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Huizinga, Geertje; Visser, Annemieke; van der Graaf, Winette T. A.; Hoekstra, Harald; Gazendam-Donofrio, Stacey M.; Hoekstra-Weebers, Josette E. H. M.

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ORIGINAL ARTICLE

Stress response symptoms in adolescents during the first year after a parent's cancer diagnosis

Gea A. Huizinga · Annemieke Visser · Winette T. A. van der Graaf · Harald J. Hoekstra · Stacey M. Gazendam-Donofrio · Josette E. H. M. Hoekstra-Weebers

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Abstract
Purpose This work aims to prospectively study stress response symptoms (SRS) in adolescents during the first year after a parent's cancer diagnosis and factors associated with SRS. Additionally, SRS in these adolescents were compared to SRS in adolescents whose parents were diagnosed 1–5 years (reference group) previously.
Methods Forty-nine adolescents, 37 ill parents, and 37 spouses completed questionnaires within 4 months after diagnosis (T1) and six (T2) and 12 months (T3) later.
Results Clinically elevated SRS were found in 29% of adolescents at T1, 16% at T2, and 14% at T3. In contrast, in the reference group, we found 29% clinically elevated SRS. Daughters seemed more at risk than sons. Adolescents' age, patient's gender, and intensity and duration of treatment did not significantly affect SRS. Adolescents with more SRS reported having more emotional/behavioral problems. Parents observed fewer problems in those adolescents. Initial SRS affected later SRS and emotional problems.
Conclusions The findings illustrate that adolescent children of cancer patients may have clinically elevated SRS that are associated with emotional and behavioral problems. The prevalence of such problems may be underestimated by the parents.

Keywords Stress response symptoms · Adolescents · Parental cancer · Longitudinal

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G. A. Huizinga (✉) · S. M. Gazendam-Donofrio · J. E. H. M. Hoekstra-Weebers
Wenckebach Institute, University Medical Center Groningen, University of Groningen,
P.O. Box 30001, 9700 RB, Groningen, the Netherlands
e-mail: g.a.huizinga@wenckebach.umcg.nl

A. Visser · J. E. H. M. Hoekstra-Weebers
Department of Health Sciences,
University Medical Center Groningen, University of Groningen,
Groningen, the Netherlands

W. T. A. van der Graaf
Department of Medical Oncology,
Radboud University Nijmegen Medical Center,
Radboud University of Nijmegen,
Nijmegen, the Netherlands

H. J. Hoekstra
Department of Surgical Oncology,
University Medical Center Groningen, University of Groningen,
Groningen, the Netherlands

J. E. H. M. Hoekstra-Weebers
Comprehensive Cancer Centre North-East Netherlands,
Groningen, the Netherlands

Introduction

Events, such as serious accidents, sexual assault, and life-threatening illnesses, have been found to be related to stress response symptoms (SRS) in children. Witnessing an event that threatens another person may also be traumatic [1]. Parental cancer may be such an event for children. Children may witness the parent suffering from intensive treatment regimens and accompanying side effects; they may be afraid that their parents' illness could be fatal, and they may be faced with major changes in family life. To date, five cross-sectional studies examined the prevalence of SRS in children of cancer patients. Four reported severe SRS in children (aged 6–32 years) of recently diagnosed parents [2, 3] or in adolescents of parents previously diagnosed up to 5 years [4, 5]. The fifth study found that SRS in adolescent

children of parents with cancer diagnosed<5 years previously were lower than in controls whose parents did not have cancer [6]. Children with SRS often experience other emotional and behavioral problems such as depression, somatic complaints, aggressive or delinquent behavior, and cognitive problems [7, 8] that may hinder their normal development [9].

Whether a child develops SRS following parental cancer is related to several factors. Adolescent girls, especially those whose mothers had cancer, appeared most at risk for SRS [2, 4]. The association between age and SRS is unclear. More SRS were found in preadolescent than in adolescent and young adult children [2]. The same research group reported less intrusion and more avoidance in older children than in younger children [3], while another study found more intrusion in older daughters and no age effect for sons [4].

Findings on the impact of cancer-related characteristics on children's functioning are also inconsistent, which vary from no associations between symptoms and type and stage of cancer, time since diagnosis or treatment modalities [5, 10, 11] to more problems when the parent received intensive treatment [12] or suffered from advanced or recurrent disease [2–4].

Until now, no study has longitudinally investigated SRS in adolescent children of parents with cancer. Gaining knowledge in the prevalence and course of SRS in these children is important to be able to offer professional support to children with serious problems and those at risk in time. Longitudinal studies in children after physical trauma, children exposed to a tsunami, children of parents with HIV, and children of cancer patients reported a decline in psychosomatic symptoms over time [13–16]. It is unknown if the course of SRS in children of cancer patients shows a similar pattern. Based on the literature, we hypothesized that: (1) SRS will be high in adolescents shortly following the parent's cancer diagnosis and that symptoms decrease during the first year; (2) SRS in adolescents throughout the first year will be higher than SRS levels of adolescents whose parents were diagnosed 1–5 years previously; (3) daughters, older adolescents, those whose mother had cancer, or whose parent received a more intensive or longer treatment will be more vulnerable; (4) SRS coincide with emotional and behavioral problems; and (5) initial SRS predict later SRS and other emotional/behavioral problems.

Methods

Procedure

This study is part of a larger project for which all newly diagnosed cancer patients at the University Medical Center Groningen (UMCG), the Netherlands were informed about the study. Recruitment took place over 2 years. Eligible patients were those who had been diagnosed with cancer within the previous 4 months, had children between 4–18 years of age, were fluent in Dutch, and were predicted to survive longer than a year. Parents received written information about the study and had an adapted version for their child/children. Parents discussed participation with their children. Families were considered to participate in the study when at least the ill parent and one child consented. After obtaining written informed consent, questionnaires were mailed to each participating family member with the instruction to complete the questionnaire alone and to not consult each other. The first questionnaire was completed within 4 months after the parents' diagnosis (T1) and the second (T2) and third (T3) questionnaires were completed six and twelve months after T1, respectively. Parents and children returned the completed questionnaires separately by mail. The Medical Ethical Committee of the UMCG approved the study.

Participants

A total of 222 families were approached for the total project and 112 (50%) consented to participate. Families that declined participation did so because the parents were not interested in the study (n=27); the children did not want to participate (n=17); participation was considered too aggravating (n=7); cancer was not an issue because the parent had a good prognosis (n=6); the children were considered too young (n=5); the children were not told it was cancer (n=3; in two families children were between 7–18 years; in the third, unknown); or the parent with cancer was severely ill (n=3). The remaining families (n=32) did not specify a reason for nonparticipation.

The present study focused on families in which adolescents and both parents completed questionnaires, resulting in a subsample of 68 families at T1. Twenty-four families (35%) were lost to attrition at T2 and at T3, seven families (16%). Demographic characteristics of respondents are summarized in Table 1. One parent suffered from recurrent disease at T3. Mean time since diagnosis was 2.2 months at T1 (range 0.2–4.0 months), 7.6 months at T2, and 13.5 months at T3. Parents were diagnosed with breast (N=13), testicular (N=5), gynecological (N=5), sarcoma (N=4), melanoma (N=3), hematological (N=3), rectal (N=2), renal (N=1), and thyroid malignancies (N=1). One parent suffered from recurrent disease at T3. Mean time since diagnosis was 2.2 months at T1 (range 0.2–4.0 months), 7.6 months at T2 (range 5.6–10.3 months), and 13.5 months at T3 (range 11.5–16.2 months). As in an earlier study, surgical treatment alone was classified as nonintensive treatment. Other single-modal treatments (either chemotherapy or radiotherapy) and multimodal

Table 1 Demographics

	Number	Percent
Children		
Sons	21	43
Daughters	28	57
Mean age 14.6 years (±1.1), range 11–18		
Patients		
Fathers	14	38
Mothers	23	62
Mean age 44.8 years (±4.6), range 38–55		
Spouses		
Fathers	23	62
Mothers	14	38
Mean age 45.1 (±4.5), range 37–56		
Family structure		
One child	27	73
Two children	8	22
Three children	2	5
Highest education completed (patients)		
Lower education[a]	9	24
Middle education[b]	13	35
High education[c]	15	41
Highest education completed (spouses)		
Lower education[a]	13	35
Middle education[b]	15	41
High education[c]	9	24

[a] Elementary school, lower vocational education

[b] Lower general secondary education, intermediate vocational education, and high school

[c] Higher vocational education and university

treatments (a combination of two or more of the modalities: surgery, chemotherapy, or radiotherapy) were classified as intensive treatment [11]. Eleven parents had undergone only surgery and had completed treatment at T1 (e.g., melanoma or renal cancer). Twenty-six parents had received other single-modal or multimodal treatment. Four of them were still being treated at T3 (e.g., hematological malignancy, recurrence of testicular cancer). Treatment duration was computed from the day treatment began to the day of completion.

Measures

Adolescents' SRS was assessed with the Impact of Event Scale (IES) [17, 18]. The IES is frequently used in cancer populations [19]. It consists of two subscales: intrusion (seven items, range 0–35) and avoidance (eight items, range 0–40). Examples of items are: "Any reminder brings back feelings about it" (intrusion) and "I try to banish it from my memory" (avoidance). Total distress is the sum of all items (range 0–75). The frequency of SRS with respect to parental cancer in the past week was rated on a 4-point scale, ranging from "not at all" to "often." A total score of≥ 26 is considered as clinically elevated SRS, an indication for professional help [18]. Scores between eight and 25 point toward a need for extra attention (at risk); a score< 8 indicates the absence of SRS. From T1 to T3, Cronbach's alphas ranged for intrusion from 0.58 to 0.91; for avoidance from 0.72 to 0.90; and for total distress from 0.77 to 0.93.

Adolescents completed the Youth Self-Report (YSR) [20, 21], and parents the Child Behavior Checklist/4–18 (CBCL) [22, 23] to assess emotional and behavioral functioning in adolescents during the past 6 months. The YSR and CBCL consist of the following eight syndrome scales: withdrawal, somatic complaints, anxiety/depression, and social, thought, aggressive, and delinquent problems [20, 21]. Items were rated on a 3-point scale ranging from "not true" to "very true or often true." Cronbach's alphas of the CBCL and YSR in the present study were comparable to those reported in the Dutch manual [21, 23], except for the CBCL thought problems scale, which was therefore not included in the analyses.

To compare SRS of adolescents whose parents were recently diagnosed with those of adolescents of parents who were diagnosed 1–5 years previously, reference data were collected. The reference group consisted of 174 adolescents (98 daughters and 76 sons; mean age, 15.2 years). The vast majority of the adolescents came from two-parent families (94%). Eighty-one percent of the parents with cancer were female, and breast cancer was the most common diagnosis (53%). Most parents received intensive treatment (82%) and 20% suffered from recurrent disease. Mean time since the parent's diagnosis was 2.8 years (SD±1.2). For the comparison in the present study, adolescents of a parent with recurrent disease were excluded because a relapse was found to affect SRS [4].

Data analysis

Chi-square, independent *t* tests, and Mann–Whitney *U* tests were computed to compare groups. Repeated measures of analysis of variance (ANOVA; with Bonferroni corrected alphas) were calculated to examine time and gender effects on SRS. Additionally, Friedman ANOVAs were performed because of the small sample size. Pearson's correlational analyses were used to assess associations between adolescents' reported SRS and adolescents' and parents' reports of adolescents' emotional and behavioral problems; associations between T1, T2, and T3 SRS (stability over time) and between treatment duration and T3 SRS. Partial correlational analyses were calculated to examine the predictive effect of SRS on emotional and behavioral functioning (T2 and T3 SRS will be correlated with T2 and T3 emotional and

behavioral functioning while controlling for T1 SRS). Correlation coefficients<0.30 are considered as weak, 0.30–0.50 as moderately strong, and>0.50 as strong [24].

Results

Representativeness of study sample

Nonparticipating families did not differ significantly from those participating with regard to patients' age and gender. However, type of cancer differed between groups (χ^2=41.7, $p \leq 0.001$). Gynecological cancers were more prevalent, and urological cancers and sarcomas were less prevalent in participants than in nonparticipants (22% versus 8%, χ^2= 10.5, $p \leq 0.001$; 2.7% versus 12%, χ^2=18.1, $p \leq 0.001$; and 4.7% versus 10%, χ^2=6.5, p=0.011, respectively).

Adolescents who dropped out of the study after T1 reported comparable SRS, internalizing problems and externalizing problems as adolescents who continued participation at T1. The two groups of adolescents did not significantly differ in age and gender. Ill parents who dropped out of the study after T1 did not differ in age or gender from those who continued participating. Ill parents and spouses who dropped out after T1 reported comparable internalizing and externalizing problems in adolescents at T1 as ill parents and spouses who continued participation did.

Prevalence of SRS and change over time

At T1, eight adolescents (16%, seven daughters) reported no/low SRS, 27 (55%, ten daughters) were at risk, and 14 (29%, eleven daughters) reported clinically elevated SRS. At T2, 25 adolescents (51%, 13 daughters) reported no/low SRS, 16 were at risk (33%, nine daughters), and eight reported clinically elevated symptoms (16%, six daughters). At T3, 30 adolescents reported no/low SRS (61%, 16 daughters), 12 were at risk (25%, six daughters), and seven reported clinical SRS (14%, six daughters).

Adolescents reported most symptoms at T1. A significant decrease in intrusion, avoidance, and total distress was found with time (Table 2). Friedman ANOVAs also showed a significant decrease in intrusion (daughters, X^2=17.29, p=<0.001; sons, X^2=27.10, p=<0.001) and total distress (daughters, X^2=9.64, p=0.008; sons: X^2=18.83, p=<0.001) over time. Avoidance decreased, but this was not significant (daughters, X^2=5.66, p=0.059; sons, X^2=5.25, p=0.072).

Comparison of SRS between prospective and reference group

Sons in the prospective group reported significantly more intrusion at T1; less avoidance at T2; and less intrusion,

Table 2 SRS in sons and daughters of the current study (21 sons and 28 daughters) and of a reference group (76 sons and 98 daughters), repeated measures of ANOVAs, test–retest, and comparisons between groups

SRS		T1 and T2	T2 and T3	T1–T3	T1 Mean (SD)		T2 mean (SD)	T3 mean (SD)	ANOVA	Reference group: 1–5years after parent's diagnosis Mean (SD)
					Effect	*F*	*r*	*r*	*r*	
Intrusion	Sons	9.3 (5.0)***	2.6 (3.1)****	3.3 (4.3)**	Time	31.4*******	0.56**	0.59**	0.40	5.9 (6.3)
	Daughters	10.5 (8.5)	7.7 (8.6)*****	4.2 (6.8)**	Gender	1.6	0.38*	0.83**	0.30	8.2 (7.7)
					Interaction	0.2				
Avoidance	Sons	9.1 (6.5)	7.2 (8.5)	4.1 (5.1)***	Time	10.2*******	0.53*	0.02	0.28	7.5 (7.3)
	Daughters	11.2 (9.6)	7.5 (9.2)	7.4 (10.8)	Gender	0.6	0.51**	0.78**	0.45*	10.1 (9.3)
					Interaction	0.8				
Total distress	Sons	18.3 (10.4)*	9.9 (9.7)	7.4 (7.8)***	Time	25.6********	0.54**	0.15	0.40	13.4 (12.6)
	Daughters	21.8 (15.2)	15.2 (15.4)	11.6 (16.2)*	Gender	1.2	0.45*	0.88**	0.43*	18.2 (15.8)
					Interaction	1.3				

*p=0.06; **p<0.05; ***p<0.01; ****p<0.001 (t tests for differences with reference group and test–retest); *****p<0.01 (Mann–Whitney test for differences between sons and daughters); ******p<0.01 and *******p<0.001 (ANOVA)

avoidance, and total distress at T3 than sons in the reference group. Daughters only reported significantly less intrusion at T3 than daughters in the reference group, and they tended to experience less total distress at T3 (p=0.062; Table 2).

Relationships between SRS and characteristics of adolescents and cancer treatment

No effect of gender or interactive effect of gender and time was found (Table 2). Daughters reported more intrusion than sons at T2 (Mann–Whitney, U=−2.117, p=0.034). A greater percentage of daughters tended to have clinically elevated SRS compared to sons at T1 (X^2=3.68, p=0.055). The percentage of sons and daughters with clinical versus nonclinical SRS was not different at T2 or T3 (T2, X^2= 1.25, p=0.265; T3, X^2=2.72, p=0.099). Age was not significantly related to SRS at any of the assessment points. SRS levels in adolescents of a mother with cancer (N=30) were not significantly different from those of adolescents of a father with cancer (N=19).

Treatment duration was not significantly related to T3 intrusion (r=−0.08, p=0.624), avoidance (r=−0.11, p= 0.499), or total distress (r=−0.11, p=0.509). No significant differences were found in T3 intrusion (U=−1.221, p= 0.222), avoidance (U=−0.647, p=0.518), or total distress (U=−1.282, p=0.200) between adolescents of parents who were treated intensively or nonintensively. One father with testicular cancer had recurrent disease at T3. His daughter's SRS levels fell within the total group range.

Relationships between SRS and emotional/behavioral problems

The more SRS adolescents experienced at T1, the more problems they reported on all YSR syndrome scales, except for social problems. Adolescent-reported SRS was significantly related to patient-observed withdrawal, anxiety/depression, and aggressive and delinquent behavior. No significant associations were found between adolescents' reported SRS and emotional and behavioral problems reported by spouses.

At T2, adolescents with more SRS experienced more problems on all YSR syndrome scales, except for social problems and delinquent behavior. Patients observed more anxiety/depression, social problems, and aggressive behavior; and spouses experienced more anxiety/depression and delinquent behavior in adolescents, thus, reporting more SRS.

The more SRS adolescents experienced at T3, the more problems they reported on all YSR syndrome scales, except for social problems. The more SRS adolescents reported the more somatic complaints, anxiety/depression, and aggressive behavior patients observed and the more withdrawal and anxiety/depression of spouses reported (Table 3).

Predictive power of initial SRS on later SRS and emotional/behavioral problems

Associations between T1 and T2 SRS ranged from moderate to strong for both sons and daughters. For sons, two correlations between T2 and T3 were weak and one was strong, whereas, all correlations were strong for daughters. For daughters, T1–T3 relationships were moderate and for sons, one in T1–T3 relationship was weak and two were moderate (Table 2).

Ten adolescents (21%, 7 daughters) reported clinically elevated SRS at one assessment point (nine at T1, one at T2), two adolescents (daughters) at two consecutive assessments (4%, T2 and T3), and five adolescents (four daughters) at all assessments (10%). The remaining 32 adolescents (65%, 15 daughters) reported SRS below the cutoff at all assessments.

SRS at T2 or T3 (controlling for T1 SRS) were significantly associated with adolescents' reported T2 withdrawal, T2/T3 somatic complaints, T2/T3 anxiety/depression, and T2/T3 thought and attention problems (Table 4).

Discussion

This is the first study to prospectively examine SRS in adolescents confronted with parental cancer. As hypothesized, adolescents reported the most SRS in the first months, with clinically elevated SRS in nearly 30%. It is possible that adolescents are highly distressed shortly after diagnosis because they are afraid that their parent may die. Such initial distress seems to decline when the parents respond favorably to cancer treatment and chances of survival increase. We found that SRS decreased during the first year after the parent's diagnosis. Sixteen percent of the adolescents reported clinically elevated SRS at 6 months and 14% at 1 year after diagnosis. Other longitudinal studies on SRS in children after traumatic events (physical trauma and the 2004 tsunami) also reported a decline of symptoms over time [13, 15]. Additionally, SRS in the first few months after the parent's diagnosis had a comparably strong predictive effect on SRS six and 12 months later. However, in the second time period of the study (T2 and T3), individual stability in SRS was high in daughters, but less strong to even weak in avoidance, and total distress in sons.

We expected that adolescents in the present study would report more SRS than adolescents whose parents were diagnosed 1–5 years previously. However, this was only the

Table 3 Correlations between stress response symptoms and emotional and behavioral problems in adolescents as reported by adolescents, patients, and spouses

Emotional/behavioral functioning	Stress response symptoms								
	T1 *r*			T2 *r*			T3 *r*		
	Adolescents	Patients	Spouses	Adolescents	Patients	Spouses	Adolescents	Patients	Spouses
Withdrawal	0.44**	0.35*	−0.10	43**	0.26	0.16	0.42**	0.29	0.33*
Somatic complaints	0.31*	−0.07	−0.05	0.48**	0.21	0.08	0.60**	0.45**	0.04
Anxiety/depression	0.62**	0.39**	−.08	0.66**	0.49**	0.42**	0.65**	0.53**	0.40*
Social problems	0.28	0.23	−0.21	0.14	0.35*	0.08	0.19	−0.11	0.10
Thought problems	0.31*	–	–	0.40**	–	–	0.47**	–	–
Attention problems	0.48**	0.21	−0.07	0.41**	0.28	0.03	0.47**	0.13	−0.10
Delinquent behavior	0.53**	0.40**	0.05	0.28	0.29	0.33*	0.32*	0.19	0.02
Aggressive behavior	0.47**	0.32*	0.08	0.37*	0.32*	0.23	0.44**	0.34*	−0.05

*$p<0.05$; **$p<0.01$

case in the first few months after the parent's diagnosis. At six and 12 months, they reported lower SRS than the reference group. This may suggest that adolescents' stress increases when the parent has completed treatment. It may be that as life returns more to its "usual" pattern, children have more time to process all that has (and could have) happened and re-experience cancer-related events more. Our findings are in agreement with the results of a recent review article reporting that the subjective experience of a trauma and subsequent symptoms may fluctuate substantially over time [25]. This phenomenon should be examined further in children facing parental cancer in a longitudinal study. Insight into the pattern of and the reason for fluctuations in SRS over the years following a parent's cancer diagnosis is relevant in order to provide care to children at the appropriate time.

Based on other studies, we expected to find more SRS in daughters than in sons, in particular, in daughters of mothers with cancer [4, 5]. We found that daughters in the present study reported somewhat more problems than sons, but adolescents of a mother with cancer did not experience more problems than those of a father with cancer. It is possible that the current study lacked the power to detect gender effects because of the small sample size.

SRS was not significantly related to children's age, which is in contrast to other studies reporting more SRS in older children [2, 4] and in children younger than 10 years [3]. An explanation may be that the age ranges of the children in the studies referred to were much larger (11–23 and 6–32 years).

A more intensive treatment did not bring about more SRS in adolescents than surgery alone nor did the length of treatment. This is a confirmation on an earlier work that did not find significant effects of the parent's illness characteristics on children of parent with cancer or a stroke [5, 26–28]. It has been suggested that children's perception of the parent's illness has more impact on their functioning than disease characteristics [2, 29]. Another study reported that family members' cognitive appraisal of the cancer experience was related to distress, whereas, cancer characteristics were not [30].

As hypothesized, SRS were in the present study associated with emotional and behavioral problems, consistent with findings in children exposed to interpersonal trauma such as loss or physical abuse [31]. In addition, adolescents with higher initial SRS were more at risk for future emotional and cognitive problems, but not for behavioral problems. Our findings suggest that children with SRS experience emotional and behavioral problems during the first year after a parent's cancer diagnosis and continue to have emotional problems in the longer term.

Patients and spouses observed more emotional and behavioral problems in adolescents with higher SRS levels, but to a lesser degree, than those adolescents who reported themselves. This may suggest that parents are less aware of the magnitude of problems that children suffering from

Table 4 Relationship between T2/T3 SRS and emotional/behavioral functioning (controlling for T1 SRS)

Emotional/behavioral functioning	T2 SRS *r*	T3 SRS *r*
Withdrawal	0.39**	0.27
Somatic complaints	0.38*	0.49***
Anxiety depression	0.58***	0.54***
Social problems	0.01	0.03
Thought problems	0.32*	0.37**
Attention problems	0.31*	0.31*
Delinquent behavior	0.17	0.18
Aggressive behavior	0.25	0.27

*$p<0.05$; **$p<0.01$; ***$p<0.001$

SRS were coping with. It is known that agreement between child- and parent-reports may be discrepant [32, 33].

Surprisingly, our study showed that the strength of the association between SRS and somatic complaints increased during the first year following parental cancer, which was not found for the other problems. A relationship between SRS and somatization has previously been reported [34, 35]. Additionally, somatic complaints seem to have gone largely unnoticed by the parents. It may be that adolescents hesitate to express somatic complaints to parents when confronted with parental cancer. Moreover, internalizing symptoms may need additional parent–child interaction in order to be uncovered [36].

Study limitations

First, the sample size was small, requiring replication of the study in larger samples to increase the power. Second, only 37 of 68 families faithfully participated at all measurement points. It seems difficult to continue participating at multiple time points when confronted with cancer. Unfortunately, we did not ask respondents for their reasons for discontinuing participation. However, those who continued to participate did not significantly differ from those who were initially enrolled but dropped out after the first measurement in either self-reports or parent-reports on child functioning. This suggests that attrition was not associated with child functioning. To keep patients enrolled in a longitudinal study, health care professionals should consider investing more time in informing patients about the aim and the relevance of a particular study. A longitudinal study in parents of pediatric cancer patients in our hospital used this strategy and reached a response of 85% over time [37].

Third, the response rate was low, which may have biased the results. SRS may not only be under-reported but also over-reported, as some of the nonparticipating families indicated that cancer was not an issue, while others mentioned that participating would be too distressing. It may be that adolescents with more SRS did not participate because it would force them to think about experiences that they wanted to avoid. Fourth, our sample includes only families with parents in partnered relationships. Consequently, the findings do not necessarily apply to adolescents in single-parent households. Despite these limitations, we consider our findings to be important because this is the first study to prospectively address SRS in adolescent children of a parent with cancer.

Conclusions

Being confronted with a cancer diagnosis in a parent can lead to clinically elevated SRS in adolescents. SRS fluctuates over time, from a decline during the first year to a possible increase in the following years. A longitudinal, prospective study should be undertaken to follow the same children for a longer period of time. Healthcare professionals should be made aware of the prevalence of SRS in children of a parent with cancer and that SRS may coincide with other emotional and behavioral problems, which parents, in general, seem to underestimate. They should ask cancer patients whether they have children at home and if so, give parents information on possible reactions to and consequences for the children of the cancer diagnosis and treatment. Making parents aware should become a standard practice in the clinic. It would empower parents to recognize psychosocial problems in children and enable them to adequately support them or seek professional psychosocial care. Moreover, knowledge on the impact of parental cancer on children should be in the curriculum of healthcare professionals in oncology.

Future studies should address further examination of risk and protective factors for the development of SRS in children such as preexisting psychological symptoms, other experienced life events, the psychological functioning of parents, parent–child interactions, and family functioning.

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