

Psychological Functioning, Post-Traumatic Growth, and Coping in Parents and Siblings of Adolescent Cancer Survivors

Andrea M. Turner-Sack, PhD, Rosanne Menna, PhD, Sarah R. Setchell, PhD, Cathy Maan, PhD, and Danielle Cataudella, PsyD

Turner-Sack is a psychologist at JVS Toronto; Menna is a professor in the Department of Psychology at the University of Windsor; Setchell is a psychologist in supervised practice at the York Region District School Board; and Maan and Cataudella are both psychologists at the Children's Hospital London Health Science Center, all in Ontario, Canada.

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Turner-Sack and Menna contributed to the conceptualization and design, statistical support, and analysis. Turner-Sack, Maan, and Cataudella completed the data collection. All of the authors contributed to the manuscript preparation.

Turner-Sack can be reached at andrea.turner.sack@gmail.com, with copy to editor at ONFEditor@ons.org.

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Purpose/Objectives: To examine psychological functioning, post-traumatic growth (PTG), coping, and cancer-related characteristics of adolescent cancer survivors' parents and siblings.

Design: Descriptive, correlational.

Setting: Children's Hospital of Western Ontario in London, Ontario, Canada.

Sample: Adolescents who finished cancer treatment 2–10 years prior ($n = 31$), as well as their parents ($n = 30$) and siblings ($n = 18$).

Methods: Participants completed self-report measures of psychological distress, PTG, life satisfaction, coping, and cancer-related characteristics.

Main Research Variables: Psychological functioning, PTG, and coping.

Findings: Parents' and siblings' PTG levels were similar to survivors' PTG levels; however, parents reported higher PTG than siblings. Parents who used less avoidant coping, were younger, and had higher life satisfaction experienced less psychological distress. Parents whose survivor children used more active coping reported less psychological distress. Siblings who were older used more active coping, and the longer it had been since their brother or sister was diagnosed, the less avoidant coping they used.

Conclusions: Childhood and adolescent cancer affects survivors' siblings and parents in unique ways.

Implications for Nursing: Relationship to the survivor, use of coping strategies, life satisfaction, and time since diagnosis affect family members' postcancer experiences.

Since the 1980s, the incidence rates of childhood and adolescent cancer have increased and the mortality rates have decreased in the United States and Canada (National Cancer Institute, n.d.; National Cancer Institute of Canada, 2008). This has resulted in a growing population of young cancer survivors with a unique set of psychological issues. Researchers have explored some of these issues, including survivors' moods, anxieties, and coping strategies (Dejong & Fombonne, 2006; Schultz et al., 2007; Turner-Sack, Menna, Setchell, Mann, & Cataudella, 2012). However, the focus is often on the negative aspects of childhood cancer, such as depression, with fewer studies addressing a more positive aspect, such as positive changes in perspectives, life priorities, and interpersonal relationships (Kamibeppu et al., 2010; Seitz, Besier, & Goldbeck, 2009). In addition, the experiences of young cancer survivors' families often are ignored.

The diagnosis and treatment of cancer in childhood or adolescence can be exceptionally stressful not only for the young patients with cancer, but also for members of their family. Several studies suggest that parents of children and adolescents with cancer experience psychological distress, post-traumatic

stress, and poor quality of life (Brown, Madan-Swain, & Lambert, 2003; Kazak et al., 1997, 2004; Witt et al., 2010). Other studies indicate that parents of cancer survivors appear to function just as well as parents of healthy controls or in accordance with standardized norms (Dahlquist, Czyzewski, & Jones, 1996; Greenberg, Kazak, & Meadows, 1989; Radcliffe, Bennett, Kazak, Foley, & Phillips, 1996).

Similar to research on parents of young cancer survivors, studies of the psychological impact on siblings within these families are scarce. Several studies have found that siblings of young cancer survivors have more negative emotional reactions (e.g., fear, worry, anger), more post-traumatic stress, and poorer quality of life than controls (Alderfer et al., 2010; Alderfer, Labay, & Kazak, 2003). Other studies found that siblings of survivors function similarly to their peers whose siblings are healthy (Dolgin et al., 1997; Kamibeppu et al., 2010). Together, these findings suggest that family members of young cancer survivors experience a range of psychological responses to cancer and that additional research could provide some clarification.

Although understanding how survivors' cancer affects their parents and siblings is important, equally important is understanding the associations among family members' psychological functioning. In accordance with a family systems perspective, a person's well-being is related to other family members' well-being (Nichols & Schwartz, 2001). In support of this perspective, research generally has found that most young cancer survivors' psychological functioning is related to their parents' psychological functioning (Barakat et al., 1997; Brown et al., 2003; Phipps, Long, Hudson, & Rai, 2005). Few studies have examined the relations between young cancer survivors' psychological distress and their siblings' psychological distress.

Although coping with a traumatic experience, such as cancer, tends to be distressing, it also may provide individuals with the opportunity to achieve positive change, such as post-traumatic growth (PTG). PTG is defined as mastering a previously experienced trauma, perceiving benefits from it, and developing beyond the original level of psychological functioning (Tedeschi, Park, & Calhoun, 1998). Similar to the literature concerning young cancer survivors, PTG in parents of young survivors has received little attention. The few studies that exist suggest that parents of young survivors may experience at least some degree of PTG (Best, Streisand, Catania, & Kazak, 2001; Yaskowich, 2003). Research of PTG in other family members of patients with cancer also is limited. Kamibeppu et al. (2010) found that young adult sisters of young adult childhood cancer survivors reported experiencing greater PTG than female controls. Other studies identified some positive changes that siblings

experienced (e.g., feeling more mature, independent, and empathic; valuing life more) (Barbarin et al., 1995; Chesler, Allswede, & Barbarin, 1992; Havermans & Eiser, 1994), but the researchers did not determine whether the siblings perceived as much benefit from the trauma or developed beyond their original level of functioning enough to be consistent with PTG. In keeping with the familial model of illness-related stress and growth, the current study examined PTG in parents and siblings of adolescent cancer survivors.

The lack of research examining the relations among family members' levels of PTG is not surprising given the limited research examining PTG in parents and siblings of young cancer survivors. Two studies have found that parents' PTG was not correlated with adolescent cancer survivors' overall PTG (Michel, Taylor, Absolom, & Eiser, 2010; Yaskowich, 2003). However, parents' PTG accounted for as much as 10% of the variance in two aspects of survivors' PTG: improved relationships and appreciation for life (Yaskowich, 2003). These results suggest that the association between survivor PTG and PTG among other family members warrants further investigation. The current study fills a notable gap in the literature by examining the associations between adolescent cancer survivors' PTG and PTG in parents and siblings of survivors.

An additional goal of the current study was to examine whether coping strategies were related to psychological functioning and PTG in parents and siblings of adolescent cancer survivors. Available studies suggest that parents of young patients with cancer and survivors who use more self-directed and active coping report lower levels of psychological distress, and those who use more emotion-focused and avoidant coping report higher levels of psychological distress (Fuemmeler, Mullins, & Marx, 2001; Norberg, Lindblad, & Boman, 2005). Other studies indicate that siblings of adolescent cancer survivors who have high emotional social support tend to be less depressed, be less anxious, and have fewer behavioral problems than siblings with low emotional social support (Barrera, Fleming, & Khan, 2004). To the researchers' knowledge, no studies have examined the associations between parents' and siblings' coping strategies and their levels of PTG, but Calhoun and Tedeschi's (1998) model of PTG suggests that active social support and acceptance coping are most closely associated with PTG.

Examining demographic and cancer-related variables, such as age of parents and siblings, survivors' age at diagnosis, time since diagnosis, and time since treatment completion, can provide insight into the experiences of young cancer survivors and their families. Little is known about the relations between age and psychological functioning, PTG, and coping in siblings of cancer survivors (Alderfer et al., 2003).

TABLE 1. Characteristics of Study Participants

Characteristic	Adolescent Cancer Survivors (N = 31)		Parents (N = 30)		Siblings (N = 18)	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
Age (years)	15.74	2.25	45.07	5.64	15.67	2.74
Age at diagnosis (years)	7.45	4.75	–	–	6.83	3.97
Time since diagnosis (years)	8.28	3.02	–	–	–	–
Time since treatment completion (years)	6.47	2.67	–	–	–	–
Treatment duration (months)	21.31	12.1	–	–	–	–
Characteristic	n		n		n	
Gender						
Female	20		29		9	
Male	11		1		9	
Ethnicity						
European/Canadian	27		27		16	
Not reported	4		3		2	
Education						
Graduated college or university	–		20		–	
Graduated high school	–		7		–	
Not reported	–		3		–	
Diagnosis						
Acute lymphoblastic leukemia	18		–		–	
Hodgkin lymphoma	4		–		–	
Acute myelogenous leukemia	3		–		–	
Ewing's sarcoma	2		–		–	
Osteosarcoma	2		–		–	
Non-Hodgkin lymphoma	1		–		–	
Wilms' tumor	1		–		–	
Treatment^a						
Chemotherapy	31		–		–	
Radiation	4		–		–	
Surgery	3		–		–	

^a Several respondents had multiple types of treatment.

Several studies have found that adolescent cancer survivors' age at diagnosis was unrelated to parents' post-traumatic stress symptoms (Brown et al., 2003; Kazak et al., 1997) and PTG (Barakat, Alderfer, & Kazak, 2006). In terms of PTG, theorists have suggested that, although positive consequences of life crises can happen shortly after the crisis, they are more likely to occur after a long process of crisis resolution and personal recovery (Schaefer & Moos, 1992). However, the only known study to examine the relation between time since cancer treatment and parental PTG found that a shorter time since the end of young cancer survivors' treatment was associated with more PTG in fathers but not mothers (Barakat et al., 2006).

The goals of the current study were to (a) examine psychological functioning (defined as level of distress and life dissatisfaction), PTG, and coping in parents and siblings of adolescent cancer survivors; (b) com-

pare adolescent cancer survivors, parents, and siblings on those same variables; and (c) examine psychological functioning, PTG, and coping in parents and siblings in relation to age, time, and cancer-related variables.

Methods

Sample

English-speaking Canadian families with an adolescent (aged 13–20 years) who completed treatment for a solid tumor, leukemia, or lymphoma 2–10 years earlier at a children's hospital were eligible to participate in the study (see Table 1). They were not eligible if they had a cancer relapse, an organ transplantation, a brain tumor that required only surgery, or significant cognitive or neurologic impairments. All siblings reported living with the survivor while he or she was receiving treatment.

Procedure

Following institutional ethics approvals from the University of Windsor in Ontario, Canada and the University of Western Ontario in London, Ontario, Canada, data were collected from the pediatric oncology population at Children's Hospital of Western Ontario in London, Ontario, Canada. Ques-

tionnaires were mailed to 89 families that met criteria for the study. They were informed that participants' names would be entered into a drawing for a \$50 gift certificate from a local store. Thirty-one adolescents, 30 parents, and 18 siblings returned completed packages. In total, 35 families had at least one member participate in the study. Fourteen families had an adolescent, parent, and sibling participate. The remaining 21 families had various combinations of family member participation, and, as such, the adolescent, parent, and sibling groups represent different sets of families in the current study.

Measures

Demographics and cancer variables: Participants completed a background questionnaire that asked about age, gender, ethnicity, education, type of cancer, age at diagnosis, time since diagnosis, time

since treatment completion, and length and type of treatment.

Psychological distress: The Brief Symptom Inventory (BSI) (Derogatis & Melisaratos, 1983) was used to assess psychological distress. Participants used this 53-item questionnaire to self-report to what extent they experienced psychological symptoms. Participants rated their symptoms in a number of areas (e.g., somatization, depression, anxiety) on a five-point scale ranging from 0–4, with 0 indicating not at all and 4 indicating extremely. The BSI generates scores on three overall indices of distress: General Severity Index (GSI), Positive Symptom Distress Index, and Positive Symptom Total. Analyses used GSI t scores, with low scores indicating low psychological distress. The internal consistency in the current study was 0.97 for survivors and siblings and 0.98 for parents.

Life satisfaction: Survivors and siblings completed the Students' Life Satisfaction Scale (SLSS) (Huebner, 1991), a self-report questionnaire that assesses global life satisfaction in children and adolescents. Participants used a six-point scale ranging from 1 (strongly disagree) to 6 (strongly agree) to respond to seven statements about their lives. The average score per SLSS item was used in the analyses, with high scores indicating more life satisfaction. The internal consistency in the current study was 0.87 for survivors and siblings.

Parents completed the Satisfaction With Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985), a self-report questionnaire that assesses adult global life satisfaction. Parents used a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) to respond to five statements about their life. The average score per SWLS item was used in the analyses, with high scores indicating more life satisfaction. In the current study, the internal consistency was 0.91 for parents.

Post-traumatic growth: The PTG Inventory (PTGI) (Tedeschi & Calhoun, 1996) assesses the experience of positive changes following a traumatic event. Participants used the 21-item self-report questionnaire to indicate the extent to which they experienced various positive changes. Participants used a six-point scale ranging from 0–5, with 0 indicating “I did not experience this change as a result of my crisis,” and 5 indicating “I experienced this change to a very great degree as a result of my crisis.” The PTGI wording was modified to refer specifically to changes resulting from having had a family member with cancer. In addition, the language used in the PTGI given to siblings was modified to better suit a younger population (similar to modifications used by Yaskowich [2003]). The average score per PTGI item was used in the analyses, with high scores indicating more PTG. Tedeschi and Calhoun (1996) reported an internal consistency coefficient of 0.9 for the full scale and a test-retest reliability of 0.71 after two months. Yaskowich (2003) reported an internal consistency of 0.94 for the full scale of the modified PTGI in a sample of 35 adolescent cancer survivors. The internal consistency of the modified PTGI was 0.94 for survivors and siblings and 0.96 for parents in the current study.

Coping strategies: The COPE (Carver, Scheier, & Weintraub, 1989) assesses coping strategies in adolescents and adults. Participants used this 60-item self-report questionnaire to rate the way they respond to stressful events. Participants used a four-point scale ranging from 1–4, with 1 indicating “I usually do not do this at all,” and 4 indicating “I usually do this a lot.” The COPE yields scores on 15 different scales. Factor analyses have revealed slightly different factor structures for adolescents and adults. Phelps and Jarvis (1994) proposed a four-factor structure for adolescents: active coping, emotion-focused coping, avoidant coping, and acceptance coping.

TABLE 2. Scores on Measures of Psychological Distress, Coping, Post-Traumatic Growth, and Life Satisfaction for Adolescent Cancer Survivors and Siblings

Measure	Adolescent Cancer Survivors (N = 31)			Siblings (N = 18)		
	\bar{X}	SD	Range	\bar{X}	SD	Range
Brief Symptom Inventory ^a	47.31	13.59	25–79	48.94	10.83	27–72
COPE ^b						
• Acceptance coping	2.58	0.42	1.63–3.53	2.53	0.46	1.81–3.19
• Active coping	2.23	0.58	1.38–3.38	2.17	0.49	1.38–3.13
• Avoidant coping	1.33	0.3	1–2.05	1.41	0.3	1.08–2.15
• Emotion-focused coping	2.08	0.77	1.13–3.63	1.99	0.73	1–3.5
• Religious coping	2.24	1	1–4	1.88	1.13	1–4
Post-Traumatic Growth Inventory ^c	2.15	1.01	0–3.62	1.84	1.14	0–3.33
Students' Life Satisfaction Scale ^d	4.77	0.86	2.3–5.9	4.43	0.79	2.4–5.3

^a Possible scores range from 1 (low psychological distress) to 100 (high psychological distress).

^b Possible scores range from 1 (lesser use of the coping strategy) to 4 (greater use of the coping strategy).

^c Possible scores range from 0 (low post-traumatic growth) to 5 (high post-traumatic growth).

^d Possible scores range from 1 (low life satisfaction) to 6 (high life satisfaction).

TABLE 3. Scores on Measures of Psychological Distress, Coping, Post-Traumatic Growth, and Life Satisfaction for Parents (N = 30)

Measure	\bar{X}	SD	Range
Brief Symptom Inventory ^a	53.72	11.94	33–80
COPE ^b			
• Acceptance coping	3.01	0.42	1.98–3.75
• Active coping	2.81	0.54	1.58–3.91
• Avoidant coping	1.55	0.25	1.17–2.17
• Religious coping	2.64	1.01	1–4
• Social support and emotion-focused coping	2.61	0.52	1.58–3.55
Post-Traumatic Growth Inventory ^c	2.83	1.13	0.05–4.67
Satisfaction With Life Scale ^d	5.21	1.2	1.8–7

^a Possible scores range from 1 (low psychological distress) to 100 (high psychological distress).

^b Possible scores range from 1 (lesser use of the coping strategy) to 4 (greater use of the coping strategy).

^c Possible scores range from 0 (low post-traumatic growth) to 5 (high post-traumatic growth).

^d Possible scores range from 1 (low life satisfaction) to 6 (high life satisfaction).

Similarly, Carver et al. (1989) proposed a four-factor structure for adults: active coping, social support and emotion-focused coping, avoidant coping, and acceptance coping. The current study used the four factors proposed by Phelps and Jarvis (1994) for the survivors and siblings and the four factors proposed by Carver et al. (1989) for the parents. The religious coping scale was not associated with any of the factors but was included for all groups. High scores on a particular factor or scale reflect a greater use of that type of coping strategy. In the current study, internal consistency ranged from 0.74 (acceptance coping) to 0.94 (religious coping) for survivors and siblings, and from 0.52 (avoidant coping) to 0.94 (religious coping) for parents.

Data Analyses

All tests of significance were two-tailed with an alpha level of 0.01 to correct for the number of analyses performed and type I errors. Analyses were completed separately for parents and siblings. Pearson product-moment correlations and standard regressions with forward entry were conducted to examine parents' and siblings' reports of demographic and cancer-related variables in relation to their reported levels of psychological distress, life satisfaction, PTG, and coping strategies. Independent sample *t* tests were conducted to compare the survivors, parents, and siblings on measures of psychological distress,

life satisfaction, PTG, and coping strategies. To examine the associations between survivors' coping, psychological distress, and PTG and that of their matched parents, Pearson product-moment correlations were used.

Results

The focus of this article is family members of adolescent cancer survivors, particularly their parents and siblings. Detailed information on the psychological functioning, PTG, and coping of adolescent cancer survivors in the current study are provided in Turner-Sack et al. (2012).

Parents' psychological distress was positively associated with age ($r = 0.53$, $p < 0.01$) and avoidant coping (e.g., denial, disengagement) ($r = 0.52$, $p < 0.01$), and it was negatively associated with life satisfaction ($r = -0.62$, $p < 0.001$) and active coping (e.g., focusing on, planning, and actively dealing with problems; seeking helpful social support) ($r = -0.57$, $p < 0.001$). Life satisfaction was also positively correlated with active coping ($r = 0.56$, $p < 0.001$). Time since treatment completion was positively associated with parents' social support and emotion-focused coping ($r = 0.5$, $p < 0.01$).

A standard regression analysis was performed to predict parents' psychological distress using parent variables correlated with it: active coping, avoidant coping, life satisfaction, and age. The overall regression model for psychological distress was significant ($R^2 = 0.51$; $F[3, 22] = 7.69$, $p < 0.001$). Examination of the squared semipartial correlation coefficients indicated that avoidant coping ($\beta = 0.37$, $t[25] = 2.42$, $p < 0.05$; $sr^2 = 0.13$), age ($\beta = 0.35$, $t[25] = -2.26$, $p < 0.05$; $sr^2 = 0.11$), and life satisfaction ($\beta = -0.33$, $t[25] = 2.14$, $p < 0.05$; $sr^2 = 0.1$) made significant unique contributions to the prediction of psychological distress. Therefore, parents who used less avoidant coping, were younger, and had higher life satisfaction were likely to experience less psychological distress. Parents' PTG was not significantly associated with any of the study variables.

Siblings' age was positively associated with active coping ($r = 0.73$, $p < 0.001$). Avoidant coping was negatively associated with time since diagnosis ($r = -0.67$, $p < 0.01$) and life satisfaction ($r = -0.71$, $p < 0.001$). None of the variables correlated with siblings' psychological distress or PTG at the 0.01 significance level.

For each measure, the mean scores, standard deviations, and ranges of scores are presented for adolescent cancer survivors and siblings (see Table 2) and parents (see Table 3). Survivors, parents, and siblings reported similar levels of psychological distress but significantly different levels of PTG ($F[2, 75] = 5.32$, $p < 0.01$). Parents' PTG was significantly higher than

that of siblings ($t[46] = 2.91, p < 0.01$), and survivors' PTG was similar to that of parents ($t[58] = -2.43$, not significant [NS]) and siblings ($t[47] = -0.98$, NS). No significant differences were seen between survivors and siblings on their levels of life satisfaction ($t[47] = 1.16$, NS) or active ($t[47] = 0.3$, NS), avoidant ($t[46] = -0.93$, NS), emotion-focused ($t[47] = 0.39$, NS), acceptance ($t[47] = 0.38$, NS), or religious ($t[47] = 1.14$, NS) coping strategies. Parents' coping levels were not compared with survivor or sibling coping levels because the adult COPE factor structure differed from the adolescent COPE factor structure.

In 28 of the 35 participating families, the survivor and one of his or her parents participated, resulting in 28 matched survivor–parent dyads. Correlations for matched dyads are presented in Table 4. Parents' psychological distress was negatively correlated with their survivor child's active coping ($r = -0.53, p < 0.01$).

Discussion

The current study revealed that younger age, higher life satisfaction, and less avoidant coping were strong predictors of lower psychological distress in parents of adolescent cancer survivors. As parents get older, they may have a greater awareness of the difficulties and possible limitations that their adolescent cancer survivors may face. Younger parents may pay less attention to these difficulties or be more naïve about them and, as such, report experiencing less psychological distress. Parents who are more satisfied with their lives (e.g., feel their lives are good, have what they want in life, would change little about their lives) may have fewer concerns and feel assured and grounded, which could contribute to lower levels of psychological distress. This finding is consistent with previous studies that found that parents' reports of external attributions about cause, rather than self-blame and family satisfaction, are associated with better psychological adjustment (Kazak et al., 1997; Vrijmoet-Wiersma et al., 2008). Finally, parents who face their difficulties to a greater degree are likely less troubled or burdened by neglected ongoing difficulties and, therefore, experience less psychological distress.

Research on how family members of young cancer survivors cope is scarce. The current study found that the longer ago that the adolescent cancer survivors completed treatment, the more social support and emotion-focused

coping the parents used. As time passes after treatment is completed, parents may feel that they have more time in their daily lives to use the social support available to them and feel better able to face and deal with their emotions. The findings also suggest that older siblings were likely to use more active coping strategies. When a brother or sister was receiving cancer treatment, parents were occupied with the child with cancer, so older siblings likely had to attend to their own needs (Alderfer et al., 2010). In addition, during this period of time, siblings may have learned about the use of self-reliance, active coping, and problem solving.

Overall, siblings used similar coping strategies to survivors. Siblings whose brother or sister was diagnosed longer ago tended to use less avoidant coping. Siblings may use avoidant coping to deal with the stressors they experience soon after their brother or sister is diagnosed. As time passes, they may experience fewer cancer-related stressors, better adapt to such stressors, and find more effective ways of coping with them, using less avoidant coping strategies. The current study also found that siblings with greater life satisfaction used less avoidant coping. Those who are more satisfied with their lives may feel that they have fewer problems or difficult situations to avoid and, therefore, use less avoidant coping.

The researchers' results indicate that adolescent cancer survivors, parents, and siblings had average levels of psychological distress compared to reported norms. This finding is consistent with previous research that reported that most young cancer survivors have average or above-average levels of global adjustment (Fritz & Williams, 1988; Greenberg et al., 1989; Kazak et al., 1997), and parents of young patients with cancer and survivors have levels of anxiety, depression, and overall distress comparable to reported norms (Dahlquist et al., 1996; Greenberg

TABLE 4. Correlations Between Adolescent Cancer Survivors' and Matched Parents' Psychological Distress, Post-Traumatic Growth, and Coping (N = 28)

Variable	PD	PTG	ACT	AVD	SSEF	ACP	RLG
PD	-0.11	0.09	0.08	0.06	0.13	0.05	-0.04
PTG	-0.45*	0.05	0.39*	-0.04	-0.12	0.31	0.02
ACT	-0.53**	0.04	0.14	-0.07	-0.38*	0.18	-0.08
AVD	-0.2	-0.05	0.23	0.02	0.02	0.1	0.01
EF	-0.19	0.14	0.08	0.04	-0.08	-0.15	-0.43*
ACP	-0.14	-0.24	-0.01	0.19	-0.11	0.03	-0.13
RLG	-0.05	0.04	0.2	0.02	0.15	-0.14	-0.15

* $p < 0.05$; ** $p < 0.001$

ACP—acceptance coping; ACT—active coping; AVD—avoidant coping; EF—emotion-focused coping; PD—psychological distress; PTG—post-traumatic growth; SSEF—social support and emotion-focused coping; RLG—religious coping

Knowledge Translation

- Parents and adolescent siblings of young cancer survivors can experience post-traumatic growth.
- Healthcare providers can help identify family members of young cancer survivors who are experiencing psychological difficulties by being aware of the risk factors.
- Healthcare providers can educate family members about healthy, effective coping strategies; helping parents learn how to deal with their stressors more directly may enhance their psychological functioning.

et al., 1989; Radcliffe et al., 1996). These findings also fit with Van Dongen-Melman, De Groof, Hählen, and Verhulst (1995), who suggested that young siblings of child and adolescent cancer survivors and young siblings of healthy children and adolescents have similar levels of psychological distress.

In the current study, parents experienced a level of PTG that was similar to survivors, as well as to adult cancer survivors in other research (Cordova, Cunningham, Carlson, & Andrykowski, 2001; Weiss, 2002) and parents of child and adolescent cancer survivors in other research (Yaskowich, 2003). However, their level of PTG was higher than husbands of breast cancer survivors (Weiss, 2002) and lower than siblings in the current study. Although their own lives are not at risk, parents of young cancer survivors may be as affected by, and likely to experience PTG in response to, the trauma of cancer as if their own lives were at risk. Because of the close and dependent nature of the child–parent relationship, parents may feel closer to the trauma of cancer and experience a stronger reaction than siblings or husbands of cancer survivors. However, the latter may be related, at least in part, to gender differences.

Siblings experienced less PTG than parents in the current study and less PTG than adult cancer survivors in other research (Cordova et al., 2001). However, they experienced similar levels of PTG to the survivors in the current study, adolescent cancer survivors in other research (Yaskowich, 2003), and husbands of breast cancer survivors in other research (Weiss, 2002). Therefore, proximity to the trauma may influence PTG, as may cognitive maturation. The current study also indicates that even siblings in early adolescence have the capacity to experience PTG in response to their brother or sister having had cancer. To the researchers' knowledge, this is the first study to report the status of PTG in siblings and parents of adolescent cancer survivors.

Parents' psychological distress was associated with survivors using less active coping. Active coping in-

volves actively planning and dealing with problems, focusing on problems without getting distracted, and seeking helpful social support. Parents whose survivor children actively address and cope with their challenges may feel relieved and proud that the survivors are capable of dealing with life's difficulties. In contrast, parents whose survivor children use little active coping may feel the need to plan for them and actively encourage them to solve their problems. These parents may feel burdened by such added responsibilities and more worried about the survivors, which could result in higher levels of psychological distress.

Limitations

The sample size was small, which could have limited the power and obscured significant effects that may have been revealed with a larger sample. The sample consisted primarily of middle-class European/Canadians who chose to participate in the study; therefore, the results may not generalize to more diverse populations and to family members who chose not to participate. All but one of the parents in the current study were mothers; therefore, the results may not generalize to fathers. Finally, the survivors, parents, and siblings represented different sets of families.

Implications for Nursing

Healthcare providers have contact not only with their patients, but also with their patients' family members. These findings demonstrate the need to be aware of the potential impact of cancer on all family members. Parents and siblings of survivors can experience PTG, which suggests that they experience the adolescents' cancer as personally traumatic. Older parents of adolescent cancer survivors, as well as those who are less satisfied with their lives, are at greater risk for experiencing psychological distress. Family members who are at risk can be provided with education about, and support in developing, healthy and effective coping strategies. Professional consultation may be useful for parents already demonstrating signs of psychological distress. For some parents, using avoidant coping strategies may be self-protective as they deal with extreme stressors. However, others may benefit from learning alternate coping strategies to help them more directly address their needs and struggles.

Conclusion

The findings support the need to continue examining the effects of childhood and adolescent cancer on the entire family. Additional studies would benefit from having all members of each family participate

to obtain a true family systems perspective on the impact of childhood and adolescent cancer. In addition, studies should continue attempting to identify factors that contribute to PTG in family members of young cancer survivors.

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