

What Strengths and Difficulties Do Mothers with Gynecological Cancer and Healthy Fathers Report in Their Children?

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Keywords

Cancer · Children · Psycho-oncology · Strengths and Difficulties Questionnaire · Behavior problems

Summary

Background: Mental disorders in parents are viewed as a risk factor for a child's psychological development. Whether and to what extent this is also true for serious somatic disorders in parents has been studied less often. The aim of the present investigation is to report on emotional and behavioral problems in children of women with a diagnosis of breast or gynecological cancer. **Patients and Methods:** 19 couples with 27 children in the age between 4 and 16 years completed the Strengths and Difficulties Questionnaire (SDQ) for their children and reported their own distress related to the disease, the extent of social support, as well as their dyadic coping at several points in time (T1: within 8 weeks after diagnosis; T2: 3–5 months after diagnosis; T3: 6 months after T2; T4: 1 year after T2). Due to sample attrition at T3 and T4, the present study focuses on T1 and T2. **Results:** The majority of children were classified as psychologically healthy and prosocial at each assessment point. Those mothers who were more distressed at T1 reported more psychological problems in their children at T2. This prospective association was completely mediated through the level of common dyadic coping at T1. **Discussion:** If replicated, these results may hint at the potential of indicated prevention programs in families with a mother diagnosed with cancer to prevent the occurrence of a psychological disorder in children. One possibility to come to an indication decision for such an intervention may lie in the initial female distress response to cancer and the extent of partner support.

Schlüsselwörter

Krebs · Kinder · Psychoonkologie · Strengths and Difficulties Questionnaire · Verhaltensprobleme

Zusammenfassung

Hintergrund: Psychische Erkrankungen bei Eltern werden als Risikofaktor für die psychische Entwicklung von Kindern angesehen. Ob und in welchem Ausmaß dies auch für ernsthafte körperliche Erkrankungen der Eltern gilt, ist bisher seltener untersucht worden. Diese Pilotstudie berichtet über die psychischen Auffälligkeiten von Kindern bei Frauen mit Brust- oder gynäkologischem Krebs. **Patienten und Methoden:** 19 Paare mit 27 Kindern im Alter zwischen 4 und 16 Jahren beantworteten zu mehreren Messzeitpunkten (T1: innerhalb von 8 Wochen nach Diagnose; T2: 3–5 Monate nach Diagnose; T3: 6 Monate nach T2; T4: 1 Jahr nach T2) einen Fragebogen zu Stärken und Schwächen des Kindes sowie zur eigenen Belastung durch die Erkrankung, dem Ausmaß sozialer Unterstützung sowie der partnerschaftlichen Bewältigung der Erkrankung. Aufgrund der geringen Fallzahlen zu T3 und T4 konzentriert sich die gegenwärtige Untersuchung auf die ersten beiden Messzeitpunkte. **Ergebnisse:** Zu jedem Messzeitpunkt schätzten beide Eltern die Kinder als überwiegend psychisch unauffällig und prosozial ein. Diejenigen Mütter, die zu T1 stärker durch die Krebserkrankung belastet waren, berichteten zu T2 auch mehr psychische Auffälligkeiten bei ihren Kindern. Dieser prospektive Zusammenhang wurde vollständig über das Ausmaß der partnerschaftlichen Bewältigung der Erkrankung zu T1 mediiert. **Diskussion:** Sollten diese Ergebnisse repliziert werden, könnten sie darauf hin weisen, dass indizierte Präventionsmaßnahmen bei Familien mit einem krebserkrankten Elternteil das Erleben einer manifesten psychischen Störung bei betroffenen Kindern und Jugendlichen unter Umständen verhindern. Eine Möglichkeit, die Indikation für eine solche Maßnahme zu stellen, kann in der Einschätzung der individuellen Belastung durch die Krebserkrankung und des Ausmaßes an Unterstützung innerhalb der Partnerschaft liegen.

Background

Empirical research with families in which one parent has a physical illness is, with few exceptions, a quite recent phenomenon. Basic knowledge was also lacking until recently about the frequency of psychological problems in children of physically ill parents, as well as protective and risk factors. Thus there are few evidence-based prevention programs, despite a quite large distribution of physical illnesses in families with minor children.

Prevalence of Physical Diseases in Parents of Minor Children

A recent epidemiological study in Germany [Barkmann et al., 2007], with more than 1,900 families in the framework of the Hamburger Gesundheitssurvey (Hamburg Health Survey), showed a point prevalence of 4.1% for serious parental physical illness. One third of these families confronted a disease in the oncological spectrum. For all of Germany, with about 14–15 million minor children, this would translate into about 600,000 children facing a parent's serious physical illness. The occurrence of such illness is therefore twice as frequent as the occurrence of mental illness in parents of minor children.

Frequency of Psychological Problems in Children of Physically Ill Parents

To compile data on psychological problems in children, the instruments most often used are either the Child Behavior Checklist [CBCL; Achenbach et al., 1991] or the Strengths and Difficulties Questionnaire [SDQ, Goodman, 1997]. Both instruments discriminate well between healthy and psychologically disturbed children [Goodman et al., 2000] and permit a 'case identification' based on a cutoff value.

A review by Visser et al. [2004], which dealt with the quantitative and qualitative studies (published between 1980 and early 2004), came to the conclusion that most children of physically ill parents showed normal scores. Externalizing problems, in particular, were rarely present in greater numbers or intensity. Social skills have not been shown to be impaired in any study. Internalizing problems were more commonly reported in some studies, while in others they were no more common than in the general population. However, emotional problems among adolescent girls emerged as a potential area in which a serious parental physical illness was manifest. However, there were only 14 quantitative studies identified.

Watson et al. [2006] reported, in a sample of 107 families with at least one child between the ages of 6 and 17, a 27% rate of impairment (CBCL total score, informant is the mother, borderline and clinical). They found no differences between internalizing and externalizing disorders in boys, and a tendency toward more internalizing problems in girls. A flaw in this British study is that the CBCL norms are not country-specific and therefore the authors had to use the American norms for case identification.

A study in the Netherlands (N = 336 children 4–18 years of age, with 180 ill parents), using the CBCL, also found somewhat increased rates of psychological problems [Visser et al., 2005]. Of the 4- to 11-year-old children, 20% of the boys exhibited clinically abnormal total scores (especially internalizing disorders), compared to the 8% norm in the Netherlands. For girls, it was stated only that 20% were classified as clinically abnormal in externalizing (compared to 10% in the norm sample). Adolescent girls, however, showed more internalizing problems (17% versus 8% in the norm). In this study, the children aged 11–18 years were also questioned by a self-assessment instrument (Youth Self-Report, YSR). The YSR is a parallel version of the CBCL for children and adolescents (starting at age 11). By this method, 23% of the girls were classified as clinically abnormal in internalizing (norm: 8%). The boys' scores fell within the norm. This result is consistent with another study in which the adolescent daughters of ill mothers had the highest average score on the anxious-depressive complaint spectrum [Compas et al., 1994]. The results of both studies suggest that children with a parent who has cancer may respond more with internalizing than externalizing disorders, and that ill parents tend to underestimate the existence of their children's psychiatric complaints.

Barkmann et al. [2007] studied children between 4 and 18 years of age. In families where one parent had a serious physical illness, the child's risk of clinically abnormal complaints was 1.2 times greater, but it increased significantly (OR: 2.08) if borderline abnormal behavior were taken into account. The physical illness of the parent was also frequently associated with problems in the internalizing spectrum (anxieties, depressive symptoms, and somatic complaints).

Agreement between Ill Mothers and Fathers in the Assessment of Children's Psychological Problems

The review article by Visser and colleagues [2004] stated that, judging from the current state of empirical results, there are no significant discrepancies between a parent who has cancer and a healthy parent in their assessment of emotional or behavioral problems. Other studies show a more inconsistent picture. Visser et al. [2005] showed that parents with cancer perceived significantly more internalizing problem behaviors than did healthy parents, but only for sons of primary school age and adolescent daughters. Also, Watson et al. [2006] reported differences in perception between the healthy father and the mother with cancer: The fathers clearly evaluated their children as having fewer behavioral problems than the mothers did. However, less than half of the sample submitted an additional evaluation from the father.

On the other hand, there are findings that indicate mostly a high level of agreement between the sick and healthy parent, at least for children of primary school age [Visser et al., 2007]. In this study (N = 123 children, 69 families, age: 4–18 years) both parents consistently agreed about the internalizing, externalizing, and total problems of their primary-school-age

children and their adolescent sons. But there was little agreement about the internalizing, externalizing, and overall problems of their adolescent daughters. The results so far are inconsistent with respect to agreement between ill and healthy parents, although the more recent findings show more agreement than disagreement. In adolescent girls, however, the self-report should always be consulted as well.

Whether and to what extent cancer (or other serious parental physical illnesses) affects the coherence of the parent's assessment has to be considered also, in light of research on effects that are due to different sources of information, which also demonstrate discrepancies in assessment by healthy parents [De Los Reyes and Kazdin, 2005]. Here the mothers perceive more problem behavior than the fathers do. We therefore have to ask whether the mothers' greater perception of problems is actually due to the disease. There are also studies that involve ill fathers, although the majority of study participants are mothers. Visser et al. [2006] found that both a physically and psychologically worse level of functioning on the part of the ill mother was a predictor of the extent of perceived internalizing and externalizing problems in adolescents, whereas in children of primary school age, only the mothers' physical functionality was a predictor of her perception of problems from the externalizing spectrum. This could explain the findings of discrepant evaluations. However, it presupposes that the healthy parent is not also stressed by the illness, either physically or mentally. The relationship between personal distress and the perception of greater problems in the child is also supported by findings for parents who are not chronically ill. De Los Reyes and Kazdin [2005] summarized in their review this association between the parents' psychopathological problems and their perception of the children. They state that depressed parents had a biased negative perception of the children's behavior problems, and anxious parents evaluate their children as also being anxious. However, these results refer mainly to the discrepancies between the parents and the teacher or the child, and not to discrepancies between the two parents. Many people with chronic physical illnesses experience depressive and/or anxious feelings. These feelings may be co-responsible for a biased assessment of behavior. Previous studies have, however, mostly invoked correlations between the parents' own personal distress and their perception of problems in the children. A prospective relationship has rarely been studied up to now, and the previously identified relationship could also be caused by a third variable (such as a generally greater openness of females to think about their own problems and those of the child). In studies in which both parents and children or adolescents were interviewed, the adolescents usually thought they were having more problems, but the children did not [Birenbaum et al., 1999; Watson et al., 2006, Welch et al., 1996]. However, such a pattern is also consistent with studies on the evaluations of physically healthy parents and their adolescent children [e.g., Seiffge-Krenke and Kollmar, 1998]. The specificity,

in terms of the physical illness of a parent, therefore remains in question.

Development Over Time of Psychological Problems of Children of Seriously Physically Ill Parents

Most studies are cross-sectional, with the exception of a study by Welch et al. [1996], which covered the psychological problems of children at two measurement points (T1: within 10 weeks after the parental diagnosis; T2: 4 months later). They reported a decline in anxious-depressive symptoms from the children's perspective, but not in the parents' evaluations.

Visser et al. [2007] studied 69 families with a total of 123 children (57 primary school children and 66 adolescents), in which one parent had cancer, at three measurement points (T1: an average of 4 months after the diagnosis; T2: 6 months after the diagnosis; T3: 12 months later). Using the CBCL and the YSR, the behavior of the children of these parents with cancer was compared with that of children whose parents had already received the diagnosis 1–5 years before. The predictive power of earlier emotional and behavioral problems with respect to subsequent problems also were to be investigated. At T1, parents and children of cancer patients reported the same amount of emotional and behavioral problems as children in the norm group of parents and children, for whom the diagnosis had been made up to 5 years before. Of these, some 20–25% of the children were the most affected by internalizing and/or total problems. Within the first year after diagnosis, the children's emotional and behavioral problems declined, and it was reported that they had fewer problems than the children in the norm group. The extent of problems at the first measurement point was a good predictor of subsequent measurements. This suggests that perhaps an early identification of children who are taking a turn for the worse can already be made at the time of the parent's diagnosis.

A more recent study [Huizinga et al., 2010] showed similar results. Out of three measurement points (T1: within 4 months of diagnosis; T2: 6 months later; T3: 12 months later), 112 adolescents between ages 11 and 18 reported the highest rate of clinical complaints involving post-traumatic stress at T1 (compiled using the Impact of Event Scale; 29%), and these then decreased considerably (16% at T2 and 14% at T3). It must therefore be assumed that initially elevated distress decreased on its own, over time. If there is no initial increase, there will be no change. However, the data pool for reaching such a conclusion is very small.

Risk and Protective Factors for the Development of Psychological Problems in Children of Physically Ill Parents

According to previous results, it makes little sense to offer intervention to all children whose parents have cancer. The variance within the affected group of children, however, shows that certain factors must be present for a favorable or unfavorable development or adjustment by the child. These could be demographic variables (e.g., age or gender of the

Tab. 1. Risk factors for the development of psychological problems in children of physically ill parents

Risk Factors	Studies
<i>Parents' individual factors</i> Extent of depression Extent of distress over the illness	e.g., Visser et al., 2006; Watson et al., 2006
<i>Child's individual factors</i> More externalizing problems Impulse control disorders Female Adolescent	e.g., Compas et al., 1994; Visser et al., 2005
<i>Family factors</i> Unfavorable family communication Low family cohesiveness High affective involvement Division of roles Single-parent families Families with few children High/chaotic family adaptation	e.g., Huizinga et al., 2003; Visser et al., 2006; Watson et al., 2006
<i>Disease-related parameters</i> Low physical functionality of the sick parent	e.g., Visser et al., 2006

child), disease-related parameters (e.g., time since diagnosis, current medical treatment), individual factors of the child's personality (e.g., impulse control), individual factors of the parents (e.g., parental stress, depression), family factors (e.g., cohesion, communication, support of partner), or social variables (e.g., extent of support outside the nuclear family). Table 1 gives an overview of possible risk factors.

In the present pilot study, both parents evaluated the strengths and difficulties of the child, after the mother's diagnosis with a gynecological cancer (T1: within 8 weeks after diagnosis). There were further evaluations at T2 (about 3–5 months after diagnosis), T3 (about 6 months after T2), and T4 (about 1 year after T2). Due to sample attrition at T3 and T4 (see below), the present study focuses on the first two measurement points. Based on previous studies, we surmise that children whose mothers have cancer do not present an increased rate of psychological problems compared to the norm, after learning of the diagnosis. We also proceed from the assumption that the evaluations of mothers and fathers agree more than they diverge. However, we assume that individual and family distress has an impact on the parents' evaluation of the children. If the mother's physical distress is great (e.g., from chemotherapy), it can be expected that during her medical treatment, the child will show more externalizing than internalizing problems, because these problems require stronger parental setting of boundaries, which already necessitates considerable energy for physically healthy parents, whereas during medical treatment, the parents may not have the energy for that. On the other hand, children might adapt to the situation and be more considerate of the sick parent. Coping with the disease in the family thus also provides an opportu-

nity for children to develop in a pro-social and psychologically healthy way. We expect, however, that a precondition for this is that parents cope with the disease as a couple right from the start, and involve the child in age-appropriate ways. Expanding upon previous studies, we examine, in a prospective study, in addition to the child's behavioral problems and the psychological distress of the sick parent, the psychological distress of the healthy parent, as well as the *common dyadic coping* with the disease. If the partner of the sick woman supports her in a helpful way, then processes such as parentification – whereby children take on the adult caregiving role and look after the sick parent – occur less often. We therefore expect that the degree of emotional and behavioral problems of children during the year after learning of the diagnosis depends on how the disease was addressed in the partnership, during the acute phase of the illness. This should have the greatest predictive value for the child's development, alongside the distress of the sick parent (e.g., the degree of distress experienced because of the cancer).

Patients and Methods

Participants

The present sub-sample is taken from a total sample of $N = 72$ couples who participated in a randomized, controlled study, which tested the effectiveness of a partnership support program ('Seite an Seite' ['Side by Side'], experimental group EG), compared to a psychoeducational information condition (control group, CG). The study was reviewed in advance by an independent ethics commission. The inclusion criteria were that the women: (a) had to have been diagnosed with Stage I to III breast, ovarian, or uterine cancer, and have no other history of cancer; (b) had to have been in a heterosexual partnership for at least 12 months; and (c)

Tab. 2. Description of the sample (N = 19 couples with 27 children)

	Patients (Mothers)		Partner (Father)
Age (years)	44.5 ± 4.4		46.7 ± 4.7
Partnership duration (years)			16.4 ± 8.0
Children's ages (years)			10.4 ± 3.9
Marital status, married			89%
<i>High school diploma, %</i>			
Secondary general school or lower	5		16
Intermediate secondary school	16		16
(Vocational) baccalaureate	32		10
University degree	47		58
<i>Stage, %</i>			
Stage I	42		
Stage II	26		
Stage III	21		
Stage IV	11		
<i>Type of treatment, %*</i>			
	at T1	at T2	at T3
Surgery (e.g., lumpectomy, mastectomy)	80	0	10
Chemotherapy	20	75	10
Radiotherapy	0	25	50
Hormone therapy	0	0	20

* The percentages for the types of treatment from T1 through T3 indicate how many women had received the indicated treatment at that measurement point. At T4 (15–18 months after learning of the diagnosis) 25% were still having radiotherapy and 63% were in hormone therapy. Two mothers died during the study (before T3 and before T4).

both partners had to agree to participate. During the recruitment period at two sites (02/2006–02/2009 in Braunschweig and 02/2006–06/2007 in Munich), 298 addresses were provided by the cooperating hospitals. Of these, 174 patients (58%) were not interested in participating and declined. 22 patients were excluded because they did not meet the inclusion criteria (7%), and in 12 couples, the woman had already died before the recruitment telephone call (4%). Most couples (70%) who refused to participate gave as the reason that they did not need any support. In 7%, the partner declined to participate in the study. Thus, 90 couples agreed to participate (recruitment rate 34%). Of these 90 randomized couples (EG: 45, CG: 45), n = 38 (EG) and n = 34 (CG) received the intervention. The reasons for termination included lack of time and the death of the patient (EG), as well as serious physical illness of the partner, separation, and lack of interest (CG). At T2, there were data for n = 34 couples in the EG and n = 28 pairs in the CG.

For this pilot study, only couples who still had minor children were selected from the total sample. Of the 72 couples, 26% had children under 18 years of age (N = 19 couples with a total of 34 children, of whom 27 were between the ages of 4 and 16), which were studied separately in the present study. The parents are, on average, in their mid-forties, and their partnership had existed for 16 years (Tab. 2). Of the 27 children between the ages of 4–16 (56% female) for which there is an evaluation at the first measurement point, 14 were an only child; for the other 13 children, the parents provided evaluations for more than one child. For 3 children, only the mother gave an evaluation, and for 2 children, only the father. Thus there were N = 25 evaluations from mothers and N = 24 from fathers.

Using the relevant measurement instruments for the questions posed, the internal consistencies pertain to the total sample (N = 72). However with the SDQ, only couples with children 4–16 years of age were included (N = 27).

Psychological Measurements

Strengths and Difficulties Questionnaire (SDQ) [Goodman, 1997]. The SDQ uses four scales, each with five items for problematic areas, including *Emotional Problems* ($\alpha_{\text{mothers}} = 0.66$; $\alpha_{\text{fathers}} = 0.75$), *Behavioral Problems* (α cannot be calculated correctly because item 22, 'steals' exhibits no variance – all mothers and fathers deny the occurrence of 'stealing'), *Hyperactivity* ($\alpha_{\text{mothers}} = 0.87$; $\alpha_{\text{fathers}} = 0.83$) and *Problems with Peers* ($\alpha_{\text{mothers}} = 0.81$; $\alpha_{\text{fathers}} = 0.62$). These four scales add up to a *total problem score* ($\alpha_{\text{mothers/fathers}} = 0.85$ – without the item 'steals'). There is also a *Pro-social Scale*, which deals with caring, helpful social behavior ($\alpha_{\text{mothers}} = 0.64$; $\alpha_{\text{fathers}} = 0.83$). Each of the 25 items is rated on a three-level rating scale (not applicable, partly applicable, definitely applicable).

Hospital Anxiety and Depression Scale – Depression (HADS-D) [Herrmann, 1997]. The HADS-D is a widely used instrument in psychosomatic medicine, which, with seven items, reliably records patients' depressive symptoms ($\alpha = 0.83$).

Fragebogen zur Belastung von Krebserkrankungen (FBK) [Herschbach et al., 2003]. This questionnaire records the psychosocial distress of cancer patients on the basis of 23 problem areas (total score: $\alpha = 0.87$). The patient has to decide first whether this area is a problem (yes/no), and if it is a problem area, how distressing it is perceived to be (0–5).

Progredienzangstfragebogen – Kurzform (PAF-K) [Mehnert et al., 2006]. This questionnaire (short form) deals with fear of progression of the disease, using 12 items ($\alpha = 0.87$).

Skalen zur Sozialen Unterstützung bei Krankheit (SSUK) [Ramm and Hasenbring, 2003]. These scales use 24 items to show the extent of positive social support (15 items, $\alpha = 0.94$) and stressful interactions (9 items, $\alpha = 0.82$), inside and outside the family, when there is a chronic disease.

Gemeinsames Dyadisches Coping (GDC, Common Dyadic Coping). This scale is part of the Dyadischen Coping Inventars (DCI) [Boden-

mann, 2008], and measures the extent of dyadic coping with a stressor in the partnership ($\alpha = 0.82$).

Data Analysis

To determine the number of clinically abnormal problems, we calculated the frequencies per scale (at the borderline or clinical cutoff; case identification according to the guidelines for the German version on the website www.sdqinfo.com), along with mean scores per scale, separately for mothers and fathers and at both measurement points.

For analysis of the agreement between mothers' and fathers' evaluations, we reported the frequency of agreement on identification of clinical abnormalities, as well as mean comparisons for each scale and correlations between mothers' and fathers' judgments.

Regression analysis of the SDQ score for the child was used for predicting the subsequent extent of emotional and behavioral problems. The extent of dyadic coping with the illness (DCI) and the scales for social support should be used as predictors of the parents' individual distress measurements at T1 (depressive mood, progressive anxiety, distress because of illness).

Results

Sample Attrition

At T1 there were 25 mothers and 24 fathers, with the number of mothers falling during the course of the study $n = 16$ (T2), $n = 14$ (T3), and $n = 12$ (T4). For the fathers, the sample was reduced to $n = 15$ (T2) and $n = 11$ (T3 and T4). Thus one and a half years after the study began, we still had data for 50% of the original participants. This attrition is consistent with that in other studies [e.g., Huizinga et al., 2010]. The reasons known to us include the age of the child (after one year, $n = 2$ were no longer in the target age range), the death of the mother ($n = 2$), and dropouts ($n = 9$). Since with this small number of cases the significance is very limited, we restrict ourselves to analyzing the data available at T1 and T2.

The mothers were clearly distressed by the disease at the first measurement point ($M_{\text{FBK}} = 38.8$, $SD = 16.4$; possible range: 0–115, cut-off value: >34) and displayed slightly higher values for anxiety ($M_{\text{HADS-D}} = 5.3$, $SD = 3.0$, $M_{\text{HADS-A}} = 7.6$, $SD = 4.5$; 0–7 normal; 8–10 borderline; >11 abnormal). The healthy fathers were just as distressed ($M_{\text{HADS-D}} = 6.0$, $SD = 3.3$, $M_{\text{HADS-A}} = 8.6$, $SD = 2.6$).

Frequency of Psychological Problems in Children Whose Mothers Have Cancer

From the mothers' perspective. The total SDQ score for most children at T1 is deemed psychologically normal ($n = 22$; 92%), 1 child is classified as borderline, and 1 child as clinically abnormal. Thus the frequency of mental disorders is a maximum of 8% (in the norm sample: 20%). The individual scales show the following evaluations: *Emotional Problems* (8% clinical, 12% borderline), *Behavioral Problems* (12% clinical, 20% borderline), *Hyperactivity* (8% clinical, 4% borderline), and *Problems with Peers* (12% clinical, 8% borderline). All children are described as pro-social (neither clinically nor borderline abnormal). Similar rates are also found at T2.

From the fathers' perspective. The total SDQ score for most children is also deemed by the fathers to be psychologically normal ($n = 23$, 89%), 2 children are classified as borderline, and 1 as clinically abnormal. *Emotional Problems* (15% clinical, 8% borderline), *Behavioral Problems* (12% clinical, 27% borderline), *Hyperactivity* (12% clinical, 0% borderline), and *Problems with Peers* (8% clinical, 15% borderline) are not any greater, with the exception of the *Behavioral Problems* scale. All children are described as pro-social. Here, too, similar rates are found for the second measurement point.

Agreement between mothers and fathers. There is a high level of agreement between mothers and fathers in the assessment of their children: 100% of the children who were jointly assessed are evaluated identically by both parents at T1, respecting total score for abnormal versus normal (80% of the children at T2). A correlation of the evaluations of mothers and fathers showed good agreement in total score at both measurement points ($r = 0.84$). For the subscales, the *Hyperactivity* scale shows the highest correlations, and those most consistent over the measurement points ($r = 0.86$ and $r = 0.88$, respectively), whereas the *Emotional Problems* scale provides the most heterogeneous findings ($r = 0.48$ at T1 and $r = 0.03$ at T2). (When there are several children per family, we could not be sure that the parents had made the assessments in the same order, so these agreements have again been calculated only for families with just one child. The correlations for the total problem score were between 0.88 and 0.90. For *Emotional Problems*, between 0.63 and 0.32. The reported correlations between mothers and fathers are therefore probably a lower limit of agreement.)

Mean SDQ Scores

The mean scores (standard deviations) for the first and second measurement point in the SDQ total score were $M_{\text{mother T1}} = 8.5$ (6.2) and $M_{\text{mother T2}} = 9.1$ (5.9), and $M_{\text{father T1}} = 9.6$ (6.7) and $M_{\text{father T2}} = 8.1$ (4.7). There were no significant differences between mothers and fathers (dyad: $F(1,14) = 0.17$, $p = 0.68$; measuring point*dyad: $F(1,14) = 3.6$, $p = 0.08$) or over time ($F(1,14) = 0.09$, $p = 0.93$). In terms of the child's strengths, both mothers and fathers thought that they displayed age-appropriate pro-social behavior, which evaluation also does not change significantly at the different measurement points.

Prognosis for Psychological Problems 3–5 Months after Diagnosis

The small sample size limits the possibility of including predictors. To decide which predictors should be selected from the variables that were originally considered as potentially relevant to the individual distress of parents (anxiety, depressive complaints, physical and psychological well-being of parents, social support), correlations among these predictors were first calculated. The variable was chosen that had the highest correlations with all the other variables. For the mothers, this was the FBK, which, for example, was strongly correlated with the

Tab. 3. Predictors (assembled within 8 weeks after the diagnosis) for the child's psychological adjustment (SDQ) 3–5 months after the maternal diagnosis became known

	Child's Psychological Adjustment				
	B	Standard error	Beta	T	p
<i>Model 1</i>					
Constant	–2.3	3.1		–0.74	0.47
SDQ pre	0.22	0.3	0.23	0.86	0.41
FBK pre	0.22	0.1	0.60	2.25	0.04
<i>Model 2</i>					
Constant	12.6	6.0		2.1	0.06
SDQ pre	0.28	0.2	0.29	1.3	0.21
FBK pre	0.11	0.09	0.29	1.2	0.26
GDC	–0.68	0.25	–0.48	–2.7	0.02

FBK also predicted the common dyadic coping as significant with $\beta = -0.56$, $t = -2.5$ and $p < 0.03$. Thus, the basic requirement for a potential mediation is met. Evaluations of the child are based on the reports of the sick mothers. The Sobel test was significant (Sobel test statistic: -2.0 , $p < 0.05$).

SSUK (distressed interaction and positive support, $r = 0.63$, $p < 0.01$ and $r = -0.50$, $p < 0.05$). Common dyadic coping with the disease (GDC) was selected as a further predictor. To control for the initial level of the child's emotional or behavioral problems, the SDQ total score at T1 was added as a predictor. To test whether common dyadic coping has a (partial) mediation function, we first examined whether maternal distress about the cancer at T1 predicts the SDQ score at T2 (under control of the SDQ score at T1). As the second step, we studied whether maternal distress at T1 predicts the extent of common dyadic coping with the disease. The results are shown in Table 3. All preconditions for mediation were met. Finally, we tested whether common joint dyadic coping at T1, as an additional predictor, significantly changed existing prognoses. In fact, the relationship between maternal distress because of the cancer at T1 and the extent of the child's psychological problems 3–5 months later was completely mediated by the extent of the common dyadic coping with the disease in the partnership. The model explained 70% of the variance in the child's psychological problems at T2. The analysis of data from the fathers did not have the same effect: here, only the child's initial problem score was predictive of the extent of mental symptoms 3–5 months later.

Discussion

In the present pilot study, no clear indications could be found that children whose mothers have breast or gynecological cancer developed significant psychological problems within the first year after diagnosis, from the parents' perspective. Only in the *Behavioral Problems* scale ('often has temper tantrums,' 'often fights'), was there an increase, especially in the borderline area. This could be interpreted as an adaptive reaction by the children to the changed situation or as a result of maternal perception that is biased because of the disease. But

since the fathers convey a very similar judgment, it is at least not the disease per se or the physical distress associated with it that causes such an evaluation. Assuming that both partners could be highly distressed because of the disease, however, we cannot exclude that they have a common biased view because of the emotional stress they both are under. It would be useful to interview the children themselves, if their age or developmental level permits. Compared to children of mentally ill parents, the risk to children of physically ill parents seems to be somewhat lower overall [Barkmann et al., 2007: OR 2.3 compared with OR 3.8 for mental illnesses]. This poses the question, what is the determining factor in physical illness: Is it the physical illness itself, is it the physical limitations associated with it, or is it the psychological stress, etc.? Presumably the mother's physical illness is a stress on the whole family.

Concerning the agreement between the two parents, we come to the same conclusion as Visser and colleagues [2005]: mothers and fathers agreed, on average, in 90% of their evaluations about how to classify the problem (normal or abnormal). If there were differences, these mostly related to the shift from 'borderline' to 'clinically abnormal.' But perhaps this high level of agreement is also based on the fact that those who participated in the study were mainly couples who were content with their partnership. Discrepant views about the partnership, which characterize less contented relationships, are probably more likely to be associated with discrepant views about the child's behavior. Another possible explanation is the average intensity of the child's psychological problems. The total score of the SDQ for this sample is in the normal range and, according to the mothers' evaluation for example, is still nearly a full standard deviation below the cutoff for borderline behavioral abnormalities. Probably it is easier for parents to agree that there are no psychological problems, than to agree in identifying abnormalities and to call them by the same name (e.g., emotional problems versus behavioral problems). Even the sometimes low correlations

between the judgments of mother and father across all measurement points indicate that, depending on when the assessment is made and the specific nature of the perceived abnormalities, there can be significant differences. However, one must take into account that the correlation is limited by the reliability, and the reliabilities of the SDQ subscales are sometimes quite low. We could find little evidence that the parents who participated in this study had less agreement in their assessment of the child, than parents without physical illnesses, as reported in the literature [De Los Reyes and Kazdin, 2005; Seiffge-Krenke and Kollmar, 1998].

Possible predictors for increased psychological problems 3–5 months after the diagnosis had to be restricted due to the small sample size, and limited to short-term prediction of the child's development. It was clear that the mother's initial distress about the cancer is a predictor of how intense the mothers think the child's psychological problems are 3–5 months later – regardless of the child's initial abnormality score. Interestingly, this prospective relationship was mediated entirely by the extent of dyadic coping with the cancer in the partnership. This could be an indication that children benefit in the long term, if couples are able to cope well together with a woman's physical illness. However, this finding did not pertain to the fathers. This could be because the fathers did not fill out any questionnaires that covered specifically the impact of cancer on the woman.

We must speak here of a pilot study, due to the small sample size and the fact that the child's course of development was not the primary variable of interest. However, this is one of the few studies that was designed prospectively, and therefore offers a better way to study such predictors. We also did not rule out children with siblings, unlike some other studies. There seems to be a substantial difference, whether the affected children have siblings who are also affected by the parent's illness. The exclusion of these families or the designation of an index child, e.g., by Watson et al. [2006], does not reflect the reality of these children's lives, in which the siblings, according to their age and position in the birth order, take on an important support role for each other. Welch et al. [1996] argue that the fact that siblings, to a significant extent, do not have shared environmental variance, permits one to hypothesize the independence of the data. They treated the data as if these factors were independent, just as we did. Finally, it may also be relevant that some of the couples participated in a support program ('Seite an Seite' ['Side by Side']; Heinrichs and Zimmermann [2008]), during which the child was also discussed. Tips were provided on how to inform children about the diagnosis, how to deal with their reactions, and what might help children cope with the illness over the long term. Due to the small sample, it was not possible to differentiate these conditions; most couples with children were in the intervention group. However, there was very limited counseling regarding the children (only 11–20% of two out of the four meetings during the intervention). Nor was the study of a po-

tential gender or age effect possible. As other studies had already found, there was a great age diversity among the children, which, because of the small sample size, could not be studied more closely. Finally, the finding that the sample of children was assessed as normal by their parents suggests a potentially restricted variability in the predictive values. This limits the study and its results. It is, however, not likely that the present study was more limited than previous studies, which also reported, on the average, no greater abnormalities in these children.

Psychosocial interventions are recommended in the field of psycho-oncology, which, in addition to age-appropriate information about the disease, suggest consideration of family resources, support for parenting skills, and support in anticipation of the mother's imminent death [Romer et al., 2009]. An initial counseling concept was developed and evaluated as part of the COSIP Project (Mental Health Prevention in a Target Group at Risk: Children of Somatically Ill Parents). It consists of 3–8 counseling sessions offered over a period of 6–8 months [Romer et al., 2009]. Initial results show good acceptance on the part of the family. Among the most important goals of counseling were found to be facilitation of active child behavioral management and the promotion of a parental perception of self-competence [Paschen et al., 2007]. This approach to counseling offers an opportunity to support affected families immediately.

In summary, children whose mothers who are in the early stages of cancer, show, according to the parents, (1) little evidence of severe and stable psychological complaints; (2) some evidence of temporary behavioral abnormalities; taken together, these indications imply a benign course for childhood psychological problems in the children of affected couples. It might be useful (3) to provide support to both parents as a couple, to foster a positive climate in the family. Counseling of one or both parents in their parental role could also have a positive influence on both the child's behavior and the parents' child-rearing practices. The indication for such counseling proceeds from the parents' individual as well as family variables (including partnership variables) and from the self-report of children and adolescents (if possible). Further research on the importance of prevention for children of physically ill parents is necessary, particularly prospective studies with a larger sample.

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