

The Impact of Childhood Cancer on Family Functioning: A Review

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Family functioning can influence the adjustment of children with cancer. In order to provide effective interventions for the family, it is important to recognize how family functioning, including parental adjustment and distress, can change during the course of treatment. Upon review of current literature, some variations in findings in family functioning due to childhood cancer were found. While some families showed resiliency (a non-disorganizing impact), others showed signs of impairment throughout the treatment (a disorganizing impact). Moreover, some families even exhibited improvement (an organizing impact). In addition, it was found that such outcomes were related to different research methodologies (i.e., quantitative, qualitative, cross sectional, longitudinal). Based on these methodological distinctions, this review attempted to seek links between specific research designs and particular results in order to delineate a clearer picture of the dynamic transitions within families and their function over the course of childhood cancer treatment. Considering an overall trend of family functioning associated across studies of varied methodologies, this review speculates that while families with high family functioning might receive appropriate social resources and strengthen their internal bonds during the course of treatment, families with low family functioning might experience difficulties coping with adverse events and fail to reestablish a new pattern of family functioning. This review also indicates that such changes in family functioning occur on both practical (e.g., reassignment of family role) and existential levels (e.g., exploration of the meaning of illness) in the context of childhood cancer.

The Impact of Childhood Cancer on Family Functioning

Due to remarkable advances in childhood cancer treatment, the five-year survival rate for all cancer sites (including leukemia, cancer of the brain and other nervous system, renal tumors, and other cancers) has increased to 79% (Jemal et al., 2006). This improvement in the survival rate causes long-term repercussions on the lives of children and family (McCubbin, Balling, Possin, Frierdich, & Bryne, 2002). McCubbin et al. (2002) argue that recurrent admissions, invasive treatments for the child, role shifts within the family, and the uncertainty of prognosis can be stressful for the family, thereby debilitating family functioning. Additionally, Kinahan et al. (2012) indicate that physical disfigurements, especially cranial and spinal deformities, and hair loss due to treatments, on childhood cancer survivors might have significant psychological impacts. Such physical disfigurements might increase the risks of developing anxiety, depression (Kinahan et al., 2012), and more negative self-image (Jamison, Lewis, & Burish, 1986), thereby impairing child patients' quality of life. Given that these physical characteristics might remind the family of the child's cancer, they could also have a psychological impact on the

family (Björk, Wiebe, & Hallström, 2005; Quin, 2008).

Impact of Childhood Cancer Over the Treatment Phases

Alderfer and Kazak (2006) describe the impact of childhood cancer on families through the four phases of treatment: diagnosis, treatment initiation, illness stabilization, and the end of treatment.

Diagnosis phase. Because common childhood cancer symptoms, such as fatigue and joint pain, are often overlooked in the diagnosis phase, parents often wait days or weeks before taking their children to a hospital. This delay may increase a sense of guilt in the parents. When parents do visit physicians, they often see their children undergo painful, invasive diagnostic procedures. Meeting with unfamiliar multidisciplinary professionals and receiving an immense load of information about the illness may overwhelm parents and increase their anxiety (Alderfer & Kazak, 2006). Similarly, siblings may also feel that their lives are disrupted due to the illness, as they worry about the survival and health of their ill brother or sister. At the same time, the siblings may be, or feel, somewhat excluded by their families because parents' attention tends to focus on the ill children and those siblings may not receive sufficient information about the illness from their parents, preventing them from having a complete and accurate understanding of the experiences of their ill brother or sister. This may be a scary

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feeling for those children (Havermans & Eiser, 1994). **Treatment initiation phase.** In the treatment initiation phase, families' daily lives may begin to revolve around treatment. Parents see their children manifest side effects (e.g., nausea, rashes, poor appetite) and begin or continue painful treatments (e.g., surgery, chemotherapy, radiation therapy), which might cause families anxiety and feelings of guilt as the experience of watching the child suffer takes its toll on parents' psychological wellbeing (Enskar, Carlsson, Golsater, Hamrin, & Kreuger, 1997).

Illness stabilization phase. During the illness stabilization phase – generally weeks or months after diagnosis, although relapse and severe side effects may occur – treatment begins to be more fully incorporated into families' new daily life patterns (Alderfer & Kazak, 2006).

The end of treatment phase. At the end of treatment – usually months or years post-diagnosis – intense treatment is replaced by periodical follow-up visits. During this period, the families' overall burden may decrease. However, this often causes mixed feelings in parents, namely anxiety at the same time as feelings of joy (Katz & Jay, 1984). Through the course of treatment, families may increase their dependency on medical care and staff, preventing them from facing the fear of relapse. Therefore, the end of treatment can make families feel that they have lost the sense of security and protection that they enjoyed while their children were under constant care, causing more anxiety (Alderfer & Kazak, 2006; Katz & Jay, 1984). In addition, families have to flexibly recreate their everyday life pattern without the regularity of the previous cancer treatments. Since families may have by this point successfully incorporated treatment regimens into their lives, including diet restrictions and limited physical activities, changing these patterns could also be challenging (Ostroff, Ross, & Steinglass, 2000).

Even after the completion of treatment, the fear of death, relapse, and lasting negative side effects, such as growth disorder and infertility caused by treatment, can persist in the minds of families (Byrne et al., 1987; Hutchinson, Willard, Hardy, & Bonner, 2009; Ostroff et al., 2000; Vannatta, Salley, & Gerhardt, 2009). Thus, families' experiences may change dramatically during the course of treatment because

each phase of childhood cancer treatment has a different and significant impact on their functioning.

Family Functioning and Childhood Cancer Treatment

Since health care providers have frequent contacts with the family over the course of treatment, especially during hospitalizations or intense treatment, they may often see childhood cancer's impact on the family. For example, the demands of treatment might force the parents to change their jobs in order to be available for their child's frequent hospital visits, or to seek a relative's support for siblings' care. Likewise, the potential disruption in the balance of family relationships could lead to an eventual divorce (Kupst & Schulman, 1988; McCubbin et al., 2002). Concerns about financial difficulties might also increase as the treatment is prolonged, placing further strain on family functioning (Kalnins, Churchill, & Terry, 1980; Kupst & Schulman, 1988; McCubbin et al., 2002).

Upon seeing such familial problems through the treatment, health care providers often mistakenly link worsening family relationships (e.g., divorce) or parental distress (e.g., depression) to childhood cancer, rather than truly grasping the underlying complexities of such issues (Cadman, Rosenbaum, Boyle, & Offord, 1991). It is important for health care providers to appropriately consider family functioning in addition to physical symptoms, since it may influence current and later psychological adjustment of ill children and their treatment in both direct and indirect ways. (Drotar, 1997; Katz & Jay, 1984, Kazak et al., 2011; Pelcovitz et al., 1998; Pless, Roghmann, & Haggerty, 1972, Trask et al., 2003; Wallander & Varni, 1998). For instance, when the family is cooperative and has open communication concerning the illness, the child might be better able to acknowledge the situation (DiMatteo, 2004; Sobo, 2004). On the other hand, if psychosocial problems in the family (e.g., neglectful childcare, parental depression) deter the parents from regularly attending hospital visits and seeking medical consultation, pediatricians might not be able to smoothly proceed with treatment (Sobo, 2004). Moreover, when the child of such parents sees other parents visiting their own children, he might feel lonely or jealous, potentially

worsening the existing relationships between him and other pediatric patients. In addition, if parents fail to understand complicated medical regimens, such as food restrictions, the treatment may not proceed in an appropriate manner (DiMatteo, 2004; Sobo, 2004).

There is a lack of research investigating the effect of parental mental health problems on children diagnosed with cancer. Nevertheless, one could speculate that excessive anxiety and fear might drive the parents to share information about their child's poor prognosis with other parents, unsettling other parents and creating a negative environment for both other pediatric patients, their families, and the health care providers. As such, health care providers should consider family functioning and appropriately introduce psychological treatment to the family, as well as patients, not only as addition to the physiological treatment they administer, but as part of the same regimen.

Limitations of Research

Serious limitations exist among previous studies exploring the impact of childhood cancer on family functioning. Specifically, the use of heterogeneous methodologies makes a comprehensive examination of research findings difficult (Grootenhuis & Last, 1997). First, the utilization of different psychometric measures may affect the research outcomes by limiting the ability to generalize across studies. While some researchers utilize quantitative research with different psychometric scales, moreover, others employ qualitative research methods, such as interviews. A further important limitation is that most previous studies are limited by small, site-specific sample sizes (i.e., fewer than 50 participants) (Drotar, 1994; Pai et al., 2007).

Another issue affecting the generalizability of previous research can be found in the discrepancies concerning variables (e.g., the types of cancer, existence of ongoing treatment, and amount of time following diagnosis) that may influence the specific research findings (Kupst, & Schulman, 1988). For example, families with on-treatment or off-treatment status may have or have had different experiences (Cadman et al., 1991; Hutchinson, Willard, Hardy, & Bonner, 2009; Sawyer, Antoniou, Toogood, Rice, & Baghurst, 2000; Sloper, 2000). Yet most studies under review do not take such information

into consideration in examining their outcomes. Other factors limit the generalizability of existing studies. For example, the decision to incur reversible and/or irreversible physical disfigurement (e.g., weight or hair loss, cranial or spinal deformities, amputation of limbs) or impairments (e.g., thyroid dysfunction, infertility, growth disorder) can pose significant stress on the patient and their family (Alderfer & Kazak, 2006; Kinahan et al., 2012; Long & Marsland, 2011; Oberfield & Sklar, 2002; Patenaude & Kupst, 2000; Vannatta et al., 2009). The studies reviewed here do not take account of these decisions. Likewise, many researchers point out that the availability of social support from workplaces and professionals, including psychologists, social workers, and child psychiatrists, may affect family functioning. (Ferrell, Rhiner, Shapiro, & Dierkes, 1994; Fife, Norton, & Groom, 1987; Kupst & Schulman, 1988; McCubbin et al., 2002; Speechley & Noh, 1992). While some studies include such information, others do not (Pai et al., 2007). These limitations should be taken into account in the examination of research outcomes.

Among relevant studies, some variations in findings can be found. While some families show resiliency, others show signs of impairment throughout the treatment (Long & Marsland, 2011; McCubbin et al., 2002). Different research designs may affect these results. Yet there is a lack of research that seeks links between specific research designs and particular results. In order to fill this gap, this review examines the effects of varied research methodologies on study outcomes in order to depict a clearer picture of the dynamic transitions within families and their function over the course of childhood cancer treatment

Method

A literature search was conducted using PsycINFO, PubMed, and Web of Science with the following search terms: "childhood cancer," "family functioning," "parents," "psychological adjustment," and "distress." The titles and abstracts of studies concerning families experiencing childhood cancer published from 1980 to 2012 were reviewed. In order to identify relevant sources, citations of reviewed studies were also investigated. In the review, research dealing

with the psychosocial issues of child, parent, sibling, and family related to childhood cancer were available. Among these studies, the following inclusion criteria were used: (a) the sample of pediatric patients of age 18 or younger; (b) patients with any types of cancer (e.g., leukemia, brain tumor); (c) studies written in English; (d) studies focusing on family functioning, especially parental experiences. The following exclusion criteria were used: (a) studies focusing on the experiences of patients or their siblings; (b) studies focusing only on fathers, not parents or mothers; (c) studies focusing on gender differences of parents; (d) studies focusing on treatment approaches; (e) studies focusing on parental bereavement following patients' death; (f) studies focusing on marital quality without the inclusion of family functioning. Using these criteria, 30 studies (18 quantitative studies and 12 qualitative studies) were included for the review.

Review

Impact of Childhood Cancer: Methodologies

Among previous studies, three types of family functioning outcomes were found: disorganizing (impairing), non-disorganizing, and organizing effects of childhood cancer (McCubbin et al., 2002; Pai et al., 2007). To investigate the impact of childhood cancer on family functioning, it is necessary to analyze the components that caused these three different outcome directions in terms of research methods. Impact of childhood cancer found in quantitative studies. Among quantitative studies, the impacts of childhood cancer on family functioning are discussed in both longitudinal and cross-sectional studies.

Longitudinal studies. Many researchers who used psychometric measures found the signs of impairment in family, including parental poor mental health and worsened relationships among family members. Concurrently, their outcomes have multiple variations. In particular, the passage of time following diagnosis can be an important factor leading to varied outcomes (Ostroff et al., 2000; Pai et al., 2007). That is, many researchers corroborate the argument of Pai et al. (2007) that parental distress tends to increase at the point of diagnosis, but gradually decreases throughout a year following diagnosis.

During the diagnostic phase, Manne et al. (1996) found that the majority of the parents report mild depressive symptoms and these symptoms remain at the same level or are reduced after 6 months post-diagnosis. One year after diagnosis, Sawyer, Antoniou, Toogood, Rice, and Baghurst (1993) found that although most parental psychosomatic symptoms were attenuated, parents of children with cancer diagnoses still had more symptoms than the control group. Fife, Norton, and Groom (1987) show the overall stability of family functioning through the treatment, after the diagnosis was received. Most families maintained their function except during the diagnosis phase and did not experience drastic changes in their family structure (e.g., divorce, separation). Simultaneously, Fife et al. (1987) found that families with concurrent problems prior to diagnosis (e.g., having a family member in psychiatric care) showed lower family functioning after the diagnosis.

Within 18 months following diagnosis, on the contrary, Sloper (2000) found that the distress level of most parents did not decrease and some parents showed enhanced distress levels related to family cohesiveness and repeated hospitalizations. Thus, although most researchers share the argument of definite negative impacts of childhood cancer experiences during the diagnostic phase, divergent family functioning outcomes after this phase were found in different studies.

In the illness stabilization phase, while most families may show good adaptation, others may not. During the two years following diagnosis, Sawyer, Antoniou, Toogood, Rice, and Baghurst (2000) identified the successful adaptation of families. According to them, the psychological adjustment and function of families with childhood cancer gradually improved and became closer to the level of control groups in four years. On the other hand, some researchers identified both good and poor adaptations by families. Over the course of 5 years following diagnosis, Wijnberg-Williams, Kamps, Klip, and Hoekstra-Webers (2006) found that while the distress in most parents was alleviated, some parents who experienced the repeated deterioration of their child's condition exhibited elevated distress levels. Moreover, Kazak (1989) suggests that families that were low-functioning prior to diagnosis may adjust poorly to the illness

after the end of treatment. Similarly, Maurice-Stam, Oort, Last, and Grootenhuis (2008) found that although parental psychological distress tends to return to a normal level, families with a passive reaction pattern tend to have higher distress levels than families with an optimistic reaction pattern. Thus, while the passage of time seems to attenuate disorganizing effects on family functioning, some families still experience detrimental impact on their function.

Cross-sectional studies. Similar to the aforementioned longitudinal studies, cross-sectional studies, which do not take the passage of time post-diagnosis into consideration, show both good and poor adaptation of parents in response to their child's diagnosis. Dockerty, Williams, McGee, and Skegg (2000) found that the parents of children with childhood cancer reported significantly higher distress levels and poorer mental health in comparison with the control group. On the other hand, Wright (1993) examined the transition of the parents' quality of life and found that the parents still perceived their current quality of life to be satisfactory even though they felt that their quality of life had become significantly poorer in the context of the treatment.

Moreover, Cadman et al. (1991) add to the literature by considering the impact of psychosocial services. They conducted a survey of parents whose children had chronic illnesses or physical disabilities and found that the functioning of these families was not different from that of control group parents. Based on this conclusion, they warn of the risk that health care providers simply assume that such parents have depressive feelings, which do not always exist. They also explain that parents whose children have such illnesses or disabilities have a greater access to psychosocial services during their children's treatment. Increased access might have attenuated the impact of childhood cancer on family functioning. Given the possibility that utilization of psychosocial services might have improved the family's coping capability, the fact that their function was at the same level with the control group may not necessarily mean that the parents had not experienced depressive feelings or that the family did not need support. It may only mean that they had more resources than families in the control group.

Impact of childhood cancer in qualitative

studies. Similar to the quantitative studies under review, qualitative studies revealed variations in family functioning due to childhood cancer. As a variation of disorganizing effects, many qualitative studies acknowledge impairing effects on parental psychology when treatment is prolonged, such as depression (Clarke-Steffen, 1997; Knafl, Breitmayer, Gallo, & Zoeller, 1996; Patterson, Holm, & Gurney, 2004; Ward-Smith, Kirk, Hetherington, & Hubble, 2005; Young, Dixon-Woods, Findlay, & Heney, 2002), debilitated family cohesion, or worsened marital relationships (Barbarin, Hughes, & Chesler, 1985).

Contrary to the quantitative studies, evidence of potential positive effects as well as non-impairing impacts of childhood cancer on family functioning was found among the qualitative studies. For instance, Kupst and Schulman (1988) found that in the six to eight years following diagnosis, some families experienced significant role transitions (e.g., divorce, remarriage, career changes). Yet most families regained their original function and stability despite these transitions. Moreover, McCubbin et al. (2002) also found that families showed resiliency by maintaining functional integrity during the treatment phases. Additionally, Quin (2008) found that one-third of families perceive their child's cancer experiences positively, by feeling that the family became closer overall and were more likely to 'live in the present' in response to the difficult situation. By contrast, just over one-quarter of the participants experienced negative reactions of insecurity and fear.

In particular, unlike the quantitative studies, most qualitative studies under review found a change of existential meaning due to childhood cancer experiences. For instance, by interviewing the parents of children with chronic renal failure, Type 1 diabetes, or childhood cancer, Gannoni and Shute (2010) identified positive changes in the realms of self-esteem and assigning meaning to the illness. While experiencing severe distress, parents of children with these illnesses generally improved their self-esteem and were able to assign a meaning to the illness by observing their children's emotional growth and self-regulated behavior. The parents also described their efforts to strengthen family functioning in order to cope with adverse situations by supplementing the partner's role (e.g., a par-

ent attends a medical appointment when the partner is too depressed or emotionally exhausted to do so).

Björk et al. (2005) present a complementary finding. Although parents may lose their unconscious belief in immortality when confronted with childhood cancer, by learning about cancer and strengthening their relationships with healthcare providers and family members, they may establish beliefs more applicable to their situation, thereby beginning to regain their control and original capabilities. Graves and Aranda (2008) indicate that when facing relapse, families may live with both fear and hope, and that hope might not dispel fear. They therefore suggest that health care professionals need not only to help families stay hopeful but also to support them in living with both hope and fear.

Thus, the difficult circumstances of childhood cancer did not always have negative impacts on family functioning. In many cases, parents found a way to maintain their families, both by developing positive perceptions of their child's illness and by adjusting the assignment of roles within the family. For example, parents may have intimate conversations and help each other to overcome the difficulty, which could improve their relationship and self-esteem. In this vein, family cohesion and marital relationships can in fact be strengthened by the experience of childhood cancer after diagnosis (Barbarin et al., 1985; Delden, & Gryphonck, 2008; Kars, Duijnste, Pool, & Quin, 2008).

When considering positive effects of childhood cancer on family functioning, it is important to examine exogenous factors that may have contributed to such positive results. For instance, in terms of marital relationships, the fear of the child's mortality may divert the parents from facing their own discord, thereby causing them to evaluate their marital relationships more favorably (Barbarin et al., 1985). Furthermore, the retrospective nature of qualitative interviews often leads participants to recast their experiences in a more favorable light (McCubbin et al., 2002). Therefore, positive changes recorded by some studies should be attributed to the nature of their design, rather than to childhood cancer as such.

Differences in outcome by methodology.

While some quantitative studies show impairing effects on family functioning due to childhood can-

cer, others show non-impairing effects. Acknowledging the impairing effects on family functioning, by contrast, some qualitative studies found that childhood cancer actually has positive effects on family functioning, including the change of existential meaning. In other words, while quantitative studies tend to focus on disorganizing or non-disorganizing effects, qualitative studies tend to focus on organizing effects on family functioning.

Factors That Lead to Different Family Functioning Outcomes

Given the discrepancy of outcomes seen among families, it is important to identify factors which influence consequences in family functioning (Long & Marsland, 2011).

Demographic characteristics. Interestingly, many researchers indicate that the demographic characteristics of families are not significantly related to family function consequences (Robinson, Gerhardt, Vannatta, & Noll, 2007; Thompson, Gustafson, Hamlett, & Spock, 1992). For instance, Robinson, Gerhardt, Vannatta, and Noll (2007) found that the child's gender and age were not significantly related to maternal distress levels, although they were associated with the wellbeing of the child and father (i.e., the older the child was, the lower the distress levels of both the child and fathers were). While this study deals with cystic fibrosis, not cancer, Thompson, Gustafson, Hamlett, and Spock (1992) also found that demographic characteristics (i.e., children's age and gender, families' socioeconomic status) or objective severity of illness were not strongly associated with maternal psychological distress. These findings imply that factors other than demographic characteristics may more affect on the outcome direction of family functioning.

Psychosocial support. Many researchers suggest that psychosocial support for families can contribute to the improvement of parental wellbeing and family's capabilities (Barbarin et al., 1985; Fife et al., 1987; Hoekstra-Weebers, Jaspers, Klip, & Kamps, 2000; Kupst & Schulman, 1988). For instance, good communication with health care providers as well as within families might contribute to the enhancement of family functioning (Shapiro, Perez, & Warden, 1998). Additionally, psychological support from

relatives or friends can help the parents develop a positive interpretation of their child's illness and reconstruct a new schema (McCubbin et al., 2002), thereby helping them stay hopeful (Fife, 1994). Health care providers and mental health professionals could also share information concerning the treatment with the family, thereby helping the family to see prospects of treatment and enhance their sense of control of the situation (Patterson et al., 2004).

Existing factors in the family. Kupst and Schulman (1988) indicate that parental coping skills can be a key component for positive outcomes. Such skills might include an ability to seek psychosocial support, as well as the ability to handle the situation by themselves. In addition, within marital relationships, open dialogue, coping skills of other family members, parents' trait anxiety, freedom from financial difficulties, and the existence of ongoing treatment can also be factors for family coping and functioning outcomes (Dockerty et al., 2000; Hoekstra-Weebers, Jaspers, Kamps, & Klip, 1999; Kupst & Schulman, 1988; Manne et al., 1996; Ostroff et al., 2000; Sawyer et al., 2000).

Pre-existing factors in the family. Poor adjustment during the diagnostic phase may also predict family functioning after diagnosis (Dockerty et al., 2000; Manne et al., 1996; Ostroff et al., 2000). Fife et al. (1987) found that while most families maintained their function except during the diagnosis phase, families with psychosocial problems before diagnosis showed a further debilitation in their function. Kazak (1989) also suggests that low-functioning families prior to diagnosis may adjust poorly to the illness after the end of treatment. Considering these studies, it can be assumed that family functioning before diagnosis influences its future direction.

Impact of Childhood Cancer on Family Functioning Across Treatment Phases

This paper presents a comprehensive picture of the dynamic transitions of family functioning over the course of treatment by linking study outcomes to heterogeneous research methodologies. A review of the literature distinguishes two important perspectives: a perspective that examines the change of family functioning at multiple levels (i.e.,

practical and existential) instead of a linear level (i.e., disorganizing or organizing) and a perspective that considers family functioning before diagnosis.

Practical and Existential Layers

Although no study explicitly outlined the transitions of family functioning in terms of two layers, practical and existential, the changes within these two layers of family functioning during the treatment phases are seen in our sample of studies. The presence of this thread across studies can lead one to theorize that changes of family functioning may occur both in a practical layer (e.g., divorce or reassignment of family role due to the burden of finance and transportation) and in an existential layer (e.g., exploration of the meaning of illness, emotional growth, restructuring values, self-blame).

Specifically, research has explored the extent to which childhood cancer impacts family functioning based on a linear perspective (disorganizing, non-disorganizing, or organizing) (Pai et al., 2007). Some studies indicate that disorganizing, non-disorganizing, and organizing impacts can coexist in different layers. Goldbeck (2006) suggests that parents with newly diagnosed chronic ill children can exhibit a mixed psychological state involving depression accompanied by debilitated physical daily functioning, along with a sense of satisfaction with their families. That is, the co-occurrence of a disorganizing impact (depression) and organizing impact (satisfaction) can be found in these parents' reactions. Based on these findings, changes in family functioning can occur in a parallel fashion across practical and existential layers.

Furthermore, it can also be inferred that illness affects the two layers differently. For instance, deteriorated illness conditions might increase parental burden in the practical layer, whereby family's capability and self-esteem could be impaired in the existential layer. Otherwise, even if the family functioning or parental distress level in the practical layer does not change throughout the course of treatment, the quality of family functioning or parental distress might change if parents positively integrate their traumatic experience into their own lives (Fife, 1994). Relating to research methodologies, while studies administering quantitative measures emphasize ap-

praisal of practical-level changes (disorganizing or non-disorganizing), studies administering qualitative measures focus on appraisal of value-oriented and existential-level changes (disorganizing, non-disorganizing, organizing). More specifically, given the nature of psychometric scales which have narrowly-focused variables (Sawyer, 2000), it is conceivable that quantitative research tends to elicit factors in the practical layer. On the other hand, since qualitative research, especially interviews, can allow interviewees to express subtle, personal meaning of life-threatening illness, it may elicit factors in the existential layer as well as in the practical layer. Conceivably, even if psychometric scales show a detrimental impact on family functioning due to childhood cancer experiences, the family might also experience a positive impact on their function at the existential level. In short, disorganizing, non-disorganizing, and organizing effects might co-occur at different levels.

Family Functioning and Diagnosis

Although the few aforementioned studies suggest that inherent problems in the family could be predictive for family functioning outcomes (Fife et al.; 1987; Kazak, 1989), no study explicitly outlined how such pre-existing problems affect outcome directions over the several phases of treatment. Olson (2000) attempts to remedy this gap by proposing a circumplex model, which conceptualizes family life course along three dimensions (family cohesion, family flexibility, and communication). According to this model, while families balanced in those three dimensions can adjust to a challenge by utilizing resources within the family, families lacking that balance may have difficulties coping with a crisis (Alderfer & Kazak, 2006; Olson, 2000). Olson's model does not focus on childhood cancer and therefore does not take the long-term treatment phases into consideration, but it can help explain the dynamic transitions of family functioning. To summarize, while a high-functioning family may seek out social resources and strengthen the bonds within the family during the course of treatment, low-functioning families may experience difficulties coping with adverse events and fail to reestablish a new pattern of family functioning.

Dynamic Transitions in Family Functioning

On the basis of the discussion above, it can be concluded that disorganizing, non-disorganizing, or organizing impacts on family functioning might co-occur in both practical and existential layers throughout childhood cancer. Simultaneously, while high-functioning families before diagnosis might tend to enhance their functioning, low-functioning families before diagnosis might be more at a risk of lowering their functioning through childhood cancer experiences.

Clinical and Research Implications

Upon review of the current literature, a discrepancy between family functioning outcomes has been found: some families show resiliency and others show impairment during the treatment phases. In the examination of factors that caused this disparity, two perspectives that were not fully integrated into the previous literature are distinguished: a perspective that examines the change of family functioning at multiple levels (i.e., practical and existential) and a perspective that considers family functioning before diagnosis. Based on this conclusion, this study has delineated a clearer picture of the dynamic transitions of family functioning over the course of treatment. That is, while families at risk might reveal their inherent problems in the treatment phases and their relationships might disconnect, consolidated and more functional families might strengthen their existing ties. Such changes may occur in the practical and existential layers in a parallel fashion.

As suggested in this review, having a comprehensive picture of family over the pre-diagnosis and treatment phases may enable care providers and mental health professionals to deliver better screening and more effective interventions for the family. For instance, even if the parents feel stressed due to financial strains caused by the treatment at a practical level, they might still have found some meaning of their child's illness and improved their self-esteem at an existential level. An in-depth understanding of the family might help mental health professionals identify such a positive change and equip them to help families to deal with stress due to financial strains.

At the same time, not all negative impacts should

be attributed exclusively to childhood cancer. For example, even if the mother shows depressive symptoms in the treatment phases, a pre-existing problem (e.g., relationship with her own parents, domestic violence from her husband) might also have contributed to her depression. A more comprehensive understanding of the family could help mental health professionals identify such a preexisting problem, which may exacerbate the impacts of childhood cancer by itself.

As for screening, Kazak et al. (2011) suggest the use of the Psychosocial Assessment Tool, a brief screening tool based on obtained parental reports. This tool aims to detect families at psychosocial risk at the point of diagnosis. Health care providers and mental health professionals could deepen the understanding of the family by administering such a screening tool or interviewing the family.

Having a comprehensive picture of family dynamics could also help mental health professionals choose an appropriate intervention. For example, Sahler et al. (2005) found that problem-solving skills training was efficacious when mothers with children newly diagnosed with childhood cancer encountered difficulties in medical contexts. Moreover, McCubbin et al. (2002) indicate the necessity of strength-based interventions to elicit family resiliency. Since there are many intervention options, the identification of the characteristics of a family and what they actually need at a practical level and/or existential level in the pre-diagnosis and treatment phases might allow mental health professionals to facilitate appropriate interventions corresponding to each family.

Health care providers would also benefit from recognizing the mechanisms of family functioning influenced by childhood cancer experience. Even if psychosocial problems in the family (e.g., neglectful childrearing, parental depression) interfere with smooth communication between the parents and health care providers, health care providers are required to communicate with the parents in order to proceed with treatment (DiMatteo, 2004; Kazak et al., 2011; Sobo, 2004). Therefore, if health care providers develop a better understanding of family's characteristics and its problem, this might help them better communicate with parents.

Furthermore, when health care providers see

the worsened relationship between the parents influence the child's psychological state, they might empathize with the child, which may lead to feelings of self-blame when they cannot help the child (Meadors, Lamson, Swanson, White, & Sira, 2009). However, if health care providers recognize that family functioning could improve in the long-term and if they have strategies to mediate such family problems, this might reduce their emotional pain.

These observations suggest that better recognition about the mechanism of family functioning will be useful for parents, children, and health care providers. Ultimately, understanding family functioning in light of two perspectives - perspectives that examines family's transitions at multiple levels (i.e., practical and existential) and that considers family functioning before diagnosis - will better equip care providers and mental health professionals for effective interventions into families with need. Further research to examine these perspectives is also needed.

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