Social Support, Social Conflict, and Adjustment Among Adolescents With Cancer

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Objective: Evaluate support and conflict in close relationships of adolescents in active medical treatment for cancer. Family and friend perceptions of supportive and conflictual behaviors were examined in relation to psychological distress, taking into account the impact of functional impairment induced by the illness.

Methods: Using self-report questionnaires, 50 adolescents between the ages of 12 and 20 years rated the frequency of supportive and conflictual interactions with parents, siblings, and best friends.

Results: Results indicated that perceived maternal conflict was associated with psychological distress. Conflict with fathers, siblings, and best friends was not associated with distress. Supportive aspects of close relationships did not predict psychological distress. The amount of physical impairment accounted for the most variance in distress, contributing between 35% and 38% of the variance.

Conclusions: Results suggest that mother-adolescent conflict would be an appropriate target for psychosocial interventions.

Key words: support; conflict; adolescents; cancer.

To cope successfully with the multiple demands imposed by a cancer diagnosis requires substantial effort and adjustment on the part of an adolescent. For the majority of adolescents, cancer treatment entails intense chemotherapy of two to three years' duration, radiation, numerous hospitalizations, daily oral medications, possible bone marrow transplant, and surgery (Granowetter, 1994). To deal with the stress of cancer, adolescents are likely to turn to their friends and family for emotional support and practical assistance. Unfortunately, the day-to-day management of cancer may cause disruption to family and school routines (Novakovic, Fears, Wexler, McClure, Wilson, McCalla, et al., 1996; Sloper, 1996). This disruption may ultimately reduce support provided by peers and increase conflict with family (Chesler & Barbarin, 1987; Van Dongen-Melman & Sanders-Woudstra, 1986). Indeed, recent evidence has suggested that the average size of the social networks for teenagers with cancer is smaller than the networks of healthy adolescents (Nichols, 1995).

Cancer diagnosis and treatment during adolescence poses a unique set of demands for an adolescent. A crucial developmental task of adolescence is to individuate, which involves forming an identity separate from the family and developing a peer group (Preto & Travis, 1985). Adolescents with cancer must negotiate simultaneously the numerous physical and emotional demands of treatment and their attempt to achieve this developmental task. Although more aggressive management of treatment side effects (e.g., anti-emetic therapy) and a
greater emphasis on outpatient care has reduced school absence and thus allowed teenagers increased opportunities for peer interactions, recent evidence suggests that teenagers continue to report that they are not able to perform the same activities (e.g., sports and recreational activities) as peers (Novakovic et al., 1996). Adolescents also report that side effects such as hair loss affect their confidence and reduce willingness to engage in social activities during treatment (Novakovic et al., 1996). Thus, even with increased emphasis on delivery of care in the outpatient setting, opportunities for supportive interactions with peers can be lessened.

The unique developmental demands of adolescence can also create stress on the parent-child relationship during cancer treatment. Many authors have suggested that the ill adolescent's greater reliance upon his parents for transportation, guidance, and emotional support may impede his or her struggle for independence and give rise to parent-child conflicts (Chesler & Barbarin, 1987; Van Dongen-Melman & Sanders-Woudstra, 1986; Zeltzer, LeBaron, & Zeltzer, 1984). If the parent becomes overprotective of the child and inhibits opportunities for the child to exert independence, parent-child conflicts can also occur (Zeltzer, LeBaron, & Zeltzer, 1984). When conflicts occur, the ill teen may have fewer opportunities to defuse his or her feelings by obtaining support from peers. The teen may also have increased conflict with the parent who is not the primary medical caretaker (e.g., accompanying the child to clinic visits and hospital stays) because of the reduced amount of time spent together during treatment.

Sibling relationships can be stressed during treatment because of changes in family structure and daily routines. If the child with cancer spends less time with the healthy sibling than prior to the cancer diagnosis, the amount of communication between siblings, and thus opportunities for supportive exchanges, may be reduced (Breyer, Kunin, Kalish, & Patenaude, 1993). Problems in the sibling relationship can develop if the adolescent with cancer becomes a more central focus of parental attention than before the cancer diagnosis and the healthy sibling becomes resentful or feels neglected (Rollins, 1990). Stress in the sibling relationship can also be exacerbated if healthy siblings are asked to take on additional household responsibilities for absent parents and the ill sibling (Bendor, 1990).

In summary, disruption to peer and family relationships can significantly affect the amount of social support the child receives from key members of his or her support network and increase the potential for conflict at a time when needs for emotional and instrumental support are likely greater. Although the importance of social support from family and friends has been documented for adults with chronic illness, considerably less attention has been given to social support networks of adolescents with chronic illness (La Greca, 1990). Even less attention has been given to support for adolescents undergoing treatment for cancer. Varni et al. (1994) conducted a study of perceived social support among newly diagnosed children with cancer, focusing on pre-adolescent children (8–13 years). In this study, perceived support from classmates, teachers, parents, and friends was assessed among 30 children. Results indicated that support from classmates had the strongest association with symptoms of anxiety, depression, self-esteem, and externalizing behavior. Perceived support from parents was associated with lower depressive symptoms, and perceived support from teachers and friends was associated with lower anxiety. However, when demographic variables (age and gender) were taken into account, only classmate support predicted psychological outcomes.

Nichols (1995) conducted a study of 20 young adolescents with cancer, examining the size of teens' social networks; the amount of emotional, instrumental, and affirmation support from all sources of support; and the degree of satisfaction with general and cancer-specific support. Results indicated that the average size of social networks was significantly less than those of healthy adolescents. While the amount and satisfaction with general support provided to these adolescents was high, adolescents were less satisfied with cancer-specific support from friends.

For adolescents coping with the diagnosis and treatment of cancer, little is known about the prevalence and impact of negative responses of peers and family. It is important to examine the role of social conflict for two reasons. First, as the previous discussion has pointed out, adolescents may be particularly likely to experience conflict with their families during treatment. Second, negative aspects of close relationships have been found to play a more important role than positive aspects of close relationships in the psychological adjustment of healthy adolescents (Bull & Bell-Dolan, 1994; Forehand, Brody, Slotkin, Fauber, McCombs, & Long, 1988). Thus, conflict in close relationships likely is more strongly associated with psychological adjust-
Support and Conflict

When examining the psychological adjustment of adolescents with cancer, it is important to consider the severity of physical symptoms. For most children undergoing chemotherapy, radiation, and/or surgery for treatment of cancer, the treatment can cause considerable impairment in daily activities. These physical symptoms can play an important role in disrupting the child’s mood. Mulhern et al. (1994) found that physical symptoms were significantly associated with depressive symptoms in a longitudinal study of children 8–16 years of age and reported that changes in physical symptoms predicted changes in severity of depressive symptoms for 40% of the sample. These data suggest that, although relationships are likely crucial to the adjustment of adolescents, studies must take into account physical impairment when assessing psychological distress experienced during treatment.

To summarize, this study had three aims. First, it sought to examine the prevalence of supportive and conflictual interactions with peers and family among adolescents undergoing treatment for cancer. Second, the relative associations of supportive and conflictual aspects of these key relationships with psychological distress were examined. Finally, we evaluated the contribution of functional impairment induced by cancer and its treatment to the psychological adjustment of adolescents. We hypothesized that (a) compared with normative values from healthy adolescents, conflict with family would be more prevalent and positive support from friends less frequent; (b) the association between conflict with family and/or friends and psychological distress would be stronger than the association between support from these same relationships and psychological distress; and (c) support and conflict with family and friends would predict psychological distress even after the contribution of physical impairment was taken into account.

Method

Subjects

Eligible children were approached for participation in the outpatient clinic of a pediatric cancer unit. In order to be eligible, children had to be between 12 and 20 years of age, English-speaking, able to comprehend the questionnaire (no significant cognitive impairment), and actively engaged in cancer treatment for a first cancer occurrence. Over a three-year period, a total of 85 children were approached for participation. Ten children refused to participate. Of these 10 children, one child stated he had participated in another psychological study, one child said he was too busy, one child said she was not comfortable completing the survey, and the remainder of the children gave no specific reason. Two children died in the period between completion of the informed consent and completion of the study questionnaire. Twenty-two children consented to participate but did not complete questionnaires. One child completed all of the survey with the exception of the psychological distress measure. Thus, the final participation rate was 59%. A comparison of the children who refused or did not complete the study for other reasons with participants indicated that the two groups did not significantly differ in terms of age, gender, ethnicity, or diagnosis (sarcoma, lymphoma, and leukemia). However, adolescents who refused or did not complete questionnaires had a significantly longer average amount of time since diagnosis, \( M_{\text{sample}} = 6 \) months, \( M_{\text{noncompleters}} = 1.37 \) years; \( t(37.25) = 2.1, p < .05 \).

The final sample included 50 children, 29 males and 21 females, between the ages of 12 and 20 (\( M = 16 \) years). Parent report of child ethnicity indicated that 82% of the children were Caucasian, 6% were Asian, 6% were Black, and 6% were Hispanic. Seventy-two percent of the children lived with both parents (\( n = 36 \)) and the remainder lived with their mothers (\( n = 14 \)); five of these children did not provide ratings of fathers on the social support measure). Twelve percent of the sample were only children (\( n = 6 \)), 53% of the adolescents had one sibling, 15% had two siblings, and the remainder had three or more siblings.

Cancer diagnoses included osteosarcoma (26%), rhabdomyosarcoma (12%), Ewing’s sarcoma (12%), Hodgkin’s disease (16%), non-Hodgkin’s lymphoma (10%), acute lymphoblastic leukemia (4%), acute myelogenous leukemia (2%), chronic myelogenous leukemia (2%), head and neck carcinoma (6%), neuroblastoma (4%), medulloblastoma (2%), peritoneal carcinoma (2%), and undifferentiated sarcoma (2%). The amount of time since the child received his or her initial cancer diagnosis ranged from two months to three years (\( M = 6 \) months). Eighty-eight percent of the sample had been diagnosed within the past year, and 96% of the sample was diagnosed within the past two years.
Procedures

Data were collected in the outpatient pediatric oncology clinic at a large cancer hospital. Eligible children were approached by a research assistant during outpatient clinic appointments. If chemotherapy or a bone marrow aspiration was scheduled, the approach for consent occurred prior to the infusion or procedure and prior to administration of any narcotic medication. Informed consent was obtained from the child and from parents or guardians of minor children. A questionnaire was given to participants in the outpatient clinic, with instructions to complete the questionnaire as soon as possible. The majority of the children completed the questionnaire prior to the appointment or at home (these surveys were returned by mail).

Measures

Support. A modified version of Furman and Buhrmester's (1985) Network of Relationships Inventory (NRI) was administered. Adolescents responded to 24 items concerning the types of social support they received from key social relationships: mother, father, closest sibling, and best friend. Six positive support types corresponded to the six domains of social relationships identified by Weiss (1974): companionship, instrumental aid, intimacy, affection, admiration, and reliable alliance. The two negative aspects of social relationships included antagonism and conflict. Each scale was comprised of three items. Item examples included, “How much do you tell this person everything?” (intimacy) and “How much do you and this person get on each other’s nerves?” (antagonism). The response scale ranged from “little or none” (1) to “the most” (5). Internal consistency reliabilities were calculated separately for each subscale and for each source of support (mother, father, sibling, and friend). For separate scales, the reliabilities ranged from a low of .71 (companionship, father) to .96 (reliable alliance, sibling). Consistent with the scale developers and others who have used this scale (Barrera, Chassin, & Rogosch, 1993; Jordan, Ratcliff, Thompson, Vija, & Hughes, 1994), a total support score was obtained by summing across the companionship, instrumental aid, intimacy, affection, admiration, and reliable alliance scales, and a total conflict score was obtained by summing across the conflict and antagonism scales. Correlations between subscales of the support scale ranged from .62 to .90, and correlations between subscales of the conflict scale ranged from .65 to .81. The internal consistency of these scales ranged from .80 (conflict, best friend) to .93 (support, sibling). These alphas are consistent with figures reported in other studies using this scale (e.g., Jordan, et al., 1994). Scale scores were calculated as a mean item score.

Psychological Distress. The Psychological Distress scale of the Mental Health Inventory–18-item form (MHI-18; Weinstein, Berwick, Goldman, Murphy, & Barsky, 1989) is an abbreviated version of the Mental Health Inventory (Veit & Ware, 1983). The distress scale contains three subscales: anxiety, depression, loss of behavioral/emotional control. Analyses of the MHI-18 have been conducted in a sample of 933 healthy adolescents taken from the Rand Health Insurance Study (Veit & Ware, 1983), who were of comparable sociodemographic make-up (these data were provided to Ostroff & Woolverton by Veit & Ware). The internal consistency of the scale was satisfactory (coefficient α = .87; Ostroff, Chin, & Woolverton, unpublished data). Satisfactory internal consistency has also been shown for a sample of 42 adolescents who have recently completed cancer treatment (coefficient α = .91; Ostroff et al., unpublished data). In the current study, internal consistency of the Distress scale was similar, coefficient α = .89. Correlations between the Anxiety, Depression, and Loss of control subscales were .57 (Anxiety and Depression), .58 (Anxiety and Loss), and .69 (Depression and Loss).

Comparisons of psychological distress scores with the Rand Health Insurance Study sample (Ostroff et al., unpublished data) indicate that the adolescents with cancer evidenced significantly higher distress than the healthy adolescents (means for the two samples are shown in Table I), t (981) = 3.44, p < .001. Comparisons with the sample of cancer survivors (Ostroff et al., unpublished data) indicated that adolescents on active treatment evidenced significantly more distress than survivors, Msurvivor = 26.34, SD = 9.5, Mpatient = 29.66, SD = 9.64, t(199) = 2.97, p < .001. It should be noted that, although items on other psychological distress scales frequently include symptoms that may reflect side effects of medical treatment rather than depression or anxiety (e.g., sleep problems, tiredness, poor appetite), the items on the MHI do not contain these common physical symptoms. All items assess mood (i.e., anxious, nervous, down in the dumps).

Physical Impairment. The Cancer Rehabilitation Evaluation System (CARES; Schag & Heinrich, 1988) was used to assess the level of physical impairment caused by the child’s cancer treatment. The scale
### Table I. Descriptive Characteristics of Study Variables

<table>
<thead>
<tr>
<th>Measure</th>
<th>Current sample</th>
<th>Comparison sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>NRI-Support*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>3.92</td>
<td>0.71</td>
</tr>
<tr>
<td>Father</td>
<td>3.60</td>
<td>0.73</td>
</tr>
<tr>
<td>Sibling</td>
<td>3.25</td>
<td>0.80</td>
</tr>
<tr>
<td>Best friend</td>
<td>3.52</td>
<td>0.75</td>
</tr>
<tr>
<td>NRI-Conflict*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>2.34</td>
<td>1.04</td>
</tr>
<tr>
<td>Father</td>
<td>2.17</td>
<td>0.89</td>
</tr>
<tr>
<td>Sibling</td>
<td>2.34</td>
<td>0.85</td>
</tr>
<tr>
<td>Best friend</td>
<td>1.47</td>
<td>0.48</td>
</tr>
<tr>
<td>MHI-Psychological Distress*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>1.16</td>
<td>0.85</td>
</tr>
<tr>
<td>Female</td>
<td>1.43</td>
<td>0.78</td>
</tr>
</tbody>
</table>

* NRI = Network of Relationships Inventory.  
** MHI = Mental Health Inventory.  
*** CARES = Cancer Rehabilitation Evaluation System.  

*p < .05.  
**p < .01.  
***p < .001.  

*Barrera et al. (1992) healthy comparison sample (n = 151).  
*Veit & Ware (1983) healthy comparison sample (n = 933).  
Schag et al. (1998) sample, adult male (n = 418) and female (n = 224) cancer patients.

contains 26 items that assess the degree to which the child's cancer treatment interferes with the performance of daily activities. Examples include, “I have difficulty walking and/or moving around,” and “I have difficulty bending or lifting.” Internal consistency reliability of the scale was .96. Higher scores indicate higher levels of impairment. Mean item ratings were employed in this study. For a small subset of children (n = 5), functional impairment scales were not obtained. As the CARES is not a commonly used instrument for adolescents, a check on its construct validity was conducted among a separate sample of 25 children with cancer (ages 11–19) and their parents taken from the same outpatient clinic. Parents rated the child's current disability using three instruments: the CARES, the Functional Disability Inventory (FDI; Walker & Greene, 1991), a well-validated measure, and the Lansky Play Performance Scale (PPSC; Lansky, List, Lansky, Cohen, & Sinks, 1985; note that higher scores indicate less impairment). Children completed the CARES and the FDI. The correlations between scales were as follows: Child CARES and child FDI = .73 (p < .001), child and parent CARES = .44 (p < .05), child CARES and parent FDI = .39 (p < .05), child CARES and parent PPSC = -.48 (p < .05). Parent-child agreement was similar to correlations between parent and child ratings of treatment side effects reported by Mulhern et al. (1994) for childhood cancer patients and correlations between parent and child forms of the FDI reported by Walker and Greene (1991) for acutely ill adolescents. Parent-child agreement was lower than correlations between parent and child forms of the FDI reported by Walker and Greene (1991) for younger children (8–16 years) with abdominal pain (r = .71). However, the magnitude of parent-child agreement is higher than agreement reported in studies of other health outcomes such as child depression (Kazdin, French, Univs, & Esveldt-Dawson, 1983; Weissman, Orvashcel, & Padian, 1980). A comparison of the current sample with adult CARES scores indicates that the adolescents have significantly more impairment than adult cancer patients (see Table I for means; note that means are reported separately by gender because adult CARES data were only reported separately; t_{male} (442) = 2, p < .05; t_{female} (240) = 2.73, p < .01).

## Results

### Descriptive Characteristics

Descriptive information for the support, conflict, psychological distress scales, physical impairment measures are given in Table I. Comparisons with norms for measures are shown, when available. Before conducting further analyses, we examined whether psychological distress was associated with sociodemographic or medical variables (e.g., time since diagnosis). Results did not indicate any differences, so these variables were not controlled for in the analyses.

We also examined the distributional characteristics of the support, conflict, and psychological distress and well-being measures. Our results indicated no significant skew, so transformations were not necessary to correct for nonnormally distributed variables.

### Comparisons of Interpersonal Support and Conflict With Healthy Adolescents

In order to examine whether levels of support and conflict differed for children with cancer than for healthy adolescents and adolescents undergoing other life stressors, comparisons of scores were made using t tests. Unfortunately, means and standard deviations were not reported by Furman and...
Table II. Correlations Between Physical Impairment, Support, Conflict, and Psychological Distress

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Psychological Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical impairment</td>
<td>.62*</td>
</tr>
<tr>
<td>Mother support</td>
<td>—</td>
</tr>
<tr>
<td>Mother conflict</td>
<td>.45</td>
</tr>
<tr>
<td>Father support</td>
<td>—</td>
</tr>
<tr>
<td>Father conflict</td>
<td>.24</td>
</tr>
<tr>
<td>Sibling support</td>
<td>—2.9</td>
</tr>
<tr>
<td>Sibling conflict</td>
<td>1.5</td>
</tr>
<tr>
<td>Friend support</td>
<td>—2.2</td>
</tr>
<tr>
<td>Friend conflict</td>
<td>—</td>
</tr>
</tbody>
</table>

Correlations < .10 in magnitude are denoted by —.
*p < .001.

Buhrmester (1985) in their study. However, scale scores for the NRI were reported by Barrera et al. (1993) for a group of 151 healthy adolescent controls (shown in Table I). This group of children had a younger average age than the participants in the current study (Barrera study sample: M = 12.7 years, range: 10–16 years) but comparable ethnic composition. No differences were found with regard to the family or peer support variables. When compared with the healthy comparison group, adolescents with cancer reported significantly more conflict with their mothers (Barrera et al., 1993), M_comp = 1.91, t(199) = 2.68, p < .01, and with their fathers, M_comp = 1.81, t(194) = 2.11, p < .05, but no significant differences were found with regard to sibling or friend conflict.

Prediction of Psychological Distress

Zero-order correlations between support and conflict with parents, siblings, and friends, physical impairment, and psychological distress are shown in Table II. A Bonferroni correction procedure was applied for correlational and multiple regression analyses to reduce probability of Type I error (Rosenthal & Rubin, 1984). Results indicated that more physical impairment was significantly correlated with increased psychological distress.

The main research question was examined using multiple regression. Separate analyses were conducted regressing each source of support on psychological distress. Thus, four separate regressions were conducted. Physical impairment was entered first into the equation, followed by the perceived support variable of interest (e.g., mother, father), and finally the perceived conflict variable. We chose to enter perceived support into each equation before conflict because prior studies have indicated that conflict has a stronger association with psychological outcomes. By entering support into each prediction first, we allowed support to have the greatest chance of accounting for variance in each outcome variable. Results of these analyses are shown in Table III.

In the prediction of psychological distress, physical impairment accounted for the largest proportion of the variance (35%–39%). Positive support from friends or family members did not contribute significantly to distress. Maternal conflict was associated with a significant amount of distress, accounting for 10% of additional variance (p < .01) after accounting for physical impairment and support. Conflict with fathers, sibling, and best friend did not account for significant amounts of variance after the other variables were taken into account.

Exploratory Analyses of Maternal Support and Psychological Distress

As a further examination of the strength of the association of maternal conflict and psychological distress, a regression was conducted to examine whether conflict with mothers continued to predict psychological distress even after accounting for support from all key relationships (mother, father, sibling, and best friend). Physical impairment was entered first. Next, support from father, sibling, and
best friend were entered in a single step in the regression equation, followed by maternal support. Finally, conflict with the mother was entered on the last step. Due to the small sample size for this analysis (n = 40 who had both fathers and siblings) and the number of predictors entered (n = 5), this analysis should be considered exploratory. Results indicated that functional impairment accounted for 38% of the variance in distress (p < .001), support from other family and best friends accounted for 12% of the variance, maternal support for less than 1% of the variance, and maternal conflict for 15% of the variance (p < .01). The final $R^2$ was .66.

Thus, our exploratory analyses indicated that maternal conflict continued to predict psychological distress after family and peer (best friend) support were accounted for in the analyses.

**Discussion**

The results of this study were partially consistent with our initial study hypotheses. First, we predicted that conflict with family would be more prevalent and positive support from friends less frequent than among healthy adolescents. Higher levels of conflict with mothers and fathers were reported for teens with cancer in comparison with healthy teens. However, conflicts were not perceived as less supportive. Second, we predicted that the association between conflict with family and/or friends and psychological distress would be stronger than the association between support from these same relationships and psychological distress. Our results were consistent with this hypothesis but only for the maternal relationship. Conflict with mothers was more important in the prediction of psychological outcomes for adolescents undergoing treatment for cancer than were supportive aspects of both the maternal relationship and supportive aspects of relationships with the child's father, closest sibling, or best friend. Finally, we hypothesized that support and conflict with family and friends would predict psychological distress even after the contribution of physical impairment is taken into account. Our results were partially consistent with this hypothesis; conflict with mothers was associated with distress even after accounting for the effects of physical impairment. However, our findings illustrate the key role that functional impairment plays in psychological distress for teens with cancer. Despite the important role that the maternal relationship played in predicting distress, by far the most crucial predictor of psychological distress was physical impairment. In this discussion, we will address each of these findings as well as the clinical implications and limitations of the study.

When compared with levels of support reported by adolescents in other life contexts, our results did not support the contention that children with cancer report receiving less support from family members and friends. However, as we did not assess these children prior to treatment onset or study them longitudinally over the course of their cancer treatment, we cannot address the issue of support erosion. Our cross-sectional data indicated that support from family (or conflict) did not lessen as the amount of time increased since cancer treatment was begun. Bolger, Foster, Vinokur, & Ng (1996), as well as others studying the natural history of support for adults facing life crises such as cancer (e.g., Silver, Wortman, & Crofton, 1990), have suggested that support from significant others erodes in times of stress. A longitudinal study of adolescents' interpersonal support over the course of treatment would address this issue. Our findings for conflict provide evidence that interpersonal conflict with parents may be greater for adolescents with cancer than for healthy teens. However, the magnitude of differences was relatively small. While adolescents with cancer rated their family relationships as more conflictual, whether these statistically significant differences reflect clinically meaningful differences is not known.

Consistent with studies of adolescents in other life contexts, the results of the current study suggest that for adolescents undergoing treatment for cancer, perceptions of antagonism or conflict with their mothers were associated with higher levels of emotional distress. The contribution of maternal conflict was present even after the physical impairment caused by the adolescent's cancer and all sources of positive support from key relationships were taken into account. The increased importance of the maternal relationship may be due to the increased amount of time mother and adolescent typically spend together during medical treatment, since mothers in the current sample were typically caregivers to the teen. Conflict may also reflect a struggle between the teen's developmental needs for independence and the necessity for greater reliance on the caregiving parent for instrumental assistance during treatment (e.g., transportation, help with management of medical care). Certainly, the inter-
ference in developmental needs can be the source of conflict between mother and adolescent. Our results are consistent with those reported by others studying adolescents in other life contexts, including children of alcoholics (Barrera et al., 1993) and healthy adolescents (Bull & Bell-Dolan, 1994). In these prior studies, conflict with parents, particularly with the mother, was the best predictor of either externalizing symptoms or depressive symptoms.

Our results regarding the role of positive support indicate that this variable did not play a role in the prediction of distress. Our results are not consistent with studies of peer relationships for healthy adolescents, which suggest that support from friends is beneficial and has esteem-enhancing effects (Barrera et al., 1993; Cauce, Felner, Primavera, & Ginter, 1982). Our results are also not consistent with prior studies demonstrating a link between positive aspects of relationships with parents with self-esteem (Barrera et al., 1993) and depressive symptoms (Barrera & Garrison Jones, 1992). Positive aspects of relationships with friends and family may play a less crucial role for adolescents with cancer than for healthy adolescents. There are at least two possible explanations for this finding. First, support from medical personnel, particularly nurses, may take on an important role for ill adolescents. Future studies of teens with cancer should address support and conflict with medical personnel. Second, the physical demands and impairment induced by cancer treatment may have lessened the importance of positive support as a determinant of mood. Indeed, our findings suggested that physical impairment accounted for a very large portion of the variance in psychological distress.

Our findings regarding the differences between the associations of individual relationships and distress illustrate the importance of disaggregating members of the adolescent's social network. Interestingly, whereas maternal conflict was associated with distress, conflict with siblings and friends did not predict psychological outcomes. These findings are consistent with those of Barrera et al. (1993), who also found that conflict with siblings and friends was not as crucial as conflict with parents in determining psychological outcomes. As best friend relationships are selected by the adolescents, it is understandable why these friends were rated as the source of the least conflict among the relationships studied.

Physical impairment clearly played the most important role in predicting psychological distress, with variance accounted for ranging from 35% to 39%. Our findings are consistent with results reported by Mulhern et al. (1994), who also found that physical symptoms predicted depressive symptoms among children with cancer. Physical and emotional status are clearly very strongly linked for children, and the association is stronger than that found in studies of adult cancer patients. For example, in a study of adult cancer patients, the same functional impairment measure accounted for only 14% of the variance in the same measure of psychological distress (Manne, Taylor, Dougherty, & Kemeny, 1997).

The current study has limitations. The cross-sectional nature of the study limits conclusions about directionality of effects. Distressed adolescents may elicit conflict with their mothers. Even longitudinal data cannot untangle bidirectionality of effects; such conclusions would require an experimental design manipulating the level of mother-adolescent conflict. A second limitation regards the self-report methodology, which limits the generalizability and validity of the findings. Considering the perspective of multiple informants, including the parent, teacher, and/or medical personnel, would have provided a broader view of the adolescent's physical impairment and conflict with friends and family. A third limitation involves the make-up of the sample in terms of ethnicity, age, and cancer diagnosis. The sample was primarily Caucasian. Whether similar findings would be reported for a sample comprised of a greater proportion of ethnic minorities is not known. Within the sample, there was a diversity in age representation. Although we did not find associations between child age and psychological outcomes, a larger sample size would have allowed the examination of support and conflict for children in different age groups (e.g., 12-14 years, 15-17 years). The sample was somewhat atypical in terms of diagnostic make-up, with a greater proportion of sarcoma patients than leukemia patients. The representativeness of this sample in terms of cancer diagnosis may affect the generalization of these findings.

A fourth limitation is the relatively small sample size. For a study of adolescents with cancer, this sample size was typical. The number of eligible adolescents in any single pediatric cancer center is relatively low, and obtaining a large sample size would require a multisite study. However, with the current sample size, we could not test mediational or interaction effects. A sample size approaching 80 subjects would allow a test of these effects. A fifth,
related issue regards the relatively high refusal/non-completion rate. Although the rate of noncompletion was similar to those in some studies of adolescent cancer patients (Madan-Swain, Brown, Sexson, Baldwin, Pais, & Ragab, 1994), participation rate was lower than that of other studies (Kazak, Christakis, Alderfer, & Coiro, 1994), and the representativeness of the sample may have been affected. A sixth limitation involves the absence of the assessment of personality characteristics such as neuroticism. Ratings of conflict have been shown to be associated with emotionality (Henderson, Bryne, Duncan-Jones, Scott, & Adcock, 1980). Recent research by Finch and Zautra (1992), however, has suggested that the link between interpersonal conflict and depressive symptoms is not due solely to underlying neuroticism. Finally, we did not assess support and conflict with medical personnel, and future studies would benefit from examining this relationship.

Nonetheless, these results have interesting implications for clinical interventions targeted towards adolescents with cancer and their families. Most importantly, our findings illustrate the need for both pediatric mental health professionals and researchers to attend to physical impairment when understanding adolescents' psychosocial adjustment to cancer. Although the social environment and other factors can play a role in an adolescent's adjustment, underestimating the impact of the pain and interference in daily activity imposed by the disease and its treatment would seriously undermine any family-focused interventions. Teaching adolescents to feel more efficacious in their efforts to cope with disease-side effects and disability may prove to be the most beneficial approach to improving the psychological impact of cancer. Second, our data suggest that parent-adolescent interactions, particularly conflict between mother and patient, would be an appropriate target for psychosocial interventions. Such interventions have been shown to be beneficial for healthy adolescents and their parents (Foster & Robin, 1988). Third, our data indicate that targeting supportive aspects of parent relationships may not prove as beneficial as focusing on negative aspects of these relationships.

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**References**


