

## Diagnosing Childhood Depression Who Should be Interviewed - Parent or Child? The Newcastle Child Depression Project

M. L. BARRETT, T. P. BERNEY, S. BHATE, O. O. FAMUYIWA, T. FUNDUDIS, I. KOLVIN and S. TYRER

The extent of the similarities and discrepancies in the reporting of depressive symptomatology by children and their mothers was examined. Child-parent agreement was not always impressive, particularly for more subjective symptoms. It is suggested that direct psychiatric assessment of children provides a more accurate picture of their mental state regardless of presenting disorder, but particularly where depression is suspected.

The last two decades have seen substantial progress in the development of standard interview schemas for the assessment and diagnosis of psychiatric disorders in adults (Goldberg *et al*, 1970; Feighner *et al*, 1972). Until recently, developments had been slower in child psychiatry, where clinicians have traditionally focused on explanatory psychopathology rather than symptoms. It is not clear why this important aspect of assessment has received such scant attention, but one possibility is that clinicians' theoretical training may have made them more comfortable in seeking causes rather than symptoms.

Another reason is that symptoms may be confusing - some symptoms are situation-specific, so that what is revealed in one setting may not be apparent in another. Only recently have the important implications of this come to be appreciated, as in pervasive hyperactivity (Sandberg *et al*, 1978, 1980). It is now appreciated how essential it is for clinicians to use a variety of sources of information to obtain as comprehensive a picture as possible of the child in his environment. The conceptual limitations of some prepubertal children may limit the provision of an accurate chronology of themselves, whereas adolescents may be reluctant to let others know their inner feelings. Information should therefore be obtained from parents and teachers in addition to direct clinical observation of the child himself.

However, there are drawbacks to such indirect approaches. Adults may be insufficiently aware of the inner experiences, thoughts and emotions of their adolescent offspring, as Rutter *et al* (1976) have demonstrated. Moreover, while play techniques and behavioural observations are suitable for assessing fantasy, symbolic meaning and general functioning of younger children, they do not allow precise symptom assessment and are prone to misinterpretation. We have recently seen the potential

advantage of combining semistructured interviews of the child with those of the parents. We do not consider this an academic issue but one with fundamental, practical implications.

A number of different schedules were employed in the assessment of depression, and these are described in the preceding paper. The most comprehensive of these is the Kiddie-SADS (Orvaschel *et al*, 1982; Chambers *et al*, 1985). In its original format the Kiddie-SADS has an unstructured section designed to obtain information about an ongoing episode of child psychiatric disorder, and a semistructured section for symptoms, with relevant probes and scales. Although the child is interviewed separately and after the parent, the interviewer is guided by information provided by the parent, so the interview is not blind. In the recording of the child's and parent's account of each symptom, the examiner is required to make a summary clinical judgement about presence or absence and severity of the symptom.

As part of the Newcastle Depression Study, one essential modification was made to the Kiddie-SADS procedure: independent, blind interviews of parent and child (usually simultaneous) were carried out, thus avoiding a halo effect for the rating of symptoms. Independent ratings of severity of each symptom were made by each examiner, based on the interview with the child or parent alone.

For the purpose of this paper we report on 87 of the 95 children who were selected for intensive study. Those cases on whom full data were not available were excluded.

### Method

For each symptom, ratings can be categorised as reported by neither child nor parent (A); reported by one of these (child (B) or parent (C)); or reported by both (D).

The analyses described below confine themselves to the comparison of positively reported symptoms only by mothers and indexed children; they are of ratings, not of raters.

Three statistical analyses were undertaken, Cohen's kappa, a test for symmetry, and an overall measure of agreement on the presence or absence of symptoms. Kappa ( $k$ ; Cohen, 1960) is a statistic specifically designed to measure the inter-observer reliability of categorical data, which corrects for chance or expected agreements. On this occasion, kappa was used to measure agreement between ratings about child behaviour based on interviews with the children and those with their parents. A test for symmetry (Everitt, 1977) was also performed. In our data this tests the hypothesis that excesses of symptoms reported by children and their mothers occur with the same degree of likelihood. If the  $\chi^2$  distribution is significant, the hypothesis is rejected. Finally, a simple analysis of percentages in relation to the presence or absence of symptoms was carried out (Hartmann, 1977). For the latter purposes we have used the following formulae based on our four rating categories:

$$(a) \text{ Percentage overall agreement} = \frac{A + D}{A + B + C + D} \times \frac{100}{1}$$

$$(b) \text{ Percentage agreement on occurrence} = \frac{D}{A + B + C + D} \times \frac{100}{1}$$

$$(c) \text{ Percentage occurrence as reported by child only} = \frac{B}{A + B + C + D} \times \frac{100}{1}$$

$$(d) \text{ Percentage occurrence as reported by parent only} = \frac{C}{A + B + C + D} \times \frac{100}{1}$$

A total of 52 items were examined. Fourteen items which appeared to duplicate others or were sub-items of main themes, or in which there was little spread of scores across the scale, were excluded. The findings are presented in five categories:

- Group 1: symptoms with good overall agreement about presence and absence (greater than 60%)
- Group 2: symptoms with good child/parent agreement as to occurrence
- Group 3: symptoms reported more often by the child
- Group 4: symptoms reported more often by the parents
- Group 5: symptoms whose presence is reported in roughly equal frequency by parent and child.

## Results

### Group 1: agreement about presence or absence of symptoms

The range of agreement extended from 40% to 86% with the majority falling between 60% and 70%. Table 1 depicts the nine symptoms with the highest rates of overall percentage agreement and also the relevant kappa coefficients. The percentage agreed occurrence has also been included.

Table 1  
Symptoms with high levels of overall agreement as to presence or absence

| Symptom                 | % Overall agreement | Significance of kappa | % Agreed occurrence | Test of symmetry |
|-------------------------|---------------------|-----------------------|---------------------|------------------|
| Psychomotor retardation | 86                  | $P < 0.01$            | 29                  | NS               |
| Obsessionality          | 85                  | $P < 0.05$            | 24                  | NS               |
| Loss of appetite        | 87                  | $P < 0.001$           | 53                  | NS               |
| Suicide attempts        | 82                  | $P < 0.001$           | 38                  | NS               |
| Suicidal ideation       | 80                  | $P < 0.01$            | 32                  | NS               |
| Loss of interest        | 75                  | $P < 0.001$           | 50                  | NS               |
| Anhedonia               | 71                  | $P < 0.001$           | 47                  | NS               |
| Weeping                 | 71                  | $P < 0.001$           | 43                  | NS               |
| Initial insomnia        | 70                  | $P < 0.001$           | 49                  | NS               |

Table 2  
Symptoms with good agreement between child and parent as to occurrence

| Symptom                 | % Agreement | Significance of kappa | Test of symmetry |
|-------------------------|-------------|-----------------------|------------------|
| Loss of appetite        | 53          | $P < 0.001$           | NS               |
| Loss of interest        | 50          | $P < 0.001$           | NS               |
| Initial insomnia        | 49          | $P < 0.001$           | NS               |
| Reactivity of mood      | 48          | $P < 0.001$           | NS               |
| Anhedonia               | 47          | $P < 0.001$           | NS               |
| Irritability            | 46          | $P < 0.05$            | NS               |
| Changed school attitude | 43          | $P < 0.05$            | NS               |
| Weeping                 | 43          | $P < 0.001$           | NS               |
| Social withdrawal       | 41          | $P < 0.01$            | NS               |
| Anger                   | 41          | NS                    | NS               |

Most of these symptoms are observable, the exceptions being anhedonia and suicidal ideation. However, in many cases the overall agreement reflects agreement on absence of symptoms. Of the five symptoms with greatest level of concordance, four of these were present in under 40% of the group (Table 1). Hence, despite good overall agreement, kappa is not necessarily highly significant. Symptoms with percentage overall agreement below 50% with non-significant kappas are not listed. The majority were essentially subjective, e.g. self-denigration, sense of hopelessness, sense of guilt, self-dislike, decreased concentration, brooding. However, there were a number which on the surface are objectively observable, such as increased appetite, morning and evening fatigue, anger, and separation anxiety.

### Group 2: symptoms with good agreement between child and parent as to occurrence

Agreement about occurrence (Table 2) is partially dependent on the level of the symptom in the population under scrutiny. Only one-fifth of the symptoms studied showed rates of agreement of occurrence of over 40%, with only

Table 3  
Symptoms reported more often by children

|                                  | % By<br>child only | % By<br>parent only | Test of<br>symmetry |
|----------------------------------|--------------------|---------------------|---------------------|
| <i>Twice as frequently</i>       |                    |                     |                     |
| Self denigration                 | 49                 | 20                  | $P < 0.05$          |
| Feeling unloved                  | 46                 | 23                  | NS                  |
| Guilt                            | 69                 | 29                  | $P < 0.05$          |
| Feelings of<br>emptiness         | 65                 | 23                  | $P < 0.05$          |
| Sense of failure                 | 56                 | 25                  | $P < 0.05$          |
| Compulsions                      | 55                 | 22                  | NS                  |
| Morning fatigue                  | 58                 | 21                  | NS                  |
| Psychomotor agitation            | 63                 | 27                  | NS                  |
| Fears and phobias                | 47                 | 22                  | $P < 0.05$          |
| Quality of mood                  | 49                 | 22                  | $P < 0.05$          |
| <i>Three times as frequently</i> |                    |                     |                     |
| Déjà vu                          | 77                 | 10                  | $P < 0.001$         |
| Self dislike                     | 60                 | 20                  | $P < 0.05$          |
| General anxiety                  | 67                 | 20                  | $P < 0.01$          |
| Obsessions                       | 64                 | 12                  | $P < 0.01$          |
| Suicidal ideation                | 46                 | 15                  | NS                  |
| Suicidal attempts                | 33                 | 0                   | $P < 0.05$          |

Table 4  
Symptoms reported more often by parents

|                                    | % Parent<br>alone | % Child<br>alone | Test of<br>symmetry |
|------------------------------------|-------------------|------------------|---------------------|
| Hypersomnia                        | 57                | 29               | NS                  |
| Increased appetite                 | 53                | 37               | NS                  |
| Anhedonia                          | 32                | 21               | NS                  |
| Exaggerated ill-<br>ness behaviour | 48                | 21               | NS                  |

Significance values for test of symmetry are given according to the  $\chi^2$  statistic with Yates' correction for small number when appropriate.

loss of appetite and loss of interest having a percentage agreement greater than 50%. Unsurprisingly, most of the symptoms listed in Table 2 are potentially objectively observable.

#### Group 3: symptoms reported more often by the child

These included 39 out of the 52 symptoms studied, but this excess only reached an impressive magnitude in 30% of the items. Of these, ten symptoms were reported twice as frequently and a further seven were reported three times as frequently as those by parents (Table 3). An examination of Table 3 reveals that less than one-third of the symptoms are observable.

#### Group 4: symptoms reported more often by parents

These proved few in number - four in all (Table 4). The only surprise in this list is the symptom of anhedonia.

#### Group 5: symptoms reported equally commonly by parents and children

These were a variable group and included objective symptoms such as separation anxiety, hypochondriasis and anger, as well as the rather more subjective experience of nightmares.

The coefficients of agreement (kappas) often achieved high levels of significance, particularly in relation to those symptoms which were more objective or observable, but with some important exceptions such as anhedonia.

The test of symmetry confirms the judgements about the excesses of symptoms reported by children (Table 3), particularly in relation to where they are reported three times as frequently as in the parents' reports. However, none of the symptoms reported more often by the parents proved significant (Table 4).

#### Factors affecting agreement about symptoms

An attempt was made to ascertain the relationship of a number of factors relating to agreement between children and parents. Those studied included diagnosis, sex, IQ, evidence of puberty, and social class. Because of the small size of samples we have noted only those symptoms for which there were substantial differences of kappa, which were selected according to each of the factors above. A standard error (SE) of kappa was calculated for each sample (Fleiss, 1981). Given two kappas and their standard errors, the ratio  $(k_1 - k_2) / \sqrt{SE_1^2 + SE_2^2}$  was referred to a standard normal table and differences which were significant at the 5% level are indicated. As a rough guide, this proved to be the equivalent of a difference of more than 0.3 in the kappa coefficients.

The cases were divided into depressed and non-depressed groups based on the SPI (Standard Psychiatric Interview, Goldberg *et al*, 1970: see first paper - section on measures used) and kappas were calculated for the symptoms in relation to each of these. Widely differing kappas were found on nine symptoms. Two-thirds of the higher kappas were in the non-depressed group with agreement mainly on the absence of symptoms, with the relevant symptoms including self-denigration, lack of energy, morning fatigue, irritability, fears and phobias, nihilistic delusions and duration of present episode. In the depressed group, significantly higher kappas were found with only two items: suicidal ideas and compulsions. These results favour better agreement between the child and parent in the non-depressed group but mainly on items usually employed to characterise depression. Furthermore, in the depressed group there was poor agreement between child and parent on accounts of duration of the present episode. In absolute terms, the average difference between kappa coefficients on the above items was 0.43.

There were some interesting male-female differences. In girls there was significantly higher agreement about suicidal behaviour (two items), insight into their illness, and duration of the present episode. We suspect these are elements of themes girls share with their mothers. In boys there was significantly higher agreement about weight gain, morning fatigue, aggression within the home, obsessionality and

compulsions. All of these features are potentially observable and do not seem to represent information that youths will share with parents. The average difference between kappa coefficients on the above items was 0.39.

Children were divided into two groups by intelligence quotient (IQ) - above average and below average. There was much better agreement in the case of brighter children concerning number of hospital admissions, somatic symptoms of weight gain, nocturnal restlessness and morning fatigue, and with symptoms associated with depression including withdrawal. These suggest that not only is intelligence in itself an important factor in contributing to the type of symptom expressed, but it is likely to facilitate communication as well. In contrast, in the less intelligent group there was better agreement on obsessions, compulsions and nightmares.

The children were also divided according to whether they had shown pubertal changes. The prepubertal group had significantly higher agreement on two-thirds of the items. First, the parents seemed aware of those symptoms reported by the child which reflected anxiety or depression - anhedonia, self-denigration, morning fatigue, hypersomnia, self-dislike, phobias and aggression confined to the home. Second, there was also higher agreement on the number of hospital admissions, presumably reflecting a lesser number but greater salience of the meaning of hospital admission for younger children. For the pubertal group, higher agreement was confined to duration of the present episode, evidence of disturbances of conduct, and suicidal themes. In absolute terms, the average difference between kappas on the above items was 0.44.

The families were split into two occupational class categories - semi-skilled or unskilled, and skilled and managerial. In the families from higher occupational strata there was significantly higher agreement on ten symptoms, most of which might be perceived as reflecting anxiety or depression - anhedonia, loss of appetite, weight loss or gain, suicidal acts, somatic complaints, separation anxiety, phobias and compulsions, and nihilistic delusions. In the less skilled group there was only higher agreement on two items - duration of present episode and insight into the illness. The average difference between the kappa coefficients on the above items was 0.41.

### Discussion

In adult psychiatry it is not always the practice to take a corroborative history. In paediatric psychiatry this is usual, as the child rarely seeks help directly and is usually brought to attention by worried or frustrated parents, on whom great reliance is then placed in eliciting the problem behaviour and symptoms. The child's own contribution to the formulation of his/her problem is often indirect and based on interpretation rather than direct observation or interrogation.

For a discipline based so commonly on data gathering from dual informants it is surprising how little attention has been paid to the extent of

agreement or disagreement between children and parents. Perhaps children are assumed to be incapable of imparting reliable information, despite the findings of Herjanic *et al* (1975) that where factual information is concerned, child-parent agreement is high (80%). However, the findings of the same study, that agreement was lowest for items related to mental state, have been echoed in a variety of studies since that time.

Earlier research reported that mothers of children seen in three out-patient clinics underestimated their children's reports of feelings of self-esteem (Piers, 1972). Schopler & Reichler (1972), found that parental estimates of their moderately or severely psychotic children's behaviour correlated significantly with objective tests, but those of parents of mildly psychotic children were much poorer.

More recently, Leon *et al* (1980) found only a modest correlation between parent and child ratings of depression, while Pierce & Klein (1982) found that parents and children agreed only on seven out of 52 items of a behavioural checklist administered to both simultaneously, but separately. Weissman *et al* (1980), using a variety of self-rating scales with both children and adults, found that agreement between mothers and children on the assessment of the child was poor.

The undue reliance placed on parental accounts of children's behaviour and symptoms is all the more surprising in the light of findings which illustrate how parental appraisal can be impaired. In an important paper, Moretti *et al* (1985) demonstrated that two variables in particular were of significance. The first was the nature of the child's problem. Where this was a conduct disorder, parents tended to overestimate depressive symptoms in their child; where the child was affectively disturbed, parents underestimated how their children were feeling. The authors suggested that parents with behaviourally disturbed children rated them as more depressed because of their search for an acceptable explanation of their child's problem. Attribution of this to an underlying depression would increase their tolerance and acceptance while absolving them of direct responsibility for the child's unacceptable behaviour. However, Moretti *et al* do not consider the converse hypothesis that such children may be depressed but may not have the conceptual competence to appreciate and acknowledge it, and communicate it to others. The other important variable with potential for biasing parental report is parental mental state. Moretti's study found a significant correlation between the incidence of parental depression and perception of their child's depression. However, parent ratings of the degree of their own depression

did not correlate significantly with their children's self-reports of depression.

Our findings confirm that there is more intrapsychic distress among clinic children than is apparent to their parents and that unless this is enquired for systematically, it will remain hidden. This work also confirms that children and adolescents report more depressive symptoms than their parents describe (Angold *et al*, 1987; Moretti *et al*, 1985; Reich *et al*, 1981; Orvaschel *et al*, 1981; Weissman *et al*, 1980). These reports include both out-patient and community studies. Only one study has not confirmed this pattern and this is probably a reflection of the unusual nature of the sample studied (Kazdin *et al*, 1983), so it is not directly comparable. Kazdin *et al*'s sample consisted of children admitted as in-patients to an intensive care facility for acute disorders, including highly aggressive destructive behaviour, and there exists the possibility that the children were motivated to represent themselves as less disturbed and their parents to represent their children as more disturbed. An exception to the general pattern concerns suicidal ideation or parasuicidal gestures, where our data suggest that parents are more aware of the potential for suicidal behaviour in their children. A similar finding has recently been reported in a Yale study (Angold *et al*, 1987).

From these results it is evident that children, even younger ones, should be asked directly about their feelings, as well as being assessed by indirect means. This point is forcefully underlined by the fact that only a few symptoms, usually objective, were reported to excess by parents, whereas over 50% of symptoms, nearly all subjective, were reported in greater numbers by the child. Rates of agreement between parents and children regarding the presence of a symptom were surprisingly low and were highest, but with only moderate agreement, for objective behavioural items.

Prepubertal children in general agreed better with their parents about a wide range of current symptoms than did adolescents. This confirms previous research that has shown concordance is lower in adolescence than childhood, suggesting either that teenagers reveal less of their feelings to their parents, or there is a relatively poorer appreciation by parents of their teenagers' feelings (Rutter, 1988; Rutter *et al*, 1976; Rutter & Graham, 1968), or both. These findings are in accord with evidence that, as children grow older, parents less reliably report the psychiatric symptoms their children display, whereas the children themselves become more reliable (Edelbrock *et al*, 1986). Nevertheless some caution is necessary with retrospective accounts by prepubertal children as

they displayed poor agreement with their parents concerning the duration of illness, which probably reflects a poorer ability to give accurate accounts of the past and especially estimates of absolute duration (Rutter, 1988).

The literature remains unclear about agreement between parents and children according to the sex of their offspring. Angold *et al* (1987) report higher levels of agreement between parents and sons whilst Herjanic *et al* (1975) showed no differences. Our data suggest different patterns of correspondence in relation to different symptoms, with agreement being higher between boys and their mothers on some potentially observable symptoms, but these were mainly those not directly reflecting depression. In girls, agreement is higher only on those symptoms which they might be prepared to share with their mothers.

In his review of depression in childhood, Rutter (1986) touches on an important distinction, the children's abilities "to express depressive affects and cognitions, and their ability to report them". This distinction, and children's ability to reflect on their own cognitive processes, must be dependent on developmental factors (Kovacs, 1986) which include the ability to conceptualise about these inner feelings. Can our data make a contribution to the understanding of these issues? Broadly speaking, they reveal that agreement over symptoms appears to be a function of the occupational class of the parents and the intellectual level of the offspring. Research on conceptual development tends to focus on the processes underpinning conceptual ability. It is now accepted that the quality of the environment is one important determinant of the rate of conceptual development. Our findings suggest that part of the poor agreement between parents and children about depressive symptoms is likely to be a reflection of a number of interacting factors which will have important implications for communication about affective disturbance within the family. These include the subtlety of the psychic symptoms, and, for the child, coping with recognising and labelling them. Others consist of the quantity and quality of language stimulation in the home; the style and level of empathic communication shown by the parents towards their child; and the level of cognitive maturity of the child at the time of referral.

In the assessment of childhood depression, it would seem that parental accounts should be seen as complementary to those of the child (Poznanski *et al*, 1985) rather than the reverse, as it was clear during many interviews that some parents had little idea of the true intensity of their child's distress. This may have been either because teenagers are less

revealing of their feelings, or parents are less good at appreciating such feelings, or both.

Finally, in no way does our research suggest that parents' accounts should be discounted. There is good evidence to suggest that parents rarely report the presence of affective disorders that are not

present according to the children themselves (Orvaschel *et al*, 1982; Angold *et al*, 1987; Angold, 1988), except on occasions when diagnosis of conduct disorder is particularly disadvantageous. Thus, if parents indicate that their child is depressed, the clinician should view this seriously.

\*M. L. Barrett, MB, BCh, MRCPsych, *Consultant Child Psychiatrist, Queen Elizabeth Hospital, Gateshead, Tyne & Wear*; T. P. Berney, MB, ChB, DPM, FRCPsych, *Consultant Psychiatrist, Prudhoe Hospital, Northumberland and Fleming Nuffield Unit, Newcastle upon Tyne*; S. Bhate, MB, BS, FRCPsych, *Consultant Child and Adolescent Psychiatrist, Young People's Unit, Newcastle General Hospital and Fleming Nuffield Unit, Newcastle upon Tyne*; O. O. Famuyiwa, BM, MRCPsych, *formerly Research Fellow, Fleming Nuffield Unit, Newcastle upon Tyne*; T. Fundudis, PhD, MA, DipPsychother, CPsychol, FBPsS, *Top Grade Psychologist, Fleming Nuffield Unit, Newcastle upon Tyne*; I. Kolvin, BA, MD, FRCPsych, DipPsych, *Professor of Child and Family Mental Health, Royal Free Hospital School of Medicine, and the Tavistock Clinic, 120 Belsize Lane, London NW3 5BA*; S. Tyrer, MB, BChir, FRCPsych, *Royal Victoria Infirmary, Newcastle upon Tyne*

\*Correspondence