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Family Mealtime Q-Sort: A Measure of Mealtime Practices

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Abstract

Studies outlining the protective functions of shared family meals suggest that helping families experience successful meals is an important goal. Measuring the effectiveness of family mealtime interventions necessitates the ability to quantify both the frequency and context of shared mealtimes. This article introduces a new instrument, the Family Mealtime Q-Sort, describes its development, and presents preliminary data about its psychometric properties. Data from initial evaluation of the Family Mealtime Q-Sort using family mealtime videos (N = 51) demonstrate acceptable interrater reliability, promising validity, and the ability to compare family mealtimes to an independently derived, culturally appropriate standard. The results suggest that the Q-sort adequately measures important dimensions of a successful mealtime including a positive atmosphere, making use of the shared time to engage in meaningful conversation, and proceeding with a clear plan and minimal distractions. Further research on the tool is warranted.

Keywords

family; mealtimes; observation; Q-sort; routines

Family mealtimes comprise the practices and processes that a family engages in around eating together. Some families routinely share meals and others rarely, if ever, eat together. Recent studies have identified the protective functions of shared family meals, including the dimensions of successful family mealtimes (e.g., frequency, joint interaction, information sharing, deliberateness, and parenting style; Black & Hurley, 2007; Fiese, Foley, & Spagnola, 2006; Franko, Thompson, Affenito, Barton, & Striegel-Moore, 2008).

This article describes formative research designed to measure family mealtime practices through a new observational measure, the Family Mealtime Q-Sort. The ability to observe and quantify specific characteristics of shared mealtimes provides a valuable tool for those interested in strengthening this protective family function. The Q-sort methodology has multiple advantages in that it (1) provides a global description of behavior, (2) measures

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subjective observations rigorously, (3) uses nonclinical raters who can establish reliability with limited training, (4) reduces response bias, (5) rates context and frequency of behaviors using a fixed distribution, and (6) compares Q-sorts against an independently derived standard (Block, 1978; McKeown & Thomas, 1988; Wampler, Halverson, Moore, & Walters, 1989).

We describe development of the Family Mealtime Q-Sort, guided by the principles of scale construction (Block, 1978; DeVellis, 2003), and we present initial data on interrater reliability, factor structure, and validity. We hypothesized that Q-sort scores correlate highly with other standardized measures of family functioning, especially during mealtimes (concurrent validity), and that Q-sort ratings predict parent clinical status (known-groups validity).

Method

Development of the Family Mealtime Q-Sort

An initial set of 76 Q-sort items was developed with a structured, deductive approach. Items were compiled from other family measures (Fiese & Kline, 1993; Sumner & Speitz, 1994; Wampler et al., 1989) and experts on family process, focusing on roles, deliberateness, atmosphere, relationships, and meaning within family meals. Filler items dealing with issues about food were included. Item definitions and sorting rules were established, so that items are sorted along a 9-point scale using a flat distribution (equal number of items under each of the 9 points) to maximize the number of discriminations (Block, 1978). Each item receives a score based on its placement along the distribution, ranging from −4 (*least like this family*) to 4 (*most like this family*). Each item was reviewed by experts and evaluated on the basis of relatedness (continuum and opposites), conceptual clarity, repetition, and value judgments. Items that were unclear were rewritten, and overlapping items were eliminated. Items were pretested on mealtime videos. Where agreement was difficult to achieve, items were rewritten. This process was repeated until a final set of 54 items was selected (see Appendix).

A Q-sort depicting the best possible use of mealtime practices was obtained. Family therapists and researchers (academic panel, $n = 17$) completed the Q-sort for an “optimal” meal. To ensure the cultural relevance of the Q-sort, a panel of primarily African American individuals living/working in urban poverty provided “optimal” Q-sorts (community panel, $n = 7$).

Design of the Evaluation

We evaluated the Q-sort’s psychometric properties using data ($N = 51$) from families of children (5–12 years old) with asthma who were videotaped in their homes during a mealtime and who completed standardized assessments (Fiese et al., 2006).

Four master’s-level research associates (RAs) were trained to use the Family Mealtime Q-Sort. The RAs independently watched and coded tapes until their agreement against consensus codes and against each other was adequate (.70 or above). After training, two RAs independently rated the mealtime videos. The RAs had no knowledge of the other assessments. Institutional review board approval was obtained.

Measures

Mealtime Interaction Coding System (MICS)—The MICS (Dickstein, Hayden, Schiller, Seifer, & San Antonio, 1994) is an observational tool based on the McMaster Model of Family Functioning. Scores on seven dimensions (task accomplishment,

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communication, roles, affective interaction, interpersonal involvement, behavior control, and overall functioning) range from 1 (*very unhealthy*) to 7 (*very healthy*). Interrater reliability on each dimension has been acceptable.

The McMaster Family Assessment Device (FAD)—(Miller, Epstein, Bishop, & Keitner, 1985) is a 60-question, Likert-type instrument. Items are scored on a 4-point scale ranging from 1 (*healthy*) to 4 (*unhealthy*) measuring seven scales and overall functioning. Adequate test–retest reliability (.66–.76) and concurrent validity have been reported.

Family Ritual Questionnaire (FRQ)—The FRQ (Fiese & Kline, 1993) is a 56-item, self-report measure assessing family rituals across seven settings and through eight dimensions. Adequate internal consistency (intraclass correlations from .52 to .90), retest reliability (.88), and validity have been found.

Brief Symptom Inventory (BSI)—The BSI (Derogatis & Spencer, 1982) is a 53-item, self-report measure of adult psychological symptoms. The BSI yields three global indices of distress, the Global Severity Index (GSI), and nine subscales. Alpha coefficients ranging from .71 to .85 and a test–retest reliability coefficient of .90 for the total score demonstrate reliability.

Analytic Plan

We analyzed interrater reliability using Pearson correlation coefficients. Conceptually, Q-sort items were selected to cover multiple dimensions of family mealtimes. Statistically, to better understand the structure of the Q-Sort, we conducted an exploratory factor analysis using principal component analysis with varimax rotation, and subscale scores were created. All subscales were additive and derived so that higher scores indicate favorable ratings.

We computed the mean score for each item on the “optimal” sorts. Each family’s Q-sort was correlated with the optimal Q-sort. We labeled this the Family Mealtime Interaction (FMI) score. Higher positive correlations mean that the family is closer to optimal mealtime practice.

We determined construct validity of the Q-sort by comparing ratings with standard measures of family functioning using Pearson product-moment correlations. We assessed known-groups validity by determining whether Q-sort ratings significantly predicted caseness using the clinical cutoff scores on the BSI. We set the criterion for significance at a p value of .01 to look for large effect sizes and to correct for the number of comparisons being made.

Results

Correlations across the 51 tapes ranged from .32 to .88, with 61% over .60. Videotapes on which agreement between the 2 raters did not reach .60 were recoded with consensus methods (Block, 1978). Q-sort scores used in further analysis were an average of all available ratings.

The correlation between the community and academic panels ranged from .74 to .92 and were combined to form the optimal Q-sort. Correlations between the FMI scores and the optimal Q-sort varied from −.628 to .845 (M = .446, SD = .37).

An exploratory factor analysis was conducted with solutions generated for 3, 4, 5, and 6 factors. The six-factor solution retained all 54 items, each factor explained a sufficient portion of the variance, and the set of items loading on each factor were easily interpretable. Recommended criteria for inclusion were assessed (Tabachnick & Fidell, 1996). All of the

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items loaded at or above a .32 on a single factor. The majority of the items showed a difference greater than .2 between any two factors. The greatest overlap was on items loading on Factor 6. The six factors explained 66.17% of the total variance. We labeled the factors as follows: positive tone (16 items, 18.39% variance explained), meaningful conversation (12 items, 13.24% variance explained), clear plan (9 items, 12.02% variance explained), disruptions (4 items, 8.31% variance explained), parenting style (7 items, 7.57% variance explained), and involvement (6 items, 6.51% variance explained).

Correlations among the six subscales and between each subscale and the FMI scores indicated that positive tone, meaningful conversation, clear plan, and disruptions are moderately correlated with each other (.41–.69, $p < .01$) and highly correlated with the FMI scores (.67–.94, $p < .001$). Parenting style and involvement were not significantly correlated with any other subscales or with the FMI scores.

Positive tone, meaningful conversation, clear plan, disruptions, and FMI scores were significantly correlated with all MICS subscales (see Table 1). Higher ratings on the Q-sort were related to healthier functioning on the MICS. Parenting style and involvement were not significantly correlated with any of the MICS subscales. Significant negative correlations were found between the Disruptions subscale with multiple FAD subscales (e.g., Communication, Roles, Affective Involvement, General Functioning), indicating that positive Q-sort ratings were related to healthier functioning (see Table 1). There were no significant correlations with the FRQ.

The Q-sort demonstrated criterion validity with the BSI. Caregivers who scored above the clinical cutoff on the BSI total ($n = 22$) were rated significantly lower on the FMI score ($t = 3.22$, $p < .01$), positive tone ($t = 3.45$, $p < .01$), and disruptions ($t = 3.45$, $p < .001$).

Discussion

The Family Mealtime Q-Sort provides a promising methodology for examining mealtime practices. The results demonstrate that coders could rate family mealtimes with adequate interrater reliability, construct validity was satisfactory, and family mealtimes could be compared with an independently derived, culturally appropriate standard.

Providing an independent standard of an “optimal” mealtime using perspectives of academic and community panels is a significant contribution of the Q-sort, including confidence in its culturally relevance. Variability in measuring families against this standard supports the potential of the Q-sort to evaluate change in mealtime practices across time.

Another contribution of the Family Mealtime Q-Sort is the focus on meaningful conversation. Whereas many scales assessing family communication focus on direct versus indirect communication, the Meaningful Communication subscale includes items related to the messages being communicated. This subscale provides insight into what families say during mealtimes as well as how they say it.

The Disruptions subscale is significantly related to family and caregiver functioning as measured by the FAD and BSI. It comprises four items describing the number of disruptions and the family’s reaction. If no disruptions occur, reactions are coded as “neutral” or “not salient.” Factor loadings for this sample suggest that disruptions are viewed negatively, but when they do occur, families are not upset by them and regroup/adjust. This subscale may be a proxy for other family processes, such as organization and deliberateness; further examination is warranted.

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Although many of the dimensions of shared mealtimes are highly interrelated, two of the subscales, Parenting Style and Involvement, were not significantly related to other Q-sort subscales or the measures of functioning. These subscales have good face validity, are theoretically justified, and may be measuring concepts that are not captured elsewhere. The Parenting Style subscale primarily indicates parental control of mealtime behaviors and is conceptually related to parenting/feeding styles (Hurley, Black, Papas, & Caufield, 2008). The Involvement subscale seems to reflect how focused and committed the family is to spending quality time together during mealtimes. Additional study is important for understanding the processes that are being measured by these two subscales.

We offer several methodological considerations. The sample size for this study was small, on the basis of the intent to conduct preliminary evaluation of the Q-sort before using it in larger studies. We set our significance criterion in a conservative manner to detect large effects and might have missed some subtle relationships. Our data on interrater reliability suggest that some mealtime videos were easier to rate than others. We used .60 as the criterion to determine when to add a consensus rating but recommend a .70 in future research using the Q-sort.

Two issues affect generalizability of the findings. Family practices may be altered in families with a child with a chronic illness. However, the typical family in this sample had two to three children, only one of whom had asthma, so many interactions were with healthy children. We based our observations on one mealtime video. Setting up a camera in the home undoubtedly changed the “typical” family mealtime routine, although within the span of the average meal (15–20 min), we were able to observe ample behavior and interaction.

Additional research on the Q-sort is indicated, including collection and analysis of a larger sample of mealtime tapes to conduct confirmatory factor analysis, exploration of the meaning of the Parental Style and Involvement subscales, and determination of the instrument’s ability to detect change in family mealtime routines over time and in response to intervention. Having a measure with the potential to evaluate whether family mealtimes change and become closer to optimal will add to the tools available for family researchers.

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Table 1

Correlations Between Subscales/Family Mealtime Interaction Score With Other Family Measures

	Q-sort subscales						
Measure	**Positive tone**	**Meaningful conversation**	**Clear plan**	**Disruptions**	**Parenting style**	**Involvement**	**FMI**
MICS (*n* = 48)							
Task	.71***	.51***	.65***	.46**	.18	.04	.74***
Communication	.73***	.43**	.54***	.49***	.04	.06	.69***
Roles	.71***	.56***	.62***	.44**	.13	.01	.73***
Affective	.75***	.52***	.55***	.55***	.01	−.01	.74***
Involvement	.71***	.56***	.49***	.53***	.13	−.04	.72***
Behavior control	.70***	.41**	.57***	.43**	.13	−.02	.67***
General functioning	.71***	.40**	.54***	.46**	−.01	.01	.68***
FAD (*n* = 49)							
Problem solving	.18	−.06	.12	−.04	−.02	.04	.10
Communication	−.27	−.25	−.20	−.46***	−.17	.08	−.34
Roles	−.41**	−.19	−.20	−.38**	−.27	.06	−.39**
Affective responsiveness	.01	−.03	.11	−.06	−.09	.05	−.01
Affective involvement	−.35	−.15	−.19	−.39**	−.09	.10	−.34
Behavior control	−.27	−.17	−.27	−.31	.08	−.12	−.32
General functioning	−.31	−.27	−.18	−.42**	−.07	.09	−.36

Note. FMI = Family Mealtime Interaction; MICS = Mealtime Interaction Coding System; FAD = Family Assessment Device.

* $p < .01$.

** $p < .001$.

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Appendix

Family Mealtime Q-Sort

Family struggles to carry out this activity.	Mealtime is disorganized and chaotic.	Family members show warmth and affection.
The meal starts and ends without clear markers	Mealtime runs smoothly.	Family members show negative affect.
There are no issues about the quantity of food eaten.	Mealtime conversations involve easy give-and-take.	Family members all share in making mealtime work.
Poor manners are evident at the dinner table.	Family members get up and down during the meal.	Family members are critical of each other.
When children get out of line, parents pay no attention.	Everyone has a different idea about what they want to do.	Caregiver slaps, hits, shakes, or grabs their children during the meal.
Parent(s) controls what children eat.	Adult(s) are in charge at meals.	Family members do not share opinions.
Parent(s) praises children about their behavior during the meal.	Little detail about family members comes out during mealtime conversations.	Mealtime provides a relaxed, comfortable time for the family.
Parent(s) encourage children's participation.	One person keeps everyone on track	Family members are critical of each other.
Parent(s) makes negative comments to their children about their behavior.	Family members do not acknowledge each other's feelings.	Family is not very interactive, does not talk much to each other.
During meals, everyone knows what they need to do.	Family uses mealtime conversation stories to pass on information about the family's background.	There is tension at mealtimes.
Family members talk about what is important to them.	Family has special things they do during mealtimes.	Family members are upset when the or mealtime routine is disrupted.
Parent(s) cues/teaches children about appropriate mealtime behaviors.	Mealtime conversations include messages about what the family believes in or values.	Family members are good at listening to each other.
Family members show interest in other's views	Family follows a clear plan for mealtimes.	Family regroups/adjusts following disruptions.
Family enjoys their time together at mealtime	Family just gets through mealtime.	Family uses time together to make plans.
Family members show interest in being part the mealtime interaction.	Parent(s) pay more attention to family members during the meal than to other people or things in the environment.	Family discusses problems and how to deal with them.
Family members share experiences during mealtime.	Family ignores problems and conflicts that arise during the meal	Family does not negotiate disagreements that arise during the meal.
Family carries on a lively conversation.	Children are in charge at mealtime.	Family expresses conflict or disagreements.
Mealtime interactions involve humor and laughter.	Family follows rules at mealtime.	Family members don't get along with each other.
There are disruptions during the meal.		