

## Parental Health and Adolescent Behavioral Adjustment

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This study compared the frequency of problem behaviors in adolescents of parents with chronic health conditions and adolescents of healthy parents. Eighty-one families of 6th, 7th, and 8th graders in rural Florida completed a battery of questionnaires including a health history form, the SF-36 Health Survey, the Child Behavior Checklist, and the Youth Self-Report. The presence of a chronic health condition in the father was strongly related to more behavior problems in adolescents. The presence of a chronic health condition in the mother was not significantly associated with adolescent behavior problems. However, lower health-related quality of life in both mothers and fathers was associated with more behavior problems. Contrary to past findings, no significant interactions between the sex of the child and the health status of the same-sex parent were found. Parental health status should be considered in the evaluation and treatment of adolescent behavior problems. In addition, further research examining the relation between fathers' health status and childhood adjustment is needed.

The impact of parental physical health problems on children and adolescents is not well understood, "despite the high incidence and clinical relevance" of such circumstances (Drotar, 1994, p. 526). Research showed that children who experienced more stressful life events have been judged by both teachers and themselves to be less well adjusted than those encountering fewer of these circumstances (Pryor-Brown & Cowen, 1989). Moderate rates of psychological disorders have been found in children of families with highly stressed mothers, including children of medically ill women (Hammen et al., 1987). Nonetheless, the impact of parental health problems as a source of stress in the lives of children and adolescents has remained understudied.

In a review of the literature exploring the relation between parental physical illness and child functioning, Armistead, Klein, and Forehand (1995) "tentatively" concluded that such a relation does exist, adding that the state of the literature is insufficient to delineate what disease factors are important and what specific areas of child functioning are affected. A more recent review of this literature (Worsham, Compas, & Ey, 1997) also noted the lack of studies in this area given the number of families that potentially are affected, but stated two conclusions. First, illness in a parent appears to be related to moderate levels of psychological distress and maladjustment in children, most often internalizing symptoms. Second, developmental level appears to moderate these effects, with higher levels of maladjustment reported for adolescents than for younger children.

A few studies examining the impact of parental physical health problems on the emotional functioning of children provide a base for beginning to understand these issues. Stein and Newcomb (1994) reported that maternal health variables were associated with both internalizing behaviors and externalizing behaviors in their sample of children. Children of chronic pain sufferers have been shown to have higher scores than children of healthy parents on scales measuring internalizing problems, somatic concerns, general adjustment, and delinquency (Dura & Beck, 1988; Mikail & von Baeyer, 1990). Chun, Turner, and Romano (1993) also found that teachers reported significantly more behavior problems and lower social competence for children of chronic pain patients than for children of healthy controls. Patient functional disability was significantly associated with parent-rated child behavior problems in this study as well. Physical functioning often has been considered an important variable in such research. Dura and Beck (1988) suggested that physical disability is a more important factor than the type of chronic illness. Similarly, Stein and Newcomb (1994) found that physical symptomatology in mothers predicted more behavior problems in their children.

Other studies not only have indicated that children of parents with health problems experience more difficulties in adjustment, but also have concluded that, more specifically, adolescents appear to be at greater risk for maladjustment than younger children when a parent has a chronic health condition. One such study (Compas et al., 1994) found that adolescents of cancer patients had higher scores on self-report measures of anxiety and depression than younger children. Furthermore, adolescents of ill parents have been shown to have lower self-esteem than adolescents of healthy parents (Hirsch, Moos, & Reischl, 1985) and have been shown to perceive their families as having more conflict, lower cohesion, and poorer organization (Peters & Esses, 1985). In a retrospective study of daughters of cancer patients, women who were adults at the time of their mother's diagnosis reported the fewest problems in adjustment, those who were children indicated moderate levels of difficulty, and those who were adolescents had the most adjustment problems (Wellisch, Gritz, Schain, Wang, & Siau, 1992).

The latter finding raises the question of whether children and adolescents are differentially affected by the sex of the ill parent. Although this issue has not been addressed in depth, some researchers suggested that adolescent daughters of female cancer patients appear to be at significant risk for emotional distress (Compas et al., 1994; Wellisch et al., 1992). In addition, Chun et al. (1993) reported that children of male chronic pain patients were judged by their parents as exhibiting significantly less social competence than children of female patients.

The primary goal of this study was to further examine the association between parental health status and adolescent behavior. Because several studies have suggested that the presence of a chronic health condition is less important than the level of physical impairment it causes, assessment of physical functioning was viewed as a relevant factor involved in this relation. In addition, because few studies have examined the separate impacts that mothers and fathers may have on adolescent functioning, one aim of this study was to evaluate these groups separately. Finally, as previous research has focused primarily on internalizing disorders in the children of ill parents, assessments of externalizing disorders also were conducted to determine possible alternative expressions of distress in an adolescent population.

It was hypothesized that adolescents of parents with chronic health conditions would be reported to demonstrate a greater number of problem behaviors than adolescents of healthy parents. Lower parent ratings of health-related quality of life, both mental and physical, were hypothesized to be related to greater levels of adolescent problem behavior. In addition, it was expected that behavior problem scores would demonstrate an interaction between the gender of the parent and the gender of the child. Specifically, previous literature has indicated that increased problems in adjustment may be associated with adolescent girls when their mother reported a chronic health condition.

## METHOD

### Participants

Participants were 81 adolescent sixth graders ( $n = 38$ ), seventh graders ( $n = 29$ ), and eighth graders ( $n = 14$ ) from middle schools in north central Florida and their parents. The adolescents' ages ranged from 11 to 15, with an average age of 12.6 years ( $SD = .94$  years). The sample was 75% White, 17% African American, and 6% Hispanic. Participants were 48 girls (59%) and 33 boys (41%). Information regarding health status was returned for 80 mothers and 68 fathers living in the home with the adolescents. Mean age for mothers and fathers was 38.7 years ( $SD = 6.0$  years) and 42.8 years ( $SD = 7.9$  years), respectively. The percentage of parents who had not completed high school was 21% for mothers (high school graduate, 59%; college graduate, 17%; graduate school, 3%) and 29% for fathers (high school graduate,

52%; college graduate, 15%; graduate school, 4%). Approximate household income was below \$30,000 for 51% of the sample (<\$10,000, 14%; \$10,000–19,000, 25%; \$20,000–29,000, 12%; \$30,000–39,000, 15%; \$40,000–49,000, 10%; \$50,000–59,000, 5%; \$60,000–69,000, 7%; did not respond, 12%).

## Measures

*Demographics.* A questionnaire obtaining demographic information was completed by one parent, usually the mother, regarding basic background information on the adolescent and his or her family, including age, race, and income level.

*Health history.* Both parents were asked to complete a health history questionnaire related to chronic health conditions and health services utilization in the past year. The health services utilization questionnaire, which asks questions regarding continuing health problems, frequency of work or school days missed due to illness, doctor visits, hospitalizations, and emergency room visits, was also completed by one parent for the target adolescent. For this study, the only information analyzed from the health history questionnaire was a single item from the mother's and father's packets assessing the presence of a chronic illness ("Does the child's mother have a diagnosed chronic illness or disease?"). Respondents also were asked to describe the nature of any illnesses listed.

*Health-related quality of life.* The 36-item Short Form Health Survey (SF-36; Ware & Sherbourne, 1992) was completed for both parents. This measure assesses health-related quality of life in both mental and physical domains. The SF-36 yields eight subscales, which can be combined to form two component scores, a Physical Component Summary (PCS), and a Mental Component Summary (MCS). Higher scores indicate better quality of life. Internal consistency and test-retest reliability have been found to be adequate for both the PCS and MCS (Ware, Kosinski, & Keller, 1994). Missing data on this measure, less than 2% of items, were dealt with by following recommended guidelines suggested by Ware, Snow, Kosinski, and Gandek (1993) whenever possible.

*Adolescent behavior.* The Child Behavior Checklist (CBCL; Achenbach, 1991a), a parent report measure of child behavior for children 4–16 years old, was completed by one parent, typically the mother. It consists of two sections aimed at assessing both social competence and behavior problems; for this study, only the 113-item latter section was used. Parents rated each behavior as *not true*, *somewhat or sometimes true*, or *very true or often true* during the past 6 months. The CBCL yields three composite scores for Internalizing Behavior (e.g., anxious or de-

pressed), Externalizing Behavior (e.g., aggressive behavior), and Total Behavior Problems. Higher scores indicate greater levels of problem behavior.

In addition to the parent report format, the Youth Self-Report (YSR; Achenbach, 1991b), a self-report version of the CBCL for children ages 11–18, was completed by the target adolescent. The YSR includes 112 items similar to those of the CBCL rated on the same scale. Adequate reliability and validity data have been provided for both the CBCL and YSR (Achenbach, 1991a, 1991b).

## Procedure

Families were recruited through four middle schools in rural Florida. A letter describing the study and asking interested families to return the letter to the school was given to approximately 2,000 students. Packets were sent home with students of these families containing a cover letter with instructions; consent forms; and questionnaires labeled for the adolescent, mother, and father of the household. Measures were sent home through the schools to participating families, where they were completed and returned via the school setting.

## RESULTS

Independent sample *t* tests revealed that adolescents whose mothers reported a chronic health condition did not differ significantly from those whose mothers did not on either maternal reports (CBCL) or self-reports (YSR) of problem behaviors. However, adolescents whose fathers reported a chronic health condition were reported by mothers as demonstrating significantly greater levels of total behavior problems,  $t(61) = -3.08, p < .05$ ; internalizing problems,  $t(61) = -1.98, p < .05$ ; and externalizing problems,  $t(61) = -2.89, p < .05$ , when compared to reports of adolescents whose fathers did not report a chronic health condition. In addition, adolescents of fathers with a chronic health condition reported greater levels of total behavior problems,  $t(61) = -1.95, p < .05$ , and externalizing problems,  $t(61) = -2.18, p < .05$ , when compared to adolescents whose fathers did not. Adolescents' self-reports of internalizing behaviors did not differ significantly between the two groups,  $t(61) = -.74, p > .05$ . Effect sizes of significantly different comparisons ranged from .63 to .99. According to Cohen (1977), effect sizes of .2, .5, and .8 should be considered small, moderate, and large, respectively. Thus, the effects on behavior problem scores in this study were moderate to large. None of the mean CBCL or YSR *t* scores was in the clinical range ( $> 67$ ) for any of the groups. However, as presented in Table 1, a higher percentage of adolescents whose parents had chronic health conditions had externalizing behavior problems in the clinical range relative to adolescents of healthy parents.

TABLE 1  
Percentage of Adolescents in the Clinical Range

<i>Condition</i>	<i>n</i>	<i>Total</i>	<i>Internalizing</i>	<i>Externalizing</i>
CBCL				
Mothers				
With	21	.24	.19	.24
Without	56	.11	.09	.09
Fathers				
With	12	.25	.08	.25
Without	51	.08	.06	.08
Overall	78	.14	.12	.13
YSR				
Mothers				
With	18	.17	.11	.17
Without	55	.09	.07	.07
Fathers				
With	11	.09	.09	.18
Without	52	.10	.06	.08
Overall	74	.11	.07	.09

*Note.* CBCL = Child Behavior Checklist; YSR = Youth Self-Report.

Correlation analyses suggested that lower mental health-related quality of life (SF-36) in mothers was associated with more mother-reported behavior problems in adolescents ( $p < .01$ ), whereas physical functioning was not. Greater levels of behavior problems, as reported by mothers, were associated with both the mental health-related ( $p < .05$ ) and physical health-related ( $p < .01$ ) quality of life of fathers. Adolescents' self-reports of behavior problems were significantly associated with both their mothers' and their fathers' mental health-related quality of life ( $p < .05$ ), but not with their physical health-related quality of life (see Table 2).

Two 2 (Child Sex)  $\times$  2 (Parental Health Status) multivariate analyses of variance (MANOVAs) were performed to test whether greater levels of behavior problems were associated with the presence of a chronic health condition in the same sex parent. Mothers and fathers were analyzed separately because no hypotheses were made regarding the relation between the mother's health status and that of the father, and because of small sample sizes that were available for some cells. Because they were conceptually related and demonstrated a significant correlation of .61, the Total Problems  $t$  scores on the CBCL and YSR were used as a single behavior problems construct as the dependent variable in the analysis.

A 2 (Child Sex)  $\times$  2 (Maternal Health Status) MANOVA did not reveal statistically significant main effects for child sex,  $F(1, 65) = 2.89, p > .05$ , or maternal health status,  $F(1, 65) = .26, p > .05$ . A test of the interaction between child sex and maternal health status was also not statistically significant,  $F(1, 65) = .98, p > .05$ .

TABLE 2  
Correlations Between Ratings of Parental Health-Related Quality of Life Scores and Ratings of Adolescent Behavior

	<i>Mother's PCS</i>	<i>Mother's MCS</i>	<i>Father's PCS</i>	<i>Father's MCS</i>
CBCL Total	-.14	-.37**	-.35**	-.28*
CBCL Int.	-.16	-.45**	-.22*	-.24*
CBCL Ext.	-.14	-.32**	-.32**	-.26*
YSR Total	-.08	-.20	-.16	-.22*
YSR Int.	-.08	-.22*	-.02	-.22*
YSR Ext.	-.04	-.19	-.14	-.17

*Note.* PCS = Physical Component Summary; MCS = Mental Component Summary; CBCL = Child Behavior Checklist; Int. = internalizing; Ext. = externalizing; YSR = Youth Self-Report. Correlations computed using *t* scores for CBCL and YSR. Significance tests were one-tailed.

\* $p < .05$ . \*\* $p < .01$ .

A 2 (Child Sex)  $\times$  2 (Paternal Health Status) MANOVA did not indicate a significant main effect for child sex,  $F(1, 55) = 1.13, p > .05$ . However, the effect of paternal health status was significant,  $F(1, 55) = 5.58, p < .05$ . No interaction effect between child sex and paternal health status was found,  $F(1, 55) = 1.23, p > .05$ . Mean CBCL and YSR scores for both boys and girls are reported separately by parent health status in Tables 3 and 4.

## DISCUSSION

This study's main objective was to examine the behavioral adjustment of adolescents as a function of the health status of their parents. Overall, these results suggest that both the presence of a parental chronic health condition and the health-related quality of life of parents are associated with higher levels of problem behaviors. The effect sizes of these findings support the conclusions of Worsham et al. (1997), who noted moderate levels of distress in studies of children with ill parents. Indeed, our data indicate that some of these effects are relatively large. They also suggest that this distress is expressed most often through internalizing symptoms. However, this study found that externalizing problems also appears to be an expression of this distress in adolescent populations, adding to the small list of studies that have found this relation (e.g., Mikail & von Baeyer, 1990; Stein & Newcomb, 1994).

However, important caveats to these findings must be noted. First, the presence of a chronic health condition in mothers was not associated with adolescent internalizing, externalizing, or total behavior problems in this sample. Maternal physical health, as represented by physical health-related quality of life, also was not related to behavior problems, unlike previous work (e.g., Stein & Newcomb,

TABLE 3  
Mean CBCL Total Problem *t* Scores by Sex of Child and Parental Health Status

<i>Condition</i>	<i>Boys</i>			<i>Girls</i>		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Mothers						
With	12	45.58	15.79	9	57.67	18.13
Without	20	53.10	13.07	36	50.31	12.75
Fathers						
With	6	63.50	8.85	6	57.83	11.53
Without	20	44.80	12.21	31	49.87	14.04

*Note.* CBCL = Child Behavior Checklist.

TABLE 4  
Mean YSR Total Problem *t* Scores by Sex of Child and Parental Health Status

<i>Condition</i>	<i>Boys</i>			<i>Girls</i>		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Mothers						
With	10	44.60	16.89	8	56.38	16.34
Without	16	46.31	11.55	39	50.10	10.23
Fathers						
With	5	55.00	12.75	6	54.83	6.18
Without	18	41.00	11.50	34	50.18	12.30

*Note.* YSR = Youth Self-Report.

1994). However, maternal mental health-related quality of life was significantly related to mothers' reports of internalizing, externalizing, and total behavior problems. Boyle and Pickles (1997) concluded that although maternal depressed mood is a likely source of behavior rating bias, an independent relation between maternal depression and child behavior also exists. Therefore, one interpretation of this set of findings is that the objective physical status of mothers is not related to adolescent behavior until it has an impact on a mother's psychological well-being. It may be that it is through the mother's psychological functioning that the effects of health status are exerted on the adolescent. However, it is important to note that the nature of this study does not allow for causal conclusions. It may be equally plausible that adolescent behavior problems exert a differential effect on the mental health of mothers undergoing the stress of physical illness as opposed to those who are not.

With regard to fathers, the presence of a chronic health condition, decreased mental health-related quality of life, and decreased physical health-related quality



of life all were associated with higher levels of internalizing, externalizing, and total adolescent behavior problems as reported by mothers. The difference between findings for mothers and fathers is noteworthy. Minuchin's (1974) structural family therapy model provides one possible explanation. Many families may be centered on fathers as primary sources of financial stability, discipline, and decision making. The effects of a chronic health condition on a father's ability to function in these roles may have widespread effects directly on the adolescent and the family's functioning in general. These effects may increase risk factors for the development of behavior problems if the family cannot reestablish homeostasis. It is difficult to determine the extent to which the proposed father-centered family structure may reflect attitudes toward family life held specifically by the low-income, rural Florida sample that participated in this study or more common cultural values of American families. The former conclusion would suggest that these results are not generalizable; the latter would imply that they are.

A second possible explanation for the different findings for mothers and fathers lies in the methodology of the study. In the vast majority of cases, mothers completed the CBCL. Therefore, it is possible that the significant correlations between parent reports of adolescent behavior and paternal health status reflect stress experienced by mothers who have chronically ill spouses. It may be that stress experienced by these mothers increases their sensitivity to problem behaviors, causing increased ratings of these behaviors. However, it is noteworthy that this pattern did not occur with mothers who themselves had a chronic health condition. The hypothesized stress-induced sensitivity to problem behavior does not appear to have occurred in that group. Regardless of the origins of these findings, the results suggest that future research should consider fathers an understudied group when compared to research involving mothers.

Finally, in considering these results it is important to note that, contrary to previous research (e.g., Compas et al., 1994), statistically significant higher levels of behavior problems were not found for adolescents whose same-sex parent had a chronic health condition. Health status of fathers appears to be most strongly associated with adolescent behavior problems regardless of the sex of the child. However, visual inspection of mean CBCL and YSR scores indicated that, although the interaction was not significant, the pattern of scores was similar to that found in other studies. Specifically, daughters of mothers with a chronic health condition were found to have higher levels of total behavior problems on the CBCL than were sons. A similar, but less distinct, pattern on the CBCL emerged for sons of fathers with a chronic health condition. On both the CBCL and YSR, problem behavior scores were higher for daughters of ill mothers than for daughters of healthy mothers. Scores were also higher for sons of ill fathers than for sons of healthy fathers, however none of these differences were statistically significant. This suggests that, although notable discrepancies developed, this sample may have lacked

adequate statistical power to detect the observed differences in the behavior problem scores.

Compared with parental reports of behavior problems, adolescent self-reports did not indicate as many significant relations between their behavior and parental health. Nonetheless, self-report measures indicated significantly more total problems and externalizing problems, but not internalizing problems, among adolescents whose fathers were reported to have a chronic health condition. This suggests that externalizing behaviors may be one way in which adolescents respond to having an ill parent. It also may be that adolescents are more likely to report externalizing behaviors than internalizing behaviors and that both represent aspects of adjustment to family illness, as parental reports would suggest. Despite the lack of significant findings related to internalizing disorders in comparisons of parental health status groups, both maternal and paternal mental health-related quality of life were correlated with adolescents' self-reports of internalizing problems.

This study does not allow conclusions regarding potential mediating variables affecting these differences to be drawn. However, mechanisms previously suggested to affect the adjustment of children have included disrupted parenting (Armistead et al., 1995); reduced attention, emotional resources, and material resources (Wellisch et al., 1992); focus on physical symptoms (Stein & Newcomb, 1994); and family processes, such as parental affect and parent-child relationships (Steele, Forehand, & Armistead, 1997). Others have indicated that chronic illness can create role changes that especially can be difficult for families (Bruhn, 1977; May, 1992). Minuchin (1974) suggested that changes in cohesiveness or family roles can cause distress if mechanisms for reestablishing the family's balance are not available. This especially may be important to the adjustment of adolescents, who may be asked to take on new responsibilities as a result of parental health problems (Compas et al., 1994).

Other developmental hypotheses have been generated to explain those studies that have found more adjustment problems in adolescents than other age groups. Armsden and Lewis (1993) suggested that the needs for family cohesiveness and cooperation contradict the adolescent's needs for separation and individuation at that time of development. Classic developmental theories (Erikson, 1963; Freud, 1958), suggest that the individual has a significant need for individuation and separation from parents during adolescence. Another factor that may put adolescents at greater risk is their increased cognitive awareness of the meaning of disease in the family and the likelihood that more information may be shared with older children (Compas et al., 1994).

Limitations of this research include the dichotomous groupings of parental health status as with or without a chronic health condition. This admittedly allows a great range of severity within the chronic health condition group, which is likely to have an effect on the impact of the illness on family members. A concept such as physical illness contains many other parameters not fully considered here that may have an ef-

fect on behavioral adjustment, including time since diagnosis, parental depression, and family attitudes toward the illness. An attempt to address this issue was made by using the SF-36 quality of life composite scores, although it is recognized that there are many aspects of the illness experience not captured in these scales.

Also of concern are factors involving sample selection, as a small percentage of those contacted to participate became involved in data collection. It may be that families that chose to participate viewed the topic as personally relevant and may not represent the target population. However, it is also important to note that the methodology used in this study provided several obstacles to returning complete packets. No direct contact with families was possible to answer questions and to ensure delivery and return of packets. In addition, cooperation of three people was necessary to complete a packet in many cases, further decreasing the likelihood that a packet would be returned. The nature of data collection also presents some concerns; it was impossible to determine whether measures were completed as intended.

### IMPLICATIONS FOR PRACTICE

According to this and other studies, adolescents who have a parent with a chronic illness are more likely to have both internalizing and externalizing behavior problems. Therefore, inquiring into parental health status during adolescent psychological evaluations for most presenting complaints is both justified and necessary. Results from this sample suggest that, although adolescents of ill parents are reported by themselves and their parents as having more behavior problems than adolescents of healthy parents, the majority of adolescents whose parents have a chronic health condition did not demonstrate behavior problems in the clinical range. Therefore, it seems likely that the distress experienced by these adolescents may go undetected by most people, thus preventing treatment. Special attention should be given to adolescents in these circumstances to better serve their mental health care needs, especially when it is the same-sex parent who is ill.

Knowing this, and given that parental reports from this study suggest nearly one fourth of adolescents in this group exhibited clinically significant scores on total problems and externalizing problems, the utility of routine psychological screenings of children and adolescents of chronically ill parents deserves consideration. This suggestion is strengthened when the developmental and family systems theories noted earlier are considered. Their descriptions of developmental processes such as individuation explain ways in which parental chronic illness can have a particularly negative impact for some adolescents. Although the mechanisms of causation are not understood well and cannot be concluded from this study, previously presented hypotheses involving development, family processes, and coping can provide a framework for approaching treatment when working with adolescents in these situations. For example, examining role changes that have occurred

in the family as a result of a parent's illness can provide important insight into the ways in which an adolescent's life may be affected, in turn allowing a starting point for understanding his or her reactions.

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