

When Mom or Dad Has Cancer: II. Coping, Cognitive Appraisals, and Psychological Distress in Children of Cancer Patients

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Cognitive appraisals and coping were examined in children, adolescents, and young adults ($N = 134$) faced with the diagnosis of cancer in a parent. All 3 age groups perceived low personal control and high external control over their parent's illness and used relatively little problem-focused coping. Adolescents and young adults reported more emotion-focused coping and dual-focused coping (both problem- and emotion-focused in intent) than did preadolescent children. Stage and prognosis of parent's cancer were related to appraisals of greater seriousness and stressfulness, and to more avoidance; however, only appraisals of stress were related to symptoms of anxiety–depression. Emotion-focused coping was related to greater avoidance and to higher symptoms of anxiety–depression; coping and control beliefs did not interact in their association with anxiety–depression symptoms.

Key words: parental cancer, coping, psychological adjustment, stress

Children whose parents are diagnosed with cancer are faced with significant psychosocial stress.¹ The overall impact of parental cancer is evident in the moderate-to-high levels of emotional distress that are reported by children, adolescents, and young adults (e.g., Compas et al., 1994). Their parent's illness can present the threat of the loss of the parent because of death, the temporary loss of the parent because of the symptoms of the disease and the side effects of treatment, and the disruption of family roles and routines (e.g., Grant &

Compas, 1995; Lewis, 1990; Siegel et al., 1992). The ways that children cope with the stress of their parent's cancer are expected to play an important role in their emotional adjustment to this stressful experience.

In spite of the potential importance of understanding the ways that children cope with a parent's cancer, research on this issue has been limited to case studies and descriptive reports of children's coping (e.g., Wellisch, 1979). The most extensive data have been reported by Lewis and colleagues in a series of articles on children's coping with nonmetastatic breast cancer in their mothers (e.g., Issel, Ersek, & Lewis, 1990; Lewis, 1990; Lewis, Ellison, & Woods, 1985; see Northouse, 1995, for a review). Children in these studies reported a range of different types of coping, including trying to go on with "business as usual," avoiding thoughts about the cancer, and being considerate and helping out at home. In a recent study, parent's reports of the types of coping used by the family were found to be related to children's social–peer adjustment (Lewis, Hammond, & Woods, 1993). However, none of the prior studies have included quantitative analyses of children's personal coping efforts or the association between children's self-reported coping and their emotional adjustment. Furthermore, all of the prior studies have obtained children's reports of coping several months or years after the parent's cancer diagnosis; no data are available on children's coping near the time of their parent's illness. Five issues are of central importance to advancing knowledge in this area. First, how do

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This article is a companion to Compas, Worsham, Epping-Jordan, Grant, Mireault, Howell, and Malcarne (1994), "When Mom or Dad Has Cancer: Markers of Psychological Distress in Cancer Patients, Spouses, and Children," which was published in Vol. 13 of *Health Psychology*.

This research was supported by Grant MH43819 from the National Institute of Mental Health and Grant P30CA22435 from the National Cancer Institute. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Cancer Institute.

We are grateful to numerous individuals for their assistance in carrying out this research, including oncologists Jerome Belinson, Thomas Roland, and James Stuart; oncology nurses Elaine Owen, Susan Guillan, and Debbie Potter; staff assistant Jeannie Bernard; research assistants Doug Bolton, JoAnne Epping-Jordan, Caroline Freidman, Kathy Grant, Carol Kottmeier, Gina Mireault, Pam Orosan, and Cynthia Gerhardt; and to Vanessa Malcarne.

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¹ The term *children* will be used throughout this article to refer to the offspring of parents with cancer, regardless of the age of offspring. Children under 11 years of age will be designated *preadolescent children*, age 11–18 years will be referred to as *adolescents*, and 19 years and older will be referred to as *young adults*.

children cope with parental illness? That is, what types of coping strategies do they report using most frequently? Second, how does coping differ as a function of age or developmental level? Third, how does coping differ as a function of characteristics of a parent's illness? Fourth, how does coping differ as a function of children's cognitive appraisals of the illness? Fifth, what is the relation between children's coping and their psychological adjustment?

Descriptive research on children's coping with parental cancer needs to be grounded in a broader conceptual model of the coping process. Coping can be understood as an effortful process of adaptation to challenging, threatening, or harmful circumstances (Lazarus, 1993; Lazarus & Folkman, 1984). Coping efforts can be distinguished on a number of dimensions, including two broad categories based on the intentions or goals of the individual—problem-focused and emotion-focused coping. Problem-focused coping involves those efforts that are intended to change some aspect of the stressor, whereas emotion-focused coping entails thoughts and actions that are intended to manage the distressing emotions that arise in the stressful encounter (Lazarus & Folkman, 1984). The broad categories of problem- and emotion-focused coping are composed of a variety of subtypes of coping responses. These general categories represent a reasonable starting point, however, for analyses of the types of coping used in response to parental cancer. More recently, it has been recognized that a single coping response may be "dual-focused," in that it may be intended to accomplish both problem- and emotion-focused goals (cf. Rosenberg, 1990). For example, cancer patients may engage in exercise both as a means of managing their anxiety and as an attempt to control their bodies' response to the disease. The frequency with which children use these three general strategies in coping with parental cancer has not been documented.

Children's coping with parental cancer also needs to be considered from a life span developmental perspective that is concerned with changes and stability from childhood to adolescence and adolescence to adulthood (e.g., Baltes, 1989; Featherman, Lerner, & Perlmutter, 1994). Parental cancer is encountered by individuals ranging in age from early childhood to young adulthood, and consideration of possible developmental differences in coping and adjustment across these age groups may be important. At least eight studies of the ways that children and adolescents cope with a wide range of stressors have examined developmental changes and stabilities in problem- and emotion-focused coping or in subtypes of these two categories (Altshuler & Ruble, 1989; Band, 1990; Band & Weisz, 1988; Compas, Malcarne, & Fondacaro, 1988; Curry & Russ, 1985; Kliewer, 1991; Ryan, 1989; Wertlieb, Weigel, & Feldstein, 1987). All of these studies have found a positive relation between reports of emotion-focused coping and age or some other marker of developmental level in samples of children and adolescents ranging from 5 to 17 years old. In contrast to consistent findings of increases in emotion-focused coping with age, no consistent developmental changes have been found in problem-focused coping, with three studies finding no change with age (Altshuler & Ruble, 1989; Compas et al., 1988; Wertlieb et al., 1987) and two studies finding a decrease in problem-focused coping with age (Band & Weisz,

1988; Curry & Russ, 1985). No studies have investigated developmental differences in the use of dual-focused coping strategies. Furthermore, no studies have examined similarities or differences across the important transition from adolescence to young adulthood. Whether similar developmental patterns will be found in children's coping with the stress of parental cancer is important in mapping the ways that children cope with this stressor.

The use and efficacy of different types of coping are related to both the objective characteristics of the stressor and individuals' cognitive appraisals of stress, with appraisals of the individual's control over the course of the stressor playing a central role (e.g., Folkman, 1984; Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, & Cruzen, 1993). With regard to children's coping with parental cancer, the nature and severity of a parent's disease will be important to consider. More severe forms of cancer may present different demands and require different coping responses than cancers with a better prognosis. Alternatively, children's perceptions of the seriousness or stressfulness of their parent's cancer may be more closely related to their coping efforts than the objective characteristics of the disease. Children's appraisals of the controllability of their parent's illness will also be important to examine (see Skinner, 1995, for a discussion of children's perceptions of control). Parental cancer may be a relatively uncontrollable stressor for children, offering them very few opportunities to exert personal control (cf. Weisz, McCabe, & Dennig, 1994). In the broader literature on coping, appraisals of control have been found to be related to the use of problem-focused but not emotion-focused coping, and control beliefs and problem-focused coping interact in relation to psychological distress (Compas, Banez, Malcarne, & Worsham, 1991). That is, high perceived control and the use of problem-focused coping have been found to be associated with lower psychological distress in children, adolescents, and adults coping with a variety of different stressors (Compas et al., 1988; Conway & Terry, 1992; Forsythe & Compas, 1987; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990; Weisz et al., 1994). Problem-focused coping efforts appear well matched to stressors that are perceived as controllable and poorly suited to those that are appraised as uncontrollable.

Finally, children's psychological adjustment to parental cancer can be assessed in several ways. Symptoms of anxiety and depression are an index of overall emotional distress or negative affect. In addition, symptoms of a stress response syndrome are an important measure of adjustment to a threatening or traumatic event (Horowitz, Field, & Classen, 1993). Specifically, the presence of intrusive thoughts about the parent's cancer and efforts to avoid those thoughts provide important indexes of children's stress responses (Finch & Daugherty, 1993; Yule, 1992; Yule, Ten Bruggencate, & Joseph, 1994). The association of children's coping with these indexes of psychological distress will provide information about the efficacy of coping in managing the stress of their parent's cancer.

In the present study, preadolescent children, adolescents, and young adults (ages 6 to 32 years old) participated in structured interviews near the time of their parent's cancer diagnoses to examine their cognitive appraisals of and efforts

at coping with their parent's illness. Prior analyses of this sample found moderate levels of symptoms of anxiety–depression, with adolescents reporting the highest levels of distress (Compas et al., 1994). The following questions and hypotheses were investigated in the present study. First, appraisals of the seriousness, stressfulness, and controllability of their parent's illness and the use of problem- and emotion-focused coping were examined as a function of age. No hypotheses were generated regarding cognitive appraisals. For example, it is plausible to assume that young adults will have more opportunities to experience some control over their parent's illness and its effects than adolescents or younger children. Alternatively, it is reasonable to expect that children of patients will perceive very little control over their parent's cancer and its sequelae, regardless of their age. From prior studies of children's coping, the use of emotion-focused coping was expected to increase from childhood to adolescence, whereas problem-focused coping was not expected to differ between these age groups. In the absence of any prior research, no hypotheses were made about the comparison of adolescents and young adults. We initiated the investigation of the use of dual-focused coping in different age groups in an exploratory manner.

Second, the use of problem-focused coping was expected to be positively related to perceptions of control, whereas the use of emotion-focused coping was not expected to be related to control beliefs (Compas et al., 1991). Third, we examined the associations of problem-focused, emotion-focused, and dual-focused coping with symptoms of anxiety–depression and stress-response-syndrome symptoms (intrusive thoughts and avoidance). From prior research with children and adolescents, emotion-focused coping was expected to be related to higher levels of symptoms of distress (e.g., Compas et al., 1988). Finally, the interaction of problem-focused coping and appraisals of personal control was examined in relation to symptoms of anxiety–depression. Anxiety–depression symptoms were expected to be low when appraisals of personal control and coping were matched (high perceived control and high problem-focused coping), and symptoms were expected to be high when personal control and coping were mismatched (low perceived control and high problem-focused coping). Because our prior analyses pointed to the importance of intrusive thoughts and avoidance as symptoms of a stress response syndrome among these children (Compas et al., 1994), we examined the association of intrusion and avoidance with perceived control and coping.

Method

Participants

Participants were 134 preadolescent children, adolescents, and young adults (ages 6 to 32 years old) who had a parent with cancer. All participants either lived in their parent's home or were in frequent, ongoing contact with the parent diagnosed as having cancer. The sample was composed of three age groups: 32 preadolescent children (47% female, 53% male) ranging in age from 6 to 10 years ($M = 7.8$, $SD = 1.6$); 59 adolescents (54% female, 46% male) ages 11 to 18 years ($M = 14.6$, $SD = 2.3$); and 43 young adults (63% female, 37% male) ages 19 to 32 years ($M = 22.9$, $SD = 3.4$). The present sample was limited to those young adults who lived in close proximity to their ill

parent and were closely involved with the parent during treatment. These findings may not generalize, however, to young adults who are not directly involved with their ill parent during diagnosis and treatment.

Either the mother (72%) or father (28%) of these participants had been recently diagnosed with cancer (mean of 9.8 weeks postdiagnosis, $SD = 7.3$). The parents represented a relatively young sample of adult cancer patients (mean age of 41.2 years, $SD = 8.2$) as a result of selection of patients who had children living in or near their home. Patients were diagnosed with a variety of different forms of cancer, including breast cancer (28%), gynecologic cancers (20%), lung cancer (7%), lymphoma (5%), Hodgkin's disease (5%), and testicular cancer (5%). As one index of cancer severity, patients were classified according to the stage of their illness: 36% were Stage I, 24% Stage II, 21% Stage III, and 19% Stage IV. Initial prognosis was operationalized as patients' projected 5-year survival rates (i.e., the percentage of patients with a similar prognosis expected to be alive in 5 years) derived from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program (American Cancer Society, 1992). Patients had a mean SEER rating of 60.2 ($SD = 32.3$), indicating that on average they had a 60% probability of being alive 5 years postdiagnosis. Neither the stage of the parent's cancer, children's perceptions of the seriousness or severity of their parent's cancer, or gender of the ill parent differed across the three age groups. Thus, parents of children, adolescents, and young adults had relatively similar cancers in terms of severity. As a prerequisite for participating in the study, all children were aware that their parent had cancer.

Procedure

Participants were recruited through three cancer clinics—medical oncology, radiotherapy, and gyn/oncology—all associated with the Vermont Cancer Center of the University of Vermont. Patients were approached at the time of their diagnosis about participating in the study by a member of the medical staff (nurses, physicians' assistants, physicians) if they had children either living in the home or living outside the home but in frequent contact with the family. Approximately 75% of patients who were approached about the project agreed to participate. A member of the research team then contacted the patient and obtained written consent to participate from the patient, spouse, and children over the age of 16, and written assent from children under 16 years of age. Approximately 70% of eligible children agreed to participate in the study; no differences were found between those who participated and those who declined in terms of their parent's cancer. Each consenting family member was interviewed individually (in person or by telephone) and completed sets of questionnaires near the time of diagnosis of the parent's cancer. Initial interviews were conducted on average 9 to 10 weeks after the parent's diagnosis ($M = 9.8$, $SD = 7.2$).

Measures

Cognitive appraisals and coping. Perceptions of the seriousness, stressfulness, and controllability of their parent's cancer and ways of coping with the cancer were assessed as part of individually administered structured interviews. The degree to which the respondent believed that he or she could control his or her parent's cancer (personal control) and the degree to which he or she believed someone else (e.g., parents, medical professionals) could control the parent's cancer (external control) were assessed in separate items. The personal control question asked, "Right now, do you think you have any control over what's going to happen with (your parent's illness)?" The external control item asked, "Do you think someone or something else can control what happens (with your parent's illness)?" Responses

were obtained to each question on a 4-point Likert scale ranging from 1 = *none at all* to 4 = *a lot*. Perceptions of the seriousness of the cancer were obtained on a 4-point scale ranging from 1 = *not at all bad* to 4 = *extremely bad*, in response to the question, "How bad do you think your parent's illness is?" Perceived stressfulness of the cancer was assessed on a 4-point scale ranging from 1 = *not at all upsetting* to 4 = *extremely upsetting* in response to the question, "How upsetting to you is your parent's illness?"

Individual coping strategies were assessed through an open-ended question that asked respondents to describe "Everything you have done, thought, or felt to make things better or easier for yourself." All responses were recorded verbatim, and in-person interviews were audiotaped to allow for confirmation of the written transcripts of the responses. Because the classification of coping strategies as problem- or emotion-focused is based on the individual's intentions in the use of each strategy, respondents were asked to classify their intentions in the use of each coping strategy that they listed. After participants had described all the ways that they had coped with their parent's cancer, interviewers provided them with definitions of problem-, emotion-, and dual-focused coping, and asked them to indicate which intention best described their use of each strategy. *Problem-focused coping* was defined as "trying to change or do something about their parent's illness," *emotion-focused coping* was defined as "trying to deal with their feelings about their parent's illness," and *dual-focused coping* was defined as "trying to accomplish both of these goals." The number of problem-focused, emotion-focused, and dual-focused coping strategies were totaled to form the three coping variables. A similar method has been used previously to assess coping in children and adolescents and achieved adequate reliability and criterion validity (Compas et al., 1988).

Several observations were made from more qualitative examination of the content of the coping responses. First, the majority of emotion-focused coping items reflected efforts to avoid or distract oneself from the parent's cancer or feelings about the cancer. Young children relied on pleasant activities to lift their mood (e.g., playing with toys or a pet, watching television, drawing). Adolescents frequently reported that they involved themselves in activities away from the parent's home (e.g., spending more time working away from the house, doing homework). Second, a number of emotion-focused responses reflected information seeking (e.g., asking the doctor questions, reading about cancer), a response that is typically classified as problem-focused coping. Participants sought out information to ease their concerns about their parent's cancer. Third, many of the problem-focused strategies involved helping out around the house in an effort to help the patient rest and feel better. Thus, the problem-focused efforts available to these children may have been limited to indirectly addressing the cancer by trying to help the patient. In contrast, patients' reports of problem-focused coping involved direct efforts to improve their own health (e.g., exercise, diet, following treatment protocols; see Osowiecki & Compas, 1996).

Anxiety-depression symptoms. Because there is no single measure of symptoms of anxiety-depression that is developmentally appropriate for use across the age range of participants in this study, age-appropriate measures were selected for preadolescents, adolescents, and young adults. Preadolescents completed the Children's Depression Inventory (CDI; Kovacs, 1980) and the Revised-Children's Manifest Anxiety Scale (R-CMAS; Reynolds & Richmond, 1978); adolescents completed the Youth Self-Report (YSR; Achenbach, 1991; Achenbach & Edelbrock, 1987); and young adults completed the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982). A single score reflecting symptoms of anxiety and depression was generated from the measures and converted to normalized *T* scores for each age group.

The CDI is a 27-item self-report measure designed to assess a variety of symptoms of depression (e.g., sleep disturbance, appetite

loss, and dysphoria). Each item consists of three sentences that describe a range from nondistressed to severe and clinically significant symptoms; the child chooses the sentence that best describes him or her over the past 2 weeks. Responses are scored on a 0-2 scale; 0 = the *absence* of a symptom, 2 = the *severe form* of that symptom. The CDI has been found to have good internal consistency, to distinguish children with general emotional distress from normal school children, and to correspond well with self-report measures of self-concept (e.g., Saylor, Finch, Spirito, & Bennett, 1984). The R-CMAS is a 37-item self-report questionnaire designed to assess the presence or absence of a variety of anxiety-related symptoms (e.g., physiological indicators of anxiety, worry, hypersensitivity, and concentration difficulties). The R-CMAS consists of 28 Anxiety items and 9 Lie scale items. The child completes the measure by responding either *yes* or *no* to each item, depending on whether it describes him or her. *Yes* responses on the anxiety items are summed to yield a total anxiety score. The R-CMAS has been found to have acceptable internal consistency and test-retest reliability, and it correlates with other measures of children's anxiety (e.g., Finch & Rogers, 1984). Both measures were converted to *T* scores from normative data for each scale, and a mean anxiety-depression *T* score was calculated for each participant.

The YSR (Achenbach, 1991; Achenbach & Edelbrock, 1987) is a checklist of 102 behavior-problem items rated *not true, somewhat or sometimes true, or very true or often true* of the respondent during the past 6 months. (The YSR also includes 16 socially desirable items that were excluded from the analyses.) Test-retest reliability for the total behavior-problem score over a 1-week period for clinically referred youth 11 to 18 years of age has been found to be excellent, and validity has been established through differentiation of referred and nonreferred youth (Achenbach, 1991; Achenbach & Edelbrock, 1987). The YSR includes an empirically derived scale of symptoms of anxiety and depression, and the mean normalized *T* score on this scale was used for all analyses.

The BSI (Derogatis & Spencer, 1982) is a self-report inventory of 53 items describing a variety of emotional and somatic complaints. The items are rated on a 5-point scale (0-4) reflecting degrees of distress ranging from *not at all* to *extremely*. Test-retest and internal consistency reliabilities and discriminant validity have been found to be adequate (Derogatis & Spencer, 1982). The mean of the *T* scores for the Anxiety and Depression scales was calculated and used in all analyses.

There is considerable correspondence in item content across the measures of anxiety-depression symptoms used for adults (BSI), adolescents (YSR), and children (CDI and R-CMAS). Six items are common to the measures for all three age groups (sad or dysphoric affect, loneliness, worthlessness, suicidal ideation, nervousness, fearfulness). Of the 12 items on the BSI Depression and Anxiety scales, 6 were on both the adolescent and child measures, 5 others appeared on at least one other age group measure, and 1 item appeared only on the BSI (spells of terror or panic). Of the 16 items on the Anxious/Depressed Syndrome scale of the YSR, 6 appeared on the adult and child measures, 6 appeared on at least one other age group measure, and 4 appeared only on the YSR (fears own impulses, needs to be perfect, suspicious, tries to harm self). Because the CDI and R-CMAS contain many more items than either of the subscales for anxiety-depression on the BSI and YSR, more items appeared only on the child measures than on the adult and adolescent measures. Seven of the 27 items on the CDI appeared on the adult and adolescent measures (loneliness was reflected in two items), 6 items appeared on at least one other age group measure, and 14 items appeared only on the CDI. Of the 28 anxiety symptom items on the R-CMAS, 3 appeared on the adult and adolescent measures, 5 appeared on at least one other measure, and 20 items only on the R-CMAS.

Stress-response-syndrome symptoms. Symptoms of a stress response syndrome were measured in terms of the degree of avoidance and

Table 1
Means and Standard Deviations of Cognitive Appraisals and Coping for Children, Adolescents, and Young Adults

Variable	Children		Adolescents		Young adults	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Perceived seriousness	2.39	0.99	2.40	0.83	2.38	0.96
Perceived stressfulness	2.59	1.32	2.82	1.16	2.87	1.20
Personal control	1.77	1.02	1.90	0.89	1.79	0.89
External control	2.90	1.16	2.83	1.08	2.90	1.16
Emotion-focused coping	0.72	1.17	1.68	1.50	1.58	1.38
Problem-focused coping	0.19	0.47	0.36	0.74	0.16	0.43
Dual-focused coping	0.31	0.54	0.93	1.08	1.21	1.32

Note. Ratings of perceived seriousness, perceived stressfulness, personal control, and external control were obtained on 4-point scales. Coping scores represent the number of strategies of each type of coping that were reported in interviews.

intrusive thoughts and emotions on the Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979). The IES has been used in previous studies of stress response symptoms of children and adolescents (e.g., Yule, 1992; Yule et al., 1994). Because of concerns about the length of the measures and to ensure that children understood the items, a shortened version of the IES was administered as part of the interview. Participants responded to an 8-item version of the original 15-item scale (5 avoidance items and 3 intrusion items). Avoidance items included "I try not to think about it," and intrusion items included "I have waves of strong feelings about it." Participants indicated the frequency of each item with respect to their experience with their parent's cancer in the past 7 days. Internal consistencies (Cronbach's alpha) for the present sample were .69 for young adults, .67 for adolescents, and .49 for preadolescent children. These moderate-to-low reliabilities indicate that responses on the IES should be interpreted cautiously.

Results

Cognitive Appraisals and Coping as a Function of Age

Means and standard deviations of perceived seriousness and stressfulness of the parent's cancer; perceptions of personal control and external control; and the frequency of problem-focused, emotion-focused, and dual-focused coping for children, adolescents, and young adults are presented in Table 1. The data show that although participants reported the use of all three types of coping, they reported very few exclusively problem-focused strategies.²

Analyses of covariance (ANCOVAs) were used to test for differences in the control and coping variables as a function of age group, controlling for sex. Sex was used as a covariate because the three age groups differed somewhat in the portion of male and female participants. No age differences were found in perceptions of the seriousness, $F(2, 129) = 0.02, ns$, or in perceptions of the stressfulness of the parent's cancer, $F(2, 129) = 0.32, ns$. Furthermore, no age differences were found in perceptions of personal control, $F(2, 129) = 0.25, ns$, or external control, $F(2, 129) = 0.07, ns$. The covariate of sex was not significant for external control but was significant for personal control beliefs, $F(1, 126) = 3.98, p < .05$, indicating that male participants perceived more personal control than did female participants. Within-group t tests were used to compare personal and external control beliefs within each age

group. These analyses were significant for all three age groups, indicating that preadolescent children, $t(30) = 4.89, p < .001$; adolescents, $t(57) = 6.15, p < .001$; and young adults, $t(41) = 6.41, p < .001$, all perceived greater external than personal control over their parent's illness.

In analyses of age differences in coping, the ANCOVA indicated that emotion-focused coping differed as a function of age, $F(2, 126) = 4.00, p < .02$, after covarying for sex; sex was not significant as a covariate. Student-Newman-Keuls post hoc tests ($p < .05$) indicated that preadolescent children reported significantly fewer emotion-focused coping strategies ($M = 0.72$) than did adolescents ($M = 1.68$) or young adults ($M = 1.58$), whereas adolescents and young adults did not differ in reports of emotion-focused coping. Also as hypothesized, reports of problem-focused coping did not differ as a function of age, after covarying for sex (the covariate was not significant). A significant effect for age was also found on dual-focused coping, $F(2, 126) = 4.96, p < .008$, after covarying for sex; sex was also significant as a covariate, $F(1, 127) = 6.06, p < .03$ (female participants reported more dual-focused coping than did male participants). Student-Newman-Keuls analyses ($p < .05$) indicated that children reported fewer dual-focused coping strategies ($M = 0.31$) than did adolescents ($M = 0.93$) or young adults ($M = 1.21$), whereas adolescents and young adults did not differ in their reports of dual-focused coping.

² The present analyses are based on raw scores of the three different types of coping. An alternative approach involves the use of scores reflecting the proportions of each type of coping used by each individual (e.g., Aldwin, 1991; Vitaliano et al., 1990). When we calculated proportion scores (the number of each type of coping divided by the total number of coping responses reported by the individual), the patterns were quite different. The proportions of emotion-focused coping were 52% for preadolescent children, 62% for adolescents, and 54% for young adults. The proportions of problem-focused coping were 14% for children, 12% for adolescents, and 6% for young adults. The proportions of dual-focused coping were 33% for children, 26% for adolescents, and 40% for young adults. There were no differences in the three types of coping as a function of age. Comparison of these two approaches to the scoring of coping measures warrants attention in future research.

Correlational Analyses

The relations among age, characteristics of parent’s cancer, cognitive appraisals, coping, and anxiety–depression symptoms and stress-response-syndrome symptoms were examined in correlational analyses (see Table 2). A Bonferroni correction was used to control for familywise error rate. Consistent with the ANCOVAs reported earlier, chronological age was positively correlated with emotion-focused and dual-focused coping. In addition, age was related to fewer intrusive thoughts about parent’s cancer, the use of more avoidance of these thoughts, and higher levels of anxiety–depression. Thus, the correlations suggest that age was associated with a less adaptive response to parental cancer, both in terms of the use of more emotion-focused coping and avoidance and in terms of higher levels of anxiety and depression.

Parent’s disease characteristics (stage and SEER prognosis) were positively correlated with children’s perceptions of their parent’s disease as more serious and more stressful and with greater avoidance of thoughts about their parent’s cancer. Thus, children’s appraisals of the seriousness and stressfulness of their parent’s cancer were relatively accurate. However, appraisals of seriousness and stress were also associated with the use of more potentially maladaptive coping responses. In contrast, perceptions of personal control and external control were not related to disease characteristics, the three types of coping, nor with any of the measures of psychological distress.

As expected, emotion-focused coping was correlated with age and with higher symptoms of anxiety–depression. Dual-focused coping was also correlated with age, fewer intrusive thoughts about the parent’s cancer, and more avoidance of these thoughts. Problem-focused coping was not related to any of the measures of distress.

Multiple Regression Analyses

To test for possible interactions of control beliefs and coping as a function of age in predicting psychological distress, separate regression equations were constructed in which chronological age, perceptions of personal control, and each of the three coping variables (problem-, emotion-, and dual-focused) were used as predictors of self-reports of anxiety–

depression symptoms. In each regression model, the main effects of age, perceived personal control, and one type of coping were entered in a first step. A second step in each equation added the two-way interactions of coping and control beliefs, age and coping, age and control, and the three-way interaction of age, control, and coping.

The regression equation predicting symptoms of anxiety–depression from age, problem-focused coping, and personal control was significant, $F(3, 108) = 2.90, p < .05$. The only significant predictor was age ($\beta = .27$). When the interaction terms were added the overall equation remained significant, $F(11, 108) = 3.80, p < .001$. Age remained the only significant predictor; none of the hypothesized interactions of problem-focused coping and control were significant.

In the regression using age, emotion-focused coping, and personal control as predictors of anxiety–depression symptoms, the overall equation was significant, $F(3, 108) = 5.78, p < .001$. Both emotion-focused coping ($\beta = .27$) and age ($\beta = .18$) were significant predictors. When the interaction terms were added, the overall equation remained significant, $F(11, 108) = 4.25, p < .001$. Age and emotion-focused coping remained significant predictors, but none of the interactions were significant.

Finally, the equation predicting anxiety–depression symptoms from age, dual-focused coping, and personal control was also significant, $F(3, 108) = 2.93, p < .05$. Once again, however, the only significant predictor was age ($\beta = .28$). The equation remained significant when the interaction terms were added, $F(11, 108) = 4.31, p < .001$. Age remained the only significant predictor, and none of the interactions of coping and control were significant.

Discussion

The present investigation offers the first quantitative analyses of the ways that children appraise and cope with their parent’s cancer. Children in this sample perceived very little opportunity for control over their parent’s cancer, and these perceptions did not differ with age. Furthermore, perceptions of control by external factors were greater than perceptions of personal control regardless of children’s ages. The present findings suggest that the use of emotion-focused coping efforts,

Table 2
Correlations Among Parent’s Disease Characteristics and Children’s Age, Appraisals, Coping, and Distress

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	—												
2. Stage	-.03	—											
3. Prognosis	.07	-.78 ^a	—										
4. Perceived seriousness	-.04	.43 ^a	-.35 ^a	—									
5. Perceived stressfulness	.06	.27 ^a	-.25 ^a	.47 ^a	—								
6. Personal control	-.01	.08	-.08	.12	.13	—							
7. External control	.06	.14	-.04	.04	-.09	.34 ^a	—						
8. Emotion-focused coping	.27 ^a	.19	-.14	.10	.21	-.02	.06	—					
9. Problem-focused coping	.01	.09	.01	-.02	-.03	.13	-.12	-.10	—				
10. Dual-focused coping	.35 ^a	.01	.02	.10	.08	-.05	.01	.08	.03	—			
11. Avoidance	.22 ^a	.22 ^a	-.19	.37 ^a	.61 ^a	.16	-.12	.29 ^a	-.03	.25 ^a	—		
12. Intrusive thoughts	-.46 ^a	-.06	-.07	.11	.19	-.15	-.07	-.07	-.14	-.23 ^a	-.02	—	
13. Anxiety–depression	.26 ^a	.01	-.04	.08	.26 ^a	-.05	-.17	.32 ^a	.02	.05	.34 ^a	.05	—

^a $p < .05$ after Bonferroni correction.

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and specifically efforts to avoid thoughts about their parent's cancer, are related to greater symptoms of anxiety–depression. Moreover, the use of emotion-focused coping and avoidance increase with age, suggesting that older participants in this study were using relatively ineffective coping strategies. Finally, no evidence was found for the matching of control beliefs and coping—coping and perceived personal control did not interact in the prediction of anxiety–depression symptoms.

With regard to cognitive appraisal processes, children's perceptions of the seriousness and stressfulness of their parent's cancer appear to be accurate, as they were positively correlated with the stage and prognosis of the disease. This suggests that children are well aware of the characteristics of their parent's illness as they attempt to mobilize their coping efforts. This may be a function of the recruitment methods used for this study, as children had to have been at least minimally informed about their parent's cancer in order to participate. It is noteworthy, however, that neither the stage nor the prognosis of the parent's cancer was related to children's symptoms of anxiety–depression. Only children's perceptions of the stressfulness of their experience with their parent's disease was associated with the indexes of emotional distress. This pattern is consistent with cognitive models of stress, in which appraisals are more important determinants of emotional responses to stress than the objective characteristics of the situation.

One variable often considered in research on appraisals of stress is perception of personal control. In the present sample, perceptions of personal and external control were not related to disease characteristics, appraisals of seriousness or stressfulness, coping efforts, or emotional distress. The absence of any significant associations between perceptions of control and disease characteristics or psychological adjustment may seem at odds with the large literature on control beliefs and coping with illness (e.g., Thompson et al., 1993). It appears, however, that children are in a unique position relative to their parent's illness. Regardless of age, preadolescent children, adolescents, and young adults perceived very little opportunity for control over their parent's cancer. They consistently reported that their parent's disease was controlled more by external factors than by their own personal control. The perception that they had little control may have constrained the types of coping options that were open to these children. This is reflected in the low levels of problem-focused coping that were reported (i.e., with little opportunity to exert control, they engaged in very few active, problem-oriented types of coping).

The correlational analyses suggest that emotion-focused coping efforts were relatively ineffective in managing emotional distress. The use of emotion-focused coping was related to perceptions that the cancer was more stressful. In addition, emotion-focused coping was also related to more avoidance of thoughts about the parent's cancer and to more symptoms of anxiety–depression. This suggests that children may have used emotion-focused coping as a way of disengaging from the stress of their parent's cancer, but these disengagement efforts may have actually contributed to more rather than less distress. Interpretations about the direction of the relation between coping and emotional distress must be made cautiously, however, because of the cross-sectional design of this study. It is also plausible that higher levels of emotional distress

contributed to the use of emotion-focused coping to manage this distress. Furthermore, the items of the IES may be confounded with the types of emotion-focused coping reported by the participants, possibly inflating the correlation between these two measures.

The use of avoidance in response to intrusive thoughts about a parent's cancer showed the strongest pattern of relationships with the other variables. Increased avoidance was associated with a worse stage and poorer prognosis of the cancer, with perceptions of the cancer as more serious and stressful, with the use of more emotion-focused coping, and with more symptoms of anxiety–depression. Although the measure of avoidance was included as part of an assessment of stress-response-syndrome symptoms (Horowitz et al., 1993), the items reflected cognitive and behavioral efforts to avoid any reminders of the parent's cancer. The more serious the cancer, the more children tried to avoid it. These efforts were clearly ineffective, however, as they were associated with increased distress.

The expected association of emotion-focused coping and age was found in this sample. This finding is somewhat troubling, however, in light of the association of emotion-focused coping with both avoidance and symptoms of anxiety–depression. This suggests that the adolescents and young adults may have been coping in a less adaptive manner than the preadolescent children in this sample. There are several possible explanations for these findings. First, the increase in the use of emotion-focused coping with age is consistent with previous studies of children's coping with a variety of other types of stress (e.g., Altshuler & Ruble, 1989; Band & Weisz, 1988; Compas et al., 1988). Thus, it may be that these types of coping skills are acquired as a typical part of development and are not unique to the ways that children cope with parental illness. Second, the ineffectiveness of the use of emotion-focused coping may have been more pronounced in the present sample as a function of the nature of parental cancer as a stressor. The perception that a parent's disease was beyond personal control may have contributed to the use of specific emotion-focused coping efforts that were ineffectual, most notably the use of avoidance. Third, the types of emotion-focused coping used by the participants may have been particularly ineffective in managing emotional distress. Qualitative analyses of these responses suggested that they were characterized primarily by avoidance of reminders of the parent's illness and avoidance of unpleasant feelings. Avoidant coping strategies have consistently been found to be related to increased emotional distress (e.g., Carver et al., 1993).

There was no evidence of matching of control beliefs and coping in this sample, nor for the efficacy of using problem-focused coping in conjunction with perceptions of personal control. First, coping and control beliefs were not related to one another in the correlational analyses. This may be due to the restricted range in both of these variables or the use of relatively nonspecific measures of both control and coping (cf. Thompson et al., 1993). Second, none of the interactions of coping and perceptions of personal control were significant in predicting symptoms of anxiety–depression. These findings differ from those of several previous studies that have suggested that children, adolescents, and young adults can be

successful in matching their perceptions of personal control with their use of problem-focused coping in reducing their emotional distress (e.g., Compas et al., 1988; Forsythe & Compas, 1987; Vitaliano et al., 1990). It is possible that the opportunity to observe significant interactions between coping and control were limited in this sample by the nature of the stressor, as it was perceived as beyond personal control by most individuals. That is, because participants saw little opportunity for personal control, they were unable to use problem-focused coping efforts that could take advantage of control opportunities. This finding is even more noteworthy in light of findings that the patients in these families were able to successfully match their use of problem-focused coping and control (Osowiecki & Compas, 1996). That is, patients reported lower symptoms of anxiety-depression when they perceived high personal control and used problem-focused coping strategies. The opportunities for patients to experience some sense of control over their disease were not available to their children.

Future research needs to address several issues. First, alternative methods of assessing coping are needed to further examine the validity of the developmental patterns of problem- and emotion-focused coping that were found here and in previous research using self-report methods. Although parents and other external observers are limited in their access to children's use of covert coping strategies and their emotional distress, the use of external observers along with children's self-reports is needed. For example, children who "successfully" engaged in avoidant coping may be unwilling or unable to report on their coping responses. Second, the cognitive appraisals were measured with single items, leaving their reliability open to question. Future studies need to use more comprehensive measures of perceptions of control and other appraisals. Third, the reliability of the responses on the IES was moderate to low for the three age groups, perhaps because an abbreviated version of the scale was used. Therefore, findings from this measure need to be interpreted with caution, and future research will need to use more comprehensive and reliable measures of intrusive thoughts and avoidance in children of cancer patients (cf. Finch & Daugherty, 1993). Fourth, further research is needed to understand what contributes to appraisals of the stressfulness of parental cancer. In addition to the objective characteristics of the parent's disease, children's appraisals may be affected by the amount and type of information that they receive and their cognitive abilities to process the information. Fifth, longitudinal data are needed to examine how control beliefs, coping, and psychological symptoms change over the course of a stressful encounter. Prospective data will be especially important for the development of preventive interventions designed to facilitate effective coping in preadolescent children, adolescents, and adults who are exposed to adverse circumstances.

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