Observational Assessment of Family Functioning at Mealtime in Preschool Children With Cystic Fibrosis

Leslie E. Spieth, PhD, Lori J. Stark, PhD, Monica J. Mitchell, PhD, Masha Schiller, PhD, Lindsey L. Cohen, PhD, Mary Mulvihill, PhD, and Melbourne F. Hovell, PhD

1Children’s Hospital Boston, Harvard Medical School; 2Children’s Hospital Medical Center, Cincinnati College of Medicine; 3Bradley Hospital, Brown University School of Medicine; 4Washington State University; and 5Graduate School of Public Health, San Diego State University

Objective: To examine functioning during a dinner meal in families of a child with a chronic illness that requires dietary treatment recommendations, as compared to families of a child without a chronic illness.

Methods: Ratings of seven dimensions of family functioning on the McMaster Mealtime Family Interaction Coding System (MICS) were obtained on 29 families of children with CF and 29 families of children with no chronic illness, ages 2 to 6 years, during a videotaped dinner meal at home.

Results: Ratings of families with a child with CF were significantly lower than those for families of children without a chronic illness on Overall Family Functioning and five of the six MICS dimensions: Communication, Interpersonal Involvement, Affect Management, Behavior Control, and Role Allocation and approached significance on the Task Accomplishment dimension. The ratings of families of a child with CF were in the “clinically significant” range on all subscales, including Task Accomplishment.

Conclusions: This study suggests that family functioning at mealtimes may be different in families of children with CF in which explicit dietary guidelines exist than in families of children with no illness or dietary guidelines. These results are discussed in terms of global family functioning and treatment approaches to dietary treatment recommendations.

Key words: cystic fibrosis; family functioning; dietary recommendations.

Feeding young children is an important aspect of parenting that has universal biological and social implications. The responsibility of feeding young children is especially complex in chronically ill populations, given that the management of many pediatric chronic diseases involves adhering to specific, and sometimes restrictive, dietary recommendations (Kedesdy & Budd, 1998; Stark, 2000). Within the context of a chronic illness, the typical parenting task of feeding a child is complicated because it is also an illness-specific task necessary in the management of the illness.

Cystic fibrosis (CF) provides an ideal context for examining how a family system is affected by dietary regimens to ensure the health of the child.
Parents of children with CF must engage in both management of illness-specific dietary adherence and the typical parenting tasks of feeding. Despite the importance of maintaining nutritional status in CF, most children with CF are not meeting prescribed dietary recommendations of 120% to 150% Recommended Daily Allowance (RDA) and have an energy intake similar to that of nonill children (Buchdahl, Fullylove, Marchant, Warner, & Brueton, 1989; Daniels, Davidson, & Martin, 1987; Stark et al., 1995; Stark et al., 1997; Tomeszko, Stallings, & Scanlin, 1992). In children with CF, weight has been correlated with health complications, recovery from pulmonary exacerbation (Roy, Darling, & Weber, 1984), and morbidity (Gurwitz, Corey, Francis, Crozier, & Levison, 1979). Thus, meeting dietary requirements and achieving optimal weight are critical to the health of children with CF (Ramsey, Farrell, & Pencharz, 1992). However, mealtimes have been found to be the most frequently cited problem by parents of young children with CF (Quittner, DiGirolamo, & Winslow, 1991), and meals are perceived as more problematic by parents of children with CF than parents of children without CF (Crist et al., 1994; Sanders, Turner, Wall, Waugh, & Tully, 1997; Stark et al., 1995; Stark et al., 1997). Furthermore, eating problems in children with CF have been associated with family tension and conflict (Patterson, McCubbin, & Warwick, 1990), suggesting that stress during mealtimes may be higher in families in which oral intake is part of the treatment, as is the case with CF.

Parents' success or failure with properly nourishing their child often determines how parents perceive their own parenting competence and satisfaction. Thus, if a child eats and develops well, parents may feel capable and empowered in their parenting role; however, if a child eats poorly, parents may feel inadequate (Kedesdy & Budd, 1998). In addition, interactions at mealtimes may be critical to family emotional health and child socialization (Feiring & Lewis, 1987). In families in which a child has a chronic illness and must follow explicit dietary recommendations, as in CF, mealtimes may take on added significance as to how parents view their competency. Parents of children with CF may experience more pressure in getting their children to eat than parents of children without dietary recommendations. In addition, parents of children with CF who have poor weight gain and growth may experience additional pressure to adhere to dietary recommendations. The goal of this study was to examine family functioning during the mealtime of children with CF who have dietary requirements versus families of children without a chronic illness. We were interested in understanding family interactions as well as how the mealtime task (i.e., serving the meal and feeding the family) was accomplished. Participants were restricted to one developmental phase, preschool years, in order to minimize variance in children's eating behavior. During the preschool years, children are capable of self-feeding. In addition, children in this age range demonstrate independence in food preferences, while eating patterns and food choices are strongly influenced by parental factors, such as the specific foods served, timing of meals, and mealtime rules.

We hypothesized that, given the nutritional requirements of children with CF, families of children with CF would receive lower family functioning scores than would families of children without a chronic illness. Because of the relationship between nutritional status (i.e., weight percentile) and health in children with CF, and associated parental pressures, we hypothesized that ratings of family functioning would be lower for families whose child with CF was at lower weight percentile for age as compared to those at a higher weight percentile for age.

**Method**

**Participants**

A sample of 29 preschool children with CF and their families was drawn from a larger sample of 32 children reported on in Stark et al. (1995). Three children were excluded from this study because they did not have a nonchronically ill age-matched control. In this CF sample, 60% of the children were male. In two of the families, there was a sibling with CF. As CF is a genetic disorder primarily affecting Caucasians, all subjects were white. Whereas no formal measure of disease severity was obtained on the CF sample, none of the children had acute pulmonary exacerbation at the time of participation. In addition, the sample consisted of 80% of those eligible for participation and thus was considered to be typical of families of young children with CF. The mean age was 4 years, 4 months (range: 2 year, 0 months–5 years, 11 months). The children's weight for age ranged from below the fifth percentile to above the ninety-fifth percentile, and 70% of the
sample fell at, or below, the fiftieth percentile weight for age.

Twenty-nine healthy children and their families served as controls. They were matched to the families of a child with CF on age of child (within 12 months), gender (with one exception), number of parents and siblings present at the meal, and socio-economic status (SES) within two categories on the Hollingshead (1975) Four-Factor Index of Social Status. Fifty-seven percent of the control sample was male, and subjects ranged in weight from the thirtieth to the ninety-fourth percentile weight for age. As expected, given the matching procedure, the two groups did not differ on any of the child factors assessed (i.e., child gender, child age, number of others present), or on SES scores. The mean social status index score was 3.67 ($SD = .94$) for the CF sample and 4.00 ($SD = .93$) for the control sample. Although groups were not matched on parent marital status, both groups were also similar on this variable. In the CF sample, 21 of the children's parents were married, and 8 were divorced/separated. In the control group, 24 of the children's parents were married, and 5 were divorced. Children in both samples were also comparable on the number of siblings at the meal and living in the home. Children with CF had an average of 1.36 siblings ($SD = .94$) and controls had an average of 1.27 ($SD = .79$) siblings.

**Procedure**

*Subject Recruitment.* Families were recruited for participation in a larger investigation designed to assess the eating behaviors of children with CF. Procedures and findings from the larger study have been reported elsewhere (Stark et al., 1995) but will be summarized here as relevant. Children with CF and their families were recruited from CF centers at Rhode Island Hospital, Massachusetts General Hospital, and the University of California, San Diego Medical Center. The matched control families were referred by pediatricians and project staff members and recruited via day care center notices, newspaper articles, and radio and television announcements. The announcements stated that the study involved learning more about nutritional intake and mealtime behaviors in young children and their families.

*Home Visits.* Home visits were conducted during the family's evening meal and the entire meal was videotaped. A videocamera was set up by a research assistant, who then left the room during the meal.

To ensure that videotaped meals were representative, parents rated the similarity of each videotaped meal to their typical meals on a scale of 1, “not at all typical” to 4, “very typical.” In completing these ratings, parents were asked to consider the target child’s eating behavior and the general interaction of the family. Evening meals were videotaped until three meals rated as typical (rating of 3 “typical,” or 4 “very typical”) were obtained. The average number of home visits needed to collect three representative meals was 3.2 (range = 3–6). As previous analysis of parent and child behavior during mealtime interactions in these families revealed no significant differences across the three meals (Stark et al., 1995; Stark et al., 2000), one videotaped meal (of those rated as typical) was randomly selected and coded for each family in this study.

**Measures**

*Mealtime Family Interaction Coding System (MICS).* Family functioning ratings were obtained by coding videotaped observations of dinner meals using the Mealtime Family Interaction Coding System (MICS) (Dickstein, Hayden, Schiller, Seifer, & San Antonio, 1994; Hayden et al., 1998). The MICS is an observational coding system based on the McMaster Model of Family Functioning (Epstein, Bishop, & Levin, 1978) and family systems theory. The MICS was adapted from the McMaster Structured Interview of Family Functioning (MCSIFF) in order to assess family functioning during an unstructured, naturalistic situation (i.e., family mealtimes). Construct validity is supported by the fact that the MICS is correlated with other widely used measures of family/parent functioning, including the MCSIFF ($r = .52$), Family Assessment Device ($r = .33$), Dyadic Adjustment Scale ($r = .29–.33$), and Parent/Caregiver Involvement Scale ($r = .38–.56$) (Hayden et al., 1998). The dimensions coded within the MICS parallel those assessed by other McMaster assessment devices: Task Accomplishment, Communication, Affective Interaction, Interpersonal Involvement, Behavior Control, Roles, and Overall Family Functioning. The final dimension, Overall Family Functioning, is rated in its own right, according to specified criteria, and does not represent an averaging of the six preceding dimensions. Definitional criteria of these dimensions of family functioning are summarized in Table I. Each of these dimensions is scored on a 7-point scale ranging from 1 (“very unhealthy”) to 7 (“very healthy”). Each dimension of the MICS has
Table I. Summary of Family Mealtime Interaction Coding System (MICS) Dimensions

<table>
<thead>
<tr>
<th>MICS Dimension</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task accomplishment</td>
<td>This scale rates the “flow of the meal,” including the way in which the meal is structured, and the process by which the disruptions are resolved. Ratings are based on the overall unfolding of the mealtime situation, rather than on specific individual behaviors. The mealtimes of families receiving a rating in the unhealthy range may appear chaotic or haphazard. These families commonly experience disruptions (e.g., members leaving the table, food being served, food spilling, complaints about the meal, etc.) that are inadequately addressed. For families receiving ratings in the healthy range, there is generally a designated time and place for the meal, the meal is distinguished from other activities, and the routine is familiar to family members. These families may show flexibility, smooth transitions, and disruptions that are adequately addressed and resolved.</td>
</tr>
<tr>
<td>Communication</td>
<td>This scale rates the exchange of information among family members. It is important to consider who is included and excluded from the communication, whether one person tends to dominate the conversation, and the quality of communication (as rated on two continua: clear to masked, direct to indirect). Particular attention is paid to whether content is age-appropriate and whether accompanying affect is positive or negative. Congruence between verbal and nonverbal cues is also considered. Families in the unhealthy range generally exhibit ineffective communication and experience mealtime disruptions as a result of unclear and/or indirect messages, incongruence between verbal and nonverbal messages, active ignoring of one or more family members (parents may focus on one child to the exclusion of other family members), or attempts by one or more family members to avoid a topic of discussion. For families in the healthy range, the most important communication is clear and direct, although there may be lapses in quality. When communication is inefficient or inadequate, it does not get to the point where it is disruptive to the meal.</td>
</tr>
<tr>
<td>Affect management</td>
<td>This scale rates the relevance and appropriateness of emotion expressed during the meal. Focus is placed on both the production of affect (i.e., the appropriateness, intensity, contextual relevance) and the response to affect by family members (i.e., the sensitivity, contingency, and congruence). The manner in which affect is managed by the family and the extent to which it disrupts the meal are considered in rating this dimension. Families in the unhealthy range have difficulties in either the production or responsiveness of affect (or both), such that affective experiences are disruptive to the mealtime interaction. Families in the healthy range generally express emotions that are appropriate to the situation and thus, emotional displays are not disruptive to the flow of the meal.</td>
</tr>
<tr>
<td>Interpersonal involvement</td>
<td>This scale rates the extent to which family members show interest in, and place value on, each other’s activities and concerns. This may involve discussions about the events of the day, issues of personal importance to each member, or probing about thoughts, feelings, or opinions on a topic. Nonverbal indications of interpersonal involvement are also noted (e.g., eye contact, displays of affection, comfort with physical proximity). Families in the unhealthy range, appear to “do their own thing” and exhibit a lack of involvement, symbiotic involvement, involvement devoid of feelings, or narcissistic involvement. Families in the healthy range generally exhibit empathic involvement such that basic levels of care and concern are demonstrated.</td>
</tr>
<tr>
<td>Behavior control</td>
<td>Refers to the way in which the family expresses and maintains standards for the behavior of its members, including issues related to: physical danger (e.g., no hitting, not allowed to touch hot objects, etc.), meeting psychobiological needs (e.g., rules for eating), and standards for social behavior (e.g., show of manners and respect for others at the dinner table). The rating is organized within a framework of 4 control styles: chaotic (random shifting among control styles), laissez-faire (no standards), rigid (little room for negotiation), and flexible (reasonable standards with room for negotiation depending on the circumstances). Families in the unhealthy range show a predominantly chaotic or rigid pattern, while families in the healthy range show a flexible or mildly rigid pattern, except in the case of dangerous situations when families may appear more rigid in enforcing the rules and protecting family members.</td>
</tr>
<tr>
<td>Roles</td>
<td>This scale rates the patterns of behavior by which family members fulfill family functions. Consideration is given to how mealtime tasks are distributed among family members, the age-appropriateness of tasks, and acceptance and fulfillment of responsibilities (as evidenced by verbal and/or nonverbal behaviors). In families receiving ratings in the unhealthy range, assignment of tasks may be totally ineffective or inappropriately distributed (in that tasks are nonage-appropriate or are being done by family members who are overwhelmed by responsibilities). For families receiving ratings in the healthy range, family members are capable of doing the tasks that they are assigned and responsibility is apparent, and members to do not seem overburdened by the task of serving the meal or feeding the family.</td>
</tr>
<tr>
<td>Overall family function</td>
<td>This scale refers to the overall clinical impression of the quality of family interactions. Essentially, the family’s ability to effectively meet the physical, emotional, and psychological needs of each of its members during the dinner meal is rated. This dimension is not an “average” of the 6 previous dimensions, but rather is rated in its own right. Families who rate in the unhealthy range may be disjointed and chaotic. Families appear weak in a number of areas or they may have one glaring or substantial inadequacy. In these families, the mealtime is not smooth, and all members are not satisfied. Families who rate in the healthy range accomplish all important aspects of the meal with adequacy, if not with ease. Although problems may exist, they are understandable and do not disrupt the overall job of nourishing the family.</td>
</tr>
</tbody>
</table>
a clinical cutoff score paralleling those established on the MCSIFF. Ratings of less than “5” are considered in the “unhealthy range” and indicative of problematic functioning (e.g., families are chaotic, there is significant conflict, children/adults have poor behavioral control, assignment of tasks is ineffective, meals may appear “forced”). Scores of “5” and greater are considered in the “healthy range” and are indicative of adequate/good functioning (e.g., meals are well-planned and well-managed, communication is clear and direct, basic levels of concern and care are demonstrated, family members do not seem overburdened by the meal). Data are being collected to establish the validity of these cutoffs for the MICS. However, one study has found the MICS useful in discriminating families with maternal depression (mean rating on the dimension of overall family functioning = 4.75) from families with no maternal psychopathology (mean rating = 5.36) (Dickstein et al., 1998).

In rating the dimensions of the MICS, coders are taught to take notes of significant family interactions observed during the meal and to note their relevance to each of the dimensions. At the first level of coding, coders are trained to first determine for each dimension whether family scores fall in the “unhealthy” (score <5) or “healthy” (score >5) range. The second level of coding is to determine for each dimension, where on the “healthy” or “unhealthy” continuum the family’s score lies. Families who receive ratings in the “unhealthy” range might be characterized by poor behavior control (or parental disagreements about discipline), indirect and masked communication, explosive affective responsiveness, or inefficient role allocation. To the contrary, families in the “healthy range” show adequate to excellent functioning as they are able to manage behavior and affect, communicate directly and effectively, and coordinate the meal and members’ roles. Thus, while ratings are made on a Likert scale of 1 to 7, the distinction between scores of less than 5 are viewed as categorically different than scores of 5 or greater. Coding of interactions begins when the meal starts, as indicated by the presence of food on the table and the initiation of eating by several family members. Coding terminates at the end of the meal or after 20 consecutive minutes.

**Coding and Reliability**

Coders were trained to reliability of .80 or greater on the MICS by coding 30 previously coded archival videotapes of family meals prior to coding. In this study, 30% of the meals were double-coded by a second post-doctoral fellow, who received the training described above. Reliability was assessed using intraclass correlation. Intraclass correlations are appropriate for Likert ratings and evaluate exact agreement of ratings, thus avoiding potentially inflated correlation coefficients resulting from consistent disagreements between two raters (Winer, Brown, & Michels, 1991). In this study, intraclass correlation coefficients were within the acceptable range (Winer et al., 1991) for each of the MICS dimensions: .76 (Task Accomplishment), .84 (Communication), .88 (Affective Involvement), .80 (Interpersonal Involvement), .67 (Behavior Control), .73 (Roles), and .70 (Overall Family Functioning).

Coders were blind to participant health status. However, the blind was broken on five meals when a child with CF took replacement pancreatic enzyme pills during a meal (rather than beforehand). The ratings of these meals were compared to the rest of the sample to evaluate potential bias of rater’s codings. The ratings for these five families did not differ from ratings for families in which the blind was maintained on any of the dimensions. For each of the dimensions, the mean rating for the families in which the blind was broken was slightly, but not significantly, higher than for families in which the blind was maintained (t values ranged from .588 to 1.771; all p > .05). Therefore, the data for the families of a child with CF, in which the blind was broken, were included in all analyses.

**Results**

To examine differences in level of family functioning between the two groups (CF and control families), a Multivariate Analysis of Variance (MANOVA) was conducted using the seven MICS family functioning dimensions as the set of dependent variables. MANOVA results revealed a significant difference between the two groups, Hotellings $F(7, 52) = 2.32, p < .05$, and indicated significantly lower ratings for the families of children with CF. Subsequent univariate analyses were conducted using one-way analysis of variance (ANOVA). These analyses revealed that the families of children with CF scored significantly lower than the control families on the MICS Overall Rating of Family Functioning, $F(1, 56) = 12.56, p = .002$, and five of the six dimensions: Communication, $F(1, 56) = 10.26, p = .002$; Interpersonal Involvement, $F(1, 56) = 16.56, p = .002$; Affect Management, $F(1, 56) = 16.59, p =$
Behavior Control, \( F(1, 56) = 4.03, p < .05 \); and Roles, \( F(1, 56) = 10.93, p = .002 \). There was also a trend indicating that the families of children with CF scored lower than control families on Task Accomplishment, \( F(1, 56) = 3.57, p = .064 \). The mean rating for each dimension is shown for the families of children with CF and the families of nonchronically ill children in Figure 1. As can be seen in Figure 1, the families of children with CF were consistently rated lower than the families of the nonchronically ill children, and their ratings fell in the “unhealthy” range on all seven of the dimensions.

The relationship between family functioning and weight status in the CF sample was also examined. Pearson’s product-moment correlations indicated no association between weight for age percentile of children with CF and MICS overall rating of family functioning (\( r = .170 \)).

Discussion

Results from this study extend our previous research on nutrition and CF by using observational methodology to assess family functioning during the dinner meal. The data from this study support and further help us understand behavioral differences during mealtimes between children with and without CF and their families as described in previously published studies (Stark et al., 1995; Stark et al., 1997; Stark et al., 2000).

This study yielded two main findings. First, as hypothesized, ratings of family functioning during mealtimes were significantly lower in families of children with CF than in families of nonill children. These data were consistent across six of the seven McMaster model dimensions. Specifically, families of nonill children appeared to function more effectively on Overall Family Functioning, Communication, Affect Management, Interpersonal Involvement, Behavior Control, and Role Allocation than did families of children with CF. Families did not differ on Task Accomplishment, with the task being defined as “serving the meal/child eating” during the mealtime. Whereas ratings of family functioning were statistically different for the two groups, the clinical significance of this difference has not been fully established. The clinical utility of the MICS has shown promise in distinguishing clinically relevant dimensions indicative of healthy and unhealthy functioning (Dickstein et al., 1998), but the validity of these cutoffs are not as well established for this system as they are for other McMaster assessment measures, including the McSIFF, from which it was derived. Nonetheless, the data from this study are consistent with parent report of mealtime stress (Crist et al., 1994) and behavioral observation of parent-child interaction (Stark et al., 2000).

These data, along with previous reports of mealtime stressors and behaviors, suggest that having a child with CF (as compared to having a child with-
out a chronic illness) poses unique challenges to the family system, particularly in the context of the mealtime (Crist et al., 1994; Stark et al., 1995; Stark et al., 2000). During the meal, parents of children with CF are required to balance illness-caregiving and general parenting responsibilities. In our investigation, mealt ime task accomplishment and family interaction indices were compared across families in which providing dinner was perceived strictly as a normal parenting task (by control families) and in families in which it was presumably perceived as an illness-specific task, as well as a normal parenting task (by families of a child with CF). As is the case in the management of CF and other pediatric illnesses, parents must not only prepare the meal and ensure that the child eats an adequate amount but also must encourage children to adhere to specific dietary recommendations. For example, parents of children with CF must ensure that the child consumes a high-fat, high-calorie diet to achieve significantly increased levels of RDA. In this study, the MICS ratings indicated that although families of children with and without CF were similar in their ability to accomplish the task (i.e., getting food on the table), family functioning, interpersonal interaction, communication, and affect regulation were compromised in families of children with CF. This finding is consistent with several studies that have found that children with CF have a caloric intake similar to that of nonill children but well below levels prescribed for optimal nutritional health and disease management (Buchdahl et al., 1989; Daniels et al., 1987; Stark et al., 1995; Stark et al., 1997; Tomeszko et al., 1992). Therefore, this study provides additional data that following dietary recommendations for CF complicate an otherwise “typical parenting” task in ways that may negatively affect the family system and the quality of interactions. Additionally, these findings further support prior evidence that illness-specific tasks are associated with greater distress than are typical parenting tasks (Carter, Urey, & Eid, 1992; Eiser, Zoritch, Hiller, Havermans, & Billig, 1995; Kazak & Marvin, 1984; Quittner, DiGirolamo, Michel, & Eigen, 1992a, 1992b).

Whereas previous research findings indicate mealtimes are a frequently cited problem for parents of children with CF (Quittner et al., 1991), our results suggest that the entire family system may be affected by challenges imposed by dietary treatment recommendations. In fact, lower family functioning scores may be explained, in part, by the higher frequency of behavior management strategies used by parents of children with CF and the considerable energy they are expending to help their child adhere to nutritional recommendations as reported in previous studies (Crist et al., 1994; Stark et al., 2000). Even in cases in which nutritional adherence is good, the quality of family interactions may be compromised to ensure that this task is accomplished (Stark, Powers, Jelalian, Rape, & Miller, 1994).

The second finding, contrary to our hypothesis, revealed that the weight of the child with CF was not related to family functioning at meals. Because child weight was used as an indirect measure of health status, child weight for age percentile was hypothesized to be associated with increased level of parental distress regarding the caloric intake of the child with CF. The absence of a relationship between child weight and family functioning in this sample suggests that the child’s illness severity may be less important than the child’s illness status in determining the functional impact of dietary adherence upon the family. Families of children with CF appear to be challenged equally in their efforts to get their children to eat, regardless of the child’s actual weight. The data suggest that the goal of “getting children healthy” and “keeping children healthy” may present similar pressures and tolls on the family system. Indeed, previous studies have found similar results. “Adequate weight” neither alleviates the need for children and families to follow recommendations nor ameliorates parents’ fears that their child may experience health complications as a result of poor adherence (Stark et al., 1994).

A limitation of this study is the lack of a measure of global family functioning. Such a measure would be useful in elucidating whether the differences observed in family functioning during the dinner meal were due to the families of a child with CF functioning less adaptively in general or only in response to an illness-related task. Without such a measure, it is possible that these findings may be due to families of children with CF having less adaptive functioning in general, and not be just specific to mealtimes. Although this is a possibility, we would argue that previously published literature has failed to confirm a relationship between general family functioning and pediatric chronic illness (Ievers & Drotar, 1996; Shepherd et al., 1990). Furthermore, in our previous description of this sample (Stark et al., 1995), parents reported problematic behaviors only on questions specific to eating and not overall child behavior on the Eyberg Child Behavior Ratings Scale.
Checklist. However, in order to better understand and differentiate global family functioning from family functioning within a specific domain, future research should provide a measure of global functioning in addition to measures of family functioning in the context of a specific task. Multidimensional assessment of family functioning in CF will help clarify how broadly families are affected by demands related to disease management and general parenting issues.

Dietary recommendations are part of almost all pediatric chronic illness treatment regimens. For example, children with Type 1 diabetes are instructed to eat at prescribed intervals and to limit their intake of concentrated sugars to regulate glucose levels. Children with phenylketonuria (PKU) must avoid foods containing phenylketonuria to prevent brain damage, and pediatric transplant patients are instructed to avoid foods high in salt and potassium to optimize health. Future research should also investigate whether the behavioral differences found between families of children with CF and nonill children reported in previous research (Stark et al., 1995; Stark et al., 1996; Stark et al., 2000) and differences in family functioning found in this study are unique to CF or occur more widely across pediatric chronic illnesses with dietary treatments. It may be that restricting the consumption of preferred food (e.g., high sugar content foods in diabetes) might pose different challenges than increasing overall caloric intake.

This study, conducted on preschool age children, ages 2 to 6, also highlights the importance of assessing family functioning across various developmental phases in future research. This phase of development is marked by rapid changes in child independence and food acceptance. By examining family functioning in other and perhaps more restricted age ranges, we may be able to obtain richer information on how family patterns emerge over the course of the illness. Specifically, family functioning may improve following diagnosis as parents are able to provide pancreatic enzyme replacement therapy and children begin to gain weight. Alternatively, family functioning at mealtimes may decline soon after diagnosis as parents are pressured to quickly and dramatically change their child’s diet. Over time family functioning at mealtimes may deteriorate as parents become overwhelmed with the day-to-day challenge of following dietary recommendations as a means of keeping their child healthy, or family functioning may improve as parents and children better adapt to treatment routines. Understanding when these patterns emerge will help to guide the development and implementation of psychological interventions. In addition, guidelines for clinical interventions may be better identified if variability and clinical differences were examined within a chronic illness population. Observational coding of mealtime interactions may be clinically useful in identifying families who are in the “unhealthy” or “healthy” ranges of family functioning. Knowing which families are “at risk” for problematic family functioning will help inform clinical referrals and interventions. Currently, the only reported psychological treatment for targeting mealtime interactions is a behavioral intervention for weight gain in CF (Stark, Bowen, Tyc, Evans, & Passero, 1990; Stark et al., 1993; Stark et al., 1994; Stark et al., 1996). One next step is to determine whether this existing behavioral intervention for dietary adherence is effective in improving family interactions. Family communication may be improved as a result of teaching parents to use verbal praise and direct commands with children. Alternatively, if behavioral interventions are not found to be effective in improving family functioning, future research is needed to determine how a family-based component of treatment may be developed and implemented.

Acknowledgments

This research was supported by grants awarded to Dr. Lori Stark from the National Cystic Fibrosis Foundation (Z-117) and the National Institutes of Health R01 DK 50092. We thank Susan Dickstein, PhD, for her consultation on this project.

Accepted February 7, 2000; revisions received July 3, 2000, and September 19, 2000; accepted September 27, 2000

References


