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## Concordance Between Mothers' and Children's Reports of Somatic and Emotional Symptoms in Patients with Recurrent Abdominal Pain or Emotional Disorders

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### Abstract

Mother-child concordance regarding children's somatic and emotional symptoms was assessed in children with recurrent abdominal pain ( $n = 88$ ), emotional disorders ( $n = 51$ ), and well children ( $n = 56$ ). Children between 6 and 18 years of age and their mothers completed questionnaires assessing the children's somatic symptoms, functional disability, and depression. Mothers of children with recurrent abdominal pain reported more child somatic and depressive symptoms than did their children, and mothers of children with emotional disorders reported more child depressive symptoms than did their children. Higher levels of maternal distress were associated with greater mother-child discordance in the direction of mothers reporting more child symptoms than did their children. No significant child age or sex differences were found in concordance patterns.

### Keywords

Somatic symptoms; emotional symptoms; recurrent abdominal pain; mother-child concordance

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As the use of clinical interviews with children and their parents has increased over the last decade (Chambers *et al.*, 1985; Edelbrock, Costello, Dulcan, Kalas, & Conover, 1985), there has been a growing interest in whether the information obtained from these different sources is concordant (Angold *et al.*, 1987; Barrett, Berney, & Bhate, 1991; Phares, Compas, & Howell, 1989; Weissman, Orvaschel, & Padian, 1980). That is, are parents' reports about their children's symptoms similar to their children's self-reports? There is general consensus that obtaining information from multiple informants is the ideal assessment strategy whenever possible because it provides a more comprehensive picture of the child across settings (cf. Achenbach, McConaughy, & Howell, 1987). However, multiple sources often do not show high rates of agreement (Achenbach *et al.*, 1987; Kashani, Orvaschel, Burk, & Reid, 1985; Stavrakaki, Vargo, Roberts, & Boodoosingh, 1987).

Several potential factors have been suggested to explain discrepant parent-child symptom reports including the age and sex of the child, psychopathology in the parent informant, and the type of symptoms being assessed. There is some evidence that parent-child concordance is greater for adolescents than for younger children (Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986; Renouf & Kovacs, 1994; Verhulst, Althaus, & Berden, 1987; Weissman *et al.*, 1987), although this age effect has not been found reliably (Angold *et al.*, 1987; Barrett *et al.*, 1991; Stavrakaki *et al.*, 1987). There also is no consistent pattern of findings with

regard to the impact of child's sex on parent-child concordance (Angold *et al*, 1987; Barrett *et al*, 1991; Herjanic, Herjanic, Brown, & Wheatt, 1975; McConaughy, Stanger, & Achenbach, 1992; Stavrakaki *et al*, 1987).

Similarly, the results are inconclusive regarding the effect of parents' symptoms on their report about their children's behaviors (Richters, 1992). Whereas some studies have found that depressed mothers overreport noncompliance and other externalizing problems in their children (Brody & Forehand, 1986; Forehand, Wells, McMahon, Griest, & Rogers, 1982; Griest, Forehand, Wells, & McMahon, 1980), other studies have found that parental depression is associated with better parent-child agreement about children's depressive symptoms (Angold *et al*, 1987), internalizing problems (Conrad & Hammen 1989), or psychiatric diagnoses (Weissman *et al*, 1987). The few studies that have been conducted in pediatric settings have revealed that parents' ratings of their child's anxiety during a painful medical procedure tend to be more highly associated with parents' own level of anxiety than with the actual amount of pain their child experienced (Manne, Jacobsen, & Redd, 1992; Wachtel, Rodrigue, Geffken, Graham-Pole, & Turner, 1994).

Interinformant agreement also varies as a function of the types of symptoms reported (Barrett *et al*, 1991; Edelbrock *et al*, 1986; Herjanic & Reich, 1982; Hodges, Gordon, & Lennon, 1990; Kashani *et al*, 1985; Weissman *et al*, 1987). Parent-child concordance tends to be better for observable behaviors and events (e.g., bed-wetting, school suspension, trouble with the police) than it is for internalizing symptoms such as sadness, anxiety, and low self-esteem (Hodges *et al*, 1990; Silverman & Eisen, 1992). Less is known, however, about whether agreement differs among the various types of internalizing symptoms. For example, parents may not know when their child feels nervous or guilty, but they might have a better idea about when their child's head or stomach hurts because the child may complain about it or display behaviors that are consistent with somatic discomfort (e.g., asking for medicine, discontinuing activities, lying down). Moreover, parents tend to be more tolerant of physical rather than psychological reasons for their children's misbehavior (Walker, Garber, & Van Slyke, 1995), and therefore they may be more observant of or more willing to acknowledge somatic rather than emotional symptoms. Thus, given the heterogeneity in the symptoms that comprise internalizing syndromes, it is possible that the extent of parent-child agreement differs regarding these symptoms.

Much of the research about interinformant agreement has been concerned with children's behavioral and emotional symptoms among psychiatric, high-risk, or community samples. Few studies, however, have compared multiple informants' reports of both emotional and somatic symptoms across different populations of children who present for evaluation of such symptoms. Children with recurrent abdominal pain and children with emotional disorders are particularly interesting in this regard because both types of patients are known to have high levels of both somatic and emotional symptoms and associated impairment (Garber, Zeman, & Walker, 1990; McCauley, Carlson, & Calderon, 1991; Walker, Garber, & Greene, 1993).

Recurrent abdominal pain (RAP) is a common pediatric problem characterized by repeated episodes of abdominal pain that occur over a period of at least 3 months and are severe enough to interrupt the child's activities (Apley, 1975). Despite medical evaluations that may be both extensive and expensive, an organic etiology for the abdominal pain is rarely found (Apley, 1975; Stickler & Murphy, 1979; Walker, Garber, Van Slyke, & Greene, 1995), and it has been suggested that RAP may be a childhood precursor of somatization disorder (cf. Routh, Ernst, & Harper, 1988; Walker, Garber, & Greene, 1991). Children with RAP have high levels of both somatic and emotional symptoms (Garber *et al*, 1990; Walker *et al*, 1993). It also has been suggested that children with RAP may be more likely to

express their distress through physical rather than psychological symptoms (Shapiro & Rosenfeld, 1987). Therefore, it is possible that there might be greater parent-child concordance about children's somatic complaints than emotional symptoms in children with RAP. Understanding the extent and reasons for discordance between mothers and children's report will help physicians and clinicians to better evaluate and treat these patients.

Considerably more is known about mother-child concordance among children with emotional disorders. Studies have generally found that agreement between mothers and children regarding children's internalizing symptoms tends to be in the low to moderate range (Hodges *et al.*, 1990; Kazdin, French, & Unis, 1983a), although this varies as a function of the children's age and maternal psychopathology (Frick, Silverthorn, & Evans, 1994; Renouf & Kovacs, 1994). Few studies, however, have contrasted the extent of mother-child agreement for children with emotional disorders compared to those with other kinds of psychiatric or physical problems (Stavrakaki *et al.*, 1987). Stavrakaki *et al.* found different patterns of child-clinician but not child-parent concordance among children with anxiety, depression, and behavior disorders. One goal of the present study was to further explore the patterns of mother-child concordance in children presenting with emotional problems as compared to those in children presenting with physical symptoms.

The traditional approach to assessing concordance between different informants' reports has been to examine correlations (cf. Achenbach *et al.*, 1987). These correlational analyses indicate the extent to which rank orderings of symptom levels are similar across informant groups. The disadvantage of this approach, however, is that it does not indicate the magnitude or the direction of the discrepancy between the reports of the different informants; that is, which informant group (e.g., mothers or children) reports more symptoms in the target individual. When mothers and children disagree, do mothers endorse more or fewer symptoms than their children report about themselves? Whereas some studies have found mothers report more depressive symptoms in their children (Kazdin *et al.*, 1983a, Kazdin, French, Unis, & Esveldt-Dawson, 1983b), others have found that children report more anxiety, depression, and somatic complaints than their mothers report them to have (Herjanic & Reich, 1982; Hodges *et al.*, 1990; Weissman *et al.*, 1987). The present study examined the direction of the discrepancy between mothers' and children's reports about somatic and emotional symptoms and associated disability, and explored the extent to which different discordance patterns were related to maternal distress, child diagnosis, and child age and sex.

Thus, the purpose of this study was to compare children presenting for evaluation for physical and emotional problems with regard to the degree of mother-child concordance about their somatic and emotional symptoms and disability. Because low interrater correlations are sometimes the result of informants completing measures with different contents and structures (Achenbach *et al.*, 1987; Richters, 1992), the present study used measures for which there were parallel versions for mothers and children.

In summary, the present study addressed the following questions: (a) Does mother-child concordance differ with regard to different types of internalizing symptoms (e.g., somatic, emotional) and impairment, and in different diagnostic groups (e.g., recurrent abdominal pain, emotional disorders, well)? (b) What is the direction of the mother-child discordance; that is, do mothers report more symptoms and disability than children, or the reverse? Does the direction of the discordance vary across diagnostic groups? (c) Finally, does mothers' level of distress or the child's age or sex affect these findings? As suggested by Richters (1992), we examined the extent to which the mother-child discrepancies and group differences in concordance were related to level of distress in the mother. Similar analyses were conducted to assess differences as a function of child age.

## METHOD

### Sample Selection and Procedure

All children in the study were recruited from clinics at the Vanderbilt University Medical Center. To be eligible for the study, patients had to (a) be between the ages of 6 and 18 years old; and (b) have no chronic health condition, physical handicap, or mental retardation. Further details about the sample and procedures can be found in Walker *et al* (1993).

**Recurrent Abdominal Pain Group**—Patients presenting for evaluation of abdominal pain at the pediatric gastroenterology clinic were eligible for participation in the study if they had had abdominal pain of at least one month's duration. One of the authors (L.W.) contacted mothers of patients referred for evaluation of abdominal pain in order to screen for eligibility and to enlist the families' participation.

Informed consent was obtained and research instruments were administered in the clinic prior to the medical evaluation, and thus prior to their receiving a diagnosis for their abdominal pain. Mothers completed their protocols in the waiting room. A trained interviewer read the measures to the children in a private area.

A physician who did not have access to the research protocol reviewed the medical chart to identify the diagnosis resulting from the medical evaluation. A group of 88 children with neither organic disease (e.g., peptic ulcer, Crohn's disease) nor a physiological explanation for abdominal pain (e.g., constipation, irritable bowel syndrome) constituted the recurrent abdominal pain group. The majority (92%) of these children were Caucasian, and the remainder were African-American. The average duration of abdominal pain was 15.77 months ( $SD = 24.06$ ).

**Emotional Disorders Group**—Patients presenting for evaluation at the outpatient Mood Disorders Clinic of the Division of Child and Adolescent Psychiatry were invited to participate. Patients were excluded if they had had a medical evaluation for abdominal pain or other recurrent pain during the previous 6 months. Parents and children were interviewed with the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Chambers *et al*, 1985). Children in this emotional disorders (EmD) group were diagnosed with *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.) (DSM-III-R; American Psychiatric Association, 1987) mood and/or anxiety disorders. The sample ( $n = 51$ ) was 88% Caucasian and 12% African-American. Informed consent procedures and the research protocol were administered at the child's initial clinic visit.

**Well Group**—A comparison group of well subjects ( $n = 56$ ) was recruited from pediatric patients who had been treated for acute minor illness or injury at the pediatric clinic or emergency room of the same university medical center. Exclusionary criteria were (a) medical evaluation for abdominal pain or other recurrent pain during the previous 6 months, or (b) outpatient mental health treatment during the previous 6 months or history of psychiatric hospitalization. Potential subjects were identified by chart review, and patients' mothers were called in order to confirm their eligibility, describe the study, and invite the family's participation. The sample was 93% Caucasian and 7% African-American.

### Measures

**Children's Somatization Inventory (CSI)**—The CSI (Garber, Walker, & Zeman, 1991; Walker *et al.*, 1991; Walker & Greene, 1989) includes symptoms from the DSM-III-R (APA, 1987) criteria for somatization disorder and from the somatization factor of the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974).

Children rated the extent to which they have experienced each of 35 symptoms in the last 2 weeks using a 5-point scale ranging from 0 = *not at all* to 4 = *a whole lot*. A total score, obtained by summing the ratings, can range from 0 through 140. Three-month test-retest Pearson reliability for the CSI was reported to be .50 for well patients and .66 for patients with chronic pain syndrome (Walker *et al.*, 1991). The parent form of the Children's Somatization Inventory (P-CSI) includes the same symptoms as the CSI and was completed by parents with reference to their children. Coefficient alpha in this study for the CSI was .90, and .86 for the P-CSI.

**Functional Disability Inventory (FDI)**—The FDI (Walker & Greene, 1991) and its parent form (P-FDI) assess children's difficulty in physical and psychosocial functioning due to physical health status. The FDI and P-FDI each consist of 15 items referring to the child's disability in the past 2 weeks. Respondents use a 4-point scale ranging from 1 = *not at all* to 4 = *a whole lot* to rate a child's recent difficulty completing daily activities. Total scores can range from 0 through 60. Walker and Greene (1991) reported that the FDI and P-FDI had high levels of internal consistency, 3-month test-retest reliability that exceeded .60 for RAP patients, and significant correlations in the moderate range with measures of school absence and somatic symptoms. Coefficient alpha for this study was .88 for the FDI and .92 for the P-FDI.

**Children's Depression Inventory (CDI)**—The CDI (Kovacs, 1980/1981) and its parent version (P-CDI; Garber, 1984) contain 27 items representing depressive symptoms (e.g., sadness, appetite and sleep problems, concentration difficulties, etc.) that are rated on a 3-point scale. Total scores can range from 0 through 54. The CDI has been found to have adequate reliability and validity (Saylor, Finch, Spirito, & Bennett, 1984). The P-CDI is identical to the CDI except that parents complete the items with regard to how they think their child feels. The P-CDI has good internal consistency, test-retest reliability, and discriminant validity (Garber, 1984; Panak, Garber, & Schwartz, 1989). Coefficient alpha was .84 for the CDI and .89 for the P-CDI.

**Symptom Checklist 90 (SCL-90)**—The SCL-90 (Derogatis, Lipman, & Covi, 1973) is a self-report measure of psychological symptoms. Mothers completed the anxiety, depression, and somatization subscales of the SCL-90, which were combined into an index of total maternal distress. Derogatis, Rickels, and Rock (1976) reported that the SCL-90 subscales have high internal consistency and high convergent validity with the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1951) scales measuring similar content areas. Alpha reliability for the maternal distress index was .94 in this sample.

## RESULTS

### Correlations Between Mothers' and Children's Reports

The correlations between mothers' and children's reports on the Children's Somatization Inventory, Functional Disability Inventory, and Children's Depression Inventory in the three diagnostic groups are presented in Table I. Results indicated that mothers' and children's reports were correlated significantly on all three measures for the RAP group. In contrast, the reports of the well children and their mothers were correlated significantly only for the CSI, and reports of the children with emotional disorders and their mothers were correlated significantly only for the CDI.

## Concordance Between Mothers' and Children's Reports as a Function of Child Diagnosis and Sex

Absolute discrepancy scores were computed for each subject on the CSI, FDI, and CDI by subtracting the child-reported total score from the mother-reported total score. The range of possible absolute discrepancy scores were 0 to 140 for the CSI, 0 to 60 for the FDI, and 0 to 54 for the CDI. Higher scores indicate more discrepancy (i.e., less concordance) between mothers' and children's reports.<sup>3</sup>

Three (Diagnostic Group)  $\times$  2 (Child Sex) analyses of covariance, with maternal distress and child age used separately as the covariates, were conducted with regard to the absolute discrepancy scores on each of the measures (CSI, FDI, CDI). As indicated by the results of initial tests regressing CSI absolute discrepancy scores separately on each covariate, neither maternal distress nor child age accounted for a significant proportion of the variance in the extent of disagreement between mothers' and children's reports of somatic symptoms (CSI). Similarly, neither covariate accounted for a significant amount of the variance in the extent of discrepancy between mothers' and children's report on the FDI. The effect of diagnostic group on the degree of mother-child concordance on the CSI was significant after controlling for maternal distress,  $F(2, 187) = 5.49, p < .01$ , and after controlling for child age,  $F(2, 188) = 5.20, p < .01$ . The degree of mother-child concordance on the FDI also varied as a function of diagnostic group after covarying maternal distress,  $F(2, 185) = 7.82, p < .01$ , and child age,  $F(2, 186) = 8.16, p < .001$ . *Post hoc* analyses based on Student-Newman Keuls comparisons indicated that there was significantly greater concordance between mothers and children in the well group than in either the RAP or EmD groups with regard to somatic complaints and functional disability. Table II presents the nonadjusted means and standard deviations for each diagnostic group on the symptom and disability measures.<sup>4</sup>

On the CDI, results of the initial regression analyses indicated that the maternal distress index accounted for a significant amount of variance in absolute discrepancy scores,  $F(1, 187) = 10.33, p < .01$ , but child age did not. In addition, the interaction of diagnostic group and child sex was significant after covarying maternal distress,  $F(2, 187) = 3.03, p < .05$ , and child age,  $F(2, 188) = 4.12, p < .05$ . *Post hoc* comparisons indicated that, for boys, there was significantly greater mother-child concordance in the well and RAP groups than in the EmD group, but the well and RAP groups did not differ from one another. For girls, the degree of concordance between mothers' and children's reports was greater in the RAP group than the EmD group. The well group did not differ from either of these groups.

### Direction of the Discordance Between Mothers' and Children's Reports

**Diagnostic Group**—The purpose of the next series of analyses was to compare the three diagnostic groups with regard to the direction of the differences between mothers' (M) and children's (C) reports about children's symptoms. That is, we examined whether mothers of one diagnostic group reported more child symptoms than did their children, whereas mothers of another diagnostic group reported fewer child symptoms than their children. To address this issue, the three diagnostic groups were compared with regard to the number of mother-child dyads in which mothers' reports about their children's symptoms were higher, similar, and lower than their children's reports. Cut-off scores were established for each measure of child symptoms (e.g., CSI, FDI, CDI) based on the standard deviation of all

<sup>3</sup>Univariate outliers ( $>3$  *SD* above cell means) were assigned a raw score on the offending variable equivalent to 3 *SD* from their respective cell mean (cf. Tabachnick & Fidell, 1983).

<sup>4</sup>In each analysis, the pattern of adjusted means was the same as that of the nonadjusted means. For ease of interpretation, the nonadjusted means are presented.

subjects' absolute discrepancy scores on that particular measure. Mother-child dyads with raw difference scores between 0.5 standard deviation above and below zero (which represents perfect concordance) were categorized as highly concordant ( $M = C$ ); dyads with raw difference scores greater than 0.5 standard deviation above zero were categorized as mothers reporting substantially more child symptoms than their children ( $M > C$ ); dyads with raw difference scores greater than 0.5 standard deviation below zero were categorized as children reporting substantially more child symptoms than their mothers ( $C > M$ ). Table III presents the percent of each diagnostic group in each concordance category for each measure.

For the Children's Somatization Inventory, cases with raw difference scores greater than 5.0 were in the  $M > C$  group ( $n = 37$ ) and less than  $-5.0$  were in the  $C > M$  group ( $n = 73$ ). All other cases were categorized as  $M = C$  ( $n = 84$ ). Chi-square analysis of the distribution of cases across Diagnosis x Concordance Categories was significant,  $\chi^2(4) = 14.22, p < .01$ . Subsequent comparisons indicated that the  $M > C$  pattern was more common in the RAP group than in the well group,  $\chi^2(1) = 6.59, p < .01$ , and the  $M = C$  pattern was more frequent in the well than the RAP group,  $\chi^2(1) = 5.54, p < .05$ .

On the Functional Disability Inventory, cases with raw difference scores greater than 3.0 or less than  $-3.0$  were categorized as  $M > C$  ( $n = 50$ ) and  $C > M$  ( $n = 47$ ), respectively. The remaining cases were in the  $M = C$  group ( $n = 95$ ). The distribution of cases differed significantly across Diagnosis x Concordance Pattern Groups,  $\chi^2(4) = 13.96, p < .01$ . The  $M = C$  pattern was more common in the well group than in both the RAP,  $\chi^2(1) = 4.42, p < .05$ , and EmD group,  $\chi^2(1) = 5.14, p < .05$ .

On the Children's Depression Inventory, dyads with raw difference scores above 3.0 and below  $-3.0$  were categorized as  $M > C$  ( $n = 70$ ) and  $C > M$  ( $n = 41$ ), respectively. Dyads with scores between these cut-offs were categorized as  $M = C$  ( $n = 83$ ). The distribution of dyads differed significantly across Diagnosis x Concordance Pattern Groups,  $\chi^2(4) = 24.30, p < .001$ . Subsequent analyses indicated that the  $M = C$  pattern was more common in both the RAP,  $\chi^2(1) = 4.69, p < .05$ , and well,  $\chi^2(1) = 9.02, p < .01$ , groups than in the EmD group; the  $M > C$  pattern was more characteristic of the EmD group than the RAP,  $\chi^2(1) = 4.67, p < .05$ , or well group,  $\chi^2(1) = 14.31, p < .001$ , and the  $M > C$  pattern was more characteristic of the RAP group than the well group,  $\chi^2(1) = 4.53, p < .05$ .

**Maternal Distress**—Separate 3 (Concordance Pattern:  $M > C, M = C, C > M$ )  $\times$  3 (Diagnostic Groups) analyses of variance were conducted on the CSI, FDI, and CDI with regard to mothers' self-reported distress index.<sup>5</sup> For the CSI, there was a significant main effect for concordance category,  $F(2, 183) = 10.62, p < .001$ , and a significant interaction between concordance category and diagnostic group,  $F(4, 185) = 2.61, p < .05$ . *Post hoc* Student-Newman Keuls comparisons with regard to the CSI revealed that among cases in the  $M > C$  group, mothers of children with RAP ( $M = 32.52, SD = 21.37, n = 23$ ) were significantly less distressed than mothers of children with EmD ( $M = 49.10, SD = 24.82, n = 10$ ) and well children ( $M = 62.25, SD = 18.46, n = 4$ ). Given the small number of dyads in the well group demonstrating the  $M > C$  pattern, comparisons between this group and others should be interpreted cautiously.

Analysis of concordance pattern groups on the FDI resulted in a significant concordance pattern main effect,  $F(2, 183) = 7.87, p < .001$ . Student-Newman Keuls comparisons indicated that, across diagnostic groups, mothers in the  $M > C$  group were more distressed

<sup>5</sup>In order to adjust for unequal cell sizes, the analyses of variance were done using an unweighted-means approach (cf. Tabachnick & Fidell, 1983).

than mothers in the  $M = C$  and  $C > M$  groups. The results of the omnibus analysis and *post hoc* comparisons involving CDI concordance pattern groups were similar to those involving FDI concordance pattern groups: The CDI concordance pattern main effect,  $F(2, 185) = 7.11, p < .001$ , indicated that mothers in the  $M > C$  group reported more distress than mothers in the other two groups. Table IV presents the concordance pattern group means and standard deviations for mothers' levels of distress.

**Child Age**—Paralleling the analyses of maternal distress,  $3 \times 3$  analyses of variance were conducted comparing children's ages across diagnostic and concordance pattern groups on the CSI, FDI, and CDI. No significant differences in child age were observed in any analysis among the three sets of concordance pattern groups. Thus, older children's symptom reports were no more or less likely than younger children's reports to be concordant with mothers' reports.

## DISCUSSION

The primary purpose of this study was to determine whether the extent of concordance between mothers' and children's reports about children's somatic and emotional symptoms and functional disability differed for pediatric patients with recurrent abdominal pain, psychiatric patients with emotional disorders, and well children. This question was examined with regard to correlations between mothers' and children's reports, absolute levels of discrepancy between mothers' and children's reports, and the directional of these discrepancies. Four important findings emerged. First, well children and their mothers showed significantly greater agreement about the extent of children's somatic symptoms and disability compared to both RAP children and children with emotional disorders and their mothers. These results were not significantly different for boys and girls, and they were the same even when maternal distress and child age were controlled.

Second, although mother and child reports of depressive symptoms were significantly correlated in the group with emotional disorders, there was significantly more discordance between boys and their mothers in the emotional disorders group than in either the RAP or well groups, which were not significantly different from each other. There also was significantly more disagreement between girls with emotional disorders and their mothers compared to the mother-child dyads in the RAP group. Thus, children diagnosed with emotional disorders and their mothers showed the highest levels of discordance, particularly with regard to the children's depressive symptoms. Such parent-child disagreement might be a reflection of the broader communication problems and associated conflict that often have been observed between parents and their depressed children (McCauley & Myers, 1992).

Third, we examined the direction of the differences between mothers' and children's reports by comparing the patterns of discrepancies in the three groups on the three measures. Again, results indicated that mothers and children in the well group showed the highest level of concordance. This finding could have been due to the fact that children in the well group actually had fewer symptoms and therefore, there was less for mothers and children to disagree about. However, if it was simply that the RAP and EmD children had more symptoms than the well children, then we might expect the discrepancy in these two groups to be about equal in both directions; that is, that mothers would report more symptoms than their children as often as children would report more than their mothers. It turned out that the discrepancies between the mother-child dyads in both the RAP and EmD groups were in the direction of the mothers reporting more symptoms than the children. That is, compared to mothers of well children, mothers of RAP children reported more child somatic and depression symptoms than did their children, and mothers of EmD children reported more child depressive symptoms than their children. In no case did the groups differ in the



direction of children reporting more symptoms than their mothers. There are several possible reasons for these observed mother-child discrepancies. First, because these mothers were bringing their children to a clinic for evaluation for either somatic (stomach aches) or emotional problems, they might have believed that they needed to report high levels of symptoms to justify their utilization of the healthcare system. On the other hand, children in both of these groups might have been underreporting their symptoms due to fear of the evaluation and its potential consequences for them.

It is not possible to determine from the comparisons conducted in the present study the extent to which mothers were overreporting versus the children were underreporting symptoms. It is likely that the mothers were not completely wrong about the level of their children's distress nor that the children were totally out of touch with or unwilling to report their symptoms. Rather, each informant provided a unique and important perspective that contributed to the observed mother-child discrepancies. Studies that include a third, more objective informant are needed to examine the extent to which these subjective reports correspond to actual behavior. In addition, the differential validity of informants also needs to be assessed. For example, Loeber, Green, Lahey, and Stouthamer-Loeber (1991) examined which informants' reports of child disruptive behaviors were more highly associated with independent measures of dysfunction (e.g., school suspensions, arrests). Similar studies need to be conducted with regard to internalizing symptoms and their relation to appropriate external indices (e.g., medication use, suicide attempts).

There was no indication from these data that mother-child agreement in the RAP group was greater for somatic complaints than for emotional symptoms. Rather, mothers of RAP children tended to report higher levels of both types of symptoms in their children than did the children themselves. Thus, these somatizing children may not be communicating differentially about physical versus psychological symptoms, at least to their mothers. It is still possible, however, that children with RAP are less emotionally expressive around others or about other types of emotions not assessed here, particularly anger (Shapiro & Rosenfeld, 1987).

Fourth, consistent with other studies in the literature (e.g., Frick *et al.*, 1994; Wachtel *et al.*, 1994), the present study found that higher levels of maternal distress were associated with greater mother-child discordance in the direction of mothers reporting more child symptoms than did their children. Because internalizing symptoms are especially difficult for others to observe (Edelbrock *et al.*, 1986), they require more inferring from behavior, and therefore are particularly open to misinterpretation and bias. Mothers who are themselves experiencing emotional symptoms may be more likely to read ambiguous cues in their children as reflecting distress. It also is possible that these mothers project some of their own symptoms onto their children, or that they have a general response bias toward reporting higher levels of symptoms in both themselves and their children.

On the other hand, it is possible that children who actually have higher levels of somatic and emotional problems are more difficult to parent, and therefore their mothers become more distressed as a result of having to care for and interact with them. Finally, it could be that children whose mothers have higher levels of emotional symptoms recognize this about their mothers and therefore minimize their own somatic and emotional complaints so as not to contribute further to their mother's distress. It is not possible to determine from these cross-sectional data which of these various explanations is correct, although it is likely that several of these factors contributed to the observed relations between maternal distress and mother-child discordance.

It is noteworthy that there were no apparent effects of child age or sex regarding the extent or direction of mother-child discordance. This is consistent with several other studies in the literature (e.g., Angold *et al*, 1987; Barrett *et al*, 1991; McConaughy *et al*, 1992; Stavrakaki *et al*, 1987). The effect of child age and sex on parent-child concordance may vary depending on the types of symptoms (externalizing, internalizing), sample (psychiatric, pediatric, community), and measurement method (i.e., questionnaire, interview). The present study showed that in samples of children with recurrent abdominal pain and emotional disorders there were no significant age or sex effects on mother-child concordance with regard to questionnaire measures of functional disability or somatic or depressive symptoms.

Finally, the results of this study have clinical implications for the assessment and treatment of children with somatic and emotional symptoms. First, clinicians should be prepared to expect some discordance between mothers' and children's reports about child symptoms in both pediatric and psychiatric settings. Second, when the level of mother-child disagreement is high, and in the direction of mothers reporting more child symptoms than their children, then the extent of maternal distress also should be evaluated. Such discrepancies could be used as an indicator that the mother may require some clinical attention as well.

Two important challenges remain for both researchers and clinicians. First, the goal is not to achieve perfect mother-child concordance, but rather to utilize information from both sources and identify the mechanisms contributing to disparity when it occurs. Second, once these processes are better understood, it will be important to derive rules for integrating this complex information (e.g., Reich & Earls, 1987) and to develop procedures for resolving discrepant reports from mothers and children. This will facilitate making the most valid information available to clinicians for making treatment recommendations and assessing change, and to researchers for identifying subjects for study.

In summary, the present study found that mother-child discordance occurred with regard to both somatic and emotional symptoms, and in both pediatric and psychiatric samples. In general, this discordance went in the direction of mothers reporting more symptoms in their children than did the children themselves, and it was significantly associated with higher levels of maternal distress. These findings were not significantly affected by either children's age or sex.

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**Table 1**

Correlations Between Mothers' and Children's Reports on the CSI, FDI, and CDI in the Three Diagnostic Groups<sup>a</sup>

	RAP	Diagnostic group emotion dis	Well
Children's Somatization Inventory (CSI)	.47 <sup>c</sup>	.01	.29 <sup>b</sup>
Functional Disability Inventory (FDI)	.41 <sup>c</sup>	-.02	.20
Children's Depression Inventory (CDI)	.37 <sup>c</sup>	.31 <sup>b</sup>	.23

<sup>a</sup>RAP = recurrent abdominal pain; emotion dis = emotional disorders.

<sup>b</sup> $p < .05$ .

<sup>c</sup> $p < .01$ .

**Table II**  
 Mean Absolute Discrepancies Between Mothers' and Children's Reports by Diagnostic Group<sup>a</sup>

		RAP		Diagnostic group emotion dis		Well	
	M	SD	M	SD	M	SD	
Children's Somatization Inventory (CSI)							
Boys	9.56	(7.08)	10.04	(11.67)	5.64	(4.92)	
Girls	12.04 <sup>a</sup>	(10.21)	13.12 <sup>a</sup>	(10.71)	7.04 <sup>b</sup>	(8.09)	
Total	11.08 <sup>a</sup>	(9.15)	11.41 <sup>a</sup>	(11.15)	6.34 <sup>b</sup>	(6.67)	
Functional Disability Inventory (FDI)							
Boys	6.15 <sup>a</sup>	(6.08)	7.38 <sup>a</sup>	(6.58)	2.29 <sup>b</sup>	(2.37)	
Girls	8.55 <sup>a</sup>	(8.55)	7.20 <sup>ab</sup>	(5.80)	4.18 <sup>b</sup>	(4.39)	
Total	7.63 <sup>a</sup>	(7.75)	7.29 <sup>a</sup>	(6.15)	3.23 <sup>b</sup>	(3.62)	
Children's Depression Inventory (CDI)							
Boys	4.97 <sup>a</sup>	(3.86)	10.12 <sup>b</sup>	(6.54)	2.79 <sup>a</sup>	(1.66)	
Girls	5.00 <sup>a</sup>	(4.73)	7.80 <sup>b</sup>	(6.29)	5.96 <sup>ab</sup>	(4.78)	
Total	4.99 <sup>a</sup>	(4.39)	8.92 <sup>b</sup>	(6.40)	4.38 <sup>a</sup>	(3.89)	

<sup>a</sup>RAP = recurrent abdominal pain; emotion dis = emotional disorders. Means with different roman letter superscripts in the same row are significantly different.

**Table III**Percent of Each Diagnostic Group in the Three Concordance Categories<sup>a</sup>

	RAP (%)	Diagnostic group emotion dis (%)	Well (%)
Children's Somatization Inventory (CSI)			
Mothers > children	26.1 <sup>a</sup>	19.6 <sup>ab</sup>	7.1 <sup>b</sup>
Mothers = children	35.2 <sup>a</sup>	37.3 <sup>ab</sup>	62.5 <sup>b</sup>
Children > mothers	38.6	43.1	30.4
Functional Disability Inventory (FDI)			
Mothers > children	31.4 <sup>a</sup>	31.4 <sup>ab</sup>	14.3 <sup>b</sup>
Mothers = children	43.0 <sup>a</sup>	37.3 <sup>a</sup>	69.6 <sup>b</sup>
Children > mothers	25.6	31.4	16.1
Children's Depression Inventory (CDI)			
Mothers > children	35.2 <sup>a</sup>	60.8 <sup>b</sup>	16.1 <sup>c</sup>
Mothers = children	44.3 <sup>a</sup>	21.6 <sup>b</sup>	58.9 <sup>a</sup>
Children > mothers	20.5	17.6	25.0

<sup>a</sup>RAP = recurrent abdominal pain; emotion dis = emotional disorders. Different roman letter superscripts in the same row indicate significant differences.



Table IV

Mothers' Level of Distress in the Three Concordance Categories<sup>a</sup>

	Concordance type						<i>F</i>
	Mother > child		Mother = child		Child > mother		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
CSI	40.22 <sup>a</sup>	(23.98)	32.52 <sup>a</sup>	(22.19)	25.68 <sup>b</sup>	(18.26)	10.62 <sup>b</sup>
<i>n</i>	37		84		73		
FDI	41.56 <sup>a</sup>	(20.46)	29.70 <sup>b</sup>	(22.17)	23.28 <sup>b</sup>	(17.24)	7.87 <sup>b</sup>
<i>n</i>	50		95		47		
CDI	38.74 <sup>a</sup>	(23.19)	28.34 <sup>b</sup>	(19.74)	25.15 <sup>b</sup>	(19.84)	7.11 <sup>b</sup>
<i>n</i>	70		83		41		

<sup>a</sup>CSI = Children's Somatization Inventory; FDI = Functional Disability Inventory; CDI = Children's Depression Inventory. Means with different roman letter superscripts in the same row are significantly different.

<sup>b</sup>*p* < .001.