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Willingness to Participate in a Parental Training Intervention to Reduce Neurocognitive Late Effects among Latino Parents of Childhood Cancer Survivors

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Abstract

The purpose of the study was to examine correlates of Spanish-speaking Latino parents' interest for participation in an educational intervention to improve learning and school success in children with cancer-related cognitive and behavioral late effects. Participants included 73 Latino caregivers of school age children who are survivors of brain tumor or leukemia and at risk for cognitive late effects. . The parents completed a battery of surveys relating to interest in and barriers to intervention participation, as well as measures of parental knowledge and beliefs and their children's cognitive functioning, and health-related quality of life. Results showed that the majority of parents expressed interest in participating in the proposed 8-week intervention, with over 90% indicating interest in learning more about improving grades, making learning more exciting, being a role model, and the impact of cancer on memory. The factors most strongly related to interest in intervention included lower maternal education, as well as perceptions of greater child cognitive difficulties and lower health-related quality of life. The barriers most highly endorsed by the most parents were difficulty paying for gas, child care responsibility, and too much stress in other parts of life. Also highly endorsed as barriers were statements relating to the child's lack of interest and need for services (i.e., my child is doing fine). These findings are consistent with the Health Belief Model wherein decisions to engage in health-related behaviors are made by weighing the potential benefits relative to the costs and barriers.

Introduction

Although rates of survival among those diagnosed with childhood cancer have increased in recent years, subgroups of pediatric cancer survivors are likely to suffer from a number of treatment-related late effects that impact quality of life. [1]. Children who receive CNS-directed treatments (e.g., cranial radiation, intrathecal methotrexate, etc.) for brain tumor and

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Leukemia are at risk for neurocognitive late effects such as problems with concentration, executive functioning (e.g., planning, organizing), processing speed, and memory [2]. The degree of deficit often depends on a number of disease, treatment, and individual factors. In particular, younger age at diagnosis, lower socio-economic status, and higher treatment intensity are associated with poorer cognitive and behavioral outcomes [2]. Not unlike other disparities in health-related outcomes observed between Latinos and members of other ethnic groups, a study of childhood cancer survivors found that Latino children were at greater risk for experiencing late effects such as fatigue and poor physical, emotional, social, and school functioning than Caucasian childhood cancer survivors [3]. In addition to pharmacotherapy interventions to reduce these late effects, there is increased interest in behavioral interventions to remediate learning and cognitive deficits, and improve behavioral functioning to optimize the child's independence into adulthood. Educational interventions targeted at parents to involve them in interventions intended to enhance their children's cognitive and academic functioning may have positive impact. [4]. However, despite the potential benefits of such interventions, research finds that family interventions often have low participation rates [5] and that there are a number of challenges that can be faced when attempting to recruit participants with low levels of education and English fluency [6]. The purpose of the present study is to examine correlates of Spanish-speaking Latino parents' interest for participation in an educational intervention to improve learning and school success in children with cancer-related cognitive and behavioral late effects.

The role of family has been found to be of vital importance in predicting overall adjustment of pediatric cancer survivors [7], and studies from the educational literature have demonstrated the importance of parent "pro-learning" behaviors for children's academic achievement across a wide range of populations and ages [8]. Pro-learning behaviors include direct monitoring, instruction and assistance with school work, explicit reinforcement of improved academic performance, parent contact with school and teachers, and active utilization of community resources [4, 9]. A pilot study with English-speaking families of childhood cancer survivors found that participation in an 8-session clinic-based parental training program was related to gains in parental efficacy and pro-learning behaviors, as well as improved child performance in select academic areas [10]. Given that culturally-adapted intervention programs have been found to have greater treatment effectiveness than traditional treatments [11], it is important to examine the types of adaptations which might promote engagement in an educational program targeting Spanish-speaking parents of children at risk for neurocognitive late effects.

Conducting parental training interventions with Latino families requires adapting the interventions so that they are compatible with the cultural values, beliefs, and role expectations of these families and also in consideration of the potential barriers to participation and engagement [12]. Latinos are one of the fastest growing ethnic minorities in the U.S., currently the largest ethnic group in California, and have the lowest educational attainment in this country [13]. Parents who are recent immigrants may have received little formal education and may have limited knowledge about American schools which can restrict direct involvement in their children's educational activities despite endorsement of educational values [14]. Education level, income, and English language proficiency have all been linked to greater parent involvement in their child's education [14].

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Many of the same barriers that affect Latino parents' engagement in educational activities with their children may also impact their willingness to participating in family-based interventions. Studies of family intervention engagement and effectiveness have grouped the factors most predictive of intervention outcomes into three categories: socio-demographic, family-level, and child-related factors [5, 15]. With regard to socio-demographic factors, education level seems to be most consistently associated with greater willingness to participate in family interventions among Latinos and other groups [5], although low levels of acculturation and language fluency have also been connected to lower participation rates among Latinos in clinical cancer research [6]. Family-level factors related to willingness to participate in interventions include decreased self-efficacy regarding their own parenting effectiveness [16]; however parents' general beliefs regarding the potential utility of interventions have not been shown to strongly influence engagement [17]. Spoth et al. [5] suggest that parents' decisions to engage in family interventions are consistent with the Health Belief Model which posits that health behaviors result from the weighing of beliefs regarding the potential benefits of treatment versus the beliefs regarding the potential barriers and costs of taking part in the treatment. Family-level stress and barriers such as work commitments have been linked to lower enrollment [16] and engagement in family interventions [17], but other studies find that these factors are not strong predictors of engagement [18].

Child-related factors do seem to impact parents' willingness to engage in training; in particular, those parents who perceive their children at risk are more likely to participate while a lack of perceived need tends to be associated with greater refusal to participate [16]. Nevertheless, factors such as child adjustment or functioning have not been consistently linked to family interventions among Latinos [15, 18], and no studies to date have examined whether such factors impact parental willingness to engage in family-level interventions to promote quality of life outcomes in children with cancer-related learning and behavioral dysfunction. Such research is needed as a basic step prior to extending the considerable resources needed to develop and implement intervention programs [15].

In this study we examined factors related to Latino parents' interest in participating in a parental educational intervention to promote learning and school success in their cancer survivor child. We examined their preferences for format, interest in program content topics, and potential barriers. In addition, we examined extent to which the following factors are related to interest in participation: cancer-related factors (type of diagnosis and age of diagnosis), demographic and background characteristics of parents (mother education, parent acculturation, family income, and family events/stressors), parent knowledge and belief factors (self-efficacy, responsibility), and child- related factors (cognitive functioning, health-related quality of life). Although the study was largely exploratory in nature, we hypothesized that higher parental acculturation and education, higher income and fewer family stressors, and parental perception of greater child cognitive difficulties and lower quality of life would be related to increased interest in intervention.

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Method

Participants

The research participants were 73 Latino parents (77% mothers, 18% fathers, 5% relatives) of school age children (31 female, 42 male) who are survivors of cancer with CNS-involved cancer or treatments. . Children's age ranged from 6 to 18 years-old, with a mean of 12.01 (*SD* = 3.91). A total of 74% (*n* = 53) of children had Leukemia, 26% (*n* = 19) had brain tumors. In addition, 83% of their mothers and 85% of their fathers were born outside the U.S. A total of 78% and 23% of families spoke primarily Spanish and English at home respectively. Furthermore, 29% of their mothers and 92% of their fathers were currently employed. Among the mothers, 75.4% had less than a high school education, 20.3% completed high school, and 4.3% had attended one or more years of college. Of the fathers, 70.5% had less than a high school education, 14.8% completed high school, and 14.7% had attended one or more years of college.

With regard to cancer-related factors, a total of 57% of children were diagnosed at age 4 or younger, 22.2% at age 5-7 years, 15.3% at age 8-11 years, and 5.5% at age 12 or older. For most of the children (69%) it had been three or more years since their last treatment. Only 4 reported (6%) experiencing a relapse. Based on parent report, 92% of the children had chemotherapy, 43% had surgery, 21% had radiation, and 22% had bone marrow transplants.

Procedure—The first phase of the project involved adapting the parenting questionnaires used in previous research [4, 10] to better match the needs and experiences of low acculturated Latino participants who may have low levels of education and literacy.An advisory panel consisting of Latino parents of childhood cancer survivors and multidisciplinary Latino, bilingual health professionals gave feedback and assisted in adapting any problematic survey items. The adapted questionnaires were then translated into Spanish using standard translation and back translation methodology. Questionnaires were pilot tested with three Spanish speaking and three English speaking Latino parents prior to initiating formal data collection.

The recruitment procedure also incorporated practices to increase the recruitment and retention of minority participants. Participants were recruited through a partnership between City of Hope Cancer Center and PADRES Contra El Cáncer (Parents against Cancer), a non-profit organization which provides educational and supportive services for the target population. Lists of eligible participants were obtained from PADRES and the medical center's Childhood Cancer Survivorship program. Eligibility requirements were as follows: participants must be a parent or adult primary caregiver of a school age child (6-18 years) who is a survivor of Leukemia or brain tumor; the pediatric cancer survivor needed to have completed cancer treatment and attending school at the time of study enrollment; and one or both of the parents self-identify as either English or Spanish speaking Hispanic/Latino. There was no minimum reading proficiency since the questionnaires could be read to the parent upon request. A total of 186 eligible parents were identified, however, most likely due to changes in telephone and mailing contact information, we were able to reach 104 in person via phone. From the 104 that were contacted, a total of 73 both agreed to participate

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and completed the majority of study measures, resulting in a 70% accrual rate. A small thank you gift card was mailed to each parent that return completed questionnaires.

Measures

Parent Interest in intervention—A questionnaire was created for the purpose of the present study to examine intervention interest. The questionnaire described a parent educational and skills-training program that was previously offered at our institution for parents of childhood cancer survivors with learning dysfunction. Respondents were informed that the program involved "8 sessions in which parents learn various techniques and strategies to promote learning and school success during weekly one-hour long sessions, and that parents were. assigned several learning activities to complete at home with their child each week." Respondents in the current project were asked to rate their interest in participating in sessions such as these on the following scale: 1 = *Definitely not*, 2 = *Probably not*, 3 = *Maybe*, 4 = *Yes, definitely*. The questionnaire indicated our interest in adapting the program to meet the needs of pre-dominantly Spanish-speaking parents and assessed their interest and preferences for attending sessions in various different formats (e.g., group sessions with other parents, individual sessions with the child present, etc.) and preferences for which day of the week to attend. These items were rated on a 5-point scale from 1 (*Not interested at all*) to 5 (*Very interested*). In addition, parents answered 23 items assessing their interest in various topics for the intervention sessions which were rated on a scale from 0 (*Not at all interested*) to 3 (*Very interested*). Finally, parents indicated (0 = *No*, 1 = *Yes*) whether a number of barriers would potentially prevent them from participating in intervention classes (see Table 2).

Child cancer and family background—Cancer-related variables included type of diagnosis and treatments, child's age at diagnosis, treatment-associated side effects, and other related history. Family demographic and background variables included child's age and gender, and family information such as parent' education, income, and employment status. This questionnaire also included a check list of common family stressors which parents endorsed as relevant to them.

Parental acculturation was measured with the Bidimensional Acculturation Scale [20] which includes 12 items relating to linguistic proficiency and usage, rated on a 4-point scale from 1 (*very badly*) to 4 (*very well*). The scale includes six items relating to Hispanic/Spanish orientation and the six items relating to non-Hispanic/English orientation. The non-Hispanic orientation was used in the present study. The alpha for non-Hispanic orientation in the present sample was .98.

Parent knowledge, beliefs, and behaviors—Parent beliefs were measured using an adapted version of Parent Belief and Behaviors Questionnaire- Revised (PBQ-R) [4] which had been developed and piloted with 120 parents of healthy children and 56 parents of children with CNS-involved cancer and/or treatments. The measure assessed parental efficacy, beliefs, and knowledge of neurocognitive late effects and learning issues in childhood cancer survivors. For this project, items were grouped into two conceptual scales. The parental efficacy subscale included 20 items rated on a 5-point scale from 1 (*not true at*

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all) to 5 (*very true*). (e.g., "I feel successful in my efforts to help my child learn" and "I know how to help my child make good grades in school", α for current sample = .91). The parental knowledge subscale included 19 items rated on 5-point scale from 1 (*nothing*) to 5 (*a lot*) (e.g., "How much do you know about how to how to help your child with his/her memory skills?" α = .92). In addition, parent beliefs regarding their own responsibility for their children's educational outcomes subscale was assessed using items adapted from another source [20]. This subscale included 10 items rated on 5-point scale from 1 (*disagree every strongly*) to 6 (*agree very strongly*) (e.g., "I believe it is my responsibility to help my child with homework", α = .94).

Conners Parent Report (CPR) short version – 3rd edition—This parent-report measure was used as the primary tool to assess the child's neurocognitive and behavioral functioning. Deficits in neurocognitive functions such as attention and executive functioning, as well as in school-based/academic performance, have been extensively documented among survivors, and are components that are assessed in the Conners 3-P(S). The normative sample included 1,200 parents and the measure has strong test-retest reliability and validity, with internal consistency coefficients above 0.80The Conner 3-P(S) is available in Spanish and consists of 43 items on a 4-point Likert scale which generate scores for six subscales: Hyperactivity/impulsivity, executive functioning, learning problems, aggression, peer/family relations and inattention[21].

The PedsQL™ 4.0 Generic Core Scales – Parent Report—This is a health related quality of life (HRQOL) parent-report measure normed on a sample of families from pediatric healthcare settings, including survivors of childhood cancer [22]. The scales have been tested in both English and Spanish-speaking samples from pediatric oncology, and have demonstrated strong internal consistency, reliability and validity. The PedsQL™ Psychosocial Summary Scale contains the Emotional, Social and School Functioning subscales while the Physical Summary Scale contains the Physical subscale. The Cronbach alpha coefficients were all above .80 in the current sample.

Results

Interest in Intervention and Format Preferences

When asked to indicate their level of interest in participating in an 8-week intervention focusing on strategies to improve the child's learning and school success: 43 (58.9%) were definitely interested, 14 (19.2%) indicated they may be interested, 4 (5.5%) indicated they were probably not interested, 5 (6.8%) were definitely not interested, and 7 (9.6%) gave no response.

With regard to the format of the interventions, the highest level of interest was for group sessions with other families and the child (M = 3.83, SD = 1.18, responses ranged from 1 to 5), followed by individual sessions with the child and a teacher (M = 3.73, SD = 1.29), group sessions with only other parents (M = 3.72, SD = 1.35), group sessions with a spouse (M = 3.49, SD = 1.39), and individual sessions with a teacher (M = 3.39, SD = 1.37). There was a significant (t [71] = 1.98, $p < .05$) preference for group sessions (M = 3.53, SD = 1.11) over individual sessions (M = 3.30, SD = 1.16). Of those who reported a preference, most

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preferred Saturday (*n* = 28, 50%), 12 (21.4%) preferred evenings during the week, 11 (19.6%) preferred week days, and 5 (9%) preferred Sundays.

Interest in Learning about Specific Topics and Skills

In order to examine parental interest in learning about specific topics or skills, we examined the percentage of parents who selected a 2 or above (3 = *very interested*) for each topic or skill. **Table 1** lists each topic in order according to the percentage interested. Over 90% of the parents indicated interest in learning more about improving grades, being a role model, how cancer treatment has affected the child's learning, and how to make learning more exciting. The vast majority of parents indicated interest in most of the topics relating to parenting and teaching skills. The items with the lowest percentage of parents interested were for learning about obtaining services such as health or disability insurance, special education services, getting more involved at the child's school.

Barriers to Intervention

We evaluated responses to understand the extent to which parents perceived barriers to intervention and calculated the percentage of parents who indicated that each situation would potentially prevent them from attending learning sessions (see **Table 2)**. The barriers endorsed by the most parents were difficulty paying for gas (43.7%), child care responsibility (42.3%), and too much stress in other parts of life (37.1%). Also highly endorsed were those relating to the child's interest (35.7% endorsed I don’t think my child would want to participate) or need (34.8% endorsed my child is doing fine). Family problems such as changes in family size, divorce, legal problems, and problems with other family members were least likely to be endorsed (less than 7% each).

Correlates of Intervention Interest

In order to examine factors associated with parental interest in intervention, we examined the correlations between parental report of interest in attending sessions and each of the following sets of variables: child cancer and family demographic variables, parenting belief and behavior variables, and child neurocognitive and behavioral functioning (i.e., Connors behavior subscales, pediatric quality of life variables) (see **Table 3**).

Results indicated that neither type of cancer diagnosis nor age at diagnosis was correlated with interest in intervention. Higher acculturation was marginally ($p < .10$) related to increased interest, and higher parental education was related to less intervention interest. Family income and number of family events/stressors were not significantly related to interest in intervention. Additionally, none of the parent belief or behavior variables were significantly related to interest in intervention.

Parental perception of greater child cognitive difficulties and lower health-related quality of life was related to increased interest in attending intervention sessions, as higher scores on the Conners subscales (which indicate problems with cognitive functioning) and lower scores on each of the PedsQL subscales (which indicate lower quality of life) were significantly correlated to increased interest in attending intervention sessions. (See **Table 3)**.

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Discussion

The purpose of this study was to examine Latino parents' interest for participation in a parent educational intervention aimed at promoting learning and school success in their children who are survivors of childhood cancer. Given that Latinos have been found to be less likely to participate in health-related research in general [6], a better understanding of the factors that impact Latino parents' willingness to participate can be critical in promoting the effectiveness of parental training interventions. The majority of the parents surveyed were interested or very interested in participating in an 8-week program such as the one described, and only a small portion (less than 13%) indicated that they were not interested. Parents also indicated a good deal of interest in most of the program content topics proposed; particularly those involving learning how to help their children academically and improve their parenting skills. The only items with less than 60% of the parents expressing interest were for those relating to learning about better ways to obtain external services such as health insurance and special education. Thus, parents expressed the greatest interest in gaining skills directly related to parental educational training and were less interested in content that involved resource acquisition.

In addition to the generally high level of interest in the intervention, none of the potential barriers were indicated by the majority of parents as likely to prevent participation. Those that were most likely to be indicated were difficulty paying for gas, child care responsibility, and too much stress in other parts of life. Those interested in pursuing interventions with this population may be able to overcome parents' difficulty paying for gas by offering incentives such as money or gas cards. Barriers relating to busy or stressful lives, on the other hand, may be more difficult to circumvent. Given that the many responsibilities of working families can be a barrier to participation [16], uptake for family-level interventions may be increased if sessions are offered in the locations and at the times when families are most able to attend. In the present sample, the preferred day for sessions was Saturdays, with half the parents selecting this day as their first choice.

It was not surprising that about a third of the parents indicated that lack of child need and/or interest would prevent them from participating. Others have also found that perceived lack of need is an often cited reason for non-engagement in parental training-based interventions [17]. Parents who feel their children are not at risk for the problems targeted by the intervention are less willing to put the time and effort into attending training sessions. This may also be true if they perceive that their children would not be interested in attending sessions with them, as most of the formats with the highest rates of interest for parents were those involving the child (both group and individual sessions). In general, group sessions with other families were preferred over individual sessions, thus practitioners should consider developing sessions with group formats that integrate multiple parents and children into the classroom environment. Encouraging the children, particularly adolescents to participate and stay engaged may be an important component of keeping the parents involved in such interventions.

In addition to describing parental interest and perceived barriers, another goal of the study was to examine correlates of intervention interest. Although only marginally significant,

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higher acculturation was related to increased interest in attending sessions, as was hypothesized. Our finding that parents with greater education were less interested in intervention was unexpected. This is surprising given that greater education level is often a significant predictor of engagement in family interventions [17] and a predictor of retention among Latinos [15]; however, it is possible that higher educated parents believed they could rely on other sources to improve their parenting knowledge and skills. Somewhat less surprising is the fact that none of the parent belief or behavior variables related to the child's learning were significantly related to interest in intervention. Spoth and Redmond [17] have also reported that parental beliefs are not strongly related to willingness to engage in intervention. Instead, they emphasize the fact that parental decisions are more strongly linked to a practical weighing of the potential benefits versus the costs. In some ways, such results could be viewed as encouraging since they show that parental willingness to engage in such training is independent of their sense of parental efficacy, responsibility, and educational involvement.

Importantly, results showed that perceptions of greater child cognitive difficulties and lower health-related quality of life were related to increased parental interest in attending intervention sessions. Taken together with the results above regarding perceived child need and interest, these findings are consistent with the Health Belief Model wherein decisions to engage in health-related behaviors are made by weighing the potential benefits relative to the costs and barriers [5]. For those parents who perceive that their children are experiencing problems and could benefit from intervention, a lengthy commitment to participate in training sessions is more worthwhile in hopes that their efforts could help their child.

In conclusion, these results suggest that those who undertake parental training interventions to reduce late effects for Latino parents of child cancer survivors should target their recruitment efforts toward promoting interest and motivation for participation. Spoth et al. [5] have suggested that when parents are reluctant to participate in interventions due to concerns that the potential benefits of the intervention do not outweigh the costs, educational efforts are warranted to inform parents of the benefits of the intervention. The informational message may include the point that parents of children with less severe problems may also be able to benefit from intervention.

Although the study is limited by a small sample size which is mainly composed of mothers, the sample is generally reflective of the targeted population for parental training interventions that focus on the parent most involved in the day-to-day care of children. Furthermore, we believe these findings can be of interest to others who hope to undertake similar family-level interventions targeting low acculturated, low SES Latinos families at-risk for other quality of life problems. The study is also limited to parental self report of interest in participation; we did not examine actual participation or engagement in the intervention. It is possible that despite the generally high level of interest in intervention participation and the rather low endorsement of barriers among Latino parents of cancer survivors, those seeking to fully engage such parents in intervention sessions may encounter other unanticipated difficulties and barriers. Nevertheless, the results of this study suggest that such an intervention that is tailored and targeted towards Spanish-speaking families can be feasible.

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Table 1

Participant Interest in Learning Topics from Most Endorsed to Least Endorsed

	Percentage interested or very interested
Ways to improve my child's school grades	94.4%
How to be a role model for my child	94.4%
Learn more about how cancer treatment has affected child's memory, learning, etc.	93.3%
How to make learning/school more exciting for child	93%
How to improve communication with child	85.9%
How to effectively discipline child	83.3%
How to promote more effective study habits for child	82.9%
How to help my child become more independent	81.7%
How to get child extra help outside of school	81.7%
How to guide the child in making good choices	80.3%
How to monitor and motivate my child to do well	80.3%
How to help improve child's self-esteem	76.4%
Ways to get entire family involved in promoting education	72.2%
Ways to get websites that will be helpful resources	69.6%
Ways to improve my parenting skills	69.4%
Ways to communicate with child's teacher and school administrators	68.1%
Improve child's behavior	64.8%
How to get special education services for child at school	59.7%
How to get a job	59.2%
Ways to get involved in child's school	57.7%
How to get disability insurance for child	53.5%
How to get health insurance	49.3%

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Table 2

Barriers to Intervention from Most Endorsed to Least Endorsed

Barrier Topic:	Percentage who said this could potentially prevent involvement:
I may have difficulty paying for gas	43.7%
I have children or others in my care that take up most of my time	42.3%
I have too much stress in other areas of my life	37.1%
I don't think my child would want to participate	35.7%
My child is doing fine and is not having any difficulties in school or with thinking	34.8%
Arranging for child care may be a problem	35.2%
I don't think my spouse or partner would want to participate	25.7%
Transportation (getting a ride, driving, taking a bus) may be a problem for me	25%
I am having too many personal problems right now	23.9%
I would need assistance reading the materials	18.3%
My child is involved in other activities that take a lot of time	18.1%
I am usually too tired after work or my daily routine to participate in extra activities	16.9%
I am already involved in classes or activities such as those described	14.1%
My family may be moving soon	14.1%
Someone in my family is experiencing personal problems that require my help right now	11.4%
Someone close to me is experiencing a serious illness	8.5%
I and/or my spouse/partner may be changing jobs soon	8.3%
My family may change in size soon (another baby or someone moving in or out of the house)	6.9%
I or someone close to me has been having legal problems (arrest, driving violations, etc.)	5.6%
I am going through relationship problems or a divorce	5.8%
I am experiencing difficulties with other family members that prevent me from being able to participate in other activities	2.8%

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Table 3

Correlations between Parental Interest in Intervention Child Outcomes

	Interest in attending sessions such as the one described
Child cancer and family background factors:	
Age at diagnosis	−.14
Diagnosis (Leukemia vs. other)	−.16
Child age	−.17
Child gender	−.06
Mother education	**−.25***
Parent acculturation	**.21+**
Family income	.09
Total stressors	.01
Parent belief and behavior factors:	
Parent efficacy	−.18
Parent responsibility	.17
Parent knowledge	−.08
Conners Behavior Profile:	
Inattention	**.32****
Hyperactivity/Impulsivity	**.24+**
Learning problems	**.31***
Executive functioning	**.30***
Aggression	**.28***
Peer/family problems	**.33****
Pediatric Quality of Life:	
Physical	**−.24+**
Emotional	**−.32****
Social	**−.25***
School	**−.37****
Psychosocial	**−.38****
Total	**−.35****

Note. Diagnosis was coded 0 = *Brain tumor* , 1 = *Leukemia*, Gender was coded 0 = *Mal*e, 1 = *Femal*e. Correlations with diagnosis and gender are Point Biserial correlations.

+ $p < .10$;

* $p < .05$;

** $p < .01$