Predicting factors of adjustment in Iranian children with cancer

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Abstract

The present study aimed at appraising the predicting factors of adjustment problems in children with cancer. Hence, 200 parents of children with cancer were selected from a number of hospitals in Tehran through convenient sampling. Regression analysis revealed that the factors, conflicts in child-parent relationship, parents’ depression, child’s female gender, and positive aspects of child-parent relationship were predictive of internalizing behaviors. Also, child-parent relational conflicts and deficits in expressing emotions in family were predictive of externalizing behaviors in these children.

Keywords: Adjustment, cancer, children with cancer.

1. Introduction

Cancer and its diagnosis are amongst the most stressful experiences for a child and his/her family affecting their general health significantly (Jemal, Tiwari, Murray, Samuels, Ward, Reuer, & Thun, 2004). According to American Cancer Society (2003), cancer is the third main reason for children’s mortality after injuries and unintentional deaths. Present estimates are reflective of 9000 new pediatric cancer cases in 2003 leading to 1500 deaths (Cruce & Stinnett, 2006). Despite the advances in treatments during recent years and the increased survival rates (Ries, Eisner, Kosary, Hankey, Miller, Clegg, Mariotto, Feuer, & Edwards, 2005), intrusive and painful treatment procedures, hospitalization, and various ambiguities during the whole treatment process threaten the adjustment of children (Sloper, 2000). Children’s adjustment could be reflected in internalizing and externalizing behaviors. Research on cancer children’s adjustment is indicative of incongruent results. In some cases, children with cancer are negatively affected in social and emotional areas (Noll, Bukowski, Davies, Koontz, & Kulkarni, 1993; Sawyer, Antoniou, Toogood, Rice, & Baghurst, 2000), while in other cases they are well-adjusted (Hampel, Rudolph, Stachow, Lass-Lentzsch, & Petermann, 2005). The significant variability in children’s adjustment studies shows the necessity of identifying risk and protective factors that result in positive and negative adjustment outcomes.

According to the cognitive stress model of Lazarus and Folkman (1984), as the individual is encountered with a stressor, his/her coping and adjustment is related to some antecedent personal and environmental factors. Cancer research reveals that individual’s gender is among the personal factors affecting adjustment. Reports indicate that...
females are susceptible to more distress and depression in such a situation (Stuber, Kazak, Meeske, Barakat, Guthrie, Garnier, Pynoos, & Meadows, 1997). Educational level of parents is another factor that may indirectly influence cancer children’s adjustment. Pilsner (2008) reports that mothers of children with cancer who had lower levels of education were more distressed than those with higher levels of education and as the mother’s mental status is strongly related to child’s mental status (Brennan, Hammen, Katz, & LeBrocque, 2002) it, in turn, affects child’s adjustment. Among the most important environmental factors affecting cancer children’s adjustment is disease severity. The more intense the cancer is, the more intrusive and painful the treatment procedures are, and the less adjustment is resulted (Rudolph, Dennig, & Weisz, 1995).

Furthermore, social-ecological models suggest that individual’s well-being is influenced by social systems surrounded him/her as well as personal factors (Brofenbrenner, 1979). Parental and family systems could be accounted as highly important systems surrounding a child and their adjustment affects the child’s adjustment considerably (Robinson, Gerhardt, Vannatta, & Noll, 2007).

Research reveals that parental distress is positively correlated with child distress. Children of depressed and anxious parents show more internalizing and externalizing behaviors than those without depressed and/or anxious parents (Langrock, Compas, Keller, Merchant, & Copeland, 2002). As parents of children with cancer are at a higher risk of showing distress, their mental status may influence the child’s affect and leads to adjustment difficulties in him/her (Steele, Dreyer, & Phipps, 2004; Dockerty, Williams, McGee, & Skegg, 2000).

Another factor related to parental system is the quality of child-parent relationship. Interpersonal relationships are thought to be vital for psychological and physical health as they are positively linked to life satisfaction (Bradbury, Cohan, & Karney, 1998). Despite the formation of different relationships through life span, child-parent relationship is of crucial importance as it is shaped at the early stages of life and is necessary for the child’s long-term adjustment, health, and achievement (Amato & Booth, 1991; Thornton, Orbuch, & Axinn, 1995). Pediatric cancer literature suggests that child-parent relationship is an important factor for child adjustment, but most studies are focused on family relations rather than child-parent relationship in specific (Oorbuch, Parry, Chesler, Fritz, & Repetto, 2005).

The quality of family environment and family functioning are assumed as significant and fundamental factors linked to the child adjustment. Cancer children of families with high conflict are more susceptible to adjustment problems (Hammen, Brennan, & Shih, 2004). On the other hand, children with cancer who live in families with high expressiveness and cohesion may adjust better (Drotar, 1997). It seems that studies have more been focused on family environment variables rather than specific family functions (like Epstein, Baldwin, & Bishop (1983) McMaster model variables).

According to the lack of any research on the variables influencing cancer children’s adjustment in Iranian population, studying the factors mentioned above in this population is of high value as they may increase or decrease the adjustment of children with cancer in a significant way and, in turn, impact the children’s quality of life during and after the treatment. The present study examined how parental distress, child-parent relationship, and family functioning as psychological factors, and disease severity, parent’s educational level, and child’s gender as demographic factors could predict cancer children’s internalizing and externalizing behaviors while they are under treatment.

2. Methodology

In order to gather the data, 200 parents (159 mothers and 41 fathers) of children diagnosed with cancer aged 6-12 who were under treatment were selected through convenient sampling from three hospitals in Tehran dedicated to these children. Mean ages of children and parents were 9.15 (SD=2.43) and 35.89 (SD=6.23) respectively. All the questions were answered by parents except the one related to child’s disease severity which was done by the child’s oncologist and after the completion of all appropriate questionnaires the data was analyzed.

2.1. Measures

Measures used for gathering the data include: Depression, Anxiety, Stress Scale (DASS), Child-Parent Relationship Scale-Short Form (CPRS-S), Family Assessment Device (FAD), a researcher designed demographic questionnaire for demographic and disease related variables, and Child Behavior Checklist-Parent Form (CBCL).
2.1.1. DASS

The DASS (Lovibond & Lovibond, 1995) is a 42-item measure of depressive, anxious, and stress symptoms rated on a 4-point Likert scale. Crawford & Henry (2003) reported good internal consistency for the depression, anxiety, and stress subscales (α = .94, .89, .93). After applying exploratory factor analysis with main components and varimax rotation, a number of irrelevant items were deleted and the internal consistency for depression, anxiety, and stress subscales was respectively calculated as α = .93, .75, .76 in the present study.

2.1.2. CPRS-S

The CPRS-S (Pianta, 1992) is the 15-item form of the original version of 30-item parent-report CPRS. This scale is rated on a 5-point Likert scale and consists of three subscales: conflicts, positive aspects of relationship, and dependence. The three mentioned subscales have adequate internal consistency (α = .83, .72, .50) as reported by Pianta (1992). In this study, after applying factor analysis and calculating the internal consistency, the third subscale (dependence) was deleted as its internal consistency was very low and two subscales of conflicts and positive aspects of relationship were used (α = .75, .81).

2.1.3. FAD

The FAD (Epstein, Baldwin, & Bishop, 1983) is a 60-item self-report device based on McMaster Model with seven dimensions of problem solving, communication, roles, affective responsiveness, affective involvement, behavior control, and general function (see Epstein, Baldwin, & Bishop, 1983). It should be noted that higher scores are indicative of worse family functioning. Using factor analysis in this study, only three valid factors were obtained and were renamed by a number of experts as emotional expression (α = .86), roles/ problem solving (α = .86), and boundaries/ rules (α = .79). The first new subscale is related to the way members can communicate and express their emotions. The second one is indicative of members’ roles and their ability in problem solving. The last new subscale reflects how boundaries and rules are defined in the family and how clear they are.

2.1.4. Demographic Questionnaire

This researcher designed questionnaires was used to identify parents’ gender, age, and educational level (by years) and also children’s gender and age. Also, a question existed regarding children’s disease severity as standard risk or high risk which was determined by children’s oncologist on the basis of the cancer type and the treatment procedures used.

2.1.5. CBCL

The CBCL (Achenbach, 1991) is a well-established parent-report 113-item measure that assesses emotional and behavioral problems, and social competence on a 3-point Likert scale. In this study the items regarding externalizing and internalizing were used and after being analyzed by factor analysis the internal consistency was calculated as α = .91, .84 for externalizing and internalizing subscales.

3. Results

Pearson correlation and stepwise regression analysis are applied in order to identify the significant predictive variables. As it is indicated by Table 1, there are significant correlations between the whole parametric predicting variables and the criteria variables of internalizing and externalizing behaviors and they will all be entered in regression analysis. Table 1 does not include non-parametric variables of gender, disease severity as Pearson correlation can’t be applied to such variables.
Table 1. Correlation matrix of variables

<table>
<thead>
<tr>
<th></th>
<th>Internalizing</th>
<th>Internalizing</th>
<th>Edu. Level</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
<th>Emotion Express</th>
<th>Role/Problem</th>
<th>Boundary/Rule</th>
<th>Conflict</th>
<th>Positive Aspects</th>
</tr>
</thead>
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<td>.29**</td>
<td>.45**</td>
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<td>.26**</td>
<td>.34**</td>
<td>.20**</td>
<td>.39**</td>
<td>.74**</td>
<td>-.36**</td>
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<tr>
<td>Edu. Level</td>
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<td>-.21**</td>
<td>-.28**</td>
<td>-.32**</td>
<td>-.17*</td>
<td>.61**</td>
<td>.51**</td>
<td>.43**</td>
<td>.37**</td>
<td>.49**</td>
<td>.40**</td>
</tr>
<tr>
<td>Depression</td>
<td>.45**</td>
<td>.38**</td>
<td>.28**</td>
<td>.71**</td>
<td>.61**</td>
<td>.51**</td>
<td></td>
<td>.28**</td>
<td>.37**</td>
<td>.40**</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.38**</td>
<td>.35**</td>
<td>-.32**</td>
<td>.38**</td>
<td>.35**</td>
<td>.22**</td>
<td></td>
<td>.24**</td>
<td>.28**</td>
<td>.34**</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
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<td>.22**</td>
<td>-.17*</td>
<td>.61**</td>
<td>.51**</td>
<td>.19**</td>
<td></td>
<td>.49**</td>
<td>.40**</td>
<td>.23**</td>
<td></td>
</tr>
<tr>
<td>Emotion Express</td>
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<td>.49**</td>
<td>-.35**</td>
<td>.51**</td>
<td>.43**</td>
<td>.04**</td>
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<td>.37**</td>
<td></td>
</tr>
<tr>
<td>Role/Problem</td>
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<td>.24**</td>
<td>.28**</td>
<td>.03**</td>
<td></td>
<td>.54**</td>
<td>.37**</td>
<td>-</td>
<td></td>
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<tr>
<td>Boundary/Rule</td>
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<td>.41**</td>
<td>-.28**</td>
<td>.37**</td>
<td>.36**</td>
<td>.19**</td>
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<td>.51**</td>
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<td>-</td>
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<tr>
<td>Conflict</td>
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<tr>
<td>Positive Aspects</td>
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<td>-.36**</td>
<td>.27**</td>
<td>-.26**</td>
<td>-.30**</td>
<td>-.04</td>
<td></td>
<td>-.35**</td>
<td>-.46**</td>
<td>-.39**</td>
<td>-.40**</td>
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</table>

**P<.01
*P<.05

Results of stepwise regression analyses for internalizing and externalizing behaviors are shown separately in Tables 2 and 3. Table 2 reveals that variables conflicts in child-parent relationship, parents' depression, child's female gender, and positive aspects of child-parent relationship are in order of significance predictive of internalizing behaviors in children with cancer and they justify 37% variance. According to Table 3, conflicts in child-parent relationship and the deficits in emotional expression in the family are predictive of externalizing behaviors in order of significance and they justify 49% of variance.

Table 2. Stepwise regression analysis of predictive variables of internalizing behaviors

<table>
<thead>
<tr>
<th>Model</th>
<th>F</th>
<th>Adjusted R²</th>
<th>B</th>
<th>β</th>
<th>S.E.</th>
<th>t</th>
<th>Sig.</th>
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<tr>
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<td>Conflict</td>
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<td>.30</td>
<td>.59</td>
<td>.35</td>
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<td>5.46</td>
</tr>
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<td>Depression</td>
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<td>.31</td>
<td>.04</td>
<td>4.85</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Conflict</td>
<td>37.31</td>
<td>.35</td>
<td>.58</td>
<td>.34</td>
<td>.10</td>
<td>5.56</td>
</tr>
<tr>
<td></td>
<td>Depression</td>
<td>.21</td>
<td>.30</td>
<td>.04</td>
<td>4.87</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>2.90</td>
<td>.22</td>
<td>.72</td>
<td>4.00</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Conflict</td>
<td>30.26</td>
<td>.37</td>
<td>.49</td>
<td>.29</td>
<td>.11</td>
<td>4.46</td>
</tr>
<tr>
<td></td>
<td>Depression</td>
<td>.20</td>
<td>.28</td>
<td>.04</td>
<td>4.59</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender</td>
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<td>.22</td>
<td>.71</td>
<td>3.96</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive Aspects</td>
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<td>-.15</td>
<td>.15</td>
<td>-2.48</td>
<td>.01</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Stepwise regression analysis of predictive variables of externalizing behaviors

<table>
<thead>
<tr>
<th>Model</th>
<th>F</th>
<th>Adjusted R²</th>
<th>B</th>
<th>β</th>
<th>S.E.</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conflict</td>
<td>176.20</td>
<td>.46</td>
<td>1.55</td>
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<td>13.27</td>
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<td>2</td>
<td>Conflict</td>
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<td>.49</td>
<td>1.32</td>
<td>.58</td>
<td>.13</td>
<td>10.07</td>
</tr>
<tr>
<td></td>
<td>Emotion Express</td>
<td>1.24</td>
<td>.20</td>
<td>.06</td>
<td>3.56</td>
<td>.001</td>
<td></td>
</tr>
</tbody>
</table>

4. Conclusions and Discussion

The present study aimed at an examination of predicting factors of adjustment in Iranian children with cancer as these factors may crucially impact child’s adjustment and quality of life. Yet, there are no studies regarding this vital issue in Iranian pediatric cancer population. Therefore, factors regarding parental distress, child-parent relationship, family functioning, and a number of demographic characteristics were studied as predicting factors of cancer children’s adjustment which was reflected in internalizing and externalizing behaviors.
According to the results, the factor strongly capable of predicting both internalizing and externalizing behaviors in cancer children is conflict in child-parent relationship and this emphasizes the important effect of child-parent relationship quality on pediatric cancer survivors’ adjustment (Orbuch et al., 2005). This result may be due to the formation of child-parent relationship at very early stages of life. Child-parent relationship is manifestation of both past expectations and the expected future. In fact, previous child-parent interactions provide the context for present and future relationships (Lollis & Kuczynski, 1997). It could be concluded that in the case of pediatric cancer, conflict in child-parent relationships resulted from past conflicts in child-parent interactions leads to a sense of insecurity and loneliness in the child as he/she does not expect a positive feedback and support from the parents and does not feel secure enough to express his/her negative emotions. Therefore, he/she might show the negative emotions in two inappropriate ways; internalizing them or expressing them in the form of aggressive or externalizing behaviors. On the contrary, when the child has previously experienced positive interactions and relationships with parents, he/she could feel secure to express the negative feelings verbally and they won’t be internalized anymore as indicated in the results of this work.

Next factor with the ability of predicting internalizing behaviors in this study is parental depression which is consistent with a number of studies (Steele et al., 2004; Dockerty et al., 2000). According to the social learning model (Bandura, 1977), children model their problematic behaviors on the behaviors of significant others in their lives. It may be assumed that depressed parents of cancer children, when encountered by the disease, lack the ability of using functional active strategies and transfer this passive behavior to their children. In such a situation, instead of applying active strategies, the child may take a passive position and internalize his/her painful emotions rather than expressing them. On the other hand, the child with cancer may feel guilty for depressing his/her parents with his/her pains resulted from the disease and inhibits from verbalizing painful feelings in order to protect parents from more suffering. This approach may lead the child to internalizing emotions. Anxiety and stress in parents were not capable of predicting children’s adjustment in this work which may be due to the existence of higher anxiety and stress during early stages of diagnosis and their decrease by passing the time; depressive symptoms are usually maintained overtime. This study involved children with different disease stages and future studies might inspect the mentioned factors more accurately by considering the time passed since diagnosis.

Another significant predictive factor of internalizing behaviors in this study was female gender of cancer children which has been reported in previous studies as well (Stuber et al., 1997). This result may be explained using cultural expectations in Iranian culture that encourage females to present with high pain toleration and patience in painful situations and do not express their feeling which results in internalizing negative emotions. It is worth of noting that neither parental education nor disease severity was able to predict adjustment problems in present study and this emphasizes the key role of psychological factors affecting adjustment in cancer children and the necessity of focusing on them as a considerable part of the treatment along with medical procedures.

In addition to conflict in child-parent relationship, another factor predicting externalizing behaviors in this study is the lack of emotional express in the family and this result is consistent with the reports of Hammen et al. (2004) and Drotar (1997). It is interesting that none of the factors of roles/problem solving and boundaries/rules were able to predict adjustment problems and this reflects the importance and vital role of expressing emotions in the family. As the whole family is under a high amount of negative emotions in the case of pediatric cancer, when these negative feelings are not generally allowed and learnt to be expressed by family members, the child with cancer, in turn, may not be able to verbalize painful negative emotions and might express them explosively and in the form of externalized behaviors.

It should be mentioned that small number of fathers in this study, and integration of fathers’ and mothers’ data rather than analyzing them separately, may be accounted as a limitation and later works could consider this matter. Moreover, using projective measures for children along with measures completed by parents may help in gathering more accurate data on children’s adjustment. Also, as children with cancer may spend a long time being hospitalized and as a result they might have many contacts with the hospital staff, the quality of relationships between the children and the staff could be a factor affecting the adjustment and this may be the focus of later studies.

Overall, the present study highlights the crucial impact of psychological parental and familial factors on the adjustment problems of children with cancer and the results emphasize the necessity of considering the influence of such factors during the treatment process.
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References


