter finding is not consistent with reports in the manual (Lang & Tisher, 1978, 1983) where children obtained higher scores than did their parents.

Moretti et al. (1985) found a moderate correlation between child and parent CDS reports, $r(43) = 0.35$, $p < .05$.

Kazdin (1987) found no significant correlation between child

and parent CDS reports.

Reynolds, Anderson, and Bartell (1985) reported that on the basis of their data they are unable to recommend use of the parent report measure for assessing depression in children.

Knight et al. (1988), reporting on clinical and normal prepubertal children, found that child and parent reports were significantly correlated on all but one subscale (death). Affective Response $r = .63, p < .001$; Social Problems, $r = .51, p < .001$; Self-Esteem, $r = .49, p < .001$; Death, $r = .19$, *NS*; Guilt, $r = .30, p < .005$; Total D, $r = .59, p < .001$; Enjoyment, $r = .48, p < .001$); Total P, $r = .49, p < .001$. Furthermore, in all but two subscales (death and guilt) no significant differences were found between the mean severity estimates provided by the child and parent reports. Both parent and child reports differentiated between the diagnostic groups.

A number of studies have found that parent CDS reports show a weaker discriminant validity than child reports. Rotundo and Hensley (1985) found that whilst parent reports discriminated between depressed and nondepressed groups, they did not make the finer discriminations between depressed and sad, and sad and nonsad groups. Fine et al. (1984) found that parent reports failed to discriminate between children with an affective disorder and those with a nonaffective disorder. Moretti et al. (1985) reported that parents failed to record significantly different levels of depression for children with affective and nonaffective disorders.

Conflicting results from different studies suggest unanswered questions regarding the relationship between child and parent reports on the CDS in particular, and on measures of depression in general. Studies vary in their findings of a significant or nonsignificant relationship between child and parent reports, and as to whether the child or parent reports provide greater discrimination between diagnostic groups. Questions also arise as to what factors affect the agreement rate between parents and children. Knight et al. (1988) have suggested the age of the child and the severity of the child's disorder as affecting agreement rates. Thus whilst parents of adolescents have been found to consistently underestimate their child's depression (Moretti et al., 1985; Rotundo & Hensley, 1985), the Knight et al. study suggests that parents of prepubertal children do not (Knight et al., 1988).

In light of the family systems approach to depression set out in the manual (Lang & Tisher, 1978, 1983) it is especially interesting to study the relationship between various family members' CDS reports, and thus attempt to test family systems hypotheses (e.g., whilst the child may be the identified depressed patient, other family members are also depressed, depression may be a general problem in the family but not openly discussed). A study by Bath (1982) throws light on some aspects of the family which may be related to depression in one of its members. Bath (1982) reported that family climate variables, for example conflict or lack of cohesion, are clearly linked with childhood depression, whilst family structure is not. A further study supporting a family systems interpretation is that of Moretti et al. (1985). Moretti et al. (1985) required parents to rate depression in themselves using the Beck Depression Inventory. Whilst parent ratings of depression in themselves were not related to the children's self-reports of depression, parent ratings of their own depression correlated significantly with their perceptions of depression in their children.

The CDS permits exploration of perceptions of depression in children by a range of persons in the child's world, and such research should cast light on aspects of the family systems approach. Data are presently being analysed from a study designed along these lines and will be reported shortly by one of the coauthors.

CLINICAL COMMENTS

All known users of the CDS in Australia and overseas were asked to complete a questionnaire about the CDS. The results are summarised below.

Comments often focused on the therapeutic usefulness of the CDS. The most frequently expressed comment was that the CDS allows and encourages children to talk about things they would not usually express, to talk about feelings which otherwise are difficult for them to open up about. Closely associated with this was the comment that the CDS greatly improves and facilitates rapport between the child and the therapist and that it encourages the children to talk to the therapist. The CDS was seen as useful in opening up communication between members of the family. The qualitative comments regarding the therapeutic usefulness of the CDS provide support for the role of CDS in the process of therapy. The CDS can facilitate communication by putting the child's experience into words, helping him or her to talk more freely about him/herself (Lang & Tisher, 1978).

Several users have stated that children enjoy doing the CDS. Many users preferred the box form of the scale over the pencil and paper form, and over other card sorting tests that were available. Children were found to enjoy the game-like quality of the boxes.

Constructive suggestions for further editions included clearer colour differentiation for the cards, reduction of double negatives in some items, and use of simpler language, especially for use with younger children.

CONCLUSION

In the 13 years since the publication of the first research edition of the CDS there has been significant change in attitude to childhood depression by the professional psychological and psychiatric community. In particular, there is no longer significant dissension from the proposition that childhood depression is a clinical phenomenon and the DSM–III and the DSM–III–R include a definition of childhood depression.

The CDS appears to be a reliable and valid measure of childhood depression. The scale has also reported to be a valuable therapeutic aid. In terms of scale development, psychometric properties and scale structure, the CDS needs some revision. The division of the scale into a Depression and Positive scales should be maintained, but the subscales require revision and reduction. Some items should be ommitted from further editions.

In terms of its therapeutic and clinical role, the CDS depends on a good relationship between respondent and examiner, not on any "hidden" indicators of depression. The child and/or other persons are asked to respond honestly as to whether the depressive or pleasurable experiences are part of that child's world.

High scores on the CDS indicate that the child is willing or prepared to communicate his or her depression. Thus a high score on the CDS may be seen as a positive sign, in that the child is able to share his or her depression.

Some children are unable or unwilling to communicate their depression through the CDS (or in other ways). The failure of a child to communicate his or her depression may be, partially at least, an expression of loyalty to parents and others, who communicate their inability to cope with the child's depression.

Reports in the literature indicate that children have used the CDS to communicate their depression in many different contexts. The CDS has been used in group settings with paper and pencil formats, in individual relationships with well-known and unfamiliar testers and therapists, in different countries, in different languages and cultures, and with children of different ages. It seems clear that children are willing to communicate their depression if they are asked in an appropriate way. It may be that more research should be directed towards the social constraints that maintain failure to encourage children to communicate their depression.

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