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Objective: To examine the treatment acceptability of behavioral interventions targeting noncompliance in children with cancer, in medical versus general situations.

Methods: Participants included 40 parents of children on active medical treatment for cancer, 42 pediatric oncology nurses, and 34 parents of medically healthy children. After reading a clinical vignette, participants rated the acceptability of five behavioral interventions via the Treatment Evaluation Inventory-Short Form.

Results: Positive reinforcement, response cost, and reprimand generally were perceived as moderately acceptable. Overcorrection was perceived as unacceptable by all groups. Compared with nurses and parents of medically well children, parents of children with cancer provided significantly lower acceptability ratings for response cost and time-out, two of the punitive strategies studied.

Conclusions: Results suggest that clinicians should assess the acceptability of specific treatments prior to intervening. Methods for enhancing acceptability should be explored in future research.

Key words: treatment acceptability; cancer; discipline; parenting; nursing; behavior modification.

The impact of the diagnosis and treatment of childhood cancer on parental discipline is unclear. Anecdotal evidence suggests that having a child with cancer interferes with effective and appropriate parental discipline. Parents of children with cancer may be inconsistent and lenient due to concerns about their child’s health status and worries that the child may die (Dahlquist, 1991). However, empirical research is limited and does not necessarily support the same conclusion. Davies, Noll, De Stefano, Bukowski, and Kulkarni (1991) reported no differences in the child-rearing practices of parents of children in remission versus community controls. In another study, parents in an oncology sample experienced more internal conflict in discipline situations than a control sample (Jelalian, Stark, & Miller, 1997). Thus, childhood cancer may exert some subtle effects on child discipline, although further exploration is needed.

Parent perceptions of specific discipline strategies are not known, particularly given potentially ambivalent or negative attitudes regarding discipline for children with cancer. Parents may be unlikely to endorse or employ punitive strategies. In the cancer setting, nurse perceptions are also crucial, as nurses often implement behavior management strategies and support parental attempts to manage behavior. One method of evaluating interventions is to examine treatment acceptability: the
degree to which a treatment is perceived to be reasonable and worthwhile for a particular problem and client (Kazdin, 1980). In general, research has indicated that positive and nonintrusive interventions are preferred. Also, compliance and efficacy are believed to be higher for more acceptable treatments (Reimers, Wacker, Cooper, & de Raad, 1992). The primary aim of this study was to examine parents’ and nurses’ perceptions of the acceptability of behavioral interventions as applied to children on active medical treatment for cancer.

In the current study, parents of children with cancer, nurses, and community controls evaluated the acceptability of behavioral interventions for child noncompliance in general versus medical treatment-related situations. We hypothesized that (1) parents of children with cancer would rate interventions targeting noncompliance in medical treatment-related situations as more acceptable than those targeting noncompliance in general situations given the health risks associated with medical noncompliance; (2) positive reinforcement would receive more acceptable ratings than punitive strategies (i.e., time-out, overcorrection, reprimand, response cost) from all groups; (3) reprimand would receive more acceptable ratings than other punitive strategies because it is less intrusive; (4) parents of children with cancer would rate punitive strategies as less acceptable than would nurses and controls.

**Method**

**Participants**

Subjects in this study included 40 parents of children with cancer (oncology), 34 parents of medically healthy children (control), and 42 pediatric oncology nurses (nurse). Parents in the oncology group were recruited from the waiting room of a pediatric oncology clinic. To prevent sample bias, attempts were made to recruit all parents seen in the clinic. Inclusion criteria included children on active medical treatment for nonbrain-related cancer. Forty (80%) of the 50 parents approached completed the study. Study refusers and completers did not differ demographically. Parents in the control group were recruited from the waiting room of a university-affiliated pediatrician’s office in close proximity to the cancer center. Inclusion criteria were identical with the addition of no history of neoplasm or chronic illness (e.g., asthma, diabetes). Thirty-four (71%) of the 48 control parents approached completed the study. Nurses were recruited from inpatient units and the outpatient pediatric clinic at the cancer center. Forty-two (84%) of the 50 nurses approached completed the study.

Mean parent age for the oncology sample was 38 years, and the majority were mothers (93%), married (73%), Caucasian (80%), and had obtained a high school degree or beyond (97%). Average child’s age was 10.5 years and average time since cancer diagnosis was 10.4 months. Fifty percent of the sample was female, and medical diagnoses included leukemia \( n = 16 \), sarcoma (Osteo- and Ewings sarcoma) \( n = 8 \), neuroblastoma \( n = 7 \), and other \( n = 9 \). Twenty percent \( n = 8 \) of the children had experienced a disease relapse at the time of participation. For the control group, mean parent age was 37.2 years, and the majority were mothers (97%), married (80%), Caucasian (70%), and had obtained a high school degree or beyond (100%). Average child’s age was 8.9 years. The oncology and control groups did not differ \( p > .1 \) on these demographic variables. Average nurse age was 30.6 years, and the sample was largely female (88%) and Caucasian (98%).

**Dependent Measures**

In treatment acceptability research, subjects typically read a clinical vignette and subsequently evaluate treatment alternatives to be applied to the vignette. Thus, participants read one of three vignettes and five treatment descriptions, randomly ordered to control for sequencing effects, and subsequently completed the inventory form to evaluate each treatment.

*Treatment Evaluation Inventory-Short Form (TEI-SF, Kelley, Heffer, Gresham, & Elliott, 1989).* The TEI-SF is a 9-item questionnaire completed five times by each participant: once for each treatment description. Items are rated on a 5-point scale and scores range from 9 to 45 for each treatment, with higher scores indicating greater acceptability. Sample items include “I believe this method is likely to be effective” and “I like the procedures used in this method.” The TEI-SF discriminates among alternative treatments (Kelley et al., 1989; Miller & Kelley, 1992). Internal consistency reliabilities in the current sample were adequate (Cronbach’s alphas = .93–.96).

*Case Vignettes.* The three vignettes differed in
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terms of the child's health status (cancer versus healthy) and the type of behavior problem exhibited (noncompliance in general versus medical treatment-related situations). Thus, the vignettes depicted (1) a child with cancer exhibiting noncompliance in medical treatment-related situations; (2) a child with cancer exhibiting noncompliance in general situations; and (3) a healthy child exhibiting noncompliance in general situations. Vignettes 1 and 2 were each randomly assigned to half of the nurse and half of the oncology groups. Vignette 3 was assigned to all members of the control group. Several experts in child behavior management evaluated the vignettes as equivalent in terms of depicted compliance problems.

Treatment Descriptions. Five treatment strategies for child noncompliance were briefly described as they could have been applied to the case vignettes. Treatment descriptions included: positive reinforcement (use of praise and tangible rewards for appropriate behavior); chair time-out; response cost (loss of privileges contingent on misbehavior); overcorrection (child apology and practice of appropriate behavior five times); and reprimand (verbal prompt to cease misbehavior).

Results

Effects of Behavior Problem Type

Correlational analyses between demographic variables and the treatment strategies were not significant. Two separate 2 (behavior problem type: general versus medical treatment-related noncompliance) x 5 (treatment strategy: positive reinforcement, overcorrection, time-out, response cost, reprimand) mixed-model repeated measures ANOVAs examined the effects of behavior problem on treatment acceptability for parents of children with cancer and nurses. Although significant main effects were found for treatment—parents: F(152, 4) = 25.6, p < .01; nurses: F(160, 4) = 43.2, p < .01—the main effect for behavior problem was nonsignificant in both analyses.

Effects of Rater and Intervention

Due to nonsignificant effects for behavior problem, behavior problem types were combined for the oncology and nurse groups in order to maximize sample size. A 3 (rater: oncology, control, nurse) x 5 (treatment) two-way ANOVA with repeated measures on treatment type examined whether the five treatments were differentially rated across and within rater groups. The main effect for group was not significant. There was a significant main effect for treatment, F(452, 4) = 61.32, p < .01, and a significant group by treatment interaction, F(452, 8) = 6.01, p < .01.

Table I. Mean TEI-SF Scores: Within- and Between-Group Comparisons

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Oncology</th>
<th>Nurse</th>
<th>Control</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PR</td>
<td>33.1 (8.3)</td>
<td>36.8 (6.7)</td>
<td>28.7 (9.1)</td>
<td>O, N &gt; C</td>
</tr>
<tr>
<td>2. REP</td>
<td>33.8 (6.9)</td>
<td>30.4 (6.8)</td>
<td>30.0 (7.8)</td>
<td>ns</td>
</tr>
<tr>
<td>3. RC</td>
<td>30.1 (8.9)</td>
<td>34.3 (7.4)</td>
<td>34.2 (6.5)</td>
<td>N, C &gt; O</td>
</tr>
<tr>
<td>4. TO</td>
<td>22.0 (10.9)</td>
<td>26.2 (9.0)</td>
<td>26.7 (8.1)</td>
<td>N, C &gt; O</td>
</tr>
<tr>
<td>5. OC</td>
<td>21.2 (8.8)</td>
<td>19.0 (7.8)</td>
<td>22.8 (8.4)</td>
<td>ns</td>
</tr>
</tbody>
</table>

PR = positive reinforcement, REP = reprimand, RC = response cost, TO = time-out, OC = overcorrection. Tukey's HSD post hoc comparisons were used to determine significant differences between means at p < .05. A TEI-SF score of 27 can be used as a cutoff for moderate acceptability (Kelley et al., 1989).

Table I presents mean TEI-SF scores for each group. Post hoc comparisons were conducted via Tukey's HSD and all findings discussed were significant at an alpha level of .05. In the oncology group, post hoc comparisons revealed that parents perceived reprimand and positive reinforcement as the most acceptable strategies, followed by response cost. Time-out and overcorrection were deemed least acceptable. In the control group, response cost was rated as the most acceptable strategy followed by reprimand and positive reinforcement, which were rated similarly. Time-out and overcorrection were viewed as relatively unacceptable with overcorrection being viewed as significantly less acceptable than time-out. In the nurse group, positive reinforcement was deemed most acceptable, followed by response cost and reprimand. Time-out was again rated as significantly more acceptable than overcorrection.

Post hoc analyses also were used to examine differences in acceptability ratings between the oncology, control, and nurse groups. For response cost and time-out, both punitive strategies, ratings provided by the oncology group were significantly lower than those provided by the control and nurse groups. Ratings of positive reinforcement were significantly higher for the oncology and nurse groups than those obtained for the control group. No significant differences between groups were noted for reprimand and overcorrection.
Discussion

The current results offer mixed support for our hypotheses. Nurses and parents of children with cancer did not differentiate between treatments targeting noncompliance in medical versus general situations as hypothesized. Partial support was obtained for the hypothesis that positive reinforcement would be more acceptable than punitive strategies in that nurses and parents of children with cancer provided the highest acceptability ratings for this strategy. Parents in the control group, however, provided higher ratings for response cost and reprimand than positive reinforcement. Perceptions of reprimand, a less intrusive punitive strategy, were variable. Parents of children with cancer rated reprimand higher than all other punitive strategies, whereas nurses and control parents provided higher ratings for response cost than reprimand. Factors other than intrusiveness, such as perceived efficacy, may have affected these ratings. Finally, parents in the oncology group perceived response cost and time-out as less acceptable than did nurses and control parents, although ratings of overcorrection and reprimand were equivalent to those of the other groups.

In comparison to nurses and control parents, parents of children with cancer provided significantly lower ratings for two punitive strategies: response cost and time-out. Nurses and parents of healthy children provided positive ratings of response cost and neutral ratings of time-out. In contrast, parents of children with cancer provided neutral ratings for response cost and unacceptable ratings for time-out. Why would parents of children with cancer provide lower ratings for some punitive strategies? For time-out, the physical demands and social isolation may be viewed as inappropriate. For response cost, removing privileges from a child with cancer may be deemed as too harsh. Also, for children with cancer, parents may perceive misbehavior as an uncontrollable side effect of illness and as less intentional than they would in a well child (Walker, Garber, & Van Slyke, 1995). Some punitive strategies may therefore be perceived as unacceptable.

Medical staff perceptions have been understudied. Similar to the results reported by Tarnowski, Kelly, and Mendelowitz (1987), the overall magnitude of nurses' acceptability ratings in the present study, as well as those of the other groups, was lower than those obtained from other samples. Treatment acceptability may differ in the context of medical illness as emotional and behavioral issues may be perceived as transient and less crucial (Tarnowski et al., 1987).

Limitations of this study include the sample composition, which primarily included mothers. Assessment of fathers' perceptions is desirable as their perceptions of treatment acceptability differ from those of mothers' (Miller & Kelley, 1992). Second, the sample was predominantly Caucasian and urban, thus limiting generalizability. Third, conflicting evidence regarding the association of treatment acceptability to treatment integrity and efficacy indicates that future research should focus on linking treatment acceptability to these key variables (Bennett, Power, Rostain, & Carr, 1996; Reimers et al., 1992). Examination of the severity of behavioral problems and child clinical status (e.g., cancer remission versus relapse) also are indicated.

Clinical implications of the current study should be considered in order to optimize the care of children with cancer. First, assessment of parents' and medical staffs' treatment acceptance prior to intervening may be helpful in terms of enhanced compliance and treatment integrity. Clinically, exploration of parents' biases against particular interventions may be useful in terms of correcting misperceptions and clarifying proposed strategies. Educational interventions, similar to those used to modify acceptability ratings by college students (Singh & Katz, 1985), should be examined. Although positive reinforcement should be implemented first, given its proven efficacy and high acceptability, response cost appears to be a reasonable alternative when positive reinforcement does not sufficiently address behavior problems. Should further intervention be necessary, clinicians should exercise caution when suggesting time-out or overcorrection.

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